Strategic Foresight

An Introductory Guide to Practice

Jan Oliver Schwarz

STRATEGIC FORESIGHT

Organisations today are being challenged to make sense of changes in environments that, now more than ever, are described as VUCA (volatile, uncertain, complex, and ambiguous). They are also being driven to understand how the future will evolve and what impact it will have not only on the organisations themselves but also on industries and societies. In recent decades a field has emerged to support organisations in addressing these challenges: strategic foresight.

This book is a comprehensive introduction to strategic foresight. It presents a history of the field and explains the main principles in thinking about the future. The book describes how organisations can apply strategic foresight and explains how it relates to other fields such as strategy, innovation, and leadership, highlighting the relevance of strategic foresight not only for organisations but also for individuals, particularly managers and leaders. Grounded in the theoretical foundations of strategic foresight, the book reflects the latest academic research and explores practical applications in different contexts. It draws on more than two decades of experience that the author has in the field as a researcher and as a consultant in the corporate context.

This is essential reading for managers and leaders of public and private organisations who want to establish strategic foresight practices, as well as students of foresight and managers in the fields of innovation, research & development, and marketing.

Jan Oliver Schwarz is a professor of Strategic Foresight and Trend Analysis and head of the Bavarian Foresight-Institute at the Technische Hochschule Ingolstadt. His academic and consulting work focuses on various aspects of strategic foresight.

STRATEGIC FORESIGHT

An Introductory Guide to Practice

Jan Oliver Schwarz

Routledge
Taylor & Francis Group
LONDON AND NEW YORK

Cover image: Getty Images / piranka

First published 2024
by Routledge
4 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge
605 Third Avenue, New York, NY 10158

Routledge is an imprint of the Taylor & Francis Group, an informa business

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library

Library of Congress Cataloging-in-Publication Data
Names: Schwarz, Jan Oliver, author.
Title: Strategic foresight : an introductory guide to practice / Jan Oliver Schwarz.
Description: Abingdon, Oxon ; New York, NY : Routledge, 2023. | Includes bibliographical references and index. |
Identifiers: LCCN 2022060536 (print) | LCCN 2022060537 (ebook) | ISBN 9781032299211 (hardback) | ISBN 9781032299235 (paperback) | ISBN 9781003302735 (ebook)
Subjects: LCSH: Strategic planning. | Organizational change.
Classification: LCC HD30.28 .S34798 2023 (print) | LCC HD30.28 (ebook) | DDC 658.4/012—dc23/eng/20230411
LC record available at https://lccn.loc.gov/2022060536
LC ebook record available at https://lccn.loc.gov/2022060537

ISBN: 978-1-032-29921-1 (hbk)
ISBN: 978-1-032-29923-5 (pbk)
ISBN: 978-1-003-30273-5 (ebk)

DOI: 10.4324/9781003302735

Typeset in Joanna
by codeMantra

CONTENTS

Preface vii

Introduction 1

Part I: Background to strategic foresight 9

1 **Historical development of strategic foresight** 11
By Theresa Schropp

2 **Thinking about the future** 20

Part II: Applications of strategic foresight 31

3 **Conceptualising strategic foresight** 33

4 **Weak signals and trends** 43

5 **Trend receiver** 63
By Rupert Hofmann

6 **The Delphi method: How experts see the future** 71
By Heiko von der Gracht

7 Scenario planning **85**

8 Futures literacy laboratories **95**
By Stefan Bergheim

9 Business wargaming **102**

10 Design thinking **114**

11 Transformation and open strategy **120**

12 Strategic foresight and its antecedents **126**

Part III: Strategic foresight in practice **139**

13 Strategic foresight: An emerging field **141**

14 Working with strategic foresight: Seven principles **151**

15 Conclusion **160**

Index 163

PREFACE

As a management student about two decades ago I found an advertisement for an internship in strategic foresight in the HR division of Deutsche Bank in Frankfurt, Germany. I applied for and accepted the internship. I cannot recall what initially drew me to this ad, but my fascination with strategic foresight has stayed with me ever since.

After this internship, I had the privilege to write my master's thesis and later my PhD dissertation under the supervision of Franz Liebl who had already done substantial work on strategic foresight, or *Strategische Frühaufklärung* in German. Completing a second master's degree in Futures Studies at the Institute for Futures Research at the University of Stellenbosch, South Africa only deepened my fascination with the topic.

I was fortunate to gain practical insights into applying strategic foresight. For instance, I conducted business wargames at the consulting firms Booz Allen Hamilton and A.T. Kearney and implemented strategic foresight at the insurance company Allianz SE; I also oversaw scenario planning projects at Decision Strategies International and the Institute for Innovation and Change Methodologies. What followed were many more engagements with organisations to help them develop foresight in many ways.

I have managed to keep a balance between these two elements, theory and practice, over the years and have found it extremely enriching to have theory inform practices and vice versa. My most recent appointment as a

professor of Strategic Foresight and Trend Analysis at the Technische Hochschule Ingolstadt, Germany, allows me to incorporate this combination of theory and practice even more into my teaching and research.

I have never lost my fascination with foresight. The future is a difficult topic to grasp, because it is not predictable. For this reason, we should not talk about 'the future' but of 'the futures', as there are several plausible ones. I will be using the term 'future' in this book in light of this assessment.

However, just as the future is not predetermined, it can be changed. This is true for us as individuals but of course also for organisations. Further, in every decision we make as individuals or as organisation, we anticipate the future. In other words, dealing with the future is essential for individuals and organisations alike. In the end, we will spend the rest of our lives in the future.

In this book, I do not attempt to cover everything that there is to know about foresight; I present my perspective on this field, reflecting my work on theory and practice. Admittedly, there are also other books (e.g. Bishop and Hines 2012; Hines and Bishop 2015; Lustig 2015; Gidley 2017; Poli 2019; De Toni, Siagri, and Battistella 2020; Slaughter 2020) that are introductions to foresight. However, I hope that this book provides a useful overview on strategic foresight from the perspective of theory and practice. I believe that this is essential because theory allows us to understand the mechanics of strategic foresight and to reflect our practice, but foremost, we can learn from theory how to rise to the challenges of using strategic foresight by learning from others.

For whom is this book? This book is intended for practitioners who want to make a difference by implementing strategic foresight in a sustainable way in their organisation. Further, this book is suited for anyone who is interested in gaining a solid understanding of strategic foresight.

Jan Oliver Schwarz
Munich, Germany, 2022

References

Bishop, P., and A. Hines. 2012. *Teaching about the Future*. London: Palgrave Macmillan.

De Toni, A. F., R. Siagri, and C. Battistella. 2020. London: *Corporate Foresight: Anticipating the Future*. Taylor & Francis.

Gidley, J. 2017. *The Future: A Very Short Introduction*. Oxford: Oxford University Press.

Hines, A., and P. Bishop. 2015. *Thinking about the Future: Guidelines for Strategic Foresight*. Houston: Social Technologies.

Lustig, P. 2015. *Strategic Foresight: Learning from the Future*. Axminster: Triarchy Press.

Poli, R. 2019. *Working with the Future. Ideas and Tools to Govern Uncertainty*. Milano: Bocconi University Press.

Slaughter, R. 2020. *The Knowledge Base of Futures Studies 2020*. Washington: Association of Professional Futurists.

INTRODUCTION

For decades, scholars, managers, and students have discussed the rapidly changing business environment and the associated notion of complexity, ambiguity, or the uncertainty concerning, for instance, the future. Indeed, this description of the business environment is not new. Over half a century ago the argument has been made that the 'age of discontinuity' has already begun (Drucker 1969), and that change is occurring more rapidly than in the past. The situation in which organisations find themselves was later described as 'the mess' (Ackoff 1981), perceived by organisations as the future implied by their own behaviour and that of their environment.

Organisations today face a more complex and dynamic environment than ever, one that is characterised by discontinuities and an uncertain future – a state that is most likely to continue. The major task for managers today is to make decisions, and then formulate and execute strategic management systems in that environment. It is obvious that the imperative of 'predict and prepare', as the foundation of the neoclassical school of management (Gharajedaghi 1999), is no longer appropriate for organisations.

DOI: 10.4324/9781003302735-1

The financial crises in 2008, the COVID-19 pandemic, and most recently the war in Ukraine underline the notion that organisations are faced with a VUCA (volatile, uncertain, complex, and ambiguous) environment. The acronym is now used to frame the challenges that organisations face. Ramirez and Wilkinson (2016) have coined the acronym TUNA (turbulence, uncertainty, novelty, and ambiguity), suggesting that we have already moved beyond VUCA in terms of increasing uncertainty and dynamics in the business environment. Overall, the argument is being made that companies need to be more vigilant and that strategic foresight is part of this effort (Day and Schoemaker 2019).

A way of observing VUCA is to pay attention to the trends and issues in the environment of an organisation. Liebl and Schwarz (2010) introduce what they call the entrepreneurial view on strategy which draws on three generic sources for the formulation of strategic options:

- The customers and their 'worlds', for example, their knowledge, imaginings, perceptions, and experiences
- The resources and competences of the focal company
- The trends and issues in a company's environment (e.g., the future of an industry)

Each of these areas can inspire strategy formulation; however, every option created from one source has to be tested against the other two (Liebl 2004).

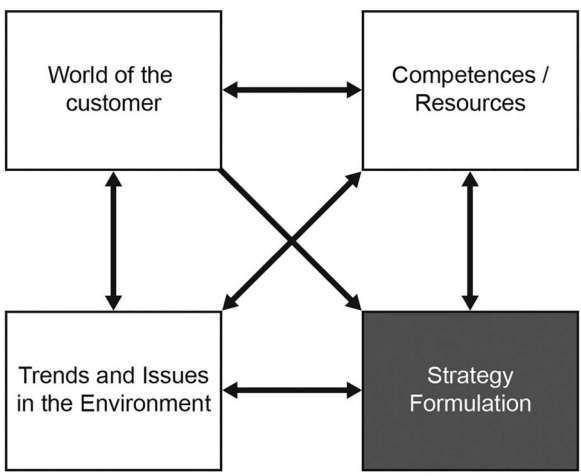

Figure I.1 The entrepreneurial view on strategy.

New offerings based on a firm's competences are meaningful only if they are perceived and valued as beneficial by the customers. Conversely, ideas about how to gain competitive advantage from the viewpoint of a customer must be realistic with respect to a company's resources and competences. Further, trends and issues in the business environment are not important in themselves. They can only be meaningfully interpreted and assessed if their implications for the customers' worlds – and accordingly, for customer behaviour – are considered. Conversely, ideas about how to gain competitive advantage from the viewpoint of a customer must be tested against the trends in the socio-political, socio-cultural, environmental, economic, or technological environments, as these may represent drivers of change in the future. In addition, a firm's resources and competences may need to be re-evaluated due to emerging trends and issues (Liebl 2002).

In light of the COVID-19 pandemic, the relevance of developing foresight has been reemphasised (Scoblic 2020). However, in the past (Hamel and Prahalad 1994; Courtney 2001) the relevance of foresight has been underlined, for instance, in the context of strategy. The main claim in this context is that organisations need to develop foresight to compete for the future and be a viable part of the future.

But what is foresight? The following definition guides this book:

> Corporate foresight is identifying, observing and interpreting factors that induce change, determining possible organization-specific implications, and triggering appropriate organizational responses. Corporate foresight involves multiple stakeholders and creates value through providing access to critical resources ahead of competition, preparing the organization for change, and permitting the organization to steer proactively towards a desired future.
>
> *(Rohrbeck, Battistella, and Huizingh 2015: 2)*

This definition has the advantage of focusing not only on perceiving changes in the business environment, in the form of weak signals and trends, but that it also emphasises the relevance of deciphering how these changes might develop into the future (prospecting) and how organisations need to change to address the insights derived from perceiving and prospecting. Later it allows us to discuss foresight in the context of change management (Kotter 2012, 2014).

In discussing the relationship between foresight and change, turning to the case of Kodak is insightful. Often the downfall of iconic brand Kodak

is associated with the inability of the company to have recognised the rising trend of digital photography. Actually, the opposite is true. Kodak was one of the first firms to file patents for digital photography. However, the organisation failed to transform itself from a high-margin film-producing company to a low-margin digital equipment company (Krupp and Schoemaker 2014; Agarwal and Satish 2021). Similar perspective can be taken on the decline of the Encyclopaedia Britannica (Greenstein 2017). What this implies is that foresight is not enough to have an impact, foresight needs to be also perceived in the context of transforming an organisation or as part of a change journey.

Further, I perceive foresight as an activity which is predominantly geared towards the long term. This allows us to conceptualise foresight as an activity which can be perceived as strategic. I hereby emphasise the following definition of strategy: 'Strategy is the direction and scope of an organization over the long term, which achieves advantage in a changing environment through its configuration of resources and competences with the aim of fulfilling stakeholder expectations' (Johnson, Scholes, and Whittington 2006: 3).

Therefore, the argument can be made that the terms 'foresight' or 'strategic foresight' can be used interchangeably. I will continue to use the term 'strategic foresight' to emphasise the strategic nature of foresight. While the above definition centres on the application of foresight in a corporate setting, this definition can also be perceived as being relevant to other forms of organisations. However, while also mentioning the relevance of foresight for different types of organisations, this book will focus on the application of foresight in the corporate context, also emphasising the relevance of corporate foresight for strategy and management (Fergnani 2022).

In this book, I discuss three dimensions of foresight:

1. Individual mindset to develop foresight
2. Tools to develop strategic foresight
3. Processes to develop strategic foresight which may be a combination of tools

In considering the tools used in strategic foresight, I will be combining tools from different fields, also acknowledging that these might have developed from other fields and/or before foresight as a field has emerged, or

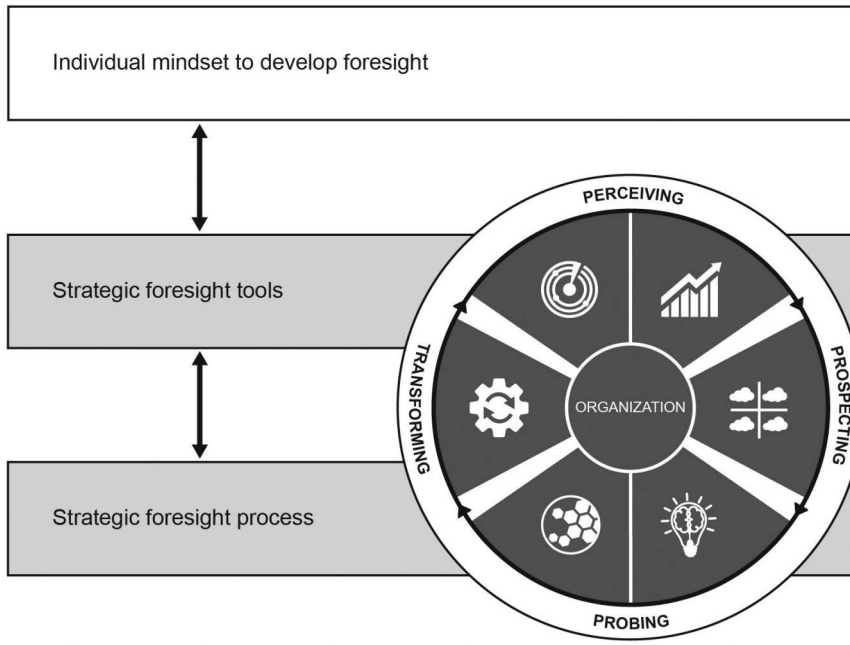

Figure I.2 Three dimensions of strategic foresight.

in parallel. In this respect to tools one would refer, for instance, to scenario planning (Schoemaker 1995; Wilkinson and Kupers 2013), trends and weak signals (Ansoff 1975; Liebl and Schwarz 2010), the Delphi method (Linstone and Turoff 1975; von der Gracht 2012), or business wargaming (Schwarz 2009; Oriesek and Schwarz 2020). But other fields such as strategic issue management (Ansoff 1980) or competitive intelligence (Gilad 2004; Fuld 2006) have also contributed to our understanding of strategic foresight.

Following the three dimensions of strategic foresight, the book has this structure (see Figure I.3): Part I presents a historical overview of the development of strategic foresight and reflects the cognitive aspects of thinking about the future. Part II describes the process of strategic foresight in more detail. This discussion both explains how foresight is connected to other fields and how strategic foresight can be connected to generate valuable input. Part III concludes the book with a discussion of the practical challenges of applying strategic foresight.

Figure I.3 Structure of the book.

References

Ackoff, R. L. 1981. *Creating the Corporate Future – Plan or Be Planned For.* New York: John Wiley & Sons.

Agarwal, M., and D. Satish. 2012. *Rise and Fall of Kodak*. Hyderabad: IBS Center for Management Research.

Ansoff, H. I. 1980. "Strategic Issue Management." *Strategic Management Journal* 1 (2): 131–148.

Ansoff, I. H. 1975. "Managing Strategic Surprise by Response to Weak Signals." *California Management Review* 18 (2): 21–33.

Courtney, H. 2001. *20/20 Foresight: Crafting Strategy in an Uncertain World*. Boston: Harvard Business School Publishing.

Day, G. S., and P. J. H. Schoemaker. 2019. *See Sooner, Act Faster: How Vigilant Leaders Thrive in an Era of Digital Turbulence*. Management on the Cutting Edge. Cambridge: MIT Press.

Drucker, P. F. 1969. *The Age of Discontinuity: Guidelines to Our Changing Society*. London: Heinemann.

Fergnani, A. 2022. "Corporate Foresight: A New Frontier for Strategy and Management." *Academy of Management Perspectives* 36 (2): 820–844.

Fuld, L. 2006. *The Secret Language of Competitive Intelligence*. New York: Crown Business.

Gharajedaghi, J. 1999. *Systems Thinking*. Boston: Butterworth Heinemann.

Gilad, B. 2004. *Early Warning: Using Competitive Intelleignce to Anticipate Market Shifts, Control Risk, and Create Powerful Strategies*. New York: AMACOM.

Greenstein, S. 2017. "The Reference Wars: Encyclopædia Britannica's Decline and Encarta's Emergence." *Strategic Management Journal* 38 (5): 995–1017. https://doi.org/10.1002/smj.2552.

Hamel, G., and C. K. Prahalad. 1994. *Competing for the Future*. Boston: Harvard Business School Press.

Johnson, G., K. Scholes, and R. Whittington. 2006. *Exploring Corporate Strategy*. Harlow: FT Prentice Hall.

Kotter, J. P. 2012. *Leading Change*. Boston: Harvard Business Review Press.

———. 2014. *Accelerate: Building Strategic Agility for a Faster-Moving World*. Boston: Harvard Business Review Press.

Krupp, S., and P. J. H. Schoemaker. 2014. *Winning the Long Game: How Strategic Leaders Shape the Future*. New York: Public Affairs.

Liebl, F. 2002. "The Anatomy of Complex Societal Problems and Its Implications for OR." *Journal of the Operational Research Society* 53 (2): 161–184.

———. 2004. "Knowledge Management for Strategic Marketing." In *Developments in Marketing Science XXVII, Proceedings of the Annual Conference of the Academy of Marketing Science*, edited by H. E. Spotts, 48–57. Coral Gables: Springer.

Liebl, F., and J. O. Schwarz. 2010. "Normality of the Future: Trend Diagnosis for Strategic Foresight." *Futures* 42 (4): 313–327.

Linstone, H. A., and M. Turoff. 1975. "Evaluation: Introduction." In *The Delphi Method: Techniques and Applications*, edited by H. A. Linstone and M. Turoff, 229–235. Reading: Addison-Wesley Publishing.

Oriesek, D. F., and J. O. Schwarz. 2020. *Winning the Uncertainty Game: Turning Strategic Intent into Results with Wargaming*. London: Taylor & Francis.

Ramirez, R., and A. Wilkinson. 2016. *Strategic Reframing: The Oxford Scenario Planning Approach*. Oxford: Oxford Publishing.

Rohrbeck, R., C. Battistella, and E. Huizingh. 2015. "Corporate Foresight: An Emerging Field with a Rich Tradition." *Technological Forecasting and Social Change* 101 (December): 1–9. https://doi.org/10.1016/j.techfore.2015.11.002.

Schoemaker, P. 1995. "Scenario Planning : A Tool for Strategic Thinking." *Sloan Management Review* 36 (2): 25–40. https://doi.org/10.1016/0024-6301(95)91604-0.

Schwarz, J. O. 2009. "Business Wargaming: Developing Foresight within a Strategic Simulation." *Technological Analysis and Strategic Management* 21 (3): 291–305.

Scoblic, J. P. 2020. "Learning from the Future." *Harvard Business Review* (July–August), https://hbr.org/2020/07/learning-from-the-future.

von der Gracht, H. A. 2012. "Consensus Measurement in Delphi Studies. Review and Implications for Future Quality Assurance." *Technological Forecasting and Social Change* 79 (8): 1525–1536. https://doi.org/10.1016/j.techfore.2012.04.013.

Wilkinson, A., and R. Kupers. 2013. "Living in the Futures." *Harvard Business Review* (May), https://hbr.org/2013/05/living-in-the-futures.

Part I

BACKGROUND TO STRATEGIC FORESIGHT

1

HISTORICAL DEVELOPMENT OF STRATEGIC FORESIGHT

Theresa Schropp[1]

Dealing with the future is probably one of the greatest challenges to individuals and corporations alike, as it is easier to understand the future when it has arrived in the present (Schwarz 2009). However, managers and employees have to make future-related decisions before they know what the future holds.

For over five decades, and in view of a VUCA-environment, managers and researchers alike are considering the question of how corporates can manage for today and still prepare for tomorrow (Liebl and Schwarz 2010). This is shown by the tremendous interest of researchers, elaborating on ideas and measurements to act upon an unpredictable future. In this regard and even though the term 'strategic foresight' has not been coined until the late 1990s (e.g., Slaughter 1999), scientific literature has already discussed foresight-related management tools and concepts like 'environmental scanning' and 'early warning' much earlier (e.g., Aguilar 1967; Ansoff 1975).

DOI: 10.4324/9781003302735-3

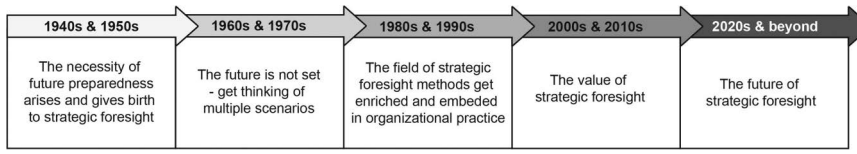

Figure 1.1 History of strategic foresight.

Based on studies from different researchers (e.g., Rohrbeck, Battistella, and Huizingh 2015; Fergnani 2019, 2020; Gordon, Ramic, Rohrbeck, and Spaniol 2020), it is possible to define and assign research themes to five phases.

The following section offers a more detailed review of each of these phases, highlighting their most striking developments, the practical application, and the research of strategic foresight.

1.1 The 1940s and 1950s: The necessity of future preparedness arises and gives birth to strategic foresight

The starting point of the foresight discipline is unknown, as humanity has always thought about the future. Nevertheless, researchers agree on the emergence of foresight in the context of World War II and the U.S. military's forecasting practices (Hines 2020). These activities, however, focused on the military and should thus not be equated with strategic foresight in a corporate environment. Project RAND, and its offspring the foresight school, as well as the French prospective school can be considered as the two roots of strategic foresight, instead (Rohrbeck, Battistella, and Huizingh 2015). The two schools, however, differ in their fundamental philosophy.

Triggered by the impressions of World War II and the assumption that R&D activities, collaboration of military, government agencies, industries, and universities will matter in terms of future wars and conflicts, Project RAND was initiated immediately after the war. Project RAND, a kind of an external think tank, brought together expert opinions, refined the Delphi technique, and set the foundation for the institutionalisation of foresight, as with the establishment of the foresight school based on the work of Herman Kahn, a member of Project RAND (Rohrbeck, Battistella, and Huizingh 2015; Hines 2020). The foresight school proposed sophisticated methods, with a strong focus on the Delphi technique as well as on the engagement of experts (Rohrbeck, Battistella, and Huizingh 2015).

In addition to Project RAND, the French prospective school, founded by Gaston Berger, is the second root of strategic foresight. Berger stressed inclusion of and collaboration among diverse actors (Rohrbeck, Battistella, and Huizingh 2015). In contrast to Project RAND, the French prospective school does not focus on R&D activities and the military, but on corporate decision-making (Rohrbeck, Battistella, and Huizingh 2015). According to Rohrbeck, Battistella, and Huizingh (2015), Berger's methods are designed as workshops where systems-thinking is collaboratively performed. They further facilitate joint reflection, decision-making, and "future-oriented sensemaking" (Rohrbeck, Battistella, and Huizingh 2015:3). Additionally, Berger has introduced a premise of the foresight discipline in his research: the idea of desired ends that facilitate planning, leading, and steering towards desired futures (Rohrbeck, Battistella, and Huizingh 2015). This assumption is related to the scenario planning approach developed in the next phase.

1.2 The 1960s and 1970s: The future is not set – get thinking of multiple scenarios

With the 1960s and 1970s, foresight practices became embedded in the operational practice of corporations and the discipline of corporate foresight emerged. Practitioners, however, applied linear models since the environment was perceived as stable (Rohrbeck, Battistella, and Huizingh 2015). At the same time, they recognised that their forecasts lacked accuracy and thus were no longer sufficient to perform planning in a more complex and competitive marketplace (Rohrbeck, Battistella, and Huizingh 2015).

This changed perception initiated the development of more extensive and holistic foresight methods that consider not only technological factors but also socio-political, economic, and other external factors (Gordon, Ramic, Rohrbeck, and Spaniol 2020). And as corporations discerned that their traditional forecasting methods, often based on the assumption that the future is simply a replication of the past, no longer put forward meaningful and sufficient results, they became receptive to new methods (Gordon, Ramic, Rohrbeck, and Spaniol 2020). The scenario planning approach thus entered the corporate foresight field (Rohrbeck, Battistella, and Huizingh 2015).

One of the most prominent examples of scenario planning in a corporate setting is that of Royal Dutch/Shell. This programme brought forward multiple plausible scenarios, serving as a foundation for internal discussion

on the future (Rohrbeck, Battistella, and Huizingh 2015). As Shell's application of scenario planning was a proof of concept, other firms implemented this technique in addition to their traditional business and corporate planning systems (Rohrbeck, Battistella, and Huizingh 2015). Since then, scenario planning has become one of the most popular and most powerful strategic foresight methods, frequently applied and discussed until today.

Research work conducted in the 1960s and 1970s mirrors the changing perception on forecasting methods. Consequently, researchers discussed the failure to integrate strategic issues into traditional, technology-focused forecasting (e.g., Swager 1972) and how these strings could be woven even more closely together. The process and the result of technology forecasting were thus transferred into questions on organisational, sales, and venture planning and intertwined with decision-making (Gordon, Ramic, Rohrbeck, and Spaniol 2020). With the greater variety of application areas and environmental complexity, researchers discussed the need to include other external aspects, besides technology trends, in strategic planning (Gordon, Ramic, Rohrbeck, and Spaniol 2020).

1.3 The 1980s and 1990s: The field of strategic foresight methods get enriched and embedded in organisational practice

Driven by the increase of uncertainty, dynamics, complexity, and ambiguity and by the challenges of globalised markets, the strategic importance of foresight practice became acknowledged in the 1980s and 1990s (Rohrbeck, Battistella, and Huizingh 2015). To stay competitive, firms integrated foresight into their operational practice and the application area of foresight procedures was extended. In other words, strategic foresight was no longer restricted to support decision-making but also of increased importance to innovation management (Rohrbeck, Battistella, and Huizingh 2015). Think tanks, supposed to inform the strategy department or drive innovation, were established in large corporations such as Daimler or Deutsche Bank (Rohrbeck, Battistella, and Huizingh 2015).

Furthermore, and in light of uncertain, dynamic, and more complex markets, continuous foresight practices, such as environmental scanning, were implemented (Rohrbeck, Battistella, and Huizingh 2015). These developments mark a turning point of the strategic foresight discipline, as

foresight projects were performed on a large scale and with long pauses of several months to years before (Rohrbeck, Battistella, and Huizingh 2015).

The 1980s and 1990s were characterised by an extension of foresight application areas and by an enrichment of foresight methods (Rohrbeck, Battistella, and Huizingh 2015). Consequently, other techniques, such as technology roadmapping, were integrated into the foresight practice, a development that has continued.

Scientific literature of the 1980s and 1990s is concerned with the characteristics of the VUCA-world, supporting the findings made in the previous phase that traditional, linear forecasting methods are inappropriate for planning in view of uncertainty (e.g., Mahajan and Wind 1989). In this regard, researchers discussed how a firm's innovative strength and competitiveness could be improved by integrating foresight methods (e.g., signal scanning) (Gordon, Ramic, Rohrbeck, and Spaniol 2020).

1.4 The 2000s and 2010s: The value of strategic foresight

Since 2000, the integration and the interdisciplinarity of foresight practices in corporations have become embedded into organisational routines (Rohrbeck, Battistella, and Huizingh 2015). At the same time, Rohrbeck's study (2010) on the foresight maturity of companies reveals that companies still struggle in translating their future insights into strategic measures. According to Rohrbeck, Battistella, and Huizingh (2015), this situation can be explained by two phenomena. On the one hand, foresight processes generate a vast amount of information that must be interpreted by knowledgeable staff, ideally by top management. On the other hand, managers often lack the time to analyse these insights.

Both foresight practitioners and researchers have raised the question of how foresight practices and insights could be integrated into corporations (Rohrbeck, Battistella, and Huizingh 2015). As early as the 1990s, the foresight research was still concerned with the integration of technology roadmapping in strategic and business-related procedures (Gordon, Ramic, Rohrbeck, and Spaniol 2020). The scientific literature discusses how scanning, communication, and knowledge management could be structurally integrated into strategic planning (Gordon, Ramic, Rohrbeck, and Spaniol 2020).

Rohrbeck, Battistella, and Huizingh (2015) suggest assigning an orchestrator role to leverage the sensing, interpretation, and planning capabilities performed by and allocated to different corporate functions (e.g., R&D, innovation management, strategy, or risk management).

Furthermore, literature reviews indicate that research still lacks an empirical and quantitative prove of the actual value contribution (Iden, Methlie, and Christensen 2017; Marinković, Al-Tabbaa, Khan, and Wu 2022). This statement, however, only partially holds true, as researchers (e.g., Rohrbeck and Schwarz 2013; Jissink, Huizingh, and Rohrbeck 2014, 2015; Paliokaite and Pačesa 2015; Rohrbeck and Kum 2018) have demonstrated the positive effects of foresight in a corporate setting. Nonetheless, more theoretical underpinnings of strategic foresight's positive influence are required not only to improve the standing of foresight in science but also to underscore its importance for corporate application.

This leads to the last phase that should not be omitted, as foresight is concerned with the future – *the future of strategic foresight*.

1.5 The 2020s and beyond: The future of strategic foresight

Strategic foresight has become an individual, separate research stream and is, according to Fergnani (2019), the biggest research stream of the foresight discipline. As strategic foresight is gaining more attention the question is, where the strategic foresight stream might develop, which research themes are still untapped, and how strategic foresight will be embedded in the organisational setting.

It can therefore be said that strategic foresight has gained momentum. The challenges that individuals, society, governments, and corporates face have underscored the importance of foresight and its application. This awareness may result in an implementation wave, where many corporates establish strategic foresight routines. At the same time, many firms, and especially SMEs, experience difficulties in performing foresight successfully (Iden, Methlie, and Christensen 2017). This observation raises questions on how SMEs that often lack financial and human resources can be supported in conducting foresight, how the corporate culture and leadership should ideally look to foster a sufficient 'foresight-climate', and what foresight tools offer the greatest benefit.

In addition, technological advancements and digitalisation drive the generation of big data that serve as a data basis for artificial intelligence (AI)-based foresight tools. AI, thereby, might help organisations by detecting weak signals sooner or by improving corporate sensemaking capacities.

Based on this application-related considerations on the future of strategic foresight, several research trajectories can be identified. Future foresight research might grapple with the question of which factors drive the implementation and application of foresight in a corporate setting (Gordon, Ramic, Rohrbeck, and Spaniol 2020). Moreover, and as a logical consequence of technological advancements and the digitalisation, future foresight research probably also deals with the question on how new technologies like AI will affect foresight methods and processes. Fergnani and Chermack (2021) state that there is more demand for theoretical underpinning of the strategic foresight discipline that was rather application-oriented in the past. In addition, strategy-related research increasingly returns to the concept of dynamic capabilities (see Teece, Pisano, and Shuen 1997), instead of to the traditional resource-based theory. With this change, there is more research to be conducted on strategic foresight as a dynamic capability (Fergnani 2020; Marinković, Al-Tabbaa, Khan, and Wu 2022).

Another future research trajectory is concerned with the cognition of individuals and organisations, and its connection to future thinking. In this regard, there is a need for aligning the strategic foresight community in its perception of what 'future skills' a good foresight practitioner must possess.

Note

1 Theresa Schropp has a master's degree in International Business Development from the ESB Business School, Reutlingen. In 2022, she started her current position as research fellow at the Bavarian Foresight-Institute of Technische Hochschule Ingolstadt where she performs research on corporate foresight.

References

Aguilar, F. 1967. *Scanning the Business Environment. Studies of the Modern Corporation*. New York: Macmillan.

Ansoff, H. I. 1975. "Managing Strategic Surprise by Response to Weak Signals." *California Management Review* 18 (2): 21–33. https://doi.org/10.2307/41164635.

Fergnani, A. 2019. "Mapping Futures Studies Scholarship from 1968 to Present: A Bibliometric Review of Thematic Clusters, Research Trends, and Research Gaps." *Futures* 105: 104–123. https://doi.org/10.1016/j.futures.2018.09.007.

———. 2020. "Corporate Foresight: A New Frontier for Strategy and Management." *Academy of Management Perspectives* 36 (2): 820–844. https://doi.org/10.5465/amp.2018.0178.

Fergnani, A., and T. J. Chermack. 2021. "The Resistance to Scientific Theory in Futures and Foresight, and What to Do about It." *Futures & Foresight Science* 3 (3–4): e61. https://doi.org/10.1002/ffo2.61.

Gordon, A. V., M. Ramic, R. Rohrbeck, and M. J. Spaniol. 2020. "50 Years of Corporate and Organizational Foresight: Looking Back and Going Forward." *Technological Forecasting and Social Change* 154. https://doi.org/10.1016/j.techfore.2020.119966.

Hines, A. 2020. "When Did It Start? Origin of the Foresight Field." *World Futures Review* 12 (1): 4–11. https://doi.org/10.1177/1946756719889053.

Iden, J., L. B. Methlie, and G. E. Christensen. 2017. "The Nature of Strategic Foresight Research: A Systematic Literature Review." *Technological Forecasting and Social Change* 116: 87–97. https://doi.org/10.1016/j.techfore.2016.11.002.

Jissink, T., E. K. Huizingh, and R. Rohrbeck. 2014. *Corporate Foresight: Antecedents and Contributions to Innovation Performance*. https://pure.au.dk/portal/en/publications/corporate-foresight-antecedents-and-contributions-to-innovation-performance(ae3cf14d-a749-4d3a-8684-66ab9313d016).html.

———. 2015. "Corporate Foresight and Performance: A Chain-of-Effects Model." *Corporate Foresight and Performance: A Chain-of-Effects Model*. https://pure.au.dk/portal/en/publications/corporate-foresight-and-performance-a-chainofeffects-model(739ff02d-ba51-4cf6-acdb-52efa842d6ac).html.

Liebl, F., and J. O. Schwarz. 2010. "Normality of the Future: Trend Diagnosis for Strategic Foresight." *Futures* 42 (4): 313–327.

Mahajan, V., and J. Wind. 1989. "Market discontinuities and strategic planning: a research agenda." *Technological Forecastasting and Social Change* 36 (1–2): 185–199. https://doi.org/10.1016/0040-1625(89)90023-1.

Marinković, M., O. Al-Tabbaa, Z. Khan, and J. Wu. 2022. "Corporate Foresight: A Systematic Literature Review and Future Research Trajectories." *Journal of Business Research* 144: 289–311. https://doi.org/10.1016/j.jbusres.2022.01.097.

Paliokaite, A., and N. Pačesa. 2015. "The Relationship between Organisational Foresight and Organisational Ambidexterity." *Technological Forecasting and Social Change* 101: 165–181. https://doi.org/10.1016/j.techfore.2014.03.004.

Rohrbeck, R. 2010. *Corporate Foresight: Towards a Maturity Model for the Future Orientation of a Firm*. Physica-Verlag.

Rohrbeck, R., C. Battistella, and E. Huizingh. 2015. "Corporate Foresight: An Emerging Field with a Rich Tradition." *Technological Forecasting and Social Change* 101: 1–9. https://doi.org/10.1016/j.techfore.2015.11.002.

Rohrbeck, R., and J. O. Schwarz. 2013. "The Value Contribution of Strategic Foresight: Insights from an Empirical Study of Large European Companies." *Technological Forecasting and Social Change* 80(8): 1593–1606. https://doi.org/10.1016/j.techfore.2013.01.004.

Rohrbeck, R., and M. E. Kum. 2018. "Corporate Foresight and Its Impact on Firm Performance: A Longitudinal Analysis." *Technological Forecasting and Social Change* 129: 105–116. https://doi.org/10.1016/j.techfore.2017.12.013.

Schwarz, J. O. 2009. "The Symbolism of Foresight Processes in Organizations." In *Handbook of Research on Strategy and Foresight*, edited by L. A. Costanzo and R. B. MacKay, 82–89. Edward Elgar Publishing Limited.

Slaughter, R. A. 1999. "A New Framework for Environmental Scanning." *Foresight* 1 (5): 441–451. https://doi.org/10.1108/14636689910802331.

Swager, W. L. 1972. "Strategic Planning I: The Roles of Technological Forecasting." *Technological Forecasting and Social Change* 4(1): 85–99. https://doi.org/10.1016/0040-1625(72)90049-2.

Teece, D. J., G. Pisano, and A. Shuen. 1997. "Dynamic Capabilities and Strategic Management." *Strategic Management Journal* 18 (7): 509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z.

2

THINKING ABOUT THE FUTURE

Here, I discuss not only the challenges for individuals in thinking about the future but also the relevance of thinking about the future for organisations. It has been argued that the attitude towards the future of an individual determines how the present and the past are defined (Rappaport 1991). The human capacity to imagine future outcomes and to devise the means to handle them are a basic human capacity (Reading 2004). Cognitive activities can be perceived as based upon concepts of the future (Ingvar 1985). Overall, foresight has been perceived as an ongoing cognitive activity (de Jouvenel 1967).

In the context of foresight, one finds the assumption that the future cannot be predicted. Part of this argument is that there is no such thing as a single future. Rather, one would need to refer to futures, as we need to admit that the future is not yet predetermined. However, one can argue that the predictability of the future is related to what one is trying to predict, how far into the future, and under what circumstances (Tetlock and Gardner 2015). This might imply that a temporary prediction in a narrow

DOI: 10.4324/9781003302735-4

setting might be possible, but not for longer time periods in complex settings.

Turning to the individual level also allows a better understanding of the possible challenges to organisations in developing foresight. To reemphasise this, the connection between the individual capacity to think about the future and the linkage to an organisation, I refer to the perception that psychiatric disorders can be used to describe organisational disorders (Kets de Vries and Miller 1984, 1986). Kets de Vries (2004: 184) states that when looking at organisations, the field of psychology can be very helpful: 'Rejecting a psychoanalytical informed approach to studying human issues is a mistake, plain and simple. After all, it is individuals that make up organisations and create the units that contribute to social process'. Before discussing time and the inner future, from the perspective of psychiatry and psychotherapy, I will discuss cognitive barriers to developing foresight.

2.1 Cognitive barriers to developing foresight

Several authors have pointed to cognitive barriers as the cause of failures in developing foresight and one of the great challenges in developing foresight (e.g., de Geus 1997; Bazerman and Watkins 2004; Day and Schoemaker 2004; MacKay and McKiernan 2004; Seidl and van Aaken 2004). Organisations often fail to perceive weak signals of change or trends because they do not fit the mental models of the individual members of these organisations and are, therefore, rejected. According to Senge (1990: 8), mental models can be defined as 'deeply ingrained assumptions, generalisations, or even pictures or images that influence how we understand the world and how we take action'.

Day and Schoemaker (2006: 37) describe obstacles to developing foresight as the 'powerful tendency to ignore warning signals and pretend that all is well. The more intelligent we are, the better we also are at rationalizing away important signals of impending doom'. The relevance of cognitive barriers in foresight is also underscored by the notion that cognitive activities are based upon concepts of the future (Ingvar 1985) and that humans can only imagine the future in ways which are related to how the past has been experienced and understood (Reading 2004).

Understanding how cognitive factors can interfere with developing foresight is crucial. Day and Schoemaker (2004: 138) identify the following cognitive barriers:

- '*Mental filters*: Research shows that people tend to force the world into their own frames. Weak signals that do not fit are distorted or ignored. Humans see what they expect to see, not necessarily what is there.
- *Overconfidence*: A demonstrated tendency to be too certain makes people tend to believe that the view they hold is correct.
- *Penchant for confirming as opposed to disconfirming evidence*: It is more difficult to detect disconfirming evidence than confirming evidence, so the mind is more likely to accept than to reject an idea.
- *Dislike for ambiguity*: People dislike ambiguity, particularly in organisations in which managers are expected to have answers to questions.
- *Groupthink*: Members of organisations take comfort from belonging to the majority and seeing the world in the same way, so there is a tendency to go along with what others say, rather than to use an individual mind to find flaws in the group's thinking'.

2.2 Cognitive aspects of thinking about the future

Thinking about and dealing with the future is an important activity for organisations and for humans (Lombardo 2006). As Melges (1982: 34) points out: 'Many forms of mental illness are characterized by a bleak, foreshortened or fragmented future time perspective'. He argues that the importance of time distortions in psychiatric illness is that they can cloud the future of an individual and distort their view of that future, thereby disrupting goal-directed behaviour. While emphasising the importance of considering the future when attempting to understand human behaviour, Melges (1982: XX) states:

> I believe that the effect of the personal future on the present has to be added to the traditional psychiatric approaches of the effect of the past on the present. In particular, it appears that how a person conducts his outlook on his personal future determines, in large measure, the time patterns of his life and the ways in which he derives meaning from life.

Melges (1982) conceptualised the inner future of an individual as follows:

1. Humans are goal-directed organisms.
2. A person attempts to gain control over his own future through an interplay of future images, plans of action, and emotions.
3. Distortions of psychological time disrupt a person's sense of control over the future and can lead to psychological vicious cycles.
4. Correction of time distortions and the harmonisation of future images, plans of action, and emotions restore a sense of control over the personal future.

Melges (1982) refers to spirals when the future becomes clouded, inducing a vicious cycle, since the individual's goal-directed behaviour becomes impaired. This situation may lead to a progressive mismatch between future images, plans of action, and emotion and to a lack of control over the future. It is possible to argue that argue the future is dynamically active and enables individuals to be proactive, rather than being reactive (de Jouvenel 1967; Melges 1982; Ingvar 1985).

2.3 Enabling futures thinking

On the one hand, the discussion allows us to understand the relevance of assessing how individuals think about the future; it also points out to the danger when organisational leaders have psychiatric disorders such as schizophrenia, paranoia, and depression (Schwarz 2007) and what the effects on the organisation could be. On the other hand, this discussion allows the identification of approaches to enable futures thinking on an individual level which of course also has organisational implications.

Melges (1982: XXI) suggests that

> the restoration of control over the personal future can be accomplished through the correction of time distortions and the harmonisation of future images, plans of action, and emotions. The restoration of control over the future is the key to interrupting psychopathological spirals.

Melges's (1982) assumption is that only the future can be controlled, since the past has already happened, the present quickly becomes the past, and

control over action has to be directed at the future. To control the future, Melges (1982) suggests bringing the future into the psychological present by visualising future possibilities. This process is exemplified in terms of envisioning the future, picturing what might happen, or sketching an actual scenario.

The argument can be made that this approach is like the tools used in foresight that are discussed later in this book. For example, in the context of futures literacy laboratories the approach is described as making assumptions about the future explicit, reframing these assumptions and then rethinking or imaging different futures. As I will discuss later, the tools used in strategic foresight such as scenario planning have been associated with challenging, testing, and changing the assumptions decision-makers make about their present and future business environment (Wilson 1998). Scenario planning has been described as a fundamental way of thinking about the future (Schoemaker 1992).

Ingvar (1985) has established the concept of 'memory of the future', that the human brain is able to store different pictures of the future. The more memories of the future that are stored, the more receptive an individual can be to signals from the outside world. Reading (2004) remarks that humans can only imagine the future in ways that relate to how their past has been experienced and understood. This thought implies, making a case for the 'memory of the future', that humans are unable to conceive ideas that do not fit preconceived models of the world. The 'memory of the future' is also relevant in establishing the notion that foresight, especially scenario planning, is not about making predictions but about challenging assumptions and mental models about the present and the future and about creating memories of the future which allow leaders to take action sooner (de Geus 1997; van der Heijden, Bradfield, Burt, Crains, and Wright 2002). Similar thoughts are articulated in the discussions on agile leadership and management.

Schoemaker, Krupp, and Howland (2013) have developed a concept for strategic thinking in leadership which is of particular interest in strategic foresight. They mention six actions that entrepreneurial leaders should take in VUCA environments: anticipate, challenge, interpret, decide, align, and learn. The capability of anticipation is linked to Schoemaker's work (Day and Schoemaker 2005, 2006; Schoemaker and Day 2009) on developing peripheral vision to detect weak signals or trends in the business environment.

Schoemaker (2018) has emphasised that individual leaders need to direct attention to the periphery and ensure sufficient mental slack. Meissner and Wulf (2013) pointed out that Schoemaker (1993) and Bradfield (2008) were the first to analyse the influence of the scenario method on cognitive biases, thereby reducing overconfidence bias and confirmation bias (Spaniol and Rowland 2018). This also explains how strategic foresight should help individuals overcome cognitive limitations in perceiving changes in the business environment and prospecting the future.

This not only implies that applying foresight tools such as scenario planning is helpful to overcome the cognitive limitations of members of an organisation. Individuals need to be trained to think about the future. An empirical investigation by Schwarz, Rohrbeck, and Wach (2020) has found that corporate foresight training of managers has a positive impact on the dynamic capabilities of a firm. Implying that leaders need to be trained in sensing change or developing peripheral vision, making decisions under uncertainty, being confronted with an uncertain future, and how to reconfigure strategic resources accordingly.

Besides the organisational aspects of strategic foresight that I will discuss in this book, the aspects in this chapter highlight the relevance of considering the ways in which foresight can be developed not only through foresight process and tools but also through systematic training for the members of an organisation.

2.4 Futures literacy

The idea of futures literacy, promoted by Riel Miller and his work at UNESCO, has gained significant attention. The goal of the UNESCO in advocating futures literacy is to contribute to human resilience, map how people around the world think about the future, and to help people to become more futures literate (Miller 2018c). The concept of futures literacy focusses on the challenges in thinking about the future.

The concept of futures literacy draws on the research on anticipation.

> Hunting for different kinds of futures runs directly into the obstacle that by definition the future cannot exist in the present, since if it did it would no longer be the future but the present. And yet, as everyone knows, the

> future plays a role in the present. How can something that does not exist have an impact? One answer to this problem is the idea of anticipation. The future does not exist in the present but anticipation does. The form the future takes in the present is anticipation.
>
> *(Miller 2018b: 2)*

It can also be argued that all attempts to think about the future can be described as forms of anticipation (Miller, Poli, and Rossel 2018).

Miller (2018b: 15) defines futures literacy as

> a capability. A futures literate person has acquired the skills needed to decide why and how to use their imagination to introduce the non-existent future into the present. These anticipatory activities play an important role in what people see and do. Developing a detailed description of this capability to "use-the-future" calls for an analytical framework that can clarify the nature of different anticipatory systems and guide both research into [futures literacy] and its acquisition as a skill. Such a framework is presented in this chapter, focusing on the sub-set of anticipatory systems and processes that humans use when they consciously imagine the future.

The application of the futures literacy concepts, in UNESCO, can be observed in futures literacy laboratories, which will be discussed in Chapter 10. Miller (2018a) argues that the first step in any futures literacy process is to find a way to make anticipatory assumptions about the future explicit and observable. One can argue that this is also supposed to happen in scenario planning projects (van der Heijden 1996; van der Heijden, Bradfield, Burt, Crains, and Wright 2002; Rowland and Spaniol 2021). The basic structure of futures literacy laboratories is (1) to revel the assumption about the future of the participants; (2) reframe those assumptions; and (3) allow participants to rethink the future (Bergheim 2018).

References

Bazerman, M. H., and M. D. Watkins. 2004. *Predictable Surprises*. Boston: Harvard Business School Press.

Bergheim, S. 2018. "The Futures Literacy Laboratory- Novelty (FLL-N) Case Studies." In *Transforming the Future: Anticipation in the 21st Century*, edited by R. Miller, 110–229. London: Taylor & Francis.

Bradfield, R. M. 2008. "Cognitive Barriers in the Scenario Development Process." *Advances in Developing Human Resources* 10 (2): 198–215. https://doi.org/10.1177/1523422307313320.

Day, G. S., and P. J. H. Schoemaker. 2004. "Driving Through the Fog: Managing at the Edge." *Long Range Planning* 37 (2): 127–142.

———. 2005. "Scanning the Periphery Scanning the Periphery." *Harvard Business Review* 83 (11): 135–148. https://doi.org/10.1225/R0511H.

———. 2006. *Peripheral Vision: Detecting the Weak Signals That Will Make or Break Your Company*. Boston: Harvard Business School Press.

de Geus, A. 1997. *The Living Company*. Boston: Harvard Business School Press.

de Jouvenel, B. 1967. *The Art of Conjecture*. London: Basic Books.

Ingvar, D. H. 1985. "Memory of the Future: An Essay on the Temporal Organization of Conscious Awareness." *Human Neurobiology* 4 (3): 127–136.

Kets de Vries, M. 2004. "Organizations on the Couch: A Clinical Perspective on Organizational Dynamics." *European Management Journal* 22 (2): 183–200. https://doi.org/10.1016/j.emj.2004.01.008.

Kets de Vries, M. F. R., and D. Miller. 1984. *The Neurotic Organization*. New York: Harper Business.

———. 1986. "Personality, Culture, and Organization." *The Academy of Management Review* 11 (2): 266–279. https://doi.org/10.2307/258459.

Lombardo, T. 2006. "Thinking Ahead: The Values of Future Consciousness." *The Futurist* 40 (1): 45–50.

MacKay, R. B., and P. McKiernan. 2004. "The Role of Hindsight in Foresight: Refining Strategic Reasoning." *Futures* 36 (2): 161–179.

Meissner, P., and T. Wulf. 2013. "Cognitive Benefits of Scenario Planning: Its Impact on Biases and Decision Quality." *Technological Forecasting and Social Change* 80 (4): 801–814. https://doi.org/10.1016/j.techfore.2012.09.011.

Melges, F. T. 1982. *Time and the Inner Future*. New York: John Wiley & Sons.

Miller, R. 2018a. "Futures Literacy Laboratories (FLL) in Practice: An Overview of Key Design and Implementation Issues." In *Transforming the Future: Anticipation in the 21st Century*, edited by R. Miller, 95–109. London: Taylor & Francis.

———. 2018b. "Introduction, Futures Literacy: Transforming the Future." In *Transforming the Future: Anticipation in the 21st Century*, edited by R. Miller, 1–12. London: Taylor & Francis.

———. 2018c. "Sensing and Making-Sense of Futures Literacy: Towards a Futures Literacy Framework (FLF)." In *Transforming the Future: Anticipation in the 21st Century*, edited by R. Miller, 15–50. London: Taylor & Francis.

Miller, R., R. Poli, and P. Rossel. 2018. "The Discipline of Anticipation: Foundations for Futures Literacy." In *Transforming the Future: Anticipation in the 21st Century*, edited by R. Miller, 51–65. London: Taylor & Francis.

Rappaport, H. 1991. "Measuring Defensiveness against Future Anxiety: Telepression." *Current Psychology* 10 (1): 65–77. https://doi.org/10.1007/BF02686781.

Reading, A. 2004. *Hope & Despair: How Perceptions of the Future Shape Human Behavior*. Baltimore: Johns Hopkins University Press.

Rowland, N., and M. Spaniol. 2021. "The Strategic Conversation, 25 Years Later: A Retrospective Review of Kees van Der Heijden's Scenarios: The Art of Strategic Conversation." *Futures & Foresight Science* 4: e102. https://doi.org/10.1002/ffo2.102.

Schoemaker, P. J. H. 1992. "How to Link Strategic Visions to Core Capabilities." *MIT Sloan Management Review* 34 (1): 67–81.

———. 1993. "Multiple Scenario Development: Its Conceptual and Behavioral Foundation." *Strategic Management Journal* 14 (3): 193–213. https://doi.org/10.1002/smj.4250140304.

———. 2018. "Attention and Foresight in Organizations." *Futures & Foresight Science* 1: e5. https://doi.org/10.1002/ffo2.5.

Schoemaker, P. J. H., and G. S. Day. 2009. "How to Make Sense of Weak Signals." *MIT Sloan Management Review* 50 (3): 81–89.

Schoemaker, P. J. H., S. Krupp, and S. Howland. 2013. "Strategic Leadership: The Essential Skills." *Harvard Business Review* (January–February), https://hbr.org/2013/01/strategic-leadership-the-esssential-skills.

Schwarz, J. O. 2007. "Assessing Future Disorders in Organizations: Implications for Diagnosing and Treating Schizophrenic, Depressed or Paranoid Organizations." *Foresight* 9 (2): 15–26.

Schwarz, J. O., R. Rohrbeck, and B. Wach. 2020. "Corporate Foresight as a Microfoundation of Dynamic Capabilities." *Futures & Foresight Science* 2 (2): e28. https://doi.org/10.1002/ffo2.28.

Seidl, D., and D. van Aaken. 2004. "Anticipating Critique and Occasional Reason: Modes of Reasoning in Face of Radically Open Future." *2nd International Conference on Organizational Foresight*. Strathclyde Business School, University of Strathclyde, Glasgow.

Senge, P. M. 1990. *The Fith Discipline*. London: Century Business.

Spaniol, M. J., and N. J. Rowland. 2019. "Defining Scenario." *Futures & Foresight Science* 1: e1. https://doi.org/10.1002/ffo2.3.

Tetlock, P., and D. Gardner. 2015. *Superforecasting: The Art and Science of Prediction*. New York: Random House.

van der Heijden, K. 1996. *Scenarios: The Art of Strategic Conversation*. Chichester: John Wiley & Sons.

van der Heijden, K., R. M. Bradfield, G. Burt, G. Crains, and G. Wright. 2002. Chichester: *The Sixth Sense*. John Wiley & Sons.

Wilson, I. 1998. "Mental Maps of the Future: An Intuitive Logics Approach to Scenarios." In *Learning from the Future: Competitive Foresight Scenarios*, edited by L. Fahey and R. M. Randall, 81–108. San Francisco: John Wiley and Sons.

Part II

APPLICATIONS OF STRATEGIC FORESIGHT

3

CONCEPTUALISING STRATEGIC FORESIGHT

Following the idea of this book that strategic foresight can be developed on an organisational and individual level, I will now turn to the organisational level. The organisational level has gained the most attention in the research on strategic foresight. However, the individual level is of no less importance (Schwarz, Rohrbeck, and Wach 2020). I will structure the discussion on the application of strategic foresight in organisations along the process of strategic foresight and the tools used in developing foresight.

As I will discuss in Section 3.2, many tools have been created to develop foresight in an organisation. This book does not describe all of the available tools. Instead, I will focus on a selection of tools that I find relevant. In some cases, these tools will be described by experts in the field.

I will describe these tools as part of a process of strategic foresight. This allows us not only to assess in which phase of the strategic foresight process it is feasible to apply a certain tool; it also allows discussing strategic foresight as a comprehensive activity that should be understood as an ongoing process, instead of an one-time exercise.

DOI: 10.4324/9781003302735-6

Before detailing the process of strategic foresight, it is necessary to discuss the focus of such an activity. The focus of a strategic foresight process should arguably be as broad as possible. The rationale is that given that the future is uncertain, we cannot know from which area new trends are likely to emerge or how they might influence other trends. Therefore, a broad perspective is a prerequisite. The political, economic, social, and technological (PEST) framework is helpful (Burt, Wright, Bradfield, Crains, and van der Heijden 2006). A PEST framework can also serve as a reminder to consider all areas when developing foresight.

Further, organisations might engage in customer, technology, or competitor foresight (Rohrbeck and Thom 2008). While technology foresight is applied in many organisations, customer foresight might be more of an emerging field (Schweitzer, Hofmann, and Meinheit 2019; Eller, Hofmann, and Schwarz 2020). The objective of customer foresight is to understand customers' future circumstances and wishes for tomorrow's products and services by combining two relevant, yet mostly separate fields: the investigation of customer needs based on their everyday usage and the dynamics of change and projections.

The linkage between business wargaming and foresight (Oriesek and Schwarz 2008; Schwarz 2009; Oriesek and Schwarz 2020) and more specific scenario planning (Schwarz, Ram, and Rohrbeck 2018) has stressed the competitive dimension or perspective in foresight which is also reflected in the process of strategic foresight.

3.1 Process of strategic foresight

The process of strategic foresight has been conceptualised and labelled differently in the past. The research on strategic foresight has been labelled in the German context as 'Strategische Frühaufklärung' (Krystek and Müller-Stewens 1993; Liebl 1996, 2000), and I have also used the term 'strategic early warning' (Schwarz 2005). In the article 'Organizations as Interpretation Systems', Daft and Weick (1984) have described a basic process that is of relevance for our discussion: organisations perceive their environment (step 1: 'scanning – data collection'), translate what they find into organisational implications (step 2: 'interpretation – data giving meaning'), and develop responses based on their insights into their environment (step 3: 'learning – action taken').

The guiding definition in this book on strategic foresight indicates the phases of strategic foresight: perceiving, prospecting, and probing. I build on the process model, which distinguishes three phases (Højland and Rohrbeck 2018; Rohrbeck and Kum 2018), while adding a fourth (transforming), as shown in Figure 3.1.

The *perceiving* phase describes practices that firms use to identify the factors that drive environmental change. These firms aim to identify trends and weak signals ahead of competition to gain a lead-time advantage. The underlying assumptions in this phase of the strategic foresight process is that discontinuities do not emerge without warning. These warning signs can be described as 'weak signals'. The concept of 'weak signals' (Ansoff 1975) aims at early detection of those signals which could lead to strategic surprises and to an event which has the potential, for instance, to jeopardise an organisation's strategy. The nature and importance of 'weak signals' are best described as follows: 'As any adult knows, a magician cannot produce a rabbit unless it is already in (or very near to) his hat. In the same way, surprises in the business environment almost never emerge without a warning' (Wack 1985: 148). We will later take a closer look at the concept

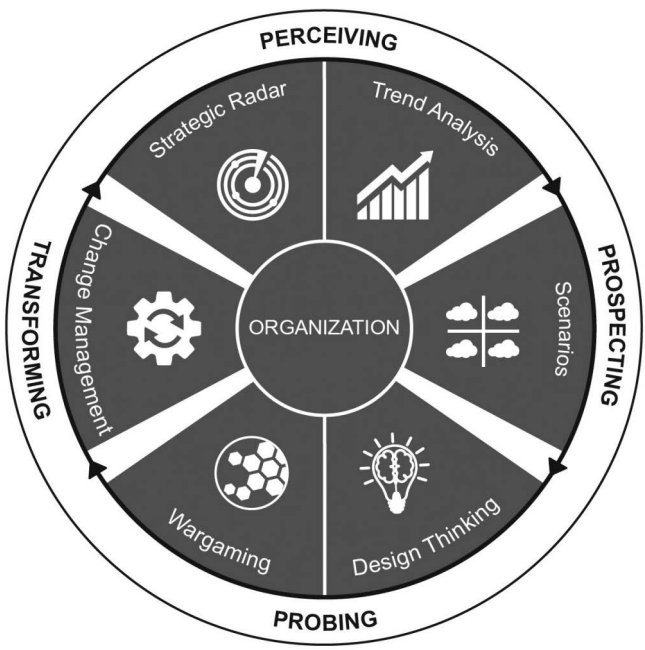

Figure 3.1 Systematic approach to strategic foresight.

of weak signals and their relationship to trends in Section 4.1, 'Conceptualising weak signals and trends'.

'Weak signals' are detected by scanning the organisational environment. Environmental scanning (Aguilar 1967; Daft, Sormunen, and Parks 1988; Boyd and Fulk 1996; Slaughter 1999) is a process whereby the environment in which an organisation operates is systematically scanned for weak signals and trends. The purpose is to identify early indications of possible and ongoing environmental changes (Lester and Waters 1989).

There are two methods of environmental scanning. The outside-in method uses a 360-degree focus to avoid blind spots. This approach acknowledges that finding the individual and organisational blind spots is essential for detecting 'weak signals'. Unfortunately, this approach is hindered by the problem of information overload.

The second and more widely used method is 'inside-out' scanning. Here, top management determines in advance the fields to be scanned. Inside-out scanning limits the amount of information gathered but risks limiting the focus of the organisation and increasing the number and/or gravity of blind spots. If an environmental scan has detected weak signals, it is important to monitor them. Environmental scanning is the first phase of strategic foresight.

The *prospecting* phase describes practices through which firms engage in sensemaking and strategising. Practices include working in scenario planning or futures literacy laboratories. The book elaborates on both methods later, in Chapters 7 and 8. In addition, these firms aim to foresee the right time to act by identifying tipping points. The purpose of this phase is to gain an insight advantage, which permits the firms to identify a superior course of action that is different from the status quo of the industry.

The *probing* phase describes practices that are often enacted in dedicated accelerator units and may include prototyping, R&D projects, consumer tests, internal and external venturing, and strategic initiatives. Probing practices aim at legitimising and starting a new course of action and ultimately at gaining a competitive advantage. In this book, the focus will be on describing tools such as business wargaming or design thinking that support organisations in identifying these new courses of action, see Chapters 9 and 10.

Finally, the *transforming* phase describes practices through which firms enhance, combine, and reconfigure their organisational assets – its resources and capabilities, eventually changing or even transforming an organisation.

3.2 Tools used in the process

Before discussing the process of strategic foresight, I want to provide an overview of tools used in strategic foresight. The description of the process will also highlight some tools. Other tools will also be discussed later.

Based on a review of 886 foresight studies, Popper (2008) offers not only an overview of foresight tools but also classifies them in terms of nature and capability. Nature refers to qualitative, quantitative, or semi-quantitative tools and capabilities, meaning the ability to gather or process information based on evidence, expertise, interaction, or creativity.

Qualitative methods provide meaning to events and perceptions. Such interpretations tend to be based on subjectivity or creativity that is often difficult to validate, for example, opinions, judgements, beliefs, and attitudes. Quantitative methods generally measure variables and apply statistical analyses, using or generating – at least in theory – reliable and valid data, such as socio-economic indicators. Semi-quantitative methods are those that apply mathematical principles to quantify subjectivity, rational judgements, and viewpoints of experts and commentators (i.e., weighting opinions and probabilities) (Popper 2008).

Popper (2008) defines the capabilities of foresight tools as follows:

- **Creativity** refers to the mixture of the original and the imaginative. These methods rely heavily on the inventiveness and ingenuity of very skilled individuals, such as science fiction writers or the inspiration that emerges from groups of participants in brainstorming sessions.
- **Expertise** refers to the skills and knowledge of individuals in a particular area or subject. It is frequently used to support top-down decisions, provide advice, and make recommendations.
- **Interaction** recognises that expertise often benefits considerably from being brought together and challenged to articulate with other expertise.
- **Evidence** recognises that it is important to attempt to explain and/or forecast a particular phenomenon with the support of reliable documentation and means of analysis of, for example, statistics and various types of measurement indicators.

These attributes are then the building blocks to what Popper (2008) calls the foresight diamond, depicted in Figure 3.2.

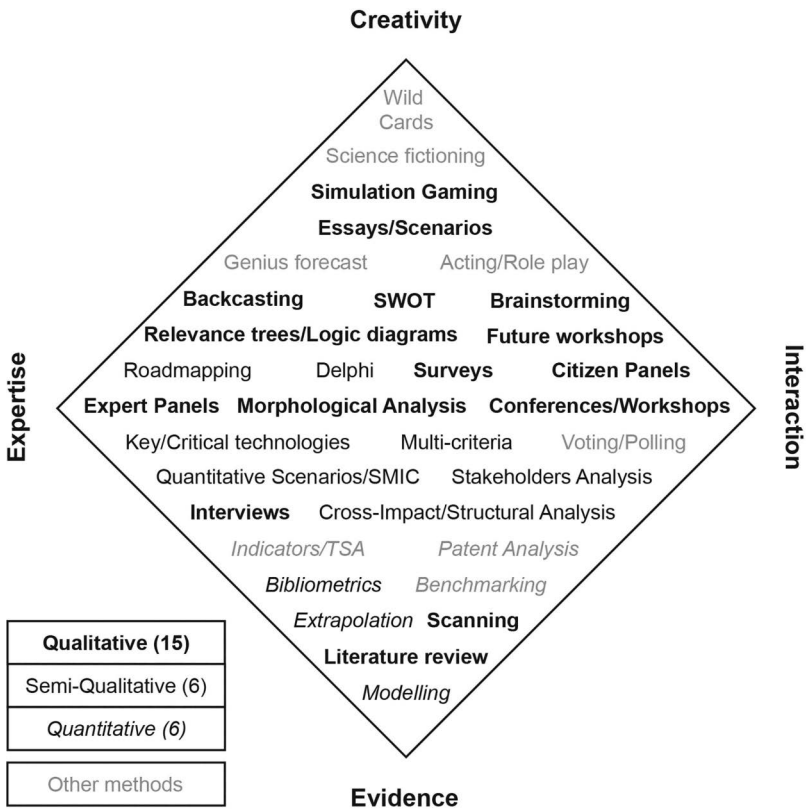

Figure 3.2 The foresight diamond (Popper 2008).

Based on a literature review, Schwarz (2005) comes to the conclusion that the tools in foresight such as trend research, scenario technique, Delphi technique, and simulation as well as gaming are mentioned frequently. The longer in use tools such as the Delphi method, scenario technique, and, in particular, business wargaming have their roots in defence research (Linstone and Turoff 1975; Pohl 1996; Oriesek and Schwarz 2020).

As described in Figure 3.3, I will focus on tools that I have either used in developing strategic foresight or that I find relevant. While describing the process, the tools will be discussed.

Weak signals and trends are the basis for any foresight activity and therefore are discussed here in the phase of *perceiving*. Along with this discussion, I will highlight the relevance of applying science fiction to

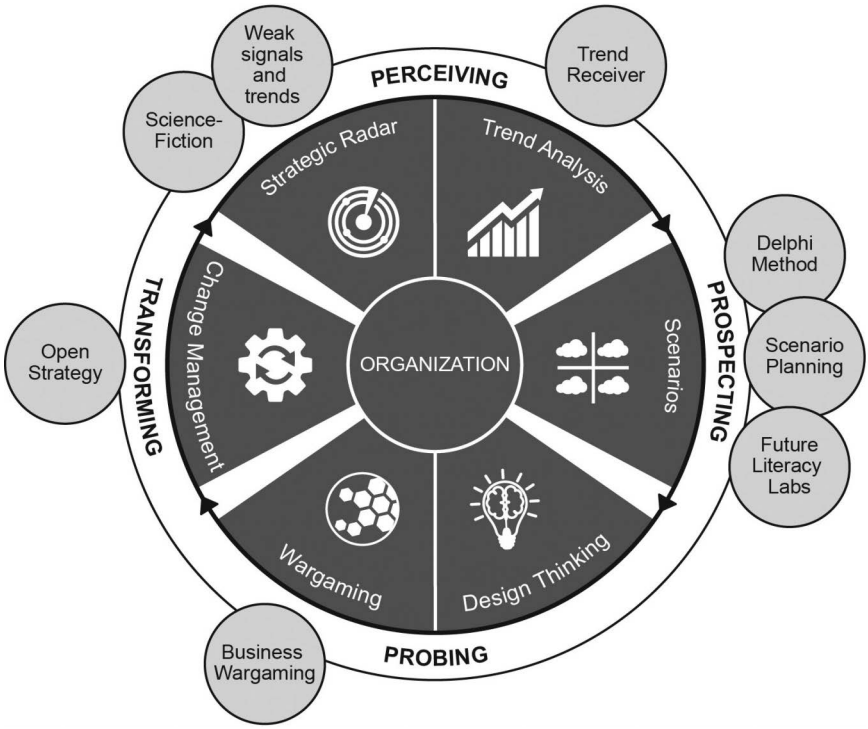

Figure 3.3 Foresight tools discussed in more detail.

strategic foresight. The concept of a trend receiver adds to the perception of changes in the business environment and builds on weak signals and trends.

The Delphi method and scenario planning, while very different, help to *prospect*, in terms of understanding how the future could evolve. In addition, futures literacy laboratories will be discussed as a tool that emerged from the futures literacy school of thought. Business wargaming and design thinking can be perceived as tools of *probing*, better understanding what a certain set of actions could imply for the future of an organisation. Design thinking, for instance, is of course a tool that we know from the context of design or innovation, but here I will also discuss the connection between foresight and design thinking.

Finally, in the phase of *transforming*, change management plays a role. As mentioned in the beginning of this book, the aim is not only to understand

foresight as a way to explore futures, but furthermore to understand strategic foresight as a process that includes the notion of how insights generated through foresight tools can be implemented into an organisation. Transforming is therefore part of the process. While I will not be elaborating on the huge field of change management, I will focus on open strategy and how this approach can be supported by foresight, eventually supporting the process of organisational transformation.

References

Aguilar, F. J. 1967. *Scanning the Business Environment. Studies of the Modern Corporation.* New York: Macmillan.

Ansoff, I. H. 1975. "Managing Strategic Surprise by Response to Weak Signals." *California Management Review* 18 (2): 21–33.

Boyd, B. K., and J. Fulk. 1996. "Executive Scanning and Perceived Uncertainty: A Multidimensional Model." *Journal of Management* 22 (1): 1–21.

Burt, G., G. Wright, R. Bradfield, G. Crains, and K. van der Heijden. 2006. "The Role of Scenario Planning in Exploring the Environment in View of the Limitations of PEST and Its Derivatives." *International Studies of Management & Organization* 36 (3): 50–76.

Daft, R. L., J. Sormunen, and D. Parks. 1988. "Chief Executive Scanning, Environmental Characteristics, and Company Performance: An Empirical Study." *Strategic Management Journal* 9 (2): 123–139.

Daft, R. L., and K. E. Weick. 1984. "Toward a Model of Organizations as Interpretation Systems." *Academy of Management Review* 9 (2): 284–296.

Eller, E., R. Hofmann, and J. O. Schwarz. 2020. "The Customer Foresight Territory." *Marketing Review St Gallen* 27 (3): 888–895.

Højland, J., and R. Rohrbeck. 2018. "The Role of Corporate Foresight in Exploring New Markets – Evidence from 3 Case Studies in the BOP Markets." *Technology Analysis & Strategic Management* 30 (6): 734–746. https://doi.org/10.1080/09537325.2017.1337887.

Krystek, U., and G. Müller-Stewens. 1993. *Frühaufklärung Für Unternehmen: Identifikation Und Habung Zukünftiger Chancen Und Bedrohungen.* Stuttgart: Schäfer-Poeschel.

Lester, R., and J. Waters. 1989. *Environmental Scanning and Business Strategy.* London: British Library Research and Development Department.

Liebl, F. 1996. *Strategische Frühaufklärung: Trends - Issues - Stakeholders*. München: Oldenbourg.

———. 2000. *Der Schock Des Neuen: Entstehung Und Management von Issues Und Trends*. München: Gerling Akademie Verlag.

Linstone, H. A., and M. Turoff. 1975. "Evaluation: Introduction." In *The Delphi Method: Techniques and Applications*, edited by H. A. Linstone and M. Turoff, 229–235. Reading: Addison-Wesley Publishing.

Oriesek, D. F., and J. O. Schwarz. 2008. *Business Wargaming: Securing Corporate Value*. Aldershot: Gower.

———. 2020. *Winning the Uncertainty Game: Turning Strategic Intent into Results with Wargaming*. London: Taylor & Francis.

Pohl, F. 1996. "Thinking about the Future." *The Futurist* 30 (5): 8–13.

Popper, R. 2008. "'How Are Foresight Methods Selected?' Edited by Maurits Butter, Felix Brandes, Michael Keenan, and Rafael Popper." *Foresight* 10 (6): 62–89. https://doi.org/10.1108/14636680810918586.

Rohrbeck, R., and M. E. Kum. 2018. "Corporate Foresight and Its Impact on Firm Performance: A Longitudinal Analysis." *Technological Forecasting and Social Change* in press (January): 1–30. https://doi.org/10.1016/j.techfore.2017.12.013.

Rohrbeck, R., and N. Thom. 2008. "Strategic Foresight at Deutsche Telekom AG." *Proceedings of the 4th IEEE International Conference on Management of Innovation and Technology, ICMIT*, September. https://doi.org/10.1109/ICMIT.2008.4654329.

Schwarz, J. O. 2005. "Pitfalls in Implementing a Strategic Early Warning System." *Foresight* 7 (4): 22–30.

———. 2009. "Business Wargaming: Developing Foresight within a Strategic Simulation." *Technological Analysis and Strategic Management* 21 (3): 291–305.

Schwarz, J. O., C. Ram, and R. Rohrbeck. 2018. "Combining Scenario Planning and Business Wargaming to Better Anticipate Future Competitive Dynamics." *Futures* 105: 133–142. https://doi.org/10.1016/j.futures.2018.10.001.

Schwarz, J. O., R. Rohrbeck, and B. Wach. 2020. "Corporate Foresight as a Microfoundation of Dynamic Capabilities." *Futures & Foresight Science* 2 (2): e28. https://doi.org/10.1002/ffo2.28.

Schweitzer, N., R. Hofmann, and A. Meinheit. 2019. "Strategic Customer Foresight: From Research to Strategic Decision-Making Using the Example of

Highly Automated Vehicles." *Technological Forecasting and Social Change* 144 (April): 49–65. https://doi.org/10.1016/j.techfore.2019.04.004.

Slaughter, R. A. 1999. "A New Frame Work for Environmental Scanning." *Foresight* 1 (5): 441–451.

Wack, P. 1985. "Scenarios: Shooting the Rapids." *Harvard Business Review* 63 (6): 139–150.

4

WEAK SIGNALS AND TRENDS

As we learned in Chapter 3, trends are fundamental to the process of strategic foresight. The identification of trends stands at the beginning of a strategic foresight process. Moreover, trends are relevant input for many other foresight approaches such as scenario planning (Chapter 7) or business wargaming (Chapter 9).

Ansoff (1975) introduced the concept of weak signals and thus laid the basis for trend management (Liebl 2000). Ansoff (1975: 12) described weak signals as '… warnings (external or internal), events and developments which are still too incomplete to permit an accurate estimation of their impact and/or to determine their full-fledged responses'. Ansoff's (1975) concept aimed at the early detection of indicators of environmental changes that could lead to strategic surprises and events and that have the potential to jeopardise an organisation's strategy. He described weak signals as external or internal signs, occurrences, and developments that are too immature to have their impact or complete reactions assessed (Ansoff 1982). A weak signal can also be perceived as an upcoming trend.

DOI: 10.4324/9781003302735-7

Buck, Herrmann, and Lubkowitz (1998) highlight two definitions: The classic definition describes a trend as an ongoing and fundamental societal change over an extended period. In contrast, the modern definition treats a trend as a short-term phenomenon, such as in fashion or music. Liebl (2002) offers a third definition of a trend as a phenomenon that is always complex and that cannot be perceived simply as a fashion; neither can its lifespan be measured accurately. A trend is a connection, an association that is defined by its crossing of contextual borders.

Few terms have caused as much confusion in the context of foresight, strategy, and management as 'trend' has. It has been used widely in the practitioners' literature in the fields of marketing and general management, for instance, in 'megatrends', fashion trends, and youth culture. 'Pop futurists' (Slaughter 1999), for instance, Naisbitt (1984) or Popcorn (1991), sell trend labels like 'cocooning' to both a larger audience and the business community without a deeper scientific background. Here the term 'trend' is used to address the intuitive feeling that something is of importance.

Therefore, clarifying what trends are and more importantly how they can be conceptualised is essential for our discussion on strategic foresight.

4.1 Conceptualising weak signals and trends

Following Liebl and Schwarz (2010), trends shall be conceptualised as (socio-cultural) innovations. Trend analysis is therefore understood as innovation research or the science of the new. If the nature of innovation is taken seriously, then strategic trend diagnosis must deal with two different aspects, invention and diffusion. Both aspects can be approached by asking questions:

- 'How can the new be identified? And what constitutes this new? This refers to the aspect of invention.
- 'Will the new become widespread? This refers to the aspect of diffusion.

Liebl and Schwarz (2010) argue that to detect strategic potentials, a trend should not be conceived of as a quantifiable phenomenon, as something that has already has been clearly operationalised – such an activity must be regarded as a strategic late warning system. Rather, a trend can be thought

of as a vague silhouette, whose (new) quality and outline must be identified and evaluated. This outline has much to do with the line between normality and abnormality. Therefore, it is important to focus, first, on the detection of abnormal phenomena and, second, on the forces that drive the subsequent normalisation process – which may lead to a social convention.

4.1.1 The new

To better understand what constitutes the new, Liebl and Schwarz (2010) refer to the work of the art theorist Boris Groys (2008) who researched the anatomy of the new in a context of cultural economy. According to Groys (2008) the fundamental characteristic of the new can be seen in the fact that objects or concepts are transferred into another context. The invention therefore is best described by transgressing the boundaries of contexts, by connecting formerly separated contexts. Groys (2008) discusses several examples: Duchamp exhibited everyday objects in galleries and museums, a ready-made strategy which transformed these objects into valuable pieces of art. Variations of this strategy have been applied by other famous artists like Andy Warhol or Jeff Koons. Groys (2008) also uses examples from other fields: Freud connected the nearly forgotten myth of Oedipus to psychoanalysis, thereby reviving its popularity. This logic is by no means limited to art or cultural history, as the following examples illustrate:

- By establishing the brand Y-3, Yohji Yamamoto and Adidas merged sportswear with avant-garde prêt-à-porter-fashion and created a three-stripe-couture that became a category killer in the fashion industry.
- Quadrophonic sound, a music reproduction technique with a very small software range, was a market disaster, until its revival as a device for surround-sound in the booming multimedia home-entertainment and DVD market.
- Finally, innovative fields in humanities and science including cognitive science, bionics, or biological chemistry are based on the transgression of disciplinary boundaries.

These examples underline that the new is neither about something which has never been in the world before, nor that there is nothing new under the sun. What becomes clear is the power of the context: contexts influence

human perception, structure expectations, and evoke new forms of interpretation and new ways of using things. Trends therefore are not a merely one-dimensional development in each direction, but rather they represent a hitherto non-existing combination of contexts.

4.1.2 Diffusion

To elaborate on their conceptualisation of trends, Liebl and Schwarz (2010) discuss the aspect of diffusion in more detail by introducing Mathews and Wacker's (2002) lifecycle of trends. This lifecycle of trends both helps to enrich the definition of trends and has practical implications for trend research.

Figure 4.1 shows the first half of the life cycle. Mathews and Wacker (2002) point out that significant trends – those that change mainstream behaviour – are born on the 'fringes' of society in the minds of deviant outsiders and then move to the 'edge'. This implies that trend research wants to outrun competition and gain a competitive advantage, and therefore

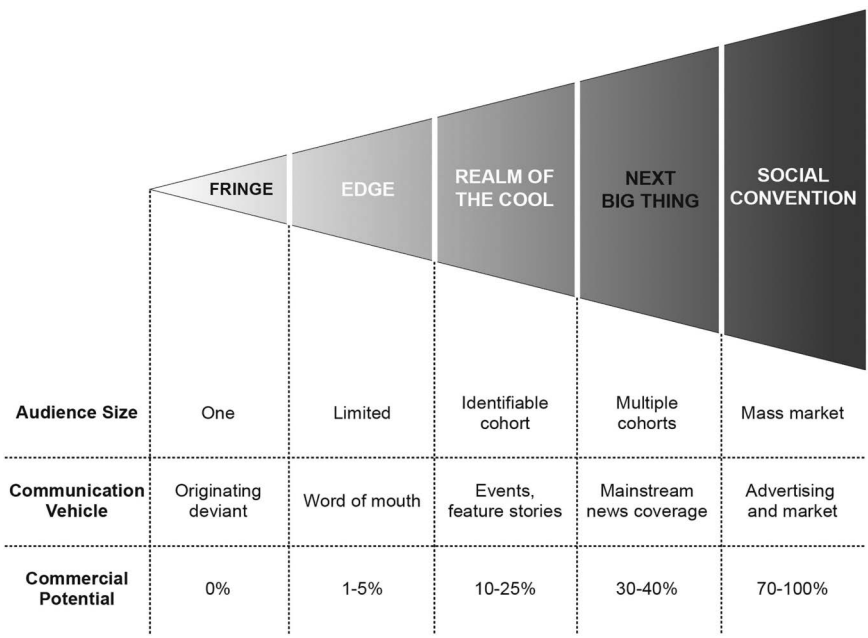

Figure 4.1 Life cycle of trends, part I (Liebl and Schwarz 2010).

needs to focus on these stages. Others have labelled this focus as 'abnormalities', arguing that these weak signals might not be purely speculative, not named and not widely known (Reeves, Goodson, and Whitaker 2021).

The 'realm of the cool' follows the 'fringe' and requires that these trends have been adopted by groups who see themselves as a marginalised avant-garde (the 'edge'). Trend researchers or 'cool hunters' attempt to forecast the next stage (i.e., the 'next big thing') for their clients; this implies that these consultants are late in picking up trends, and the resulting lead times are often too short to make the strategic moves for capitalising on the identification of trends (Harris and Zeisler 2002; Waters 2005, 2006).

When it is becoming obvious that the next phase of 'social convention' is almost certain to be reached, then the intense competition among the players will no longer allow pioneer advantages by claiming 'street credibility'. Stated differently, the bizarre phenomena of today are the starting point for tomorrow's mainstream. In the final analysis, Mathews and Wacker (2002) do not so much address the quantity of adherents or attention in the various lifecycle stages but rather who is involved and what the implications are for marketers and strategists.

Usually, trend research tends to concentrate on the rising branch of the lifecycle. This is for two reasons: (1) only 'emerging trends' are perceived as of interest and of news value in mass media; and (2) the 'in' easily tips into a 'mega-out'. However, Mathews and Wacker (2002) do not stop there, but go on to ask what happens with developments which already have become 'social convention'. They also explain how the second half of the life cycle of a trend comes into play, a phase of disposal in the form of post-normalisation (see Figure 4.2). From a strategic point of view this phase seems to be no less interesting, since it may offer considerable opportunities for recycling and endgames. The way in which these opportunities are used is essential for the further development of a mainstream phenomenon: Will it freeze in a cliché? Will it develop into a cultural icon? Will it end up as a rare example of an archetype? Or will it simply fall into oblivion? An important strategic implication is that different dispositions in the customer segments come significantly into play. An old trend may have at the same time several incarnations; depending on the context these may be cliché, icon, or archetype. It is thus not less relevant than an emerging trend.

To discuss the process of normalisation in the first half of Mathews and Wacker's (2002) lifecycle of trends, Liebl and Schwarz (2010) cite the

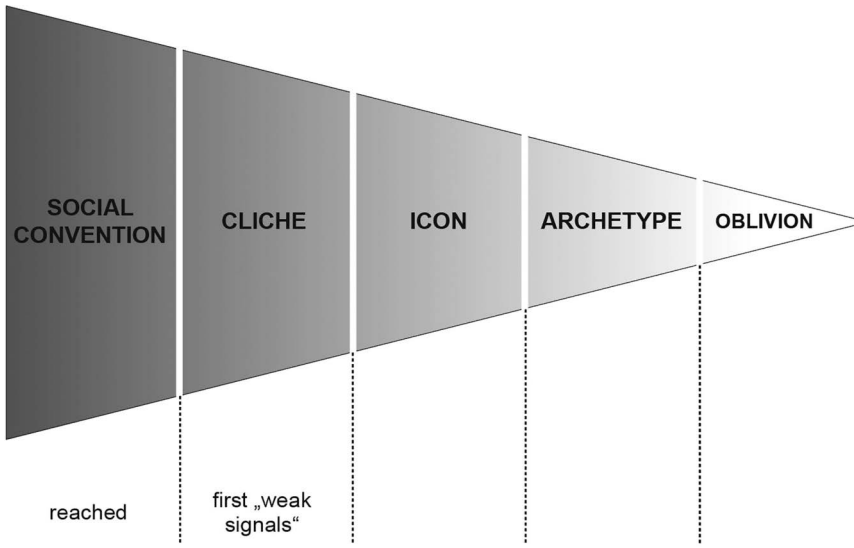

Figure 4.2 Life cycle of trends, part II (Liebl and Schwarz 2010).

research on the phenomena of normality and the emergence and drift of societal standards (Link 1999) and describe this part of the lifecycle of a trend as a threefold process of normalisation:

- 'As a new socio-cultural practice diffuses into society, it undergoes a reassessment: what starts as an abnormal behaviour ('perversity') of a (stigmatised) group becomes the behaviour ('preference') of a broader audience and even part of the establishment.
- 'The normalisation of a socio-cultural practice can be regarded as change in general value schemes: even individuals who do not adopt a certain practice tend to accept it as normal.
- 'While such a practice is spreading, it tends to lose its extreme forms and to assume more mass-compatible flavours – which allows even larger groups to relate to this practice. Therefore, the trend becomes a moving target.

The transformation of a psychological category ('perversity') into an economic one ('preference') points to the fact that new markets are being created here. In other words: where taboo-zones are shrinking, new markets begin to emerge as a consequence of normalisation. Therefore, when we

monitor a trend, we have to monitor the forces that are negotiating and shaping the boundary between normality and abnormality – with respect to all three aspects of normalisation.

To give an example of how a trend can move through the trend life cycle, Liebl and Schwarz (2010) provide two cases on hip-hop and skateboarding (see Figure 4.3).

The hip-hop culture consists of four central elements: disc jockeying (DJing), break dancing, graffiti art, and rapping. We see from this list that the contexts involved are manifold: new practices of presenting music, new forms of dancing, new styles of art, and new ways to present lyrics and communicate with an audience.

According to legend, hip-hop started in the last week of August 1973 at a house party in New York City's Bronx neighbourhood (Chang 2005). DJ Kool Herc, known as the father of hip-hop, used two turntables and a microphone to isolate and combine the rhythm parts of two songs and laid

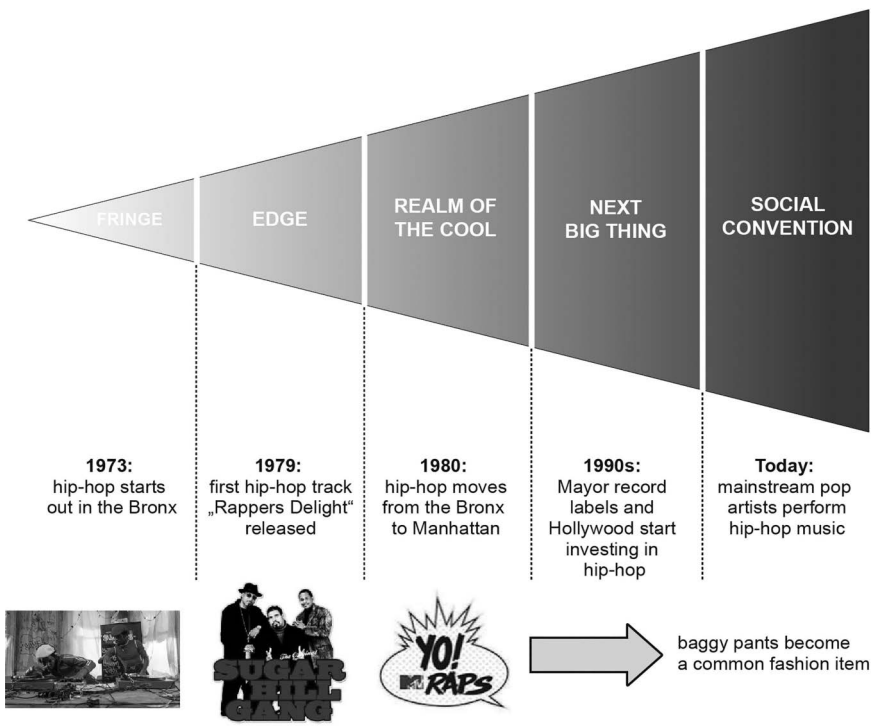

Figure 4.3 Life cycle of trends, part I, case study hip-hop (Liebl and Schwarz 2010).

his voice over both, creating a new musical style by using technical equipment in an unintended way. According to the threefold process of normalisation, the following applies to the normalisation of hip-hop:

- 'Hip-hop had emerged from being stigmatised and perceived as an abnormality to being the preference of a broader audience. Obviously, this transformation has, from an economic point of view, not only created a significant market for the music industry, but also for the fashion industry (McCracken 2006).
- 'While not universally accepted and liked, hip-hop has emerged, of course due to its many different forms and styles, to a music genre described as 'normal'.
- 'Hip-hop has changed over the years and lost its original forms from the 1970s; styles of music, outfit, and attitude have diversified. Major record labels today promote a broad range of hip-hop artists, including mainstream hip-hop performers who lack street credibility and have nothing to do with the original performers in the Bronx.

The importance of media as the driving force for emerging youth subcultures has been emphasised (Thornton 2018), a finding also relevant to hip-hop. While in the early years only bootleg recordings of parties in the Bronx circulated, it was not until October 1979 that the first hip-hop single, 'Rapper's Delight', advanced the normalisation of hip hop, changing the rules of the hip-hop game (Chang 2005). 'Rapper's Delight' spread from New York to Black Radio, up the American Top 40 list and around the world, selling eight million copies. While it can be argued that with the release of this hip-hop track, and of course because of its success, hip-hop found a broader audience, the release of the single marks only an early point in the normalisation of hip-hop. Empirical research in issues analysis suggests that an issue has reached a take-off point when it migrates to other communicative milieus. This happened when hip-hop became the subject of a movie: the 1982 docudrama *Wild Style* was the first to bring graffiti art, break dancing, and of course hip-hop music to global attention on the screen (Chang 2005).

Finally, in the late 1980s the normalisation of hip-hop made another significant leap, when hip-hop was featured on MTV, the cable television music network. In 1988 the show *MTV Raps* was launched, making hip-hop music

available to millions of youths, especially white youth. Approximately a year later, hip-hop permeated American media because of parents' complaints about the violent and sexually explicit hip-hop lyrics. This campaign peaked in the early 1990s, forcing the major record labels to reconsider moving ahead with hip-hop artists, in defiance of public pressure. To the public, hip-hop had become a commodity – and subject to all problems and consequences of product liability.

A final important aspect in the normalisation of hip-hop is the paradoxical form of its globalisation: it is a perfect example of glocalisation. On the one hand, superstar-based American hip-hop has been spreading all over the globe; but on the other hand, it has been adapted and reconfigured, creating specific local varieties. This includes both the appropriation of local music traditions and lyrics in languages which significantly differ from English in their rhythms and flows (e.g., German, French or Turkish); and it has brought the emergence of local superheroes who in their home countries may sell even more records than their American blueprints.

While the evolution of hip-hop seems to fit quite nicely into the lifecycle of trends (Mathews and Wacker 2002), one also needs to mention, that a trend not automatically moves from the fringe to social convention, or from a weak to a strong signal. Liebl and Schwarz (2010) mention skateboarding as an example for a trend that represents a lifecycle deviation, characterised by backlashes and revivals, and combining processes of normalisation and post-normalisation.

4.1.3 Further aspects

Here I want to highlight further aspects which help us to conceptualise trends. Liebl and Schwarz (2010) add another criterion for the conceptualisation of trends: the paradoxical form of a trend. The paradoxical form underlines the novelty, but also the potential diffusion of a trend. The history of successful products supports this line of thought. It is evident that innovations are most likely to be successful when they incorporate contradictory features. Examples are Post-It notes, which are both adhesive and removable, and Nivea cream, a moisturiser that is not oily.

The paradox is the driver of innovation and therefore the driver of trends and their diffusion. Liebl and Schwarz (2010) cite *The Savage Girl* by Alex Shakar (2001), a novel about trend researchers, for 'paradessence', the

paradoxical nature of a product or brand. Paradessence is the combination of mutually exclusive phenomena or features, which is precisely the description of a trend. This is why trends must be conceptualised as more than simply a development. Rather, the new and surprising qualities of trends are important – and reconcile hitherto contradictory elements.

This idea of paradoxical phenomena is also manifested in countertrends (Liebl 2000; Waters 2006; Weiner and Arnold 2006). Once a trend has been detected and formulated, it is most likely to have at least one simultaneously operating countertrend. Conversely, when no countertrend to a given trend has been formulated, then the complexity of a trend has probably not been adequately addressed. 'Countertrends don't happen despite trends; they happen because of them' (Weiner and Arnold 2006: 23). And a supposedly identified and well-understood trend may take on an entirely new meaning when extended by its countertrend. In this case we are not dealing with two developments that are separate or evolving in opposite directions, but rather with a new – hybrid and more complex – phenomenon. Below are a few examples of this phenomenon:

- 'Glocalisation (i.e., local specialisation in a globalising economy)
- 'Bobos (Bourgeois Bohemians), who combine a subcultural attitude with a bourgeois lifestyle
- 'Mainstream of the marginalised (i.e., groups labelling themselves marginalised subcultures but showing no significant differences from mainstream groups)

Each of these examples can be characterised as a paradoxical and complex development, which displays characteristics formerly perceived as contradictory or mutually exclusive; instead, they have to be regarded as forms of pluralisation, individualisation, and hybridisation.

Liebl and Schwarz (2010) summarise their approach to trend research and diagnoses as a means of identifying possible 'future normalities':

- 'Conceptualisation of trends as socio-cultural innovations
- 'The new' as the first aspect of innovation, described by a transgression of contextual boundaries
- 'Diffusion as the second aspect of innovation, operationalised by a threefold process of normalisation

- ''Paradessence' with its linkage function between the new and diffusion
- 'A two-part life cycle of trends, consisting of consecutive stages of normalisation and different – but not mutually exclusive – stages of post-normalisation (including revivals)

Further, the question 'in which direction will a trend evolve?' can be replaced by the following four sets of questions for exploring future normalities (Liebl and Schwarz 2010):

- *'Whither?* Which contexts are involved in a trend? What can be regarded as new in this constellation? What is the current stage in the life cycle of this trend – normalisation or post-normalisation?
- *'What's missing?* What is the paradoxical element of the trend? What is the corresponding countertrend? Are there any contexts which would be needed to allow the trend to advance in its process of normalisation?
- *'Why not?* Are there any contexts which could prevent the trend from moving on in its normalisation process? How could the trend relate to other trends? In other words, does the trend share some contexts with other trends?
- *'So what?* What aspects of the trend match our expectations or seem familiar? What is unexpected or represents an anomaly? What aspects of the trend challenge the premises of the current strategy? In what contexts will the trend cause the maximum damage? In what contexts will the trend provide the greatest strategic potential?

4.1.4 Megatrends and a constructivist perspective

Von Groddeck and Schwarz (2013) add a perspective to the conceptualisation of trends and weak signals by stressing the issue of semantics in trend management but also by focusing on the concept of megatrends (Vejlgaard 2008). A term coined by U.S. trend researcher John Naisbitt (1984), distinguishing relevant trends from very relevant or mega-relevant ones. Vejlgaard (2008: 21) explains that 'some people use the word "megatrend" when discussing cultural, economic, political, or technological shifts that are just about to happen, with the implication that these megatrends will affect all or almost all of society'. Von Groddeck and Schwarz (2013) argue for a more critical approach to these definitions in respect to constructivism.

After examining the literature on trends and weak signals, Rossel (2009) argues that it is striking how many authors do not recognise that the concept of weak signals is only a metaphor. Rossel (2009: 314) points out that weak signals do not appear in simple forms such as 'words, sentences, images or events, but rather as bundles of concepts and processes, systemic transitions, hybrid pattern of shifting influences, cultural change dynamics, etc.'. Seidl (2004) introduces a constructivist perspective to dealing with trends. He criticises the epistemological assumptions about weak signals as naïve in the sense that cognitions are conceptualised as direct representations of the external word. He states: 'Weak signals accordingly would have to be conceptualised as experiences with one's current constructions, which in some way or other point at future problems' (Seidl 2004: 151).

Von Groddeck and Schwarz (2013) argue that Seidl (2004: 156) makes an argument for a deliberate discourse-theoretical approach to trend management:

> Weak signals do not exist as such in the outside environment waiting to be picked up by the (members of the) organisation. Rather they have to be conceptualised cognitively, i.e. as cognitive phenomena, determined by the structures of the cognitive system.

He adds, from a constructivist angle, 'Cognitive systems interact with their environments, but it is the cognitive system – and not the environment – that determines how and in what way it interacts' (Seidl 2004: 157).

By drawing on Ernesto Laclau and Chantal Mouffe's (1985) discourse theory and its elaborations (Laclau 1996), von Groddeck and Schwarz (2013) assess the implications of labelling a trend as a megatrend. In this context the notion of empty signifier is especially relevant to conceptualise megatrends. The notion of an empty signifier is used in reference to a semantic element that tries to name and limit a discourse but always fails to do so. Trends and megatrends can be perceived as empty signifiers, enabling us to understand why operative trend management has dysfunctional effects. The empty signifier is a signifier without a signified meaning, making it applicable to a semantic form without a specific meaning. The empty signifier is thus 'meaningless as such' (Zizek 1993: 178).

Von Groddeck and Schwarz (2013) go on to argue that megatrends can be perceived as empty signifiers because they hold together a number of

heterogeneous discursive elements as equal contributions to a certain discourse. The price of empty signifiers is that they are so overloaded with meaning that they cannot transport clear information, which is precisely the analogy we see between the notions of empty signifiers and megatrends. Megatrends, in parallel to empty signifiers, are a semantic form that works as an abstract bracket for heterogeneous societal changes, which leads to an overdetermination of meaning. Consequently, working with megatrends may limit the capacity of organisations to develop foresight.

Von Groddeck and Schwarz (2013) suggest when dealing with megatrends, such as urbanisation or demographic change, one should try to reconstruct the ways in which these signifiers are sought, given value, and fixated in different discourses. This provides an organisation with material or a horizon to detect locations that have the character of nodal points (i.e., where new rules are established and where societal transformation is accompanied by the production of new meaning). Furthermore, discourse analysis can be used to detect those locations in society where the new emerges.

If an empty signifier is only imagined to be likely to limit, end, or freeze a discourse, the strategic disadvantage of working with megatrends becomes even more apparent. The danger is that managers undervalue the fact that megatrends, as empty signifiers, only semantically limit a discourse, but beneath this abstract address, the discourse is permanently changing. Megatrends increase the probability that an organisation will take them to be a solid, inevitably emerging future.

The description of the life cycle (Mathews and Wacker 2002) demonstrated that a trend constantly moves through society and that a trend itself is subject to constant change, as are all objects related to that trend. Outside the perspective of an organisation, therefore, a megatrend does not increase strategic foresight; rather, it increases blind spots, especially when the associated discourse is frozen.

4.2 Narratives and science fiction

In the past the relevance of cultural products for trend research has occasionally been pointed out (Schwarz 2011, 2015; Schwarz and Liebl 2011; Liebl and Schwarz 2012). Liebl (2003) argued that numerous trends originated

in literary works and were disseminated by trend research institutes. One example is Douglas Coupland's novel *Generation X*, which coined terms such as Downnesting, Decade Blending, Lessness, and McJobs. Other disciplines, such as design, already seem to be more advanced, using cultural products in the sense of science fiction prototyping (Johnson 2011; Graham, Greenhill, and Callaghan 2013, 2014; Schwarz and Liebl 2013; Schwarz, Kroehl, and von der Gracht 2014), or using science fiction as an inspiration for the design of interfaces (Shedroff and Noessel 2012). For example, science fiction films and series such as *Star Trek* have arguably been an inspiration and role model for generations of engineers and product developers.

4.2.1 The role of narratives in the construction of reality

The social construction of reality is based largely on cultural products such as literature and movies. Czarniawska (2006: 249) refers to 'the constructive role of popular culture'. According to Crotty (2003: 58),

> ... social constructionism emphasises the hold our culture has on us: it shapes the way in which we see things (even the way in which we feel things!) and gives us a quite definite view of the world. This shaping of our minds by culture is to be welcomed as what makes us human and endows us with the freedom we enjoy.

In the science fiction genre it has been pointed out that these narratives can be used as prototypes (Johnson 2011; Schwarz and Liebl 2013; Schwarz, Kroehl, and von der Gracht 2014). Kirby (2010: 66) has described how film makers and science consultants have created cinematic representations of technological possibilities with the effect of stimulating the desire for these technologies among the audience, but also with an eye on generating funding opportunities for these technologies. 'Fiction's lack of constraints and film makers' creative assistance provides an open "free" space to put forward speculative conceptualisations; it also amends these speculations within narrative that treats these ideas as already actualized within social context'.

The relevance of cultural products in constructing reality becomes more evident if we focus on a single cultural product: literature. While there is scant evidence that literature has been applied in developing foresight,

some evidence exists in respect to science fiction literature. Literature has attracted the notice of scholars in consumer research and organisational studies (Barry and Elmes 1997; de Monthoux and Czarniawska-Joerges 2006).

On the one hand, literature can be attributed a role model function: Literature influences its readers and is at the same time an expression of the reader or society. This means that literature both influence and reflects a society. Images, fictions, fantasies, and dreams shape our reality and just as often these images feed on what we have read. Of course, literary texts can be read as a scenario, stimulating and guiding the readers' imagination. Not only are different futures formulated in scenarios; so are inventions in the near or distant future. Literature can be understood as a cultural reservoir of topics. If literary texts are read as scenarios, new spheres of possibility can be described and alternative images of the future or scenarios evoked, even provoked. A novel can therefore be assigned the task and function of inventing new possibilities and thus creating new hypothetical truths. These possibilities, utopias, and scenarios contribute to the social construction of a cultural reservoir of themes. The function of literature as a gateway to the inner world is also intriguing: literary texts not only describe externalities, actions, or contexts, but also the inner worlds of individual protagonists. Consequently, unlike in films, there is access, for example, to the feelings or inner worlds of the characters.

Bauer (2005: 181) describes how a literary text can influence its readers or change their perceptions:

> The reader first tries to classify the text within his or her familiar framework of understanding. If the schematized views elude this order, he must, as it were, modify the frames of understanding, he must correct his own schemata. Since this will not remain completely without consequences for his further perception of himself and the world, he emerges changed from the interaction with the text.

It becomes clear that with the use of cultural products in foresight, the supposed separation between fact and fiction, between science and fantasy, which exists above all in companies, is also weakened. With regard to reading literary texts, Eco (1996: 103) refers to the contract in fiction that a reader tacitly concludes with the author: '…the author simply pretends

to be telling the truth, and we accept the fiction contract and pretend that what the author tells has actually happened'. At the same time, one cannot be sure that this contract will be kept. A reader can therefore save the information gained from a novel as facts. The role of fiction thus becomes the focus of interest. According to the American sociologist Richard Sennett (Belk 1986: 24): 'One can learn more about the complexity of motives and mutual perceptions from a reasonably good novel than from a "solid" piece of social-science research'.

Schwarz (2015) has argued for a 'narrative turn' in developing foresight and that organisations should focus less on storytelling and more on storylistening: listening to stories in the organisational environment. This notion becomes even more apparent in the genre of science fiction.

4.2.2 Science fiction in foresight and science fiction prototyping

For several years, science fiction had become increasingly relevant to management. In addition to the references to the use of science fiction at Intel (Johnson 2011), Peper's (2017) article 'Why Business Leaders Need to Read More Science Fiction' in the *Harvard Business Review* argues that science fiction not only inspires innovation, but above all encourages managers to question their assumptions about the present and the future: 'Science fiction isn't useful because it's predictive. It's useful because it reframes our perspective on the world' (Peper 2017). In 2019, Charles-Edouard Bouée, CEO of Roland Berger Consulting, advocated the use of science fiction in strategy development in a LinkedIn post, 'The Power of Science Fiction: Shaping the Present with Visions of the Future'.

Recent examples of the use of science fiction can be found at car manufacturer Audi (Schwarz and Hofmann 2019) or software company SAP. The book *Science Fiction: A Starship for Enterprise Innovation* (Rosenberg 2019) describes why science fiction has played an important role in innovation in the past, and why 'science fiction thinking' will be important in developing innovation. Deutsche Telekom reports on a project carried out in collaboration with the Fantastic Library in Wetzlar (von Reventlow, Thesen, Le Blanc, and Haas 2019). In this project, science fiction was evaluated to find innovative ideas. Scenarios were then developed from these ideas with the aim of using them in design thinking workshops.

Cultural products, and especially science fiction, provide a different kind of input with an independent value for trend research. Through literary texts and films, knowledge can be made explicit, and terms assigned to images. In this way, it is possible to develop a feeling for the imaginary worlds or soundboards that exist outside an organisation. Therefore, the use of literature allows the pursuit of an essential goal of trend research: to perceive collective resonance spaces or addressability and thus changes in the socio-cultural environment of an organisation.

Schwarz, Kroehl, and von der Gracht (2014) report on the multiple usage of text excerpts taken from the science-fiction novel *Super Sad True Love Story* (Shteyngart 2011) and summarise the functions of narratives science-fiction for foresight: As science fiction novels provide a new frame of reference for managers, these narratives can serve as vehicles for researching weak signals and trends and for identifying corresponding business opportunities as well as for ensuring the link to customers. Further, they point out to a central characteristic of literature: polyvalence. The meaning of a text is not exclusively derived from the text itself; it is constructed through reading (Groeben and Vorderer 1986), reflecting the individual context of the recipient. According to the notion of polyvalence in literature, a text can be interpreted in many ways.

This means that when a science-fiction narrative in a workshop is used, multiple perspectives can be developed. When confronted with complex and ambiguous issues, organisations need to find means to increase their perspective, for instance, by conducting cross-industry projects (Seidl and Werle 2017). And this multitude of perspectives can then be achieved by referring narratives, for instance, from science fiction.

References

Ansoff, I. 1982. "Strategic Response in Turbulent Environments." *Working Paper No. 82-35*. European Institute for Advanced Studies in Management.

Ansoff, I. H. 1975. "Managing Strategic Surprise by Response to Weak Signals." *California Management Review* 18 (2): 21–33.

Barry, D., and M. Elmes. 1997. "Strategy Retold: Toward a Narrative View of Strategic Discourse." *The Academy of Management Review* 22 (2): 429–452.

Bauer, M. 2005. *Romantheorie Und Erzählforschung: Eine Einführung*. Stuttgart: J. B. Metzler.

Belk, R. W. 1986. "Art Versus Science as Ways of Generating Knowledge About Materialism." In *Perspectives on Methodology in Consumer Research*, edited by D. Bringberg and R. J. Lutz, 3–36. New York: Springer.

Buck, A., C. Herrmann, and D. Lubkowitz. 1998. *Handbuch Trendmanagement*. Frankfurt: Frankfurter Allgemeine Zeitung.

Chang, J. 2005. *Can't Stop Won't Stop*. London: Ebury Press.

Crotty, M. 2003. *The Foundations of Social Research: Meaning and Perspective in the Research Process*. London: Sage Publications.

Czarniawska, B. 2006. "Doing Gender unto the Other: Fiction as a Mode of Studying Gender Discrimination in Orgnization." *Gender, Work and Organization* 13 (3): 234–253.

de Monthoux, P. G., and B. Czarniawska-Joerges. 2006. "Introduction: Management Beyond Case and Cliché." In *Good Novels, Better Management: Reading Organizational Realities*, edited by P. G. de Monthoux and B. Czarniawska-Joerges, 1–16. London: Routledge.

Eco, U. 1996. *Im Wald Der Fiktionen: Sechs Streifzüge Druch Die Literatur*. München: Deutscher Taschenbuch Verlag.

Graham, G., A. Greenhill, and V. Callaghan. 2013. "Exploring Business Visions Using Creative Fictional Prototypes." *Futures* 50: 1–4.

———. 2014. "Technological Forecasting and Social Change Special Section: Creative Prototyping." *Technological Forecasting and Social Change* 84 (0): 1–4. https://doi.org/10.1016/j.techfore.2013.11.007.

Groeben, N., and P. Vorderer. 1986. "Empirische Literaturpsychologie." In *Psychologie Der Literaur*, edited by R. Langer, 105–143. Weinheim: Psychologie-Verlags-Union.

Groys, B. 2008. *Art Power*. Cambridge: The MIT Press.

Harris, S. D., and S. Zeisler. 2002. "Weak Signals: Detecting the Next Big Thing." *The Futurist* 36 (6): 21–28.

Johnson, B. D. 2011. *Science Fiction for Prototyping: Designing the Future with Science Fiction*. San Rafael: Morgan & Claypool.

Kirby, D. 2010. "The Future Is Now: Diegetic Prototypes and the Role of Popular Films in Generating Real-World Technological Development." *Social Studies of Science* 40 (1): 41–70.

Laclau, E. 1996. *Emancipation(S)*. London: Verso (Phronesis).

Laclau, E., and C. Mouffe. 1985. *Hegemony and Socialist Strategy: Towards a Radical Democratic Politics*. London: Verso.

Liebl, F. 2000. *Der Schock Des Neuen: Entstehung Und Management von Issues Und Trends*. München: Gerling Akademie Verlag.

———. 2002. "The Anatomy of Complex Societal Problems and Its Implications for OR." *Journal of the Operational Research Society* 53 (2): 161–184.

———. 2003. "Woher Kommt Der Trend?" *Brandeins*. https://www.brandeins.de/magazine/brand-eins-wirtschaftsmagazin/2003/2004-und-weiter/kolumne-woher-kommt-der-trend.

Liebl, F., and J. O. Schwarz. 2010. "Normality of the Future: Trend Diagnosis for Strategic Foresight." *Futures* 42 (4): 313–327.

———. 2012. "'Art Facts': Zur Nutzung Kultureller Originalitätsproduktion Für Die Strategische Frühaufklärung." In *FOCUS-Jahrbuch 2012: Prognose, Trend- Und Zukunftsforschung*, edited by W. J. Koschnick, 277–301. München: FOCUS Magazin Verlag.

Link, J. 1999. *Versuch Über Den Normalismus: Wie Normalität Produziert Wird*. Opladen: Westdeutscher Verlag.

Mathews, R., and W. Wacker. 2002. *The Deviant's Advantage*. London: Crown Publishing Group.

McCracken, G. 2006. *Flock and Flow: Predicting and Managing Change in a Dynamic Marketplace*. Bloomington: Indiana University Press.

Naisbitt, J. 1984. *Megatrends: Ten New Directions Transforming Our Lives*. New York: Warner Books.

Peper, E. 2017. "Why Business Leaders Need to Read More Science Fiction." *Harvard Business Review*, 2017.

Popcorn, F. 1991. *The Popcorn Report*. London: Random House.

Reeves, M., B. Goodson, and K. Whitaker. 2021. "The Power of Anomaly: To Achieve Strategic Advantage, Scan the Market for Surprises." *Harvard Business Review* (July-August): 94–101.

Rosenberg, A. 2019. *Science Fiction: A Starship for Enterprise Innovation*. Copenhagen: Startup Guide World.

Rossel, P. 2009. "Weak Signals as a Flexible Framing Space for Enhanced Management and Decision-Making." *Technology Analysis & Strategic Management* 21 (3): 307–320.

Schwarz, J. O. 2011. *Quellcode Der Zukunft: Literatur in Der Strategischen Frühaufklärung*. Berlin: Logos.

———. 2015. "The 'Narrative Turn' in Developing Foresight: Assessing How Cultural Products Can Assist Organisations in Detecting Trends." *Technological Forecasting and Social Change* 90 (Part B): 510–513. https://doi.org/10.1016/j.techfore.2014.02.024.

Schwarz, J. O., and F. Liebl. 2011. "Quellcode Der Zukunft." *GDI Impuls* 4: 82–87.

———. 2013. "Cultural Products and Their Implications for Business Models: Why Science Fiction Needs Socio-Cultural Fiction." *Futures* 50: 66–73.

Schwarz, J. O., and R. Hofmann. 2019. *Is Today's Science Fiction Tomorrow's Science Fact? On the Relevance of Science-Fiction for Trend Research: Insights from the Audi Brand Fiction Space Project*. Munich: Foresight Academy, http://www.motivesandfiction.com/cms-media/media-3952720.pdf.

Schwarz, J. O., R. Kroehl, and H. A. von der Gracht. 2014. "Novels and Novelty in Trend Research - Using Novels to Perceive Weak Signals and Transfer Frames of Reference." *Technological Forecasting and Social Change* 84 (May): 66–73. https://doi.org/10.1016/j.techfore.2013.09.007.

Seidl, D. 2004. "The Concept of 'Weak Signals' Revisited: A Re-Description from a Constructivist Perspective." In *Managing the Future: Developing Strategic Foresight in the Knowledge Economy*, edited by H. Tsoukas and J. Shepherd, 153–170. Oxford: Blackwell.

Seidl, D., and F. Werle. 2017. "Inter-Organizational Sensemaking in the Face of Strategic Meta-Problems: Requisite Variety and Dynamics of Participation." *Strategic Management Journal* 39 (3): 830–858. https://doi.org/10.1002/smj.2723.

Shakar, A. 2001. *The Savage Girl*. New York: HarperCollins.

Shedroff, N., and C. Noessel. 2012. *Make It So: Interaction Design Lessons from Science Fiction*. New York: Rosenfeld Media.

Shteyngart, G. 2011. *Super Sad True Love Story*. New York: Random House.

Slaughter, R. A. 1999. "A New Frame Work for Environmental Scanning." *Foresight* 1 (5): 441–451.

Thornton, S. 2018. *Club Cultures: Music, Media and Subcultural Capital*. Oxford: Wiley.

Vejlgaard, H. 2008. *Anatomy of a Trend*. New York: McGraw-Hill.

von Groddeck, V., and J. O. Schwarz. 2013. "Perceiving Megatrends as Empty Signifiers: A Discourse-Theoretical Interpretation of Trend Management." *Futures* 47: 28–37.

von Reventlow, C., P. Thesen, T. Le Blanc, and M. Haas. 2019. *Wenn Die Zukunft Zum Heute Wird*. Berlin: Deutsche Telekom Design.

Waters, R. 2005. *The Trendmaster's Guide*. New York: Portfolio.

———. 2006. *The Hummer and the Mini*. New York: Portfolio.

Weiner, E., and B. Arnold. 2006. *Future Think*. Upper Saddle River: Prentice Hall.

Zizek, S. 1993. *Grimassen Des Realen: Jacques Lacan Oder Die Monstrosität Des Aktes*. Köln: Kiepenheuer & Witsch.

5

TREND RECEIVER

Rupert Hofmann[1]

The future arises from the interplay of continuity and change, sometimes disruptive, but never in a vacuum. This is just as true for substantial changes in our everyday lives as it is for groundbreaking new product projects or in the course of the realignment of a traditional company. Exploring future needs and wishes, it seems obvious to survey knowledge and opinions from different target and population groups within a study. Selection of interviewees plays a decisive role both in qualitative and quantitative research projects. But who could those people be? Who can provide credible trend information on the topics of strategy, brand, products, service, and communication? Who can help to make future customer expectations more tangible? How can we include as many perspectives and the needs of our fellow world members as possible? How can the resulting information be translated into action? These questions – and answers! – are the focus of customer foresight research.

DOI: 10.4324/9781003302735-8

5.1 The trend receiver method

In customer foresight practice, it is fascinating to research people who elicit change – because they combine things that had previously been separated, thus bringing something new into the world or spreading an invention. Also relevant are people aware of change dynamics in an early phase and who are able to assess the potential of the 'new'. Following concepts in trend research, a typology of 'agents of the new' (see Figure 5.1) was developed. Among these agents are lead users, trend receivers, experts, early adopters, and influencers.

Trend receivers are especially relevant for future topics. They perceive changes and potentials of the new in a specific domain in a highly sensitive and differentiated way (Hofmann 2015). Trend receivers have special antennae for changes and needs. Their visionary competence enables them to develop notions and projections, ideas and scenarios from signals and observations. They are very well connected, have profound opinions about what motivates individuals, and observe social changes in a very reflective way.

The trend receiver method focuses on ways of identifying these persons, who bring everyday needs and experience together with a sensitive perception of changes and potentials of the new. It enables practitioners to find suitable dialogue partners by tailored search profiles based on topic and

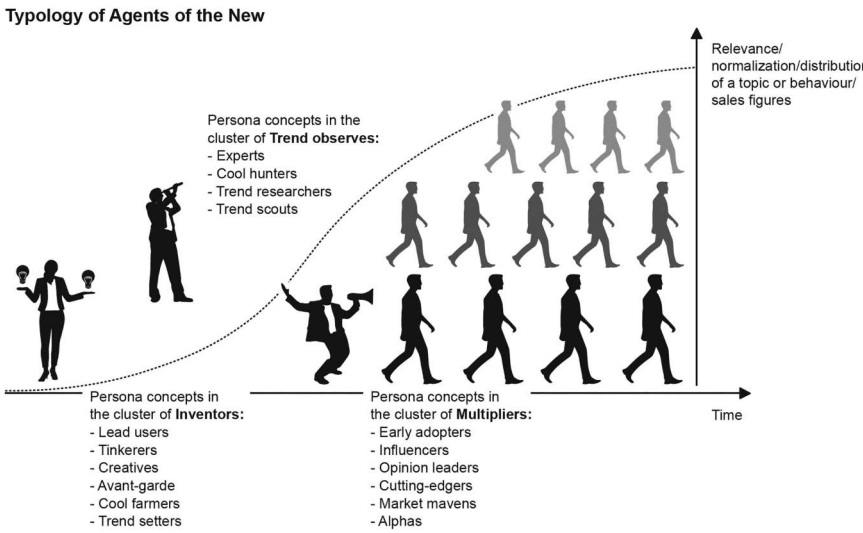

Figure 5.1 Typology of 'Agents of the New' (Hofmann 2015).

context. It also provides a guideline on how to conduct the dialogue with these conversation partners. Originally developed by the exemplary practice needs of Audi, the method has since proven useful in various entrepreneurial, economic, and socio-political studies. The method is especially recommendable if the research topic involves mid- and long-term market developments and if market conditions are likely to change substantially. The trend receiver concept has a high degree of transferability because it provides for a tailored determination that is equally appropriate to the respective context, the specific objectives, and the complexity of the issue. At the same time, it demands a certain level of qualitative research skills and curiosity among the responsible persons of the given research projects in order to implement such a 'made by measure study design' which is epistemologically based on Kant's reflective judgement (Hofmann 2011).

5.2 Identification and implementation of trend receivers

Four characteristics proved typical of trend receivers across topics and industries: own user and context experience, self-abstraction ability and pattern recognition, curiosity and heterogeneity, and selection competence (Hofmann 2015). Furthermore, biographical discontinuities and communication competence are often helpful characteristics (Hofmann 2020). These characteristics enable trend receivers to identify new trends early and provide a coherent description of a possible or desirable everyday life in the future. Yet, it is important to note that no one can oversee all areas of life. The identification of trend receivers for the respective context is therefore crucial. Catalogues of criteria like in publications can serve as the basis for the formulation of a search profile, customised to the research questions. Following the creation of such a tailored description, suitable intermediaries come into play to check their network. The search process is based on 'pyramiding' (Prügl 2006; Schweitzer, Hofmann, and Meinheit 2019).

The subsequent dialogue requires as much attention. Discussions must be prepared in a targeted manner, both in content and communication. The first decisive step is how to present the initial situation and questions, and how to offer one's own hypotheses and ideas. Then we should listen well and enter discussions where necessary. In the process, observations are presented, arguments and counterarguments are weighed, and together

we think further into the future. The conversations should be understood as a journey in which each person and the group itself continue to enrich and clarify the emerging projections and visions.

The trend receiver method, as already mentioned earlier, has been implemented in different entrepreneurial, economic, and socio-political contexts. The projects allowed the integration of visionary customers into vision finding and strategy as well as brand, product and service development processes. The following two case studies will explain the application of the method.

5.3 'Easy Rider' study – autonomous driving from the market and customers' perspective

Few topics hold so much disruptive power as that of autonomous driving. From 2013, Audi's market and trend research sought to understand potentials and concerns from the customer's point of view – not an easy task, since everyday mobility life with semi-autonomous or fully autonomous cars would differ significantly from today's (even more so from the perspective of 2013.). And while many quantitative broad-based surveys revealed great fears and rejections, reflected ideas of future driving and mobility situations were sought. This was intended to answer the question of what an attractive car and system would look like under expanded technical possibilities.

Therefore, 29 trend receivers in the United States, Germany, and China were identified through a customised search profile and various intermediaries. Initially, individual in-depth interviews were conducted; between these individual interviews, the content and structure of the interview guideline were continuously developed. Parallel to wide-ranging desk research, the iterative study design (Figure 5.2) consisted of a behavioural economic analysis, a cultural and innovation history analysis, and a scenario analysis. Additional expert interviews were conducted with city planners and pilots.

Impulses and hypotheses on user behaviour and descriptions of desirable future mobility situations or vehicle characteristics arising in discussions with trend receivers were quantified in the second part of the study in cooperation with the research institute of a partner university (Hahn et al., 2016). The condensed interim results were converted into 12 use cases and

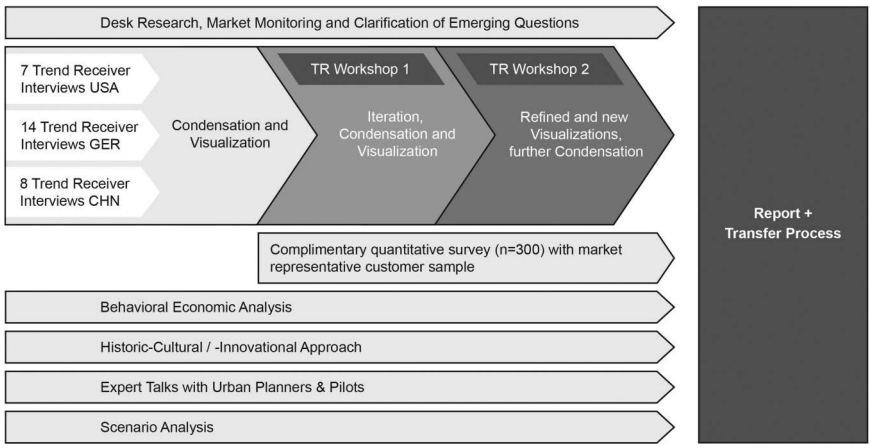

Figure 5.2 Iterative study design of the easy rider project (Hahn et al. 2016).

Figure 5.3 'Easy Rider' workshop situation and concept model Audi AICON (gravity GmbH, Audi).

visualised. In workshops with individual and group formats (see Figure 5.3) these representations were then questioned, discarded, enriched, and refined. The results were used by specialised departments on the Board of Management and by various areas such as Audi design, pre-development, brand strategy, and product marketing. It influenced, amongst others, the concept car AICON (Figure 5.3) and further examination of the future topic of autonomous driving.

5.4 Cross-industry project: 'How do we want to live in 10 years?'

In 2017/2018, the companies BSH, Hornbach, Ikea, and Audi carried out a major international life worlds study, which sought cross-industry access

and centred on the question: 'How do we want to live in 10 years?' According to a broad 'corridor of the possible and likely', 30 trend receivers in Europe, China and the USA participated. In addition, 30 rookie trend receivers aged between 20 and 30 were consulted, complementing the older trend receivers who ranged in age from 30 to 60. The purpose of having two cohorts was to determine whether and how the positions and perceptions of older and younger trend receivers shifted in relation to digitalisation, data protection, or sustainability.

All trend receivers were identified by means of a search profile formulated based on the questions and reflected within the project team. Various intermediaries helped find persons who fit this search profile. A parallel aim was to identify a wide range of dialogue partners with regard to gender, age, background, family situation, interests, experience, and career. The iterative process became particularly intensive in this project, not least because the responsible representatives of the participating companies took part in the discussions and trips and, together with the lead agency, continuously reflected on the hypotheses and implications.

The results and statements on future life worlds were brought together and visualised in six chapters (see Figure 5.4), short films and a central presentation. The project has been a continuous and sustainable source of

Figure 5.4 Areas of research and projected life worlds (cross-industry study 'How do we want to live in 10 years?', graphics by gravity GmbH).

inspiration and information for the development of brands, products, services, trade networks, business models, and organisation. Moreover, it led to the launch of the Foresight Academy – a cross-industry platform for future-oriented work and customer foresight expertise in 2019. Thirteen leading companies from a variety of sectors were involved in Foresight Academy 2019–2020 and in 2021 a further round started with 16 major brands (www.foresightacademy.com).

5.5 Conclusion

These two exemplary projects illustrate that it is worthwhile to use the visionary competence and foresight abilities of trend receivers for important future topics. In every context, persons can be found who are particularly well attuned to changes and needs. Dialogues with them help us to create visions and provide guidance for development processes and decisions.

And especially as we experience enormously growing influence and potentials of algorithms and data, on our way into the future we should combine these new opportunities with the 'human factors', from which the trend receiver method draws. Let's use both detailed fact knowledge and skillful data modelling as well as the power of intuition, ideas, associations, empathy, and vision!

Note

1 Dr. Rupert Hofmann works for Audi Business Innovation and is an observational draftsman. He studied at Munich Academy of Fine Arts, Passau University, Columbia University in New York City and at Federal University of Juiz de Fora, Brazil. In his PhD he developed the Trend Receiver concept, a novel qualitative method that combines insight and foresight research. Rupert Hofmann is the founder of the cross-industry platform Foresight Academy and has been lecturing and writing on different topics related to trend research, branding and strategy. Rupert's interest in people and their environment, behaviour, and motives also drives his observational drawings of people, modern everyday life, city perspectives, stores, beaches, and bars (www.ruperthofmann.com).

References

Hahn, A., R. Hofmann, V. Bilgram, J. O. Schwarz, A. Meinheit, and F. Johann. 2016. "Easy Rider: Die Erschließung der Welt des autonomen Fahrens aus Sicht von Markt und Kunde." In *Die frühe Phase des Innovationsprozesses*, edited by T. Abele, 75–98. Wiesbaden: Springer (FOM Edition).

Hofmann, R. 2011. *Trend Receiver – qualifizierte Visionskraft. Kriterien und Vorgehensweisen der Befragtenauswahl und Dialoggestaltung bei Studien zu zukünftigen Konzepten am Beispiel der AUDI AG*. Göttingen: Cuvillier.

———. 2015. "Visionary Competence for Long-term Development of Brands, Products, and Services: The Trend Receiver Concept and Its First Applications at Audi." *Technological Forecasting and Social Change* 101: 83–98.

———. 2020. "Customer Foresight Practice. How to Access Future Markets Through Extraordinary People." *Marketing Review St. Gallen* 3: 36–45.

Prügl, R. 2006. Die Identifikation von Personen mit besonderen Merkmalen: eine empirische Analyse zur Effizienz der Suchmethode Pyramiding (Dissertation). Wien: Wirtschaftsuniversität.

Schweitzer, N., R. Hofmann, and A. Meinheit. 2019. "Strategic Customer Foresight: From Research to Strategic Decision-making Using the Example of Highly Automated Vehicles." *Technological Forecasting and Social Change* 144: 49–65.

6

THE DELPHI METHOD

HOW EXPERTS SEE THE FUTURE

Heiko von der Gracht[1]

The climate is in crisis: Will Barcelona sink into the sea? Or Hamburg? Considering the rising sea levels, in which coastal regions will people be able to live at all in ten years?

As the saying goes, predictions are difficult, especially when they concern the future. Nevertheless, very little has interested people over the past 40,000 years as much as their future. That could explain the use of practices like fortune telling and divination… didn't anyone tell them to ask the experts? One of the best-known expert questioning techniques is the Delphi method, based on the location of the Greek oracle.

6.1 Historical development of the method

The Delphi method was developed in the 1950s by researchers at the American RAND (Research ANd Development) Corporation. On October 1, 1945, Henry Arnold, Edward L. Bowles, Donald Douglas, Arthur C. Raymond,

DOI: 10.4324/9781003302735-9

and Frank Collbohm met to form Project RAND under a special contract with the Douglas Aircraft Company. The organisation was established immediately after World War II to coordinate military planning with decisions in research and development. In May 1946, Project RAND published its first report, 'Preliminary Design of an Experimental World-Circling Spaceship' (RAND Corporation 1946), which discussed the design, performance, and application of satellites. On May 14, 1948, Project RAND broke away from the Douglas Aircraft Company and became an independent, non-profit organisation (RAND Corporation 2022).

The first experiment in which the Delphi method was used at the RAND Corporation, was to determine potential targets for attack in the USA and the number of atomic bombs needed to destroy them (Dalkey and Helmer 1963). The first civilian Delphi study, 'Report on a Long-Range Forecasting Study' followed several years later in 1964 (Gordon and Helmer 1964). The panel evaluated more than 100 future occurrences and developments with a time horizon up to the year 2020 in several written discussion rounds, making it a very long-range study. This highly regarded study launched the international dissemination of the method, which continues to this day. The Delphi method is still used by scientists and foresight managers around the world.

Of course, much has changed since the 1950s. In the past, experts on the panel submitted written assessments, so-called 'paper and pencil studies'. Today, this can be done faster and more directly online, saving an enormous amount of time during the evaluation. Apart from that, the development of the method proceeds.

6.2 Design aspects of the method

What is the Delphi method? 'Delphi may be characterised as a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem' (Linstone and Turoff 1975: 3).

According to some sources, the goal of Delphi studies is for a panel of experts to reach consensus. But this is a misconception. In 2011, the two pioneers of the method, Harold A. Linstone and Murray Turoff, issued a clarification:

> Over the years, as a reviewer and editor-in-chief of *TFSC* (Technological Forecasting & Social Chance) it has often been necessary to correct the mistaken impression that the aim of Delphi is consensus. Our 1975 book clearly states that Delphi is 'a method for structuring a group communication process', not a method aimed to produce consensus'.
>
> *(Linstone and Turoff 2011: S. 1714)*

In other words, a Delphi panel discussion can lead to consensus, but it does not have to.

A Delphi research design follows the method's four core elements: anonymity, iteration, controlled feedback, and group response (Beiderbeck, Frevel, von der Gracht, Schmidt, and Schweitzer 2021b).

6.2.1 Anonymity

Delphi is an anonymous written survey. The participating experts are, of course, known by name to the moderator/study director but not to the other experts on the panel. This is because when the experts in the Delphi survey rounds discuss each other's assessments, a renowned name, for example, should not influence the discussion. This avoids the negative psychological effects that are known from almost all group discussions, for example, the bandwagon effect ('follow the crowd'): As soon as a prominent expert gives their assessment in the discussion, everyone or nearly everyone agrees.

6.2.2 Iteration

Delphi studies are conducted in several rounds. In the classic method, according to RAND, the first round is a brainstorming session with the experts on the question: What do the panel members believe are the relevant topics? In the second round, the same experts comment on and rate these topics. The important thing here is that the participants not only evaluate, but also defend their assessments. In other words, an expert not only explains what they think the future holds, but also presents arguments for and against it. In the third round, all panel experts see each other's assessments and the statistical group opinion. In light of the panel colleagues' assessments, each expert can then modify and/or support their own assessment it with further arguments, if they wish. According to the textbook, these

'revision rounds' should be repeated until the results are stable, meaning that all of the experts are done with making changes to their assessments (Dajani, Sincoff, and Talley 1979). This makes obvious sense: No one wants unreliable results.

In the past, however, modified Delphi studies deviated from the classical approach by conducting either more or fewer iterations, sometimes predetermined or based on predefined termination criteria. The number of iterations depended on many variables, such as the composition of the panel, the nature of the problem to be solved, and the type of feedback given after each round (Erffmeyer, Erffmeyer, and Lane 1986). In practice, there are usually one to two revision rounds.

6.2.3 Controlled feedback

We have already touched on this characteristic element of every Delphi study. After each round, the study director forwards the evaluated assessments of the individual experts to all the others in a 'controlled' manner, with the statistical group assessment (Belton et al. 2021).

6.2.4 Group response

The group of experts is given an 'answer' with each round, usually as boxplot diagrams, which also reflect statistical outlier assessments and statistical measures of group assessment. It also includes the degree of consensus and dissent in the panel (von der Gracht 2012).

6.2.5 Different scales in Delphi studies

Researchers traditionally ask about the probability of an event or development, usually using a rating scale of 0–100 per cent. In addition, they usually ask participants about the impact of the event with the specified probability on an industry, a company, their company, or the national economy. It is also customary to inquire about the desirability of the event, often along a 5-point Likert scale (1 = 'I do not wish this to occur at all' to 5 = 'absolutely desirable'). Other variables are feasibility (especially for technological developments), urgency for action, or confidence (the expert's certainty about their assessment).

6.2.6 Types of Delphi questions

Most Delphi questionnaires include future-oriented theses, also called Delphi projections. In other words, not questions, but statements such as: 'Projection 9: The oil price will rise to $400 per barrel in 2030'. Each projection is assessed by the experts along the evaluation scales with arguments for and/or against this development.

How the projections are formulated is central to the validity of subsequent results (Markmann, Spickermann, von der Gracht, and Brem 2021). For example, it is important when formulating the projections that they are unambiguous, and therefore understood by all experts and, above all, understood in the same sense. The point is to avoid ambiguity. If projections are formulated in a way that is too long or complicated, the result can be increased misunderstanding on the part of the experts and partially or completely unreliable assessments. There is an underlying dilemma: If a projection is too short, it is usually too superficial and so are the experts' answers. There are actually studies that determine the optimal number of words for each Delphi statement (e.g., Salancik, Wenger, and Helfer 1971).

6.3 Selecting the experts

The initial question in any Delphi study is: Who is an expert in this field? There are no official directories for this. It always requires detective work in conference programme brochures, databases, publications on relevant topics, awards ceremonies, and the like. Another way is through recommendations: One expert recommends another, because experts know each other.

6.3.1 Significance of the selection

The importance of a correct selection of experts is obvious: Delphi results are always only as good as their experts (Mauksch, von der Gracht, and Gordon 2020). The selection is not about representativity, as in many classical empirical studies. Rather, it is about the greatest possible expertise that should be represented in the panel. Unlike representative studies, in which hundreds if not thousands of respondents are interviewed, there are

usually 'only' 20–100 experts in a Delphi study. Furthermore, these experts come from a range of fields.

This is crucial, because diversity is key to the success of the Delphi and to the quality of the statements (Spickermann, Zimmermann, and von der Gracht 2014). The more diverse the panel, the better for most research purposes. If the experts were only from one area or related areas, the statements about the future would certainly show a tendency and blind spots: The more eyes there are, the more they will see. And different sets of eyes will see even more into the future.

That is why good panels often include experts from business, politics, science, and associations, with corresponding sub-groups. Another important question is: Do you want to make comparisons between the groups later, on the basis of the results? In that case, there should be at least 15–20 experts in each group so that the results are statistically reliable.

6.3.2 Special form: Real-time Delphi

In this special form, the expert sits in front of a computer, completes the assessment, and then, as soon as they click 'Next', sees what everyone else has said about this projection (Gordon and Pease 2006; Aengenheyster et al., 2017). This projection is automatically evaluated and passed on by the software in real time. Targeted studies have shown that this special form significantly streamlines the Delphi process while maintaining the quality of the data (Gnatzy, Warth, von der Gracht, and Darkow 2011). Another advantage is that there is no limit to the number of discussion rounds. Each expert can log into the projections as many times as they desire within a specified time limit.

6.4 Application example: European Generics and Biosimilars Industry

In 2021, the Delphi study 'The Future of the European Generics and Biosimilars Industry 2030plus' was published (von der Gracht, Kisgen, Lange, and Jalufka 2021). It is a good example of how a structured survey of experts can give the commissioning decision-makers of an entire industry a strategic perspective over nine years and beyond. In turbulent times like these, such a perspective is crucial for success.

6.4.1 The study

For the study, more than 60 experts were interviewed over several months. They were not only from the industry, but also from pharmaceutical wholesalers, start-ups, pharmacies, hospitals, universities, and ministries. The survey included 12 projections, for example: 'Medicines are produced specifically for each patient on the 3D printer at decentralised supply points (e.g., pharmacy, doctor's practice, retailer, at the patient's home, etc.)'.

6.4.2 The questions

For each projection, the probability of occurrence was inquired. This is a special feature of this study for four years: 2025, 2030, 2035, and 2040. The study benefited from a lively discussion, which brought to light more than 800 contributions.

Three arguments in favour of the above proposition were: '3D printing could become The Next Big Thing'. 'Individual printlets [pills from the 3D printer] are already marketable today'. 'The emerging mega-trend of personalised medication is driving technology development'.

Three arguments against were: '3D printing is more expensive than volume production'. 'Printing drugs with 3D in the living room?' 'Biosimilars [copycat bio-pharmaceutical drugs, like insulin] cannot be printed!'

Ultimately, the panel was unanimous that by 2030 the probability of the projection occurring is only 16 per cent. By 2040, the panel set the probability at 38 per cent. Scepticism obviously predominated with this projection. If one looks at the individual expert groups separately, it becomes clear that the panel members from science were more optimistic that the occurrence would come to pass than the panellists from business and politics were. Viewed across the entire panel, the development outlined by the projection is definitely desirable.

6.4.3 Other special characteristics of the study

The special thing about the design of the study was that the experts were also asked how sure they were about their assessment of an individual projection. Inquiries about the behavioural aspects of each expert were also made, since personal predisposition naturally influences assessment

tendency (see also Kovaleva 2012). Do experts believe that they can influence the state of the world (internal locus of control)? Or is 'fate' unchangeable (external locus of control)? Here, too, it is obvious that an expert with a strong internal locus of control assesses future events differently from someone who takes the course of events at face value.

Delphi studies should therefore include the personal psychological predispositions of experts and their world views. These parameters influence an expert's assessment of and should therefore not be neglected in the interpretation (Loye 1980; Spickermann, Zimmermann, and von der Gracht 2014; Beiderbeck, Frevel, von der Gracht, Schmidt, and Schweitzer 2021b).

6.5 Challenges of the method

A search for 'Delphi method' in Google Scholar returns more than 7,000 hits in 2022); in 2021, there were more than 17,000, and in 2018, over 20,000. Even compared to other scientific methods, these figures indicate its popularity. On average, there are between 1,000 and 2,000 publications on the method every month! That is impressive.

6.5.1 Technical shortages: Not enough experts

It is less impressive that Delphi studies still have technical deficiencies. One reason is that many researchers shy away from interviewing a large number of experts. Then they discover that there is a study format in which only 20 experts were interviewed, which is probably enough for our purposes. Some also argue that in the first RAND Delphi study, only seven experts were interviewed, and the result was historic.

The design of this historical study cannot be generalised. In other words, if a researcher is lucky enough to be able to interview ten Nobel laureates, there is no need for ten more. That is the point: each study needs only as many experts as is necessary to validate the findings. What does 'exactly as many' mean?

Practical experience indicates usually 40–80 experts (von der Gracht, Gnatzy, Darkow, Gordon, and Glenn 2011). With participation of around 40 experts, for example, the variety of arguments no longer increases, but instead the same arguments are repeated.

6.5.2 Additional technical shortcomings

It goes without saying that a professional study design and competently moderated panel rounds can avoid the following deficiencies:

- **Limited panel review**: Although they do participate in the Delphi and give their assessments, hardly any discussion takes place afterwards. The majority of the panel remains silent.
- **This results in an artificial consensus**: Due to the lack of discussion, it seems as if the experts agree when they do not. They are merely silent.
- **Ambiguous projections**: Each expert interprets them differently.
- The application of only simple descriptive statistics is used for the evaluation of the expert assessments; **the evaluation remains superficial**. Professional Delphi studies therefore use, for example, statistical group comparisons, outlier and cluster analyses, and other procedures (Warth, von der Gracht, and Darkow 2013).
- **Contestable expert criteria**: The reason an expert is regarded as such and has been selected is not transparent.

6.6 Further development of the method

What do excellent Delphi studies do differently or better, beyond avoiding these shortcomings? Where is the development headed? There are eight key points:

1. **Sentiment analyses**: The personal psychological and ideological predispositions of the experts are made transparent and considered in the interpretation of the results.
2. **Qualitative data analysis**: The textual arguments of the experts are analysed qualitatively and systematically by means of coding and categories. The framework of Förster and von der Gracht (2014: tables 8 and 9) has proven useful for Delphi analyses.
3. **Design layout** under consideration of the dichotomy of end state vs. time intervals. For example, one could ask the experts: 'What is the probability of occurrence for 2030 (end state)?' Or alternatively, 'When do you think the projection will occur?' In addition, metric scales allow for more meaningful analyses than ordinal scales.

'In how many years will the projection occur?' The scale starts at 0 (never) and goes up to 100 years. From this, it is possible to calculate mean values and a distribution curve. This is more precise than the ordinal scaling along periods of time which, averaged, do not allow any conclusion to be drawn about a specific year.

4. **Biases**: Consideration of various cognitive biases among experts, such as the desirability bias (e.g., Ecken, Gnatzy, and von der Gracht 2011; Winkler and Moser 2016; Bonaccorsi, Apreda, and Fantoni 2020). In this case, one expert estimates that 80 per cent of all medicines will come from 3D printers in five years. That many? Yes, because he is an expert on printer manufacturers and is subject to desirability bias. He tends to overrate the probability of occurrence of what he hopes to see happen.
5. **Clustering of Delphi projections**: Not only is each projection evaluated individually, but also in combination with other, related projections and/or in cross-impact, for example, in interaction with other hypotheses (e.g., Beiderbeck, Frevel, von der Gracht, Schmidt, and Schweitzer 2021a).
6. **Confidence or self-rated expertise**: One might ask the experts: 'On a 5-point Likert scale, how do you rate your expertise in this field?' One could also ask about their confidence in making an assessment. This can be used to weight the results of the individual experts as well as at the projection level in the analysis.
7. **The well-founded derivation of hypotheses** along established theories and frameworks: The origin of a hypothesis must be recognisable and comprehensible (for a bibliometric analysis of the use of theories in foresight, see Münch and von der Gracht 2021).
8. **Language:** The formulation of projections can have a lasting influence on an expert's answers (Markmann, Spickermann, von der Gracht, and Brem 2021). This can lead to undesirable bias and tangential discussions. For example, the statement 'The price of oil will rise to $400 per barrel by 2030' can lead to experts arguing over it is actually $400 dollars, $360 or perhaps $420, instead of discussing whether a huge oil price shock is to be expected.

6.7 Adaptation and outlook

Each method has advantages and disadvantages. Therefore, when designing a survey, it is all the more important to answer the question: Does a Delphi

survey fit into my research design and the research question? Researchers who are familiar with the Delphi method will find the right response.

Note

1 Dr. Heiko A. von der Gracht is Professor of Futures Research and Foresight at Steinbeis University, School of International Business and Entrepreneurship (SIBE), Germany. He has published more than 50 foresight studies as well as 250 academic and practice-oriented papers and book chapters. Prof. von der Gracht is the founder and editor of several scientific journals. As an associate editor, he heads the international Bureau for Foresight of the leading journal Technological Forecasting & Social Change. He has more than a decade of consulting experience working with multinational corporations.

References

Aengenheyster, S., K. Cuhls, L. Gerhold, M. Heiskanen-Schüttler, J. Huck, and M. Muszynska. 2017. "Real-Time Delphi in Practice—A Comparative Analysis of Existing Software-based Tools." *Technological Forecasting and Social Change* 118: 15–27. https://doi.org/10.1016/j.techfore.2017.01.023.

Beiderbeck, D., N. Frevel, H. A. von der Gracht, S. L. Schmidt, and V. M. Schweitzer. 2021a. "The Impact of COVID-19 on the European Football Ecosystem – A Delphi-based Scenario Analysis." *Technological Forecasting and Social Change* 165: 120577. https://doi.org/10.1016/j.techfore.2021.120577.

———. 2021b. "Preparing, Conducting, and Analyzing Delphi Surveys: Cross-disciplinary Practices, New Directions, and Advancements." *MethodsX* 8: 101401. https://doi.org/10.1016/j.mex.2021.101401.

Belton, I., G. Wright, A. Sissons, F. Bolger, M. M. Crawford, I. Hamlin, ... A. Vasilichi. 2021. "Delphi with Feedback of Rationales: How Large can a Delphi Group Be Such that Participants Are Not Overloaded, De-motivated, or Disengaged?" *Technological Forecasting and Social Change* 170: 120897. https://doi.org/10.1016/j.techfore.2021.120897.

Bonaccorsi, A., R. Apreda, and G. Fantoni. 2020. "Expert Biases in Technology Foresight. Why They Are a Problem and How to Mitigate Them." *Technological Forecasting and Social Change* 151: 119855. https://doi.org/10.1016/j.techfore.2019.119855.

Dajani, J. S., M. Z. Sincoff, and W. K. Talley. 1979. "Stability and Agreement Criteria for the Termination of Delphi Studies." *Technological Forecasting and Social Change* 13 (1): 83–90. https://doi.org/10.1016/0040-1625(79)90007-6.

Dalkey, N., and O. Helmer. 1963. "An Experimental Application of the Delphi Method to the Use of Experts." *Management Science* 9 (3): 458–467. https://doi.org/10.1287/mnsc.9.3.458.

Ecken, P., T. Gnatzy, and H. A. von der Gracht. 2011. "Desirability Bias in Foresight: Consequences for Decision Quality based on Delphi Results." *Technological Forecasting and Social Change* 78 (9): 1654–1670. https://doi.org/10.1016/j.techfore.2011.05.006.

Erffmeyer, R. C., E. S. Erffmeyer, and I. M. Lane. 1986. "The Delphi Technique: An Empirical Evaluation of the Optimal Number of Rounds." *Group & organization studies* 11 (1–2): 120–128. https://doi.org/10.1177/105960118601100110.

Förster, B., and H. A. von der Gracht. 2014. "Assessing Delphi Panel Composition for Strategic Foresight — A Comparison of Panels based on Company-internal and External Participants." *Technological Forecasting and Social Change* 84: 215–229. https://doi.org/10.1016/j.techfore.2013.07.012.

Gnatzy, T., J. Warth, H. A. von der Gracht, and I.-L. Darkow. 2011. "Validating an Innovative Real-time Delphi Approach – A Methodological Comparison between Real-time and Conventional Delphi Studies." *Technological Forecasting and Social Change* 78 (9): 1681–1694. https://doi.org/10.1016/j.techfore.2011.04.006.

Gordon, T. J., and A. Pease. 2006. "RT Delphi: An Efficient, "round-less" Almost Real Time Delphi Method." *Technological Forecasting and Social Change* 73 (4): 321–333. https://doi.org/10.1016/j.techfore.2005.09.005.

Gordon, T. J., and O. Helmer. 1964. *Report on a Long-Range Forecasting Study*. Santa Monica: The RAND Corporation.

Kovaleva, A. 2012. *The IE-4: Construction and Validation of a Short Scale for the Assessment of Locus of Contro.* (Dr. rer. soc.), University of Mannheim, Germany, Mannheim. www.ssoar.info/ssoar/bitstream/handle/document/37119/ssoar-2012-kovaleva-The_IE-4_Construction_and_Validation.pdf?sequence=1&isAllowed=y&lnkname=ssoar-2012-kovaleva-The_IE-4_Construction_and_Validation.pdf.

Linstone, H. A., and M. Turoff. 1975. "Introduction." In *The Delphi Method: Techniques and Applications*, edited by H. A. Linstone and M. Turoff, 3–12. London: Addison-Wesley.

———. 2011. "Delphi: A Brief Look Backward and Forward." *Technological Forecasting and Social Change* 78 (9): 1712–1719. https://doi.org/10.1016/j.techfore.2010.09.011.

Loye, D. 1980. "Personality and Prediction." *Technological Forecasting and Social Change* 16 (2): 93–104. https://doi.org/10.1016/0040-1625(80)90001-3.

Markmann, C., A. Spickermann, H. A. von der Gracht, and A. Brem. 2021. "Improving the Question Formulation in Delphi-Like Surveys: Analysis of the Effects of Abstract Language and Amount of Information on Response Behavior." *Futures & Foresight Science* 3 (1): e56. https://doi.org/10.1002/ffo2.56.

Mauksch, S., H. A. von der Gracht, and T. J. Gordon. 2020. "Who Is an Expert for Foresight? A Review of Identification Methods." *Technological Forecasting and Social Change* 154: 119982. https://doi.org/10.1016/j.techfore.2020.119982.

Münch, C., and H. A. von der Gracht. 2021. "A Bibliometric Review of Scientific Theory in Futures and Foresight: A Commentary on Fergnani and Chermack 2021." *Futures & Foresight Science* 3 (3–4): e88. https://doi.org/10.1002/ffo2.88.

RAND Corporation (Ed.). 1946. *Preliminary Design of an Experimental World-Circling Spaceship* (Document Number: SM-11827 ed.). Santa Monica: RAND Corporation.

———. 2022. "A Brief History of RAND." www.rand.org/about/history/a-brief-history-of-rand.html.

Salancik, J. R., W. Wenger, and E. Helfer. 1971. "The Construction of Delphi Event Statements." *Technological Forecasting and Social Change* 3 (0): 65–73. https://doi.org/10.1016/s0040-1625(71)80004-5.

Spickermann, A., M. Zimmermann, and H. A. von der Gracht. 2014. "Surface- and Deep-Level Diversity in Panel Selection — Exploring Diversity Effects on Response Behaviour in Foresight." *Technological Forecasting and Social Change* 85: 105–120. https://doi.org/10.1016/j.techfore.2013.04.009.

von der Gracht, H. A. 2012. "Consensus Measurement in Delphi Studies: Review and Implications for Future Quality Assurance." *Technological Forecasting and Social Change* 79 (8): 1525–1536. http://doi.org/10.1016/j.techfore.2012.04.013.

von der Gracht, H. A., S. Kisgen, N. Lange, and J. Jalufka. 2021. *Die Zukunft der europäischen Generika- & Biosimilarsindustrie 2030plus*. Stuttgart: Steinbeis-Edition.

von der Gracht, H. A., T. Gnatzy, I.-L. Darkow, T. J. Gordon, and J. Glenn. 2011. "New Frontiers in Delphi Research - Experiences with Real Time Delphi in Foresight." In *Proceedings of World Future Conference 2011*, edited by World Future Society, 129–160. www.researchgate.net/publication/292524949_New_Frontiers_in_Delphi_Research-Experiences_with_Real_Time_Delphi_in_Foresight.

Warth, J., H. A. von der Gracht, and I.-L. Darkow. 2013. "A Dissent-Based Approach for Multi-Stakeholder Scenario Development — The Future of Electric Drive Vehicles." *Technological Forecasting and Social Change* 80 (4): 566–583. https://doi.org/10.1016/j.techfore.2012.04.005.

Winkler, J., and R. Moser. 2016. "Biases in Future-oriented Delphi Studies: A Cognitive Perspective." *Technological Forecasting and Social Change* 105: 63–76. https://doi.org/10.1016/j.techfore.2016.01.021.

7

SCENARIO PLANNING

Scenario planning is a central tool in strategic foresight and has generated interest beyond the field of foresight, and has been recognised as a central tool for strategy development (Augier, Dew, Knudsen, and Stieglitz 2018). Moreover, scenario planning has been used for over 50 years (McKiernan 2017).

There is a large body of practical and academic literature on scenario planning (e.g., Schoemaker 1993; van der Heijden, Bradfield, Burt, Crains, and Wright 2002; Bradfield, Wright, Burt, Cairns, and van der Heijden 2005; Burt 2010; Chermack 2011; Cairns and Wright 2017). For me the key aspects of scenario planning are that it is predominantly participatory and that it challenges the assumptions of those involved in the process and in creating memories of the future.

> In essence, the scenario process is about enabling managers to visit and experience the future ahead of time, thereby creating what is called 'memories' of the future. These visits to anticipated futures are then

DOI: 10.4324/9781003302735-10

> remembered, creating a matrix in the mind of managers and serving as subconscious guides to make sense of incoming environmental signals and to act on them.
>
> *(van der Heijden, Bradfield, Burt, Crains, and Wright 2002: 177)*

Kees van der Heijden, a former head of the scenario planning team at Royal Dutch Shell, describes scenario planning as the 'art of strategic conversations', emphasising the relevance of managers having conversations on trends and weak signals developing in their business environment and asking questions about the implications of these changes for their organisation.

> It is my experience that scenarios are the best available language for the strategic conversation, as it allows both differentiation in views, but also brings people together towards a shared understanding of the situation, making decision making possible when the time has arrived to take action.
>
> *(van der Heijden 1996: IX)*

By developing scenarios, preparing an organisation for an uncertain future by asking 'what if' (Schwarz 2021). I will later revisit this aspect, in the context of transformation and open strategy in Chapter 13. What this implies is that scenario planning can be understood as an organisational intervention enabling the transformation of an organisation.

7.1 Evolution of scenario planning

The scenario technique dates to the 1950s when Herman Kahn of the RAND Corporation developed the first scenarios. Kahn and his colleague, Anthony J. Wiener, published *The Year 2000: A Framework for Speculations on the Next Thirty-Three Years* (1967). This signalled the inauguration of the scenario technique. Kahn and Wiener (1967: 6) describe scenarios as 'hypothetical sequences of events constructed for the purpose of focusing attention on casual processes and decision-points'.

In the 1970s, Royal Dutch/Shell created what is now known as *scenario planning* by linking the scenario technique with strategic planning. Pierre Wack, who introduced scenario planning to Royal Dutch Shell (Chermack 2017) published two articles in the *Harvard Business Review* (Wack 1985a,b) which are still highly regarded. In contrast to scenario writing, scenario

planning is more a qualitative method, which relies on a process conducted by the management of an organisation, not scenario experts. The purpose of scenarios is to identify trends and key uncertainties and combine them into pictures of the future, not covering all eventualities but discovering the boundaries of future outcomes (Schoemaker and van der Heijden 1992). Most importantly, scenarios should cover generically different futures rather than variations of single ones. In other words, scenarios enable managers to think about the unthinkable.

In addition to the important task of providing alternative pictures of the future, scenarios –especially scenario planning – can perform several other functions. Scenario planning restores complexity to the strategic planning process. This is in contrast to methods like forecasting which simplify the planning process (Eden and Ackermann 1998). Another interesting and important effect is that scenario planning could challenge the mental models of participating managers.

Over the years, several schools of scenario planning have developed, such as the intuitive logic school, the probabilistic modified trends school, and the La prospective school (Bradfield, Wright, Burt, Cairns, and van der Heijden 2005; MacKay and McKiernan 2018). While the intuitive logic school is more qualitative and the probabilistic modified trends school more quantitative, the La prospective is a mix of the two. This book is concerned with the intuitive logic methodology, also known as the 'Shell approach'. This school has received the most attention in the literature and is dominant in scenario development in the United States and other countries (Bradfield, Wright, Burt, Cairns, and van der Heijden 2005).

It is based on the premise that business decisions are taken in an environment of complex relationships between dimensions of the PEST framework. It is a qualitative and subjective approach. This school is 'intuitive' because it allows analysis of objective data and 'gut feelings' of experts involved as well as familiarity with the issue of concern of the scenario planning project.

7.2 The process of scenario planning

Based on the rationale of the intuitive logic school, there is a multitude of scenario planning processes (e.g., Schoemaker 1995; van der Heijden 1996;

van der Heijden, Bradfield, Burt, Crains, and Wright 2002; Chermack 2011; Schwartz 2012; Schwenker, Wulf, and Krys 2013). Figure 7.1 builds on elements of these process but is associated with van der Heijden's (van der Heijden 1996; van der Heijden, Bradfield, Burt, Crains, and Wright 2002) approach.

7.2.1 Scope definition

The scope of the scenario project must be defined. This step includes the formulation of the question a scenario planning project is supposed to answer, such as 'what is the future of my industry?'

7.2.2 Key drivers

The second step is concerned with trend research. Besides desktop research, interviews are a relevant source in this phase. Semi-structured interviews with a diverse set of industry experts and people working in the industry and organisation need to be conducted to identify trends. Interviewing experts within and outside of an organisation also allows to assess what assumptions in an organisation concern the future and how these assumptions might diverge from those of other industry experts. Trends are then allocated to the PEST framework, to ensure that a holistic perspective is taken on the future of industry.

Part of this phase is to differentiate between drivers and key-drivers among the identified trends. Key drivers are those trends that are both impactful and uncertain. The approach used for this step is the relevance and uncertainty matrix: uncertainty along the x-axis and relevance along the y-axis. The upper left-hand section, drivers, contains trends

	1. Scoping the question	2. Key-Drivers	3. Building scenarios	4. Implications
Objectives	Clarify research question/issue to be investigated	• Identify relevant trends • Differentiate between key-drivers (critical uncertainties) and drivers (pre-determined elements)	• Agree on most relevant key drivers • Create scenarios	Asses implications of the scenarios
Deliverables	Scope of the Scenario Planning exercise	Key drivers for scenario workshop	Scenario quadrant / multiple quadrants	Recommendations

Figure 7.1 Process of scenario planning project.

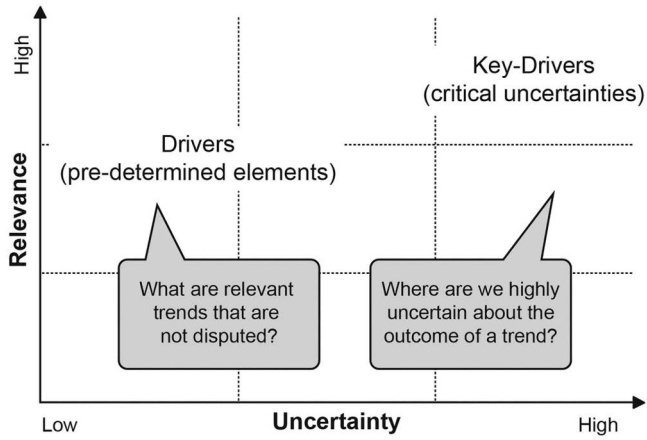

Figure 7.2 Relevance-uncertainty matrix.

with the most relevance for the industry and the least uncertainty. The upper right-hand section, key drivers, contains the most important trends for the scenario development. The goal of the matrix is to identify key drivers, laying the foundation for the four scenario dimensions.

The key drivers are analysed by describing the possible direction in which they could develop, their polar outcomes. Trends could develop in two possible directions. Two independent key drivers with the most relevance to the research questions are then chosen.

7.2.3 Building scenarios

The two key uncertainties with their polar outcomes form the basis for the scenario matrix. As can be seen in Figure 7.3, four distinct scenarios are formed using the scenario matrix. The boundaries are set by two key trends, each with two polar outcomes defined for each scenario dimension.

The scenarios are described by allocating the other trends identified during the process. Each scenario is given a concise name and description, symbolising the developments within it.

One way to describe the scenarios is the scenario blueprint. A scenario blueprint is an auxiliary tool used to list and rate the relevance (1 low – 5 high) of the trends positioned in the two main sections of the relevance and uncertainty matrix. The relevance of each trend is rated for each scenario

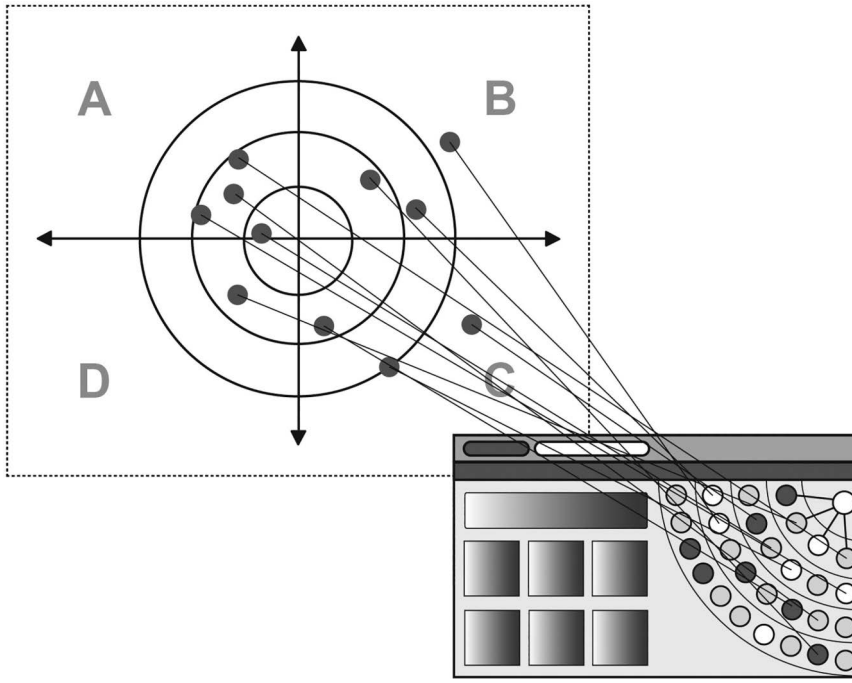

Figure 7.3 Scenario matrix.

and briefly explained. This can also be the basis for creating scenario narratives and alternative pictures of the future. The goal is to present the reader with a picture of the world in that scenario, its dynamics, and the reasons for its development into that state.

In the following, scenarios can be visualised (see example), developed into stories, or translated into short movies explaining the scenarios. The key is to make the scenarios accessible for those who were not involved in the process.

7.2.4 Implications

The purpose of this phase of the scenario planning project is to derive implications from the scenarios for the organisation. These types of conversations can start with questions such as 'what is our preferred scenario?', 'for what scenario are we prepared the best?', or 'which scenario would be for us the most challenging one?'

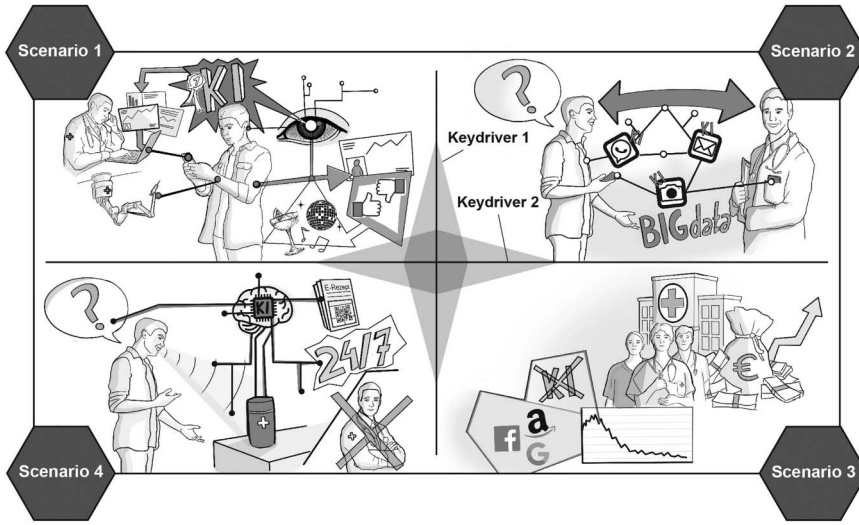

Figure 7.4 Example of the visualisation of scenarios (IICM Institute for Innovation and Change Methodologies).

A more structured approach to working with the scenarios is the implication matrix (Figure 7.5). According to the scenario, several implications are derived. What implications would this scenario have for our organisation? These implications are then briefly described and listed on the implication matrix. After this matrix is created in the 'wind-tunneling' exercise, the relevance of the implications for the organisation in each scenario is assessed on a 3-point scale.

By doing this, robust implications, that are relevant in at least two scenarios can be identified. Wind-tunneling is intended to decide which implications must be improved in the next iteration, so that they become as robust as possible. The horizontal scores give an indication for which implications might be more robust than others. The key argument would be that these implications need to be picked up, regardless of what scenario will become more relevant in the future. However, this does not imply that none-robust implications are irrelevant. The implications might need to be more closely monitored or small experiments or investments might be an approach to understand these implications. The vertical score can indicate which scenario might be the most challenging to deal with in terms of having many implications.

Implication	Scenario A	Scenario B	Scenario C	Total
Implication A	5	4	2	11
Implication B	3	2	1	6
Implication C	2	3	3	8
Implication D	1	3	2	6
Implication E	2	3	1	6
Implication F	3	4	3	10
Total	16	19	12	

Figure 7.5 Implication matrix.

7.2.5 After creating scenarios

While not a deliberate part of scenario creation, I want to say a few words about what happens with scenarios once they have been created. While the process of scenario planning builds on the participation of decision-makers, scenarios might also need to be communicated in an organisation. The central question is how scenarios can be communicated and visualised (Müller and Schwarz 2016) in a form that allows others to enter these alternative pictures of the future. The scenarios might guide the scanning and monitoring activities in a firm, pointing out to weak signals or trends that should be watched more closely. It might also be necessary to update the scenarios, for instance when significant changes in the organisational environment have emerged or new trends have been identified.

Concerning the effects of scenario planning on an organisation, Grant (2003: 511) states that Royal Dutch/Shell's scenario planning process was a vehicle for organisational learning by sharing and integrating multiple knowledge bases from both within and outside the Shell group, with emphasis on communication and knowledge sharing: 'Shell's "scenario-to-strategy" framework involved discussion workshops in which scenarios would provide the foundation for an interactive strategy formulation'. Understanding a foresight process as a vehicle for strategic conversation in an organisation helps to define one role of such a process in an organisation. The value of such a strategic conversation is that mental models in an organisation are not only shared but also most likely to be

challenged and that an organisation is likely to eliminate blind spots from its sensemaking of the environment and of the future.

References

Augier, M., N. Dew, T. Knudsen, and N. Stieglitz. 2018. "Organizational Persistence in the Use of War Gaming and Scenario Planning." *Long Range Planning* 51 (4): 511–525. https://doi.org/10.1016/j.lrp.2017.12.005.

Bradfield, R., G. Wright, G. Burt, G. Cairns, and K. van der Heijden. 2005. "The Origins and Evolution of Scenario Techniques in Long Range Business Planning." *Futures* 37 (8): 795–812.

Burt, G. 2010. "Revisiting and Extending Our Understanding of Pierre Wack's the Gentle Art of Re-Perceiving." *Technological Forecasting and Social Change* 77 (9): 1476–1484.

Cairns, G., and G. Wright. 2017. *Scenario Thinking: Preparing Your Organization for the Future in an Unpredictable World*. Basel: Springer International Publishing.

Chermack, T. J. 2011. *Scenario Planning in Organizations: How to Create, Use, and Assess Scenarios*. San Francisco: Berrett-Koehler.

———. 2017. *Foundations of Scenario Planning: The Story of Pierre Wack*. Routledge International Studies in Business History. New York: Taylor & Francis.

Eden, C., and F. Ackermann. 1998. *Making Strategy*. London: Sage.

Grant, R. M. 2003. "Strategic Planning in a Turbulent Environment: Evidence from the Oil Majors." *Strategic Management Journal* 24 (6): 491–517. https://doi.org/10.1002/smj.314.

Kahn, H., and A. J. Wiener. 1967. *The Year 2000: A Framework for Speculation on the Next Thirty-Three Years*. New York: Macmillan.

MacKay, R. B., and P. McKiernan. 2018. *Scenario Thinking: A Historical Evolution of Strategic Foresight*. Elements in Business Strategy. Cambridge: Cambridge University Press.

McKiernan, P. 2017. "Prospective Thinking; Scenario Planning Meets Neuroscience." *Technological Forecasting and Social Change*. North-Holland. https://doi.org/10.1016/j.techfore.2016.10.069.

Müller, A. W., and J. O. Schwarz. 2016. "Assessing the Functions and Dimensions of Visualizations in Foresight." *Foresight* 18 (1): 76–90. https://doi.org/10.1108/FS-04-2014-0027.

Schoemaker, P. J. H. 1993. "Multiple Scenario Development: Its Conceptual and Behavioral Foundation." *Strategic Management Journal* 14 (3): 193–213. https://doi.org/10.1002/smj.4250140304.

———. 1995. "Scenario Planning: A Tool for Strategic Thinking." *MIT Sloan Management Review* 36 (2): 25–40.

Schoemaker, P. J. H., and C. A. J. M. van der Heijden. 1992. "Integrating Scenarios into Strategic Planning at Royal Dutch/Shell." *Planning Review* (May/June): 41–46.

Schwartz, P. 2012. *The Art of the Long View: Planning for the Future in an Uncertain World*. New York: Crown.

Schwarz, J. O. 2021. "From Alternative Pictures of the Future to an Organizational Intervention: A Commentary on Rowland and Spaniol." *Futures & Foresight Science* (n/a): e2105. https://doi.org/10.1002/ffo2.105.

Schwenker, B., T. Wulf, and C. Krys. 2013. *Scenario-Based Strategic Planning: Developing Strategies in an Uncertain World*. Roland Berger School of Strategy and Economics. Wiesbaden: Springer Fachmedien.

van der Heijden, K. 1996. *Scenarios: The Art of Strategic Conversation*. Chichester: John Wiley & Sons.

van der Heijden, K., R. Bradfield, G. Burt, G. Crains, and G. Wright. 2002. *The Sixth Sense*. Chichester: John Wiley & Sons.

Wack, P. 1985a. "Scenarios: Uncharted Waters Ahead." *Harvard Business Review* 63 (5): 73–89.

———. 1985b. "Scenarios: Shooting the Rapids." *Harvard Business Review* 63 (6): 139–150.

8

FUTURES LITERACY LABORATORIES

Stefan Bergheim[1]

8.1 History of the method

One of the deepest roots of the Futures Literacy Laboratory can be traced to the early 1980s, when Riel Miller, a young Canadian economist, started to work at the Organization for Economic Cooperation and Development (OECD) in Paris. Miller was tasked with analysing trends and creating forecasts for technology, education, and the economy. But he saw limits to the ways in which humans deal with the future in an uncertain environment. While he noticed a strong tendency of established organisations to plan, predict, and control the future, these efforts often seemed futile, narrow, and sometimes even harmful to themselves. Therefore, he explored additional ways to use the future with a stronger focus on complexity, novelty, and openness.

In 2006 he met sociologist Roberto Poli at a conference in Cardiff. Poli introduced him to the theory of anticipation, devised by the biologist Robert Rosen (Rosen, Rosen, Kineman, and Nadin 2012) in the 1970s. Together they developed the theoretical foundations of the competence that became 'Futures Literacy' (Miller 2007). They also developed, refined, and

DOI: 10.4324/9781003302735-11

experimented with the method 'Futures Literacy Laboratory', initially KnowLab. When Miller joined UNESCO in 2012, they convened more meetings and conferences. In 2015 they began a book project that brought together all the insights developed over the previous decade and made them accessible to the public. *Transforming the Future – Anticipation in the 21st Century* was published in 2018 in open access. By 2022, hundreds of Futures Literacy Laboratories have been run around the globe by UNESCO and other organisations.

8.2 Description of the method

In line with the method's foundation in complexity theory, learning theories, and the theory of anticipation, three major principles shape the design of Futures Literacy Laboratories (Miller 2018): First, they are action learning or learning-by-doing activities. They engage a large spectrum of participants and invite them to share their individual images of the future and the underlying assumptions. As they do so, participants learn a variety of ways to use the future.

Second, Futures Literacy Laboratories are collective intelligence knowledge creation processes because learning is more likely to occur if it is done with others rather than just by oneself, and because multiple images can be connected in a fruitful way. This is how participants can inspire each other, discuss meaning together and be more creative. The use of a wide range of tools is required, ranging from talking with each other to drawing and sculpting to role-playing.

Perhaps most importantly in comparison with other futures methods, these laboratories use a catalyst to disrupt entrained thinking, move attention beyond the old boxes and stimulate emergence. This is done with an alternative future intended to take participants beyond the frames of likely-unlikely or desirable-undesirable that are ubiquitous in futures work. There are many ways to do this reframing, such as using static or dynamic configurations or games.

8.3 Four phases of a Futures Literacy Laboratory

Every Futures Literacy Laboratory is designed specifically for the host's intentions, topic, participants, length, and other variables. But most laboratories

include four sequential phases. Phase 1, the 'reveal', works with the participants' expectations and hopes about the topic under investigation. They reveal their images of probable and desirable futures at a specific time horizon. Phase 1 combines classic elements of trend analysis, forecasting, and visioning, with the purpose of revealing the anticipatory assumptions that led to those images in the present. At the end of this phase, it is possible to discuss the assumptions about the topic that had become visible (or revealed) including their possible sources.

Phase 2, the 'reframe', is a central learning catalyst in which participants imagine the future of the topic through a frame that is unfamiliar and distinct from the ones revealed in Phase 1. By experimenting with this different set of anticipatory assumptions, participants improve their ability to handle uncertainty and ambiguity. Sometimes this alternative future is provided by the design team; sometimes it is developed by participants themselves moving outside of what they had created in the first phase. In either case, participants fill in the details of that unusual future themselves and stretch their imagination.

In Phase 3, the 'rethink', participants come back to the present and look again at the probable, desirable, and alternative futures they explored. They search for new issues that emerged for them, for fissures that opened into new ways of thinking, for powerful new questions that might turn into quests for them later.

Finally, in Phase 4, the 'acting' or next steps, participants select from the wide menu of questions they raised in Phase 3 and focus on next steps. What kinds of activities should follow from the new questions? Which

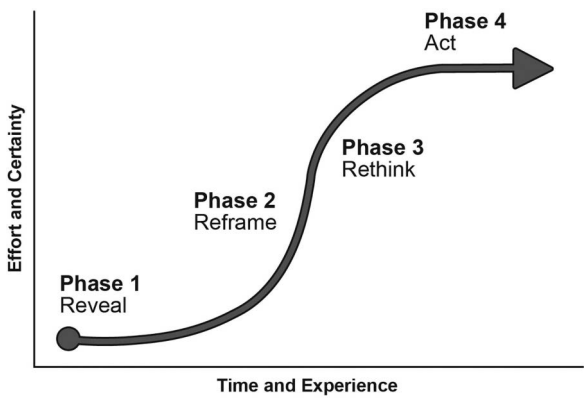

Figure 8.1 Four phases of a Futures Literacy Laboratory.

quests result for individuals or groups? The length of this phase depends on what might happen after the laboratory. Sometimes, ideas for action are briefly alluded to, knowing that change in complex adaptive systems will come when the circumstances are appropriate. In other laboratories, an extended Phase 4 leads to tangible projects, prototypes, action plans, or even briefings to the CEO. Sometimes a shared consensus is sought. In other cases, individual explorations are acceptable.

Research on the evaluation of Futures Literacy Laboratories based on interviews with designers and facilitators shows evidence that this method contributes to four related results (Bergheim 2022). First, laboratories allow participants to acquire the skill of using the future more broadly than before. They understand anticipatory systems and processes better and their competence of Futures Literacy increases. Second, stronger associations develop among participants, which is an ingredient for and a result of successful collective intelligence knowledge creation. Third, participants gain an awareness of novelty, especially in the third phase of the lab. They sense and make sense of new knowledge, new ideas, and questions on the topic of the laboratory that they had not been aware of before. And finally, there is the application of the skills and of the new insights on the topic. This application into practice usually comes towards the end of the laboratory or during the follow-up.

8.4 Example: Futures of media

A colleague and I offered an introductory Futures Literacy Laboratory in May 2022 on the topic of 'The Futures of Media in 2040'. It was held on Zoom over six hours with the digital whiteboard Miro. The eight participants came from Denmark, Germany, Iran, Romania, Spain, Sweden, and Switzerland. They wanted to experience the Laboratory and understand the importance of anticipatory systems, assumptions, and models about the future. They also wanted to discover new content on the topic of media.

In the first part of Phase 1, participants were asked to think about statements about media that they thought were highly likely to materialise by 2040. They wrote down their forecasts, discussed them in small groups, expanded on them, compared them, and made visible a wide spectrum of

expectations. For the second part, we took them on a thought journey into their most preferred futures of media in 2040. In their groups, they first shared the images that they took in their minds. Then they jointly created characters, like 'Glassy' and 'The Enabler'. At the end of Phase 1, participants discussed assumptions about media that they had recognised to that point, either their own or those of others. This exercise was not about assessing the validity or veracity of those assumptions but to recognise that most of those assumptions were human-made and therefore changeable. Changed assumptions can lead to changed actions.

In Phase 2, participants were invited to imagine details of a future of media given to them by the facilitators. In this laboratory, the outline of the alternative future was quite short: 'In the year 2040, humans focus solely on their local living environments because this is where they are active and connected'. To add more detail and to exercise their imagination, participants first improvised a day in the life of a person called Alex and how Alex relates to media. Afterward, they imagined the details of that future in a more structured way, exploring actors, technologies, and the content of media. After some initial discomfort and feeling overwhelmed, participants enjoyed the creativity that burst forth.

In Phase 3, participants were led back into the present and asked to compare the three futures they had explored so far. Which new powerful questions emerged for them? Examples included: Is unbiased media possible? What is the role of nature in media? Do we need to know it all?

Finally, and very briefly in this short laboratory with a heterogenous group of participants from different organisations and countries, ideas for action were attached to the questions. What activities might develop from those questions? Some of the results were: Dig deeper into the issue of human cognition! Invite opposing views into all my projects! Focus on more dimensions of any issue than I would naturally do! The application of those ideas into their practice is now up to the participants.

8.5 Challenges of the method

Since Futures Literacy Laboratories are a new method and since the theory of anticipation is not yet widely known, some misunderstandings and challenges remain. For example, the creation of an alternative future – a unique

feature of the method – is an art at this stage and not yet well researched. In practice, a just-do-it approach has led to good results possibly exactly because of the creativity and specificity this allows.

In addition, while Futures Literacy Laboratories are often implemented using the four phases, there is a huge variety of possible configurations depending on intentions, resources, and initial conditions. Some phases can be left out, others added, and others split up as needed. Also, the amount of time spent, and the depth explored in the different phases can vary. The creativity techniques in each phase can differ as well. There is no template. This makes the method appealing to experienced designers and facilitators who want to create a unique experience every time. But the absence of a template makes it harder for novices to get started.

Partly because of the versatility of the method, it is not trivial to identify the most appropriate configuration for the context at hand. Here it is helpful to start with a small and modest version. Some sharing of experiences with other designers and facilitators might be similarly beneficial. Chapter 4 in *Transforming the Future* contains 14 case studies that might provide additional inspiration. Bergheim (2021) also includes examples and learnings.

The fourth challenge is the openness to outcomes inherent in this method. Not all hosts and participants are open to the wide variety of possible outcomes. This openness is usually an issue during the co-design of the laboratory and for its framing for participants in the invitation. If hosts want to limit creativity, then the boundaries should be made clear in advance. Ideally, the host should commit to some sort of usage of the results of the laboratories. Otherwise, participant engagement might be affected negatively.

Note

1 Stefan Bergheim works as a futurist since 1995, initially as a forecaster in the financial industry, then as a trend researcher, later focusing on participatory visioning processes for a German think tank he founded, and since 2015 affiliated with UNESCO's Futures Literacy network. He contributed to UNESCO's 2018 book "Transforming the Future" and was one of the curators of the 2019 Futures Literacy Design Forum and the 2020 High-Level Futures Literacy Summit.

References

Bergheim, S. 2021. *Futures - Open to Variety: A Manual for the Wise Use of the Later-than-Now*. Frankfurt: ZgF Publishers.

———. 2022. *On the Evaluation of Futures Literacy Laboratories*. Frankfurt: Zgf Publishers, https://zgf-fortschritt.de/media/pages/methodik/zukuenftelabore/1356567106-1666609788/bergheim-2022-evaluationof-flls.pdf.

Miller, R. 2007. "Futures Literacy: A Hybrid Strategic Scenario Method." *Futures* 39 (4): 341–362. https://doi.org/10.1016/j.futures.2006.12.001.

———. 2018. "Sensing and Making-Sense of Futures Literacy: Towards a Futures Literacy Framework (FLF)." In *Transforming the Future: Anticipation in the 21st Century*, edited by R. Miller, 15–50. London: Taylor & Francis.

Rosen, R., J. Rosen, J. J. Kineman, and M. Nadin. 2012. *Anticipatory Systems: Philosophical, Mathematical, and Methodological Foundations*. IFSR International Series on Systems Science and Engineering. New York: Springer.

9

BUSINESS WARGAMING

Wargaming is among the oldest tools of strategy formulation and planning. It has been in use for almost 200 years and has enjoyed increased academic interest over the last decade (Augier, Dew, Knudsen, and Stieglitz 2018). Schwarz (2009) and Oriesek and Schwarz (2008, 2020) have tied business wargaming to the field of foresight and have described how foresight in regard to the future competitive dynamics in an industry is developed through a business wargame.

Business wargaming can be traced at least as far back as ancient Greece. It grew out of military wargaming, which was used to prepare generals and officers for unforeseen circumstances on the battlefield. Games about warfare have probably existed as long as warfare itself (Perla 1990). It has been argued that wargaming has been around in the military as long as armed forces have been evaluating plausible defensive and offensive options (Vanderveer and Heasley II 2005). Even though business wargaming was applied to company planning in the 1950s (Bellman, Clark, Malcolm, Craft, and Ricciardi 1957), it was not until the mid-1980s that wargaming

DOI: 10.4324/9781003302735-12

was strategically adapted for business purposes (Ginter and Rucks 1984; Treat, Thibault, and Asin 1996). In the field of competitive business intelligence, wargames have drawn special attention for their focus on competitors (Kurtz 2003).

A business wargame is a role-playing simulation of a dynamic business situation (Kurtz 2003). It involves several teams, each assigned to play a stakeholder (competitor, customer, governing bodies) in a business situation. A business wargame evolves over several moves. Each move represents a defined period and/or scenario. A business wargame should always be prefaced by extensive research and include a review of trends and hypotheses for the industry in which the wargame is taking place. In contrast to 'red teams', where one team is a competitor or other stakeholder to understand interests, intentions and capabilities (Zenko 2015), a business wargame is much more complex and therefore suitable for more complex challenges.

Oriesek and Schwarz (2020) introduce the following typology of wargaming in Figure 9.1. The term 'wargaming' can be broken down by application into military and business wargaming. All non-military applications subsume not only wargaming for public and private corporations, but also non-government and other non-military organisations; these are labelled business wargames. Both military and business wargaming can be conducted at the strategic-, operational-, and tactical leadership level and address questions within a context such as strategy testing, foresight, crisis management, or training.

Oriesek and Schwarz (2020) introduce the following cluster of applications:

- Strategy testing, developing foresight, change management
- Crisis response preparation
- Education, training and recruiting

Strategy testing has been described as the primary application of business wargaming, allowing leaders to test a strategy prior to its implementation, and especially in assessing how it works in the competitive landscape (Schwarz 2011). Alongside the pure strategy testing comes the exploration of future industry developments and therefore the development of foresight. Allowing a group of managers to experience future dynamics of an

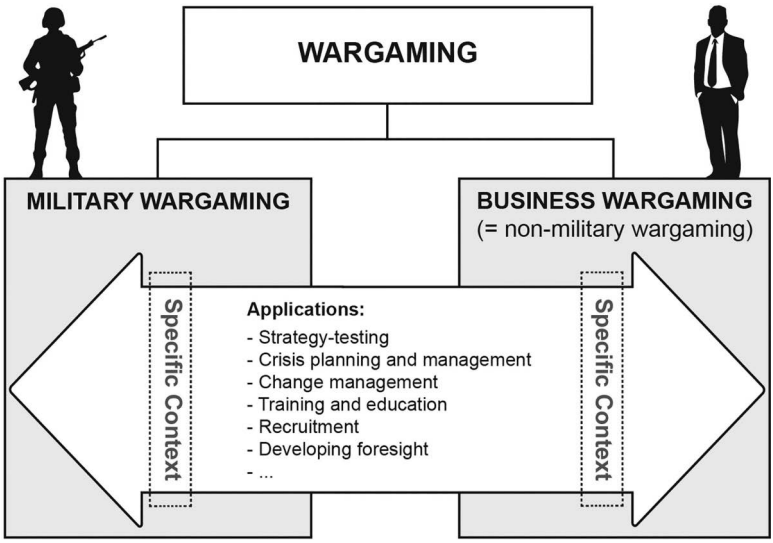

Figure 9.1 Typology of wargaming (Oriesek and Schwarz 2020).

industry will create a sense of urgency for action, which is critical for any change effort (Kotter 2012).

A second application of wargaming is crisis response preparation. In post 9/11 times, wargaming was applied in United States government agencies to anticipate and simulate how to react to crises such as attacks with biological weapons, all in light of how to improve the collaboration among agencies and other key actors. A third application is to use wargames in education and training, which can range from introducing students to strategy, familiarising newly hired managers with a company and an industry, to brainstorming developments in educational settings.

9.1 Application of business wargaming

A business wargame evolves over three moves, representing a certain length of time (e.g., three to ten years) and/or different scenarios (Oriesek and Schwarz 2020). The first move starts in the present and is based on available data. A 'move' is a decision cycle, which begins with the stakeholders or competing companies and the client team taking the initial actions, including competitive offerings, alliances, investments, or lobbying efforts.

In general, as depicted in Figure 9.2, four types of teams exist in a business wargame: a client team, competitive or stakeholder team, market team, and control team.

Competing teams will have to think about strategy, product, pricing, capacity, technology, and the like, while considering the business environment. The members of the client team must execute and adjust their strategy. An essential part of each move is the reaction of the customers, usually played by a market team, consisting of a group of market experts. The market team will provide the reactions of customers, providing figures such as size of the market, market segments, market share, and revenue, and how these figures have changed in the course of the moves. All this data will be passed on to the control team, usually run by the wargaming experts, who use a financial model to calculate profits and losses. In addition, the control team is in charge of supervising the wargame and introducing discontinuities (e.g., technological developments or policy issues) to add real-life dynamics. The control team can also assume the role of other stakeholders, such as regulators who are not represented in the business wargame as competitors.

At the end of each move, the control team calculates the results of the competing teams and the client team and uses these results as the starting point for making the next move. While the market team reacts and the control team calculates the figures, the competitive teams and the client teams plan their next move. They then learn the results of the previous move. As pointed out earlier concerning computer-based simulations, models are supportive, adding reality to the business wargame but not intended to drive the simulation.

Prior to carrying out a business wargame it is essential that the objectives are laid out, and that a database of all information that is potentially useful to the players is created. The model translates the game's data and the players' decisions into game events, quantifying the moves and results of the wargame (Perla 1990). After a business wargame has been played to completion, an analysis is carried out by the wargaming experts and managers of the client company, which is important for discussing lessons learned during the exercise. This analysis allows the managers to describe their experiences, to reflect on what they have learned, and to discuss subsequent steps, which will then result in additional lessons learned.

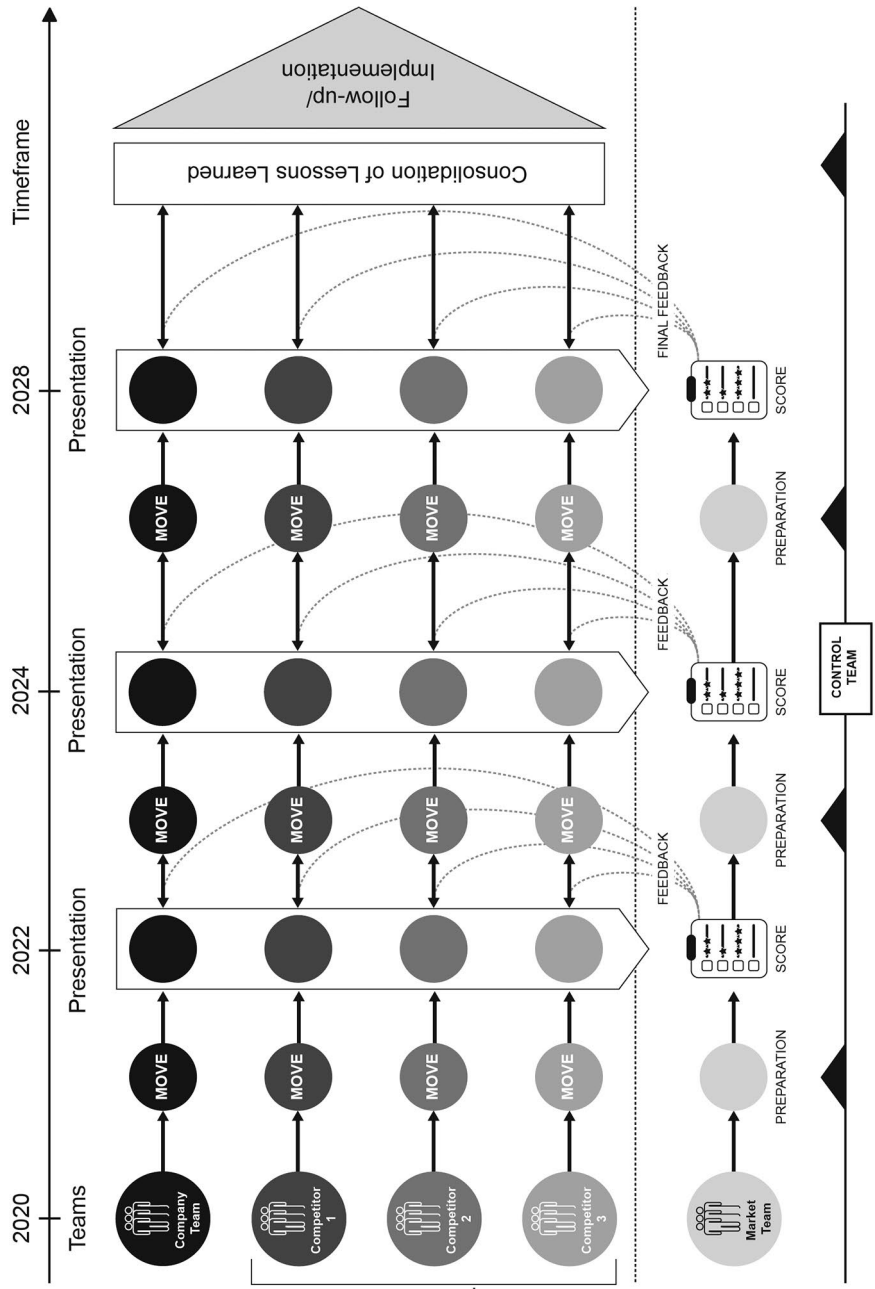

Figure 9.2 Basic structure of a business wargame (Oriesek and Schwarz 2020).

The application of a business wargame is described here to illustrate this approach (Lüchinger 2001; Oriesek and Schwarz 2008, 2020) in the European airline industry. In the late 1990s, European airlines were confronted with dramatic rises in competition. One of the emerging strategies in this environment was to forge alliances, such as Star Alliance or One World, to keep customers and to achieve economies of scale. The strategic questions confronting European airlines included whether they should join one of the alliances, remain independent, or form a new alliance. The objective of this business wargame was to test the strategy. A key finding of this wargame was that remaining outside of one of the major alliances would be difficult for this airline.

However, the CEO of the airline was already convinced, before the business wargame took place, of a different strategic option. While neglecting the outcomes of the business wargame he chose to stick with his original strategic plan that revolved around the formation of a fourth alliance. A few years later the airline went bankrupt and became a part of a larger alliance. While this brief case study suggests that the outcomes of business wargames can be of value, the issue of how the outcomes of a business wargame are handled have also been discussed by Hanley (1992) in a more historic perspective of the military application of wargaming. He points to an aspect that can be deemed responsible for the results of wargames not being translated into action, as described in the European airline case: 'Egocentric constraints were responsible for most cases of active suppression of valid game results' (Hanley 1992: 225).

Military wargaming was used by military planners in response to increasingly dangerous environments and to meet an obvious need to reduce the risks of strategic miscalculations (Ginter and Rucks 1984). In addition to being future-oriented, a business wargame has several advantages. First, a business wargame involves participants. During a business wargame, the dynamics of a market or of competitors will not only be analysed but also anticipated by simulating the future over the course of several days. By simulating an industry, market, or competition over time, managers can 'experience' the dynamics and the competition in their market or industry and see the consequences of their strategy. As the wargaming exercise proceeds, participants will be forced to think about the future. Essentially, early signals of change that might be relevant for the organisation are identified.

The argument can be made that business wargaming is a powerful tool to challenge the mental models of participants. In short, the benefit of business wargaming is that managers of an organisation can think like their competitors, thereby anticipating what those competitors are likely to do.

9.2 Inner mechanics of business wargaming

I reflect here from two angles why business wargaming works and what the inner workings of business wargames are. These two angles are sensemaking and gaming. Sensemaking describes how business wargaming supports understanding the uncertainty imposed by the business environment. Gaming focusses on how participants can be engaged.

9.2.1 Sensemaking

Decision-making in a VUCA world has been researched with the aim of understanding how organisations can best use these attributes to gain insights into environmental changes so that they can take more robust strategic decisions. Previous research has suggested that organisations seek an inter-organisational collaborative sensemaking process (Seidl and Werle 2018) to understand VUCA. The necessity of sensemaking capabilities has been emphasised by the concept of dynamic capabilities (Teece, Pisano, and Shuen 1997; Day and Schoemaker 2016) through which collaborators can 'see different aspects of a problem [...], constructively explore their differences [and] search for solutions that go beyond their own limited vision of what is possible' (Gray 1989: 5).

Many developments and phenomena facing organisations are beyond their 'sensemaking capacity', so they fail to comprehend the scope and consequences of such dynamics. In addition, collaborative sensemaking embraces a variety of perspectives because of the different industries and expertise that participating organisations bring to the process. Hence, the inclusion of this variety of perspectives in exploring new topics, developments, or problems facilitates an extension of sensemaking capacity that no single organisation can generate. It has been argued that the 'variety can improve sensemaking capacity' (Seidl and Werle 2018: 4) and recommended that 'managers actively engage other people in processes of

strategic sensemaking in order to gain access to a wider range of frames and thereby develop a better understanding of their world'.

With respect to appreciating the uncertainty of developments that will affect them, organisations and managers draw on inter-organisational (often cross-industry) collaboration, frequently in the form of sensemaking and strategising formats such as scenario planning and business wargaming simulations. Such formats help them anticipate challenges and the need for change. Since initiating and running such processes is resource-intensive, corporations are attentive to ways in which not only decision-makers, but also management can generate and broaden the requisite variety of perspectives that will inform their internal strategising and innovation activities in addition to their decision-making.

The ability to sensitise and alert organisational members and employees to build a change mindset that enables them to consider and appreciate uncertainty and change from different perspectives and often different strategic assumptions is crucial to specify what makes decision-making and strategy more robust. The central argument for business wargaming in this context is that managers of one organisation are enabled, by stepping into the shoes of their competitors for a day or two. Hereby, they develop multiple perspectives on their own industries, core competitors but also their own organisation. Further, the literature on business wargaming (Bracken 2001; Kurtz 2003; Oriesek and Schwarz 2008; Schwarz 2009, 2011, 2013; Krupp and Schoemaker 2014) suggests that the purpose of a business wargame is to support management teams in generating the requisite variety of perspectives and enabling collaborative sensemaking.

9.2.2 Gaming

When taking a closer look at business wargaming, it makes sense to consider the gaming part. Video games have become a revenue generator in the same league as films and books (McGonigal 2012; Isbister 2016). Looking at the mechanics of video games in respect to how they emotionally engage their players, not only sheds light on why business wargames work, but also what needs to be considered in designing business wargames to leverage their effects. This emotional activation which attributes to successful computer and video games (McGonigal 2012), is exactly what organisation and its leaders try to achieve: engaging managers and members of an organisation in discussions on strategy, the future, change, or transformation.

The engagement of managers with their organisation is key for the successful transformation of an organisation. I have argued that the emotional engagement of participants in a business wargame is a prerequisite for sustainable learning. Isbister (2016) argues, from the perspective of video game design, that well-designed games engage players in a flow-state. Oriesek and Schwarz (2020) argue that the idea of a flow-state, describing the zone in which a person is fully immersed in an activity, explains what happens in well-designed business wargames. Isbister (2016) refers to the following factors contributing to flow-state in gaming, here related to business wargaming (Oriesek and Schwarz 2020).

1. A challenging activity requiring skill: A business wargame should address a difficult question for the participants to answer. This implies that participants must apply a range of skills to develop solutions for a special situation which is not a typical business problem.
2. A merging of actions and awareness: A business wargame needs to be structured in a way that allows participants to become aware of a new business situation and then act accordingly, for instance, by introducing a new strategy or product or service.
3. Clear goals: The goal of the simulation clearly needs to be defined: what is expected from participants but also what shall be achieved by running the simulation.
4. Direct, immediate feedback: The competing teams must receive feedback from the market and customer team as soon as possible. Providing this feedback is essential for the dynamics of a business wargaming and forces the team members to rethink their strategy if the feedback from the market is disappointing.
5. Concentration on the task at hand: A business wargame needs to focus on what shall be achieved. If for instance too many topics are covered in one simulation, the danger is that the teams lose focus and participants become disengaged.
6. A sense of control: The control team needs to make sure that the business wargame is evolving within the defined boundaries and that for instance the dynamics of the simulation are at a high level.
7. A loss of self-consciousness: Participants should immerse themselves in their role in the business wargame and to be critical of their own perception on how they think their industry might work.

8. An altered sense of time: A business wargame should be structured so that 'time flies' and participants feel so engaged in the simulation that they lose track of the hours.

9.2.3 General learnings and advantages of business wargaming

Besides the above mentioned learnings and benefits business wargaming provides (see sensemaking caption), one of the many advantages of business wargaming is the involvement of participants:

> The problem with many strategy techniques is that they are too cold and bloodless. They fail to capture human emotions, and because of their icy rational character, people don't really pay attention to them. They are soon forgotten, and they make no lasting impact on the organisation. Gaming is profound learning experience, one that is not soon forgotten.
>
> *(Bracken 2001: 18)*

During a wargame the dynamics of a market and of the competitors will be analysed, anticipated, and experienced, by simulating a likely future over the course of several days. As a wargaming exercise evolves, the participants must think creatively about the future, which will also expose them to early signals of imminent change, which may be relevant for the organisation or industry.

Van der Heijden (1998: 351) summarises the relevance of testing a strategy in scenarios, which is also applicable for testing strategies by use of wargaming:

> Strategy is the art of making choices – investing both for current and future success. To understand these choices clearly, organisations should identify a business idea and test it in substantially different scenarios. This process can help an organisation to develop a business idea that will serve it well as the future evolves.

References

Augier, M., N. Dew, T. Knudsen, and N. Stieglitz. 2018. "Organizational Persistence in the Use of War Gaming and Scenario Planning." *Long Range Planning* 51 (4): 511–525. https://doi.org/10.1016/j.lrp.2017.12.005.

Bellman, R., C. E. Clark, D. G. Malcolm, C. J. Craft, and F. M. Ricciardi. 1957. "On the Construction of a Multi-Stage Multi-Person Business Game." *Operations Research* 5 (4): 469–503.

Bracken, P. 2001. "Business War Gaming." *Scenario and Strategy Planning* 3 (2): 15–18.

Day, G. S., and P. J. H. Schoemaker. 2016. "Adapting to Fast-Changing Markets and Technologies." *California Management Review* 58 (4): 59–77.

Ginter, P. M., and A. C. Rucks. 1984. "Can Business Learn from Wargames?" *Long Range Planning* 17 (3): 123–128.

Gray, B. 1989. *Collaborating: Finding Common Ground for Multiparty Problems*. San Francisco: Joey-Bass.

Hanley Jr., J. T. 1992. *On Wargaming: A Critique of Strategic Operational Gaming*. New Haven: Yale University.

Isbister, K. 2016. *How Games Move Us: Emotion by Design*. Cambridge: MIT Press.

Kotter, J. P. 2012. *Leading Change*. Boston: Harvard Business Review Press.

Krupp, S., and P. J. H. Schoemaker. 2014. *Winning the Long Game: How Strategic Leaders Shape the Future*. New York: Public Affairs.

Kurtz, J. 2003. "Business Wargaming: Simulations Guide Crucial Strategy Decisions." *Strategy and Leadership* 31 (6): 12–21.

Lüchinger, R. 2001. *Der Fall Der Swissair*. Zürich: Bilanz Verlag.

McGonigal, J. 2012. *Reality Is Broken: Why Games Make Us Better and How They Can Change the World*. London: Vintage Books.

Oriesek, D. F., and J. O. Schwarz. 2008. *Business Wargaming: Securing Corporate Value*. Aldershot: Gower.

———. 2020. *Winning the Uncertainty Game: Turning Strategic Intent into Results with Wargaming*. London: Taylor & Francis.

Perla, P. P. 1990. *The Art of Wargaming*. Annapolis: Naval Institute Press.

Schwarz, J. O. 2009. "Business Wargaming: Developing Foresight within a Strategic Simulation." *Technological Analysis and Strategic Management* 21 (3): 291–305.

———. 2011. "Ex-Ante Strategy Evaluation: The Case for Business Wargaming." *Business Strategy Series* 12 (3): 122–135.

———. 2013. "Business Wargaming for Teaching Strategy Making." *Futures* 51: 59–66. http://doi.org/10.1016/j.futures.2013.06.002.

Seidl, D., and F. Werle. 2018. "Inter-Organizational Sensemaking in the Face of Strategic Meta-Problems: Requisite Variety and Dynamics of

Participation." *Strategic Management Journal* 39 (3): 830–858. https://doi.org/10.1002/smj.2723.

Teece, D. J., G. Pisano, and A. Shuen. 1997. "Dynamic Capabilities and Strategic Management." *Strategic Management Journal* 18 (7): 509–533. https://doi.org/10.1002/(sici)1097-0266(199708)18:7<509::aid-smj882>3.0.co;2-z.

Treat, J. E., G. E. Thibault, and A. Asin. 1996. "Wargaming - As a Strategic Tool." *Strategy - Management - Competition* 1996 (3): 46–55.

van der Heijden, K. 1998. "Articulating the Business Idea: The Key to Relevant Scenarios." In *Learning from the Future: Competitive Foresight Scenarios*, edited by R. Fahey and R. M. Randall, 335–351. San Francisco: John Wiley & Sons.

Vanderveer, R., and J. Heasley II. 2005. "War Gaming: Exercises in Defending Brand Territory." *MM&M* (May): 68–72.

Zenko, M. 2015. *Red Team: How to Succeed By Thinking Like the Enemy*. New York: Basic Books.

10

DESIGN THINKING

Design thinking can play a vital role in the probing phase of the strategic foresight process. In this section I will explore the potential of design thinking and discuss how foresight can be part of design thinking projects.

Several authors (e.g., von der Gracht, Vennemann, and Darkow 2010; Rohrbeck and Gemünden 2011; Jissink, Schweitzer, and Rohrbeck 2018; Sarpong and Meissner 2021) have linked strategic foresight to innovation management and emphasised the relevance of foresight for innovation. The principal argument is that insights from foresight provide input at and beyond the fuzzy front-end of innovation. If we consider the process of strategic foresight, as described in Chapter 4, we will refer to the phase of probing where insights from foresight are funnelled into innovation management.

To be more specific in our discussion on the interrelationship between foresight and innovation, I refer to design thinking as a process for innovation. While this relationship has already been established (Gordon,

DOI: 10.4324/9781003302735-13

Rohrbeck, and Schwarz 2019), I look at this relationship from the perspective of design thinking and foresight.

Design thinking has been described as an integrative framework that brings together creative and analytic modes of reasoning while accompanied by a process, a set of tools, and techniques (Liedtka 2015). The prevailing definition describes design thinking as a human-centred innovation process, emphasising aspects such as observation, collaboration, fast learning, visualisation of ideas, rapid prototyping, and a mix of analytical and intuitive thinking (Micheli, Wilner, Bhatti, Mura, and Beverland 2019). Broadly speaking, design thinking consists of three process steps: inspiration, ideation, and implementation (Seidel and Fixson 2013).

Design thinking and new product development are inevitably concerned with the future (Gordon, Rohrbeck, and Schwarz 2019). Specifically, this is the case if design thinking is applied to future challenges, customer needs, and emerging technologies. Yet, design thinking's inspiration phase is anchored firmly in the present. Based on an empirical investigation of 302 design thinkers (Schwarz 2019) assess the use of foresight methods in design thinking projects.

Schwarz (2019) finds that design thinkers use specific strategic foresight techniques, for instance scenario planning or trend research, in their

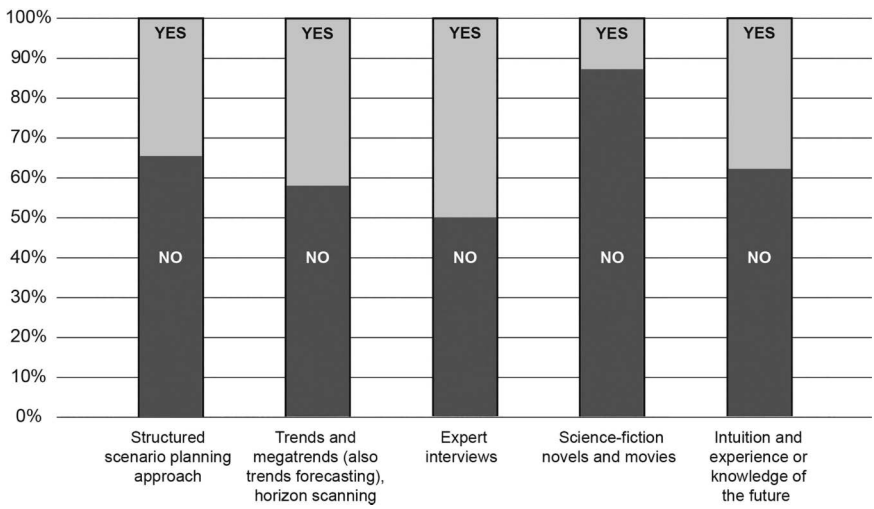

Figure 10.1 Tools used in dealing with the future in design thinking projects (Schwarz 2019).

projects and that these techniques make a major contribution to the success of these projects. Schwarz (2019) suggests that the toolbox of design thinkers should be expanded by including techniques from foresight, such as trend research or scenario planning, and that these should be integrated into design thinking projects. Based on these insights I'm suggesting the Foresight Design Thinking Framework (FDTF), with the aim of combining design thinking with foresight and allowing for a structured approach for incorporating the future into design thinking.

On the basis of the practice at firms such as IDEO, Liedtka (2015: 3) explains that design thinking 'specifies an initial exploratory phase focused on data gathering to identify user needs and define the problem, followed by a second stage of idea generation, followed by a final phase of prototyping and testing…' Seidel and Fixson (2013) have described three elements of the process: needfinding, brainstorming, and prototyping, building models to facilitate the development and selection of concepts. I follow Liedtka's (2015) perspective, focusing on the three stages of exploration, idea generation, and prototyping and testing.

Based on the empirical investigation, Schwarz (2019) identifies two meaningful factors:

1. Individual insights (expert interviews, intuition and experience or knowledge of the future)
2. Structured future exploration (structured scenario planning, trends and megatrends, science-fiction novels, and movies)

As described in Figure 10.2, in the *exploratory phase* in design thinking, in which information is gathered on user needs, both factors are relevant. In other words: it is possible to build on individual insights and to draw on structured future exploration techniques. In the case of expert interviews, the application of the trend-receiver approach (Hofmann 2015), introduced in chapter 5, would be feasible, because it focuses on experts in respect to identifying trends early. Furthermore, it is sensible to add future-oriented perspectives from structured scenario planning, trends, and megatrends as well as science-fiction novels and movies. How trends might develop, as discussed in the processes of foresight (Schwarz 2005; Schwarz, Rohrbeck, and Wach 2020), can be explored in scenarios that allow emerging trends to be linked and probable future schemes to be understood.

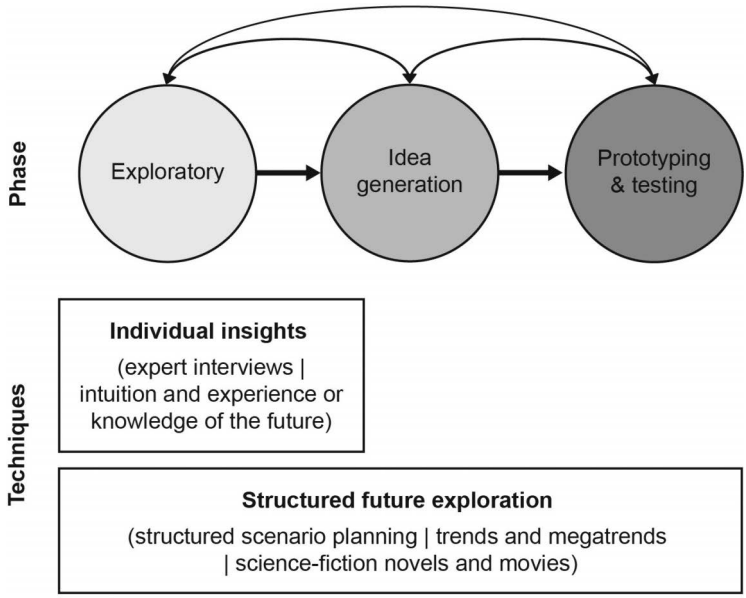

Figure 10.2 Foresight Design Thinking Framework (FDTF).

The factor of structured future exploration continues to be relevant in the *idea generation phase* of design thinking. In this phase, scenario planning can be used as a frame or canvas for innovation. This means that the alternative pictures of the future serve to ideate new products and services. As scenarios and science fiction represent alternative, yet plausible pictures of the future (which are probably distant in time), new products, and services can be ideated in these different futures, meaning also that a large number of ideas can be generated. This notion is in line with the trends and megatrends that are more feasible when compared to the aforementioned techniques but maps a potential direction that is not cast in stone.

In design thinking, new ideas that have been generated eventually need to be *prototyped and tested*. Again, the factor of structured future exploration and, in particular, the scenarios serve as a valuable framework for testing. Testing a prototype within different scenarios might lead to the following result. If the assessment is that a new product or service might fit into multiple scenarios, it is possible to conclude that this is a robust or a future-proof product or service that might develop well in reality. By contrast, if this assessment reveals that a product or service is only suitable for one or a few

scenarios, it should be treated with caution. Such outcomes either mean that a new iteration of the design thinking process will be beneficial or, given the detrimental results, that this idea should best be disregarded.

In addition, scenarios derived from science fiction can be understood as a future framework against which prototypes can be tested (Schwarz 2015). Schwarz and Wach (2022) find that even though cultural products, such as science-fiction movies or books, are less used than other tools in design thinking projects, cultural products are positively related to the success of design thinking projects.

References

Gordon, A., R. Rohrbeck, and J. Schwarz. 2019. "Escaping the 'Faster Horses' Trap: Bridging Strategic Foresight and Design-Based Innovation." *Technology Innovation Management Review* 9 (8): 30–42.

Hofmann, R. 2015. "Visionary Competence for Long-Term Development of Brands, Products, and Services: The Trend Receiver Concept and Its First Applications at Audi." *Technological Forecasting and Social Change* 101: 83–98. http://doi.org/10.1016/j.techfore.2014.06.005.

Jissink, T., F. Schweitzer, and R. Rohrbeck. 2018. "Forward-Looking Search during Innovation Projects: Under Which Conditions It Impacts Innovativeness." *Technovation* in press (July). https://doi.org/10.1016/j.technovation.2018.07.001.

Liedtka, J. 2015. "Perspective: Linking Design Thinking with Innovation Outcomes through Cognitive Bias Reduction." *Journal of Product Innovation Management* 32 (6): 925–938. https://doi.org/10.1111/jpim.12163.

Micheli, P., S. J. S. Wilner, S. H. Bhatti, M. Mura, and M. B. Beverland. 2019. "Doing Design Thinking: Conceptual Review, Synthesis, and Research Agenda." *Journal of Product Innovation Management* 36 (2): 124–148. https://doi.org/10.1111/jpim.12466.

Rohrbeck, R., and H. G. Gemünden. 2011. "Corporate Foresight: Its Three Roles in Enhancing the Innovation Capacity of a Firm." *Technological Forecasting and Social Change* 78 (2): 231–243.

Sarpong, D., and D. Meissner. 2021. *Corporate Foresight and Innovation Management*. London: Taylor & Francis Limited.

Schwarz, J. O. 2005. "Pitfalls in Implementing a Strategic Early Warning System." *Foresight* 7 (4): 22–30.

———. 2015. "The 'Narrative Turn' in Developing Foresight: Assessing How Cultural Products Can Assist Organisations in Detecting Trends." *Technological Forecasting and Social Change* 90 (Part B): 510–513. http://doi.org/10.1016/j.techfore.2014.02.024.

———. 2019. *The World of the Customer and the Future in Design Thinking: Assessment of the Practice of Design Thinkers*. Munich: Hochschule Fresenius University of Applied Sciences, https://www.researchgate.net/publication/330888489_The_World_of_the_Customer_and_the_Future_in_Design_Thinking_Assessment_of_the_Practice_of_Design_Thinkers.

Schwarz, J. O., and B. Wach. 2022. "The Usage of Cultural Products in Design Thinking: An Assessment of an Underestimated Approach." *The Design Journal* 25 (1): 4–24. https://doi.org/10.1080/14606925.2021.2005879.

Schwarz, J. O., R. Rohrbeck, and B. Wach. 2020. "Corporate Foresight as a Microfoundation of Dynamic Capabilities." *Futures & Foresight Science* 2 (2): e28. https://doi.org/10.1002/ffo2.28.

Seidel, V. P., and S. K. Fixson. 2013. "Adopting Design Thinking in Novice Multidisciplinary Teams : The Application and Limits of Design Methods and Reflexive Practices." *The Journal of Product Innovation Management* 30: 19–33.

von der Gracht, H. A., C. R. Vennemann, and I.-L. Darkow. 2010. "Corporate Foresight and Innovation Management: A Portfolio-Approach in Evaluating Organizational Development." *Futures* 42 (4): 380–393.

11

TRANSFORMATION AND OPEN STRATEGY

In this chapter, I discuss how in the phase of transforming, foresight links to change management. However, I want to stress this relationship between transformation and foresight by referring to the concept of open strategy.

If we consider the seminal work of John Kotter (2012) on leading change and the process he formulated (Figure 11.1), two avenues immediately become apparent how foresight plays into this approach. More precisely in step 1 'establish a sense of urgency' and in step 3 'develop a change vision'. Referring to step 1, how can a sense of urgency be established? Scenarios, or involving the management of an organisation into the process of creating scenarios, can create this sense of urgency. This also applies for the other more participative tools, such as the futures literacy lab or business wargaming. Second, creating a change vision (step 3) asks an organisation to create a vision which has the purpose to provide an orientation towards the future. This, however, also implies that an organisation needs to understand how the future could evolve and what possible futures could be.

While in the past strategy processes were an activity for senior managers and their internal or external strategy consultants, and highly confidential,

DOI: 10.4324/9781003302735-14

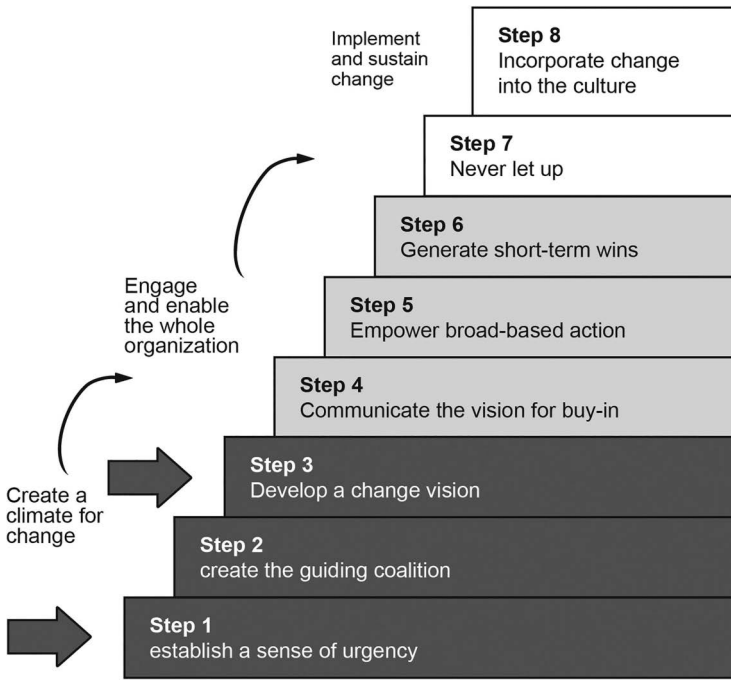

Figure 11.1 Kotter's eight steps to transformation.

open strategy describes approaches that include large groups within an organisation as well as external stakeholders to develop a strategy (Seidl, von Krogh, and Whittington 2019b). Birkinshaw (2017) argues that strategy-making has become much more open, inclusive, and transparent.

The term 'open strategy' was introduced by Whittington, Cailluet, and Yakis-Douglas (2011: 532) (Seidl, von Krogh, and Whittington 2019a) and defined as

> an openness in terms of inclusiveness, in other words, the range of people involved in making strategy; and an openness in terms of transparency, both in the strategy formulation stage and, more commonly, in the communication of strategies once they are formulated.

Seidl, von Krogh, and Whittington (2019a) describe five benefits of open strategy:

1. Greater access to information and knowledge by including a broader set of stakeholders in the process of strategy formulation

2. Improved implementation because including middle managers in the process of development may enable them to better understand the strategy and therefore better communicate and implement the strategy
3. Collective legitimisation by top managers, middle managers, and others involved in the process
4. Strong association with innovation and challenging mental models and business-as-usual or strategic conservatism through the inclusion of broader sets of perspectives
5. Identification of strategic talents within and outside the organisation

Summarising these benefits, one can argue that the core benefits of open strategy are linked to the involvement of its participants and the opening of the process to participants from diverse backgrounds, hierarchical levels, or functions within an organisation. This leads to the inclusion of multiple perspectives with the potential for achieving innovation or challenging mental models.

It has been argued that scenario planning and business wargaming appear useful in open strategy (Schwarz 2020). In both scenario planning and business wargaming, interactive workshop settings enable the future to be explored. While in scenario planning, the focus is on scanning the external environment of a business or industry and exploring alternative plausible pictures of the future, business wargaming focuses on understanding how the competitive landscape of an industry will change in the future. I have mentioned that van der Heijden (1996) referred to scenario planning as the 'art of strategic conversations', and one can argue that at the core of both approaches, participants make sense of their business environment by including the perspectives of those involved.

Several authors (e.g., Schoemaker 1995; van der Heijden 1996; van der Heijden, Bradfield, Burt, Crains, and Wright 2002; Chermack 2011; Ramirez and Wilkinson 2016) highlight the participatory nature of scenario planning or formulate the participation and involvement of top management as a prerequisite. This participation can be achieved by conducting interviews about the perceived challenges in the business environment, discussing trends and selecting key uncertainties, selecting the two key uncertainties for building a scenario matrix, describing the scenarios, and finally deriving the implications. The key argument for the involvement in this process

is to strengthen buy-in into the results and, of course, the actions taken based upon the developed scenarios. Oriesek and Schwarz (2020) deliberately position business wargaming as an approach to change management.

While open strategy addresses this issue of opening the strategy development process to all levels in an organisation, the question of how to facilitate such openness also arises. Experience with scenario planning and business wargaming, however, has shown that these types of workshops allow a good integration of participants from different levels of an organisation. In scenario planning workshops, one assessment is that discussing the future is beyond the daily politics of an organisation and therefore fosters an open exchange of ideas. Additionally, in business wargaming, the competitive element between the teams and the dynamics to win, foster teamwork and weaken the perception of hierarchy.

Overall the argument can be made that scenario planning should be understood not only as a tool for identifying pictures of the future, but first and foremost as an approach that will foster strategic conversations in an organisation (van der Heijden 2005). Scenario planning can also be seen as an organisational intervention, actually facilitating open strategising. In this regard, scenario planning is perceived as a means of opening up strategic discussions and including wider groups of stakeholders both inside and outside an organisation with the aim of achieving greater buy-in to corresponding outcomes (Lehr, Lorenz, Willert, and Rohrbeck 2017). What this also implies is that the usefulness of communicating scenarios via a report, whether written or video, might be limited. While there is of course research suggesting what factors might support scenarios in being accepted or rejected by different audiences (Schmidt-Scheele 2020), the open strategy perspective places the focus on the creation of scenarios, understood as an organisational intervention, not on producing reports. One can also think about creating engagement formats which allow those who were not part of a scenario planning process, to immerse themselves into these future worlds in smaller workshop settings.

Conceptualising strategic foresight as an open strategy bears a lot of potential, especially when the purpose of a foresight activity is to contribute to organisational transformation. While I have focused on scenario planning and business wargaming as tools for open strategy and transformation in this chapter, this is not to be understood as a limitation. Also, the phase of prospecting can be opened to the members of an organisation

in searching for and evaluating trends. This also applies to the phases of prospecting and probing, and to tools such as scenario planning, futures literacy laboratories or business wargaming.

References

Birkinshaw, J. 2017. "Reflections on Open Strategy." *Long Range Planning* 50 (3): 423–426. https://doi.org/10.1016/j.lrp.2016.11.004.

Chermack, T. J. 2011. *Scenario Planning in Organizations: How to Create, Use, and Assess Scenarios*. San Francisco: Berrett-Koehler.

Kotter, J. P. 2012. *Leading Change*. Boston: Harvard Business Review Press.

Lehr, T., U. Lorenz, M. Willert, and R. Rohrbeck. 2017. "Scenario-Based Strategizing: Advancing the Applicability in Strategists' Teams." *Technological Forecasting & Social Change* 124: 214–224. https://doi.org/10.1016/j.techfore.2017.06.026.

Oriesek, D. F., and J. O. Schwarz. 2020. *Winning the Uncertainty Game: Turning Strategic Intent into Results with Wargaming*. London: Taylor & Francis.

Ramirez, R., and A. Wilkinson. 2016. *Strategic Reframing: The Oxford Scenario Planning Approach*. Oxford: Oxford Publishing.

Schmidt-Scheele, R. 2020. *The Plausibility of Future Scenarios: Conceptualising an Unexplored Criterion in Scenario Planning*. Science Studies. Transcript Verlag.

Schoemaker, P. 1995. "Scenario Planning : A Tool for Strategic Thinking." *Sloan Management Review* 36 (2): 25–40. https://doi.org/10.1016/0024-6301(95)91604-0.

Schwarz, J. O. 2020. "Revisiting Scenario Planning and Business Wargaming from an Open Strategy Perspective." *World Futures Review* 12 (3): 291–303. https://doi.org/10.1177/1946756720953182.

Seidl, D., G. von Krogh, and R. Whittington. 2019a. "Defining Open Strategy: Dimensions, Practices, Impacts, and Perspectives." In *Cambridge Handbook of Open Strategy*, edited by D. Seidl, G. von Krogh, and R. Whittington, 9–26. Cambridge: Cambridge University Press. https://doi.org/10.1017/97811083479 21.002.

———. 2019b. "Introduction." In *Cambridge Handbook of Open Strategy*, edited by D. Seidl, G. von Krogh, and R. Whittington, 1–6. Cambridge: Cambridge University Press. https://doi.org/10.1017/97811083479 21.001.

van der Heijden, K. 1996. *Scenarios: The Art of Strategic Conversation*. Chichester: John Wiley & Sons.

———. 2005. *Scenarios: The Art of Strategic Conversation*. Chichester: Wiley.

van der Heijden, K., R. Bradfield, G. Burt, G. Crains, and G. Wright. 2002. *The Sixth Sense*. Chichester: John Wiley & Sons.

Whittington, R., L. Cailluet, and B. Yakis-Douglas. 2011. "Opening Strategy: Evolution of a Precarious Profession." *British Journal of Management* 22 (3): 531–544. https://doi.org/10.1111/j.1467-8551.2011.00762.x.

12

STRATEGIC FORESIGHT AND ITS ANTECEDENTS

Strategic foresight has several antecedents. Although this makes it difficult to define the boundaries of strategic foresight, it points out to several fields for which strategic foresight might have relevance or vice versa. This chapter, however, describes only some of those antecedents, while others have been part of previous chapters (see Figure 12.1).

Chapter 12 discussed innovation as an antecedent. Chapter 4 covered issue management, under the assumptions that trends develop from a weak signal to strong signals or trends and that therefore trends can also be perceived as precursors of issues.

12.1 Strategy and dynamic capabilities

A fundamental question in strategic management is how firms achieve and sustain a competitive advantage (Teece, Pisano, and Shuen 1997). Academics and managers have long tried to understand why some firms survive and even prosper in times of environmental changes and uncertainty while

DOI: 10.4324/9781003302735-15

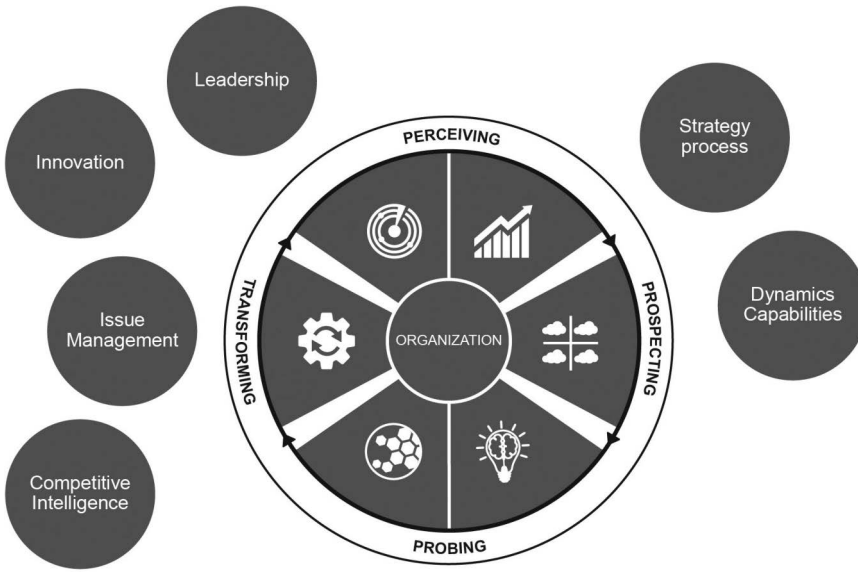

Figure 12.1 Strategic foresight and its antecedents.

others do not (Levinthal 1997; Siggelkow 2002; Birkinshaw, Zimmermann, and Raisch 2016).

In strategic management the theory of dynamic capabilities has gained significant importance since publication of Teece et al.'s (1997) seminal paper. The dynamic capabilities perspective (Teece, Pisano, and Shuen 1997) explains why some firms are adept at anticipating and exploiting opportunities via advances in technology and rapid changes in their market space while others struggle or go out of business. The ways in which firms sense and seize opportunities lie at the core of the dynamic capabilities theory.

Teece, Pisano, and Shuen (1997: 516) suggested that the ability of an organisation to adapt to a changed environment rests on its dynamic capabilities, 'the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments'. Their rationale is that the resource-based view has not explained how and why certain firms have a competitive advantage in situations of rapid and unpredictable change. Others argue that dynamic capabilities rest on existing processes such as strategic decision-making, alliances, and research and development (Eisenhardt and Martin 2000).

Teece, Pisano, and Shuen (1997) argued that a firm's 'dynamic capabilities rest on two pillars: (1) the vision and leadership skills of managers, and (2) the cohesion and flexibility of the organisation as a whole' (Krupp and Schoemaker 2014: IX). An organisation's dynamic capabilities can be represented at the organisational level via deliberate processes and tools; and at the managerial level via managers' intentional or unintentional enactment.

The theory of dynamic capabilities has several implications for the field of foresight and vice versa. The similarities between the process of foresight (see Chapter 4) and that of dynamic capabilities underline the linkage between the two concepts and emphasise the relevance of foresight for a firm to achieve a competitive advantage. This refers more to the organisational level of dynamic capabilities and strategic foresight. I have already described the way in which individuals think about the future and what the associated challenges are.

Based on an empirical investigation, Schwarz, Rohrbeck, and Wach (2020) found that corporate foresight practices, which refer to the process of strategic foresight, and the training of individuals in strategic foresight, support dynamic capabilities in a firm. This perception also emphasises that dynamic capabilities build on existing standard processes, such as research and development, alliances, and strategic decision-making, as suggested by Martin and Eisenhardt (Eisenhardt and Martin 2000).

This study (Schwarz, Rohrbeck, and Wach 2020) further suggests that corporate foresight trainings can help leaders to make cognitive leaps by overcoming dominant mental models (Vecchiato, Favato, Maddaloni, and Do 2019). These findings also suggest that while setting up a strategic foresight activity at an organisation it is important to design an appropriate process, and to train managers to address strategic foresight at the organisational and individual levels.

Schwarz, Rohrbeck, and Wach (2020) suggest that individuals be trained in reserving and directing attention towards the periphery and the mid- to long term (Schoemaker 2019); in decision-making under uncertainty (Courtney, Kirkland, and Viguerie 1997); and in reconfiguring resources, a skill also emphasised via the increasing interest in using a business model language to allow firms to survive transitions (Teece, Peteraf, and Leih 2016; Teece 2017; Bidmon and Knab 2018).

12.2 Strategy process

Strategic foresight has the potential to play a vital role in helping a firm to achieve a long-term competitive advantage. One way to do this is to integrate foresight into the strategy process, as used by Royal Dutch Shell's (Figure 12.2) integrating scenarios (Johnson, Scholes, Whittington, and McMillan 2008). Scenarios are developed at a corporate level and then broken down to regional or business unit levels, asking for strategising within the boundaries of the scenarios. The aim of this approach is to begin the strategy process with creating scenarios both to reflect on current trends and to explore alternative pictures as well as to create a basis for decision-makers to choose which future direction an organisation should take.

Here I take a closer look at the ways in which foresight and some of its essential approaches can be incorporated into strategy development. My focus will be on scenario planning and business wargaming. The aim is twofold: (1) to integrate foresight into a strategy process; and (2) to add a competitive perspective to strategising.

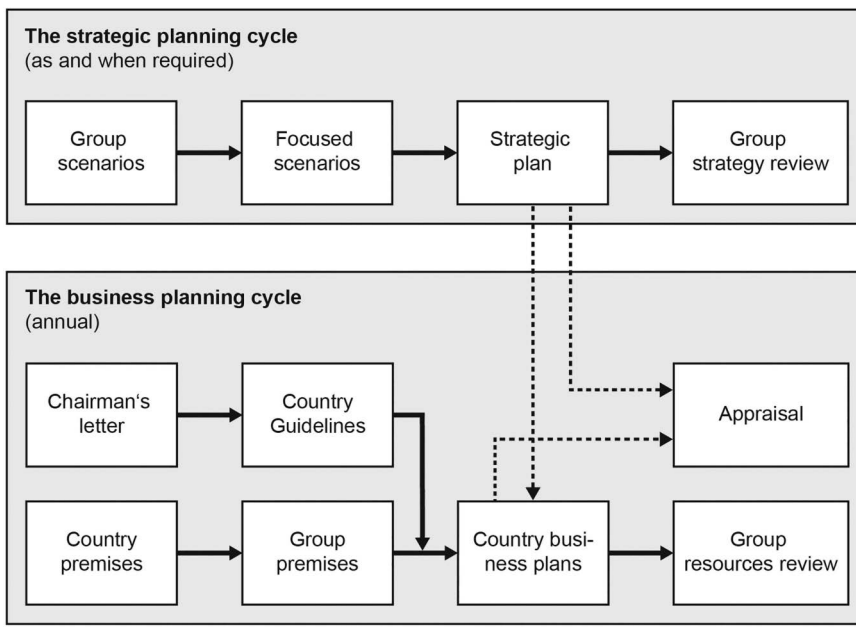

Figure 12.2 Strategy process at Royal Dutch Shell (Johnson, Scholes, Whittington, and McMillan 2008).

Although I have already outlined how scenarios can be incorporated into a strategy progress, the question remains, how to integrate a stronger focus on competitors, or future competitors. In order to identify early warning signals of new rivals (Geroski 1999), it is imperative to understand how an industry might be disrupted and how actors and other stakeholders might behave in different contexts. The scenario technique provides rich insights into a range of futures but leaves management with an ambiguous future space that is difficult to navigate even without the added complexity of potential future moves of competitors (Ramírez and Selsky 2016).

One promising way to address this is to complement scenario analysis with business wargaming. Reibstein and Chussil (1999) have observed that scenario planning does not always capture the impact of competitive dynamics, but that strategy simulations, such as business wargaming, can incorporate insights, for example, from scenario planning. A business wargame takes its appeal from being engaging and from providing a platform for experimenting with different strategic moves and their ability to trigger desired outcomes. Combining the two should allow one to prepare for competition in uncertain environments and thus improve an organisation's ability to identify and secure superior positions in the markets of the future (Perrottet 1998; Kurtz 2003; Oriesek and Schwarz 2008; Schwarz 2011).

Schwarz, Ram, and Rohrbeck (2018) propose the prospective competitive strategy process, which combines business wargaming with scenario planning. Scenario planning is often too weak in proposing clear organisational actions about competitive dynamics. Business wargames are typically directly linked to strategic decisions concerning the competitive positioning of an organisation. However, given the cognitive capacity and resource limitations in preparing for a singular business wargaming workshop, there is often a failure to consider how the business environment may evolve in different ways to inform strategic decisions. This shortcoming can be addressed by leveraging the inherent synergies of these two techniques and combining them into one approach.

Perceiving involves activities designed to create awareness about the environment and factors that have and will influence the focal market. To achieve this, it is essential to address questions such as: Who *are* the firm's competitors? Who *will be* its competitors?

On its own, business wargaming is based on the competitors or stakeholders included in the simulation. Perceiving emphasises that prior to designing a business war game, assumptions about the future course of

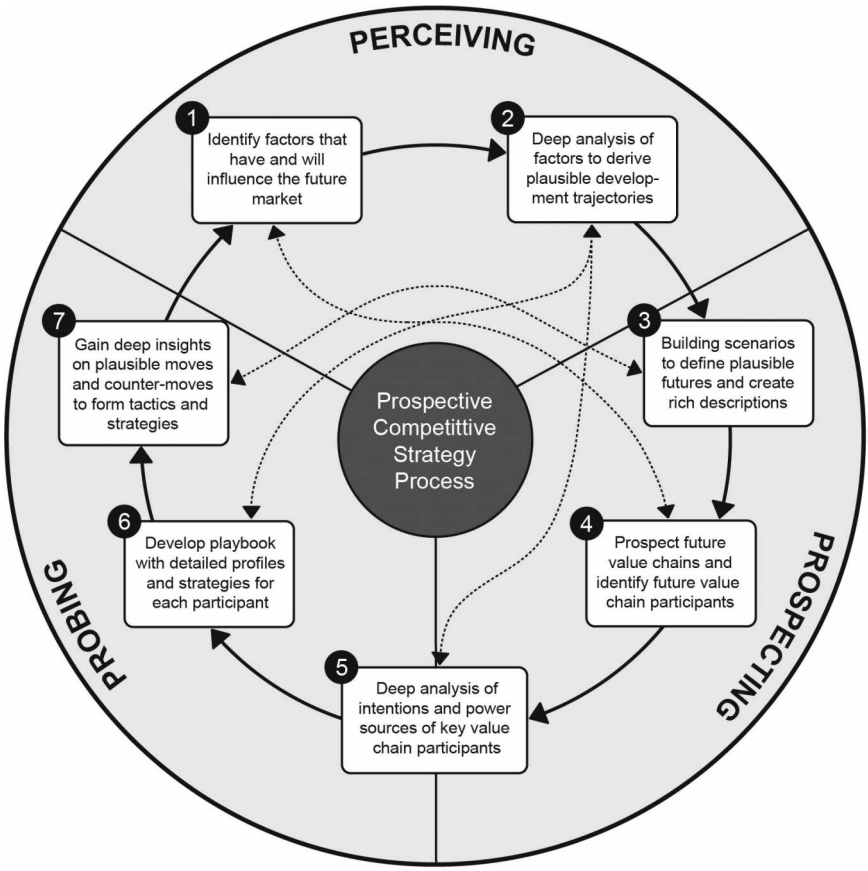

Figure 12.3 Prospective competitive strategy process (Schwarz, Ram, and Rohrbeck 2018).

the industry must be made to include meaningful competitors. To do this, the perceiving phase should leverage data collection from several viewpoints (e.g., experience from outside the focal industry, other geographical regions, and lead markets) and different time horizons. Here, firms in fast-moving environments should also consult experts from long-term oriented industries such as the building industry or energy industry, where architects and energy planners must form opinions about future states in a 20- to 40-year time frame.

Prospecting involves activities designed to uncover systemic effects and project developments to define and describe plausible future states and their effects on the focal firm. This requires setting the simulation in an

appropriate context. The gamebook or playbook is used to set this context, and contains information on the represented competitors, stakeholder, and the industry. In traditional gamebooks, however, there is little consideration of environmental trends that might shape the future of the industry. This is partly because the information has simply not been prioritised when designing the gamebook. In addition, there is a limit to how much complexity participants can cognitively handle, thus creating an incentive for gamebook designers to keep it simple. Omitting such information can result in outdated strategies and misguided investments. The prospective competitive strategy process can counteract this in various ways. In the perceiving phase, deep insights are collected through analysis of lead markets, new product concepts, and product vision. The prospecting phase builds on these insights, creating sets of 'what if' and 'so what' questions.

Probing involves activities designed to provide tangible experiences about future developments, especially the competitive strategic moves from the focal firm and other plausible participants in future value chains.

While business wargames evolve over several rounds (often representing months or years) (Oriesek and Schwarz 2008), future scenarios would allow a participant to play rounds located in different future states. This would thus allow the participant to understand what customers value most in each scenario, how competitor dynamics change, and which scenario favours a particular rival.

12.3 Competitive intelligence

Competitive intelligence has been perceived as an activity primarily concerned with analysing the competitors of an organisation and as one that considers the environments of that organisation. This means that competitive intelligence professionals must focus on their competitors, on their organisation's stakeholders, and on developments in their environment.

Competitive intelligence is rooted in governmental intelligence agencies, management studies, and market research (Michaeli 2006). Competitive intelligence emerged as a part of market research in the 1970s (Lux and Peske 2002). However, the field experienced a boost with Michael Porter's (1980) *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. The focus of competitive intelligence shifted from an activity concerned

primarily with the competitors, to one focusing on the organisational environment. This development is reflected in the definition of 'competitive intelligence' by Society of Competitive Intelligence Professionals, cited by Lux and Peske (2002: 27):

> Competitive intelligence is the process of monitoring the competitive environment. Competitive intelligence enables senior managers... to make informed decisions about everything from marketing, R and D, and investing tactics to long-term business strategies. Effective competitive intelligence is a continuous process involving the legal and ethical collection of information analysis....

A wide variety of analytical tools (Lux and Peske 2002) are used in competitive intelligence activities. However, foresight, in general, is of relevance to the field of competitive intelligence and tools like business wargaming (Chapter 9). Further, the process of strategic foresight (Chapter 3), which also has been labelled as strategic early warning process or system (Schwarz 2005), seems to be of interest for competitive intelligence (Kurtz 2003; Gilad 2004). While business wargaming has been discussed in Chapter 9 and its relevance with the focus on competition for the field of competitive intelligence is obvious, we discuss foresight and its relevance for competitive intelligence.

Gilad (2004) describes the implementation of competitive early warning systems as a key component of competitive intelligence. The goal of such a system is to detect weak signals of change before they escalate to a full crisis, or to detect opportunities before competitors do (Fuld 2003). Such systems are meant to provide decision-makers with foresight and insight (Bernhardt 2003). This activity is labelled described here as an early warning system (Tessun 1997; Fuld 2003) or as strategic early warning (Bernhardt 2003; Schwarz 2005).

This entailed that strategic early warning and foresight have the same purpose: to deal with the future or with environments that are turbulent and difficult to predict (Schwarz 2007). In addition, both concepts share an interest in trends. While strategic early warning systems are designed to detect trends, foresight is concerned with creating alternative futures or gaining insight into the future by using trends. Strategic early warning systems are directed more towards a real-time activity, with a diagnosis phase, with the aim of understanding the phenomena.

Linking strategic early warning and competitive intelligence to the process of strategic foresight as discussed in Chapter 4, one can argue that this activity is geared towards the phase of perceiving. However, competitive intelligence provides essential information for instance for designing a business wargame and can therefore enhance foresight in relation to an organisation's competitive landscape.

12.4 Leadership

The link between strategic foresight and leadership is not yet well established. In strategic thinking (Schoemaker, Krupp, and Howland 2013; Krupp and Schoemaker 2014, 2015), the ability to sense changes in the business environment has been pinpointed as a valuable leadership skill. Schoemaker (2019) emphasised that individual leaders need to direct attention to the periphery and ensure sufficient mental slack. Mackay and Burt (2015) described foresight as a means of strategic learning and as a creative process.

In this section I cite research on robust leadership (Schwarz, Wach, von Held, and Werle 2021). The robust leadership framework identifies the challenges leaders need to address and how, and which mechanisms enable them to do so, particularly in VUCA environments. Schwarz, Wach, von Held, and Werle (2021) argue that the need for leaders to provide orientation is key. How can leaders provide orientation in VUCA environments? The answer is in two components of the robust leadership framework:

What vision do leaders have? What purpose should their organisation fulfil? Why does it matter? Leaders need to provide orientation in terms of what the organisation needs to achieve. In this sense, leadership depends on strategic thinking. It is a leader's task to visualise how the organisation's future can be different, to challenge assumptions about how to do business or how the industry operates and to consider new ways of going forward. In making insights and assumptions explicit, leaders define the organisation's vision and tangible goals. This is essential for strategy-making.

Providing orientation on *how* members of an organisation can work together to achieve its *what*. This question relates to the values and more generally to the culture of an organisation and how these are enacted and experienced. Leaders also need to provide orientation in terms of how the organisation will achieve its goals. In other words: 'How do we need to

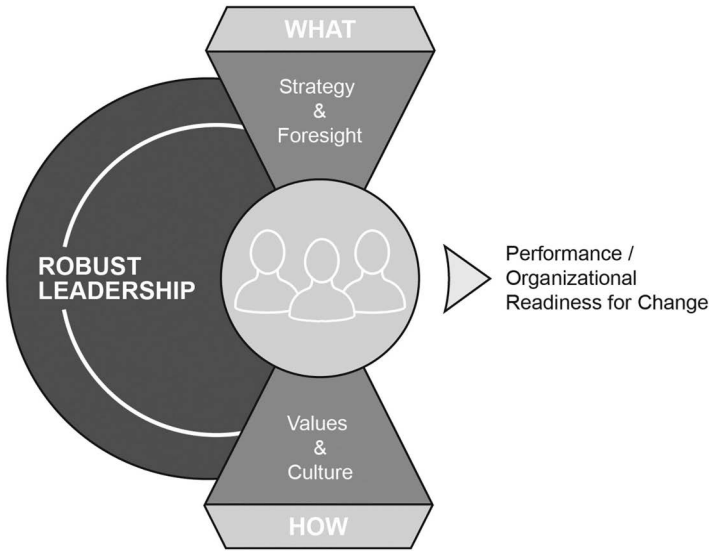

Figure 12.4 Robust leadership framework (Schwarz, Wach, von Held, and Werle 2021).

work together to be successful? Why do we need to change and adapt?' How an organisation pursues its goals in practice relates to the organisation's values and how its members enact and experience them. Organisational values are essential for collaboration across hierarchical levels and functions and to define the organisation's culture.

Schwarz, Wach, von Held, and Werle (2021) found in their empirical investigation that about 20 per cent of the respondents described the leadership of their company as robust and 10 per cent described it as fragile. Around 70 per cent assessed their leadership as neither good nor bad. This category of respondents was labelled as 'stuck in the middle'. Developing foresight capabilities in an organisation on an organisational and individual level has the potential to enable robust leadership.

References

Bernhardt, D. 2003. *Competitive Intelligence: How to Acquire and Use Corporate Intelligence and Counter-Intelligence*. London: Prentice-Hall.

Bidmon, C. M., and S. F. Knab. 2018. "The Three Roles of Business Models in Societal Transitions: New Linkages between Business Model and

Transition Research." *Journal of Cleaner Production* 178 (March): 903–916. https://doi.org/10.1016/j.jclepro.2017.12.198.

Birkinshaw, J., A. Zimmermann, and S. Raisch. 2016. "How Do Firms Adapt to Discontinuous Change? Bridging the Dynamic Capabilities and Ambidexterity Perspectives." *California Management Review* 58 (4): 36–58. https://doi.org/10.1525/cmr.2016.58.4.36.

Courtney, H., J. Kirkland, and P. Viguerie. 1997. "Strategy Under Uncertainty." *Harvard Business Review* 1997 (11): 67–79.

Eisenhardt, K. M., and J. A. Martin. 2000. "Dynamic Capabilities: What Are They?" *Strategic Management Journal* 21 (10–11): 1105–1121. https://doi.org/10.1002/1097-0266(200010/11)21:10/11<1105::aid-smj133>3.0.co;2-e.

Fuld, L. 2003. "Be Prepared." *Harvard Business Review* 81 (11): 20–21.

Geroski, P. A. 1999. "Early Warning of New Rivals." *Sloan Management Review* 40 (3): 107–116.

Gilad, B. 2004. *Early Warning: Using Competitive Intelleignce to Anticipate Market Shifts, Control Risk, and Create Powerful Strategies*. New York: AMACOM.

Johnson, G., K. Scholes, R. Whittington, and K. McMillan. 2008. *Exploring Corporate Strategy: And How to Write Dissertations and Project Reports: Text and Cases*. London: Pearson Education.

Krupp, S., and P. J. H. Schoemaker. 2014. *Winning the Long Game: How Strategic Leaders Shape the Future*. New York: Public Affairs.

———. 2015. "The Power of Asking Pivotal Questions." *MIT Sloan Management Review* 56 (2): 39–47.

Kurtz, J. 2003. "Business Wargaming: Simulations Guide Crucial Strategy Decisions." *Strategy and Leadership* 31 (6): 12–21.

Levinthal, D. A. 1997. "Adaptation on Rugged Landscapes." *Management Science* 43 (7): 934–950.

Lux, C., and T. Peske. 2002. *Competitive Intelligence Und Wirtschaftsspionage*. Wiesbaden: Gabler.

Mackay, D., and G. Burt. 2015. "Strategic Learning, Foresight and Hyperopia." *Management Learning* 46 (5): 546–564. https://doi.org/10.1177/1350507614549120.

Michaeli, R. 2006. *Competitive Intelligence*. Berlin: Springer.

Oriesek, D. F., and J. O. Schwarz. 2008. *Business Wargaming : Securing Corporate Value*. Aldershot: Gower.

Perrottet, C. M. 1998. "Testing Your Strategies in Scenarios." In *Learning from the Future*, edited by L. Fahey and R. M. Randall, 122–139. San Francisco: John Wiley and Sons.

Porter, M. E. 1980. *Competitive Strategy – Techniques for Analyzing Industries and Competitors*. New York: Free Press.

Ramírez, R., and J. W. Selsky. 2016. "Strategic Planning in Turbulent Environments: A Social Ecology Approach to Scenarios." *Long Range Planning* 49 (1): 90–102. https://doi.org/10.1016/j.lrp.2014.09.002.

Reibstein, D. J., and M. J. Chussil. 1999. "Putting the Lesson before the Test: Using Simulation to Analyze and Develop Competitive Strategies." *Competitive Intelligence Review* 10: 34–48.

Schoemaker, P. J. H. 2019. "Attention and Foresight in Organizations." *Futures & Foresight Science* 1:e5. https://doi.org/10.1002/ffo2.5.

Schoemaker, P. J. H., S. Krupp, and S. Howland. 2013. "Strategic Leadership: The Essential Skills." *Harvard Business Review* (January–February), https://hbr.org/2013/01/strategic-leadership-the-esssential-skills.

Schwarz, J. O. 2005. "Pitfalls in Implementing a Strategic Early Warning System." *Foresight* 7 (4): 22–30.

———. 2007. "Competitive Intelligence: A Field for Futurists?" *Futures Research Quarterly* 23 (1): 55–65.

———. 2011. "Ex-Ante Strategy Evaluation: The Case for Business Wargaming." *Business Strategy Series* 12 (3): 122–135.

Schwarz, J. O., B. Wach, F. von Held, and F. Werle. 2021. *A Study on Robust Leadership: Addressing Key Tensions*. Munich: Institute for Innovation and Change Methodologies.

Schwarz, J. O., C. Ram, and R. Rohrbeck. 2018. "Combining Scenario Planning and Business Wargaming to Better Anticipate Future Competitive Dynamics." *Futures* 105: 133–142. https://doi.org/10.1016/j.futures.2018.10.001.

Schwarz, J. O., R. Rohrbeck, and B. Wach. 2020. "Corporate Foresight as a Microfoundation of Dynamic Capabilities." *Futures & Foresight Science* 2 (2): e28. https://doi.org/10.1002/ffo2.28.

Siggelkow, N. 2002. "Evolution toward Fit." *Administrative Science Quarterly* 47 (1): 125. https://doi.org/10.2307/3094893.

Teece, D. J. 2017. "Business Models and Dynamic Capabilities." *Long Range Planning* (July). https://doi.org/10.1016/J.LRP.2017.06.007.

Teece, D. J., G. Pisano, and A. Shuen. 1997. "Dynamic Capabilities and Strategic Management." *Strategic Management Journal* 18 (7): 509–533. https://doi.org/10.1002/(sici)1097-0266(199708)18:7<509::aid-smj882>3.0.co;2-z.

Teece, D., M. Peteraf, and S. Leih. 2016. "Dynamic Capabilities and Organizational Agility: Risk, Uncertainty, and Strategy in the Innovation Economy." *California Management Review* 58 (4): 13–35. https://doi.org/10.1525/cmr.2016.58.4.13.

Tessun, F. 1997. "Scenario Analysis and Early Warning Systems at Daimler-Benz Aerospace." *Competitive Intelligence Review* 8 (4): 30–40.

Vecchiato, R., G. Favato, F. Maddaloni, and H. Do. 2019. "Foresight, Cognition, and Long-term Performance: Insights from the Automotive Industry and Opportunities for Future Research." *Futures & Foresight Science* 1 (3–4): 1–13. https://doi.org/10.1002/ffo2.25.

Part III

STRATEGIC FORESIGHT IN PRACTICE

13

STRATEGIC FORESIGHT

AN EMERGING FIELD

Looking back on five decades of research on corporate foresight, Rohrbeck, Battistella, and Huizingh (2015) describe strategic foresight as an emerging field with a rich tradition. Describing the state of strategic foresight this way captures the status of strategic foresight. While strategic foresight has been around for decades, it appears that the interest in strategic foresight is growing. The factors supporting this rise in interest are the increasing awareness of VUCA or TUNA environments in addition to the perception that more traditional or static planning and strategy tools are not suited for the business environment.

There is a growing awareness that simple approaches are inadequate for a complex business environment. Of course, a barrier to the implementation of strategic foresight is the complexity of its application. Designing and facilitating an intervention which challenges the mental models of leadership teams and allows for strategic conversations on trends in the business environment and probable future scenarios, is a complex undertaking.

However, the intention in dealing with the changes in the environment of a firm is to reduce complexity, this means that complexity needs to be

DOI: 10.4324/9781003302735-17

increased before it can be meaningfully reduced without putting an organisation at risk of increasing its blind spots.

In the following, I look at the practice of strategic foresight from different angles. I consider the value contribution of strategic foresight. Then I examine the evidence on the proliferation of strategic foresight.

13.1 Value contribution of strategic foresight

The issue of the value contribution of strategic foresight is discussed from two angles: how and in what ways strategic foresight can create value in an organisation; and how strategic foresight affects the value of a firm.

13.1.1 How strategic foresight creates value

Based on a literature review and an empirical investigation Rohrbeck and Schwarz (2013) assess the value of strategic foresight for an organisation.

Strategic foresight delivers value to an organisation by developing mechanisms that help to detect weak and interpret signals, then respond to them. Therefore, the first value proposition is to gain insights into environmental changes. Given that the aim of strategic foresight should be to scan for the unknown, the following potential value contribution is proposed: Contributing to a reduction of uncertainty (e.g., through identification of disruptions).

I have discussed the advantages of scenario planning in this book. Scenarios contribute to management's ability to take future-oriented decisions and initiate the configuration and deployment of the firm's strategic resources (Danneels 2011). Scenarios also serve as shared mental images that build emotional capacity. Creating emotional capacity is vital for driving internal change, particularly radical change (Huy 1999). In this respect, the value creation of strategic foresight would be to integrate key stakeholders in the process of strategy formation.

Strategic foresight as a vehicle for strategic conversation involves both value contribution and learning. A strategic foresight process contributes to the learning organisation (Senge 1990) and is a learning process itself (Costanzo 2004). Therefore, the value contribution of strategic foresight is seen in fostering conversations about strategy. It is not enough for a firm to perceive change and develop a strategy to deal with it; the firm also

must be able to adapt to change. Further, a value contribution of strategic foresight consists in supporting the adjustment of the company when faced with uncertainty.

Moving from perceiving to responding to external change means that firms need to develop plans and orchestrate actions. Rohrbeck and Schwarz (2013) thus conclude that another potential value contribution of strategic foresight is improving the coordination of business objectives. Another potential value contribution of strategic foresight concerns broadening the scope of perceived alternatives and taking different perspectives to make better strategic choices. Strategic foresight exercises can contribute value by creating the ability to adopt alternative perspectives.

It has been argued that a strategic foresight process can incorporate creativity and innovation and that there is a connection between innovation and strategic foresight. Strategic foresight can support new product development in three ways: (1) exploring new innovation fields; (2) identifying promising innovations; and (3) challenging research and development teams throughout the development of new products. This leads to the following value contribution of strategic foresight: Strategic foresight reduces uncertainty in R&D projects.

Searching for non-articulated needs can be seen as exploring either emerging or future needs, this can be a task of strategic foresight. Strategic foresight could contribute by enhancing the understanding of customer needs. In addition, firms report that they use strategic foresight to identify new customer groups, either for current or future products and services. Strategic foresight will contribute to identifying potential customers, to enhancing the understanding of the market, and to identifying opportunities and threats to the firm's product and technology portfolio.

On a more generic level, the role of an organisation's strategic foresight process organisation is to prepare for the future. Strategic foresight can contribute to an organisation by facilitating organisational learning. Strategic foresight could play an enabling role in systemic innovations, particularly where multiple actors need to work together to create a market or an industry. Thus, strategic foresight contributes value by influencing others to act.

Based on an empirical investigation of 77 European-based corporations, Rohrbeck and Schwarz (2013) assess whether and to what degree these value contributions can be found in practice. All individual value contributions have been confirmed by at least a few firms. This means that, if

Group	Potential value of strategic foresight
Perception	• Gaining insights into changes in the environment • Contributing to a reduction of uncertainty (e.g. through identification of disruptions)
Interpretation and usage (for strategic management)	• Fostering conversations about the overall strategy of the company • Supporting the adjustment of the company in situations of uncertainty • Improving the coordination of business objectives • Creating the ability to adopt alternative perspectives
Interpretation and usage (for innovation management)	• Reducing the level of uncertainty in R&D projects • Enhancing the understanding of customer needs • Identifying potentail customers • Enhancing the understanding of the market • Identification of opportunities and threats regarding our product and technology portfolio
Overall	• Facilitate organizational learning • Shaping the future (e.g. through influencing other parties, such as politics and other companies)

Figure 13.1 Overview value contributions of strategic foresight activities (Rohrbeck and Schwarz 2013).

formalised strategic foresight activities are implemented, then a firm can expect: (1) an enhanced perception, (2) an enhanced ability to interpret change, and (3) an enhanced ability to propose responses, and an enhanced capacity for organisational learning and influencing others. The highest figures were for firms, which report an enhanced perception, either through gaining insights into changes in the environment, or reducing uncertainty. The phase of perceiving in the strategic foresight process is the one that is serviced the best; the others have room for improvement.

13.1.2 Impact of strategic foresight on firm performance

Paramount for describing the linkage of strategic foresight to the performance of a firm is the work of Professor René Rohrbeck from the EDHEC Business School in Lille, France (Rohrbeck and Kum 2018; Rohrbeck, Kum, Jissink, and Gordon 2018).

Rohrbeck and Kum (2018) developed a model that judges a firm's future preparedness by assessing the need for corporate foresight in respect to the perceived dynamics in the industry and by comparing it to the maturity of its corporate foresight activities. Corporate foresight activities were measured along five dimensions:

1. Information usage: the information which is collected
2. Method sophistication: methods used to interpret the information
3. People and networks: characteristics of individual employees and networks used by the organisation to acquire and disseminate information on change (Subsequent iterations of the maturity model split these items)
4. Organisation: how information is gathered, interpreted, and used in the organisation
5. Culture: the extent to which the corporate culture supports organisation foresight

A longitudinal research design was applied to measure future preparedness in 2008 and its impact on firm performance in 2015. Surveyed firms were clustered into four groups: vigilant, neurotic, vulnerable, and in danger.

As described in Figure 13.2, Rohrbeck and Kum's (2018) findings show that vigilant firms achieved, on average, 16 per cent profitability, surpassing the industry average profitability of 12 per cent, and made vigilant firms 33 per cent more profitable than the average. The value of future preparedness is even more apparent when looking at the discounts that the firms with deficiencies needed to assume. Neurotic and vulnerable firms have a 37 per cent lower profitability than that of vigilant firms. In-danger firms realised a 44 per cent lower profitability.

Rohrbeck and Kum's (2018) findings suggest that strategic foresight activities, designed and implemented in the right balance in respect to the dynamics in the business environment, lead to performance improvements. Interesting also is that this research reveals that foresight activities might be at the right level in the business environment. Rohrbeck and Kum (2018) found evidence that some firms are too concerned with their strategic foresight activities (neurotic) while others are not concerned enough. Schwarz (2019) discussed a similar effect in the fashion industry.

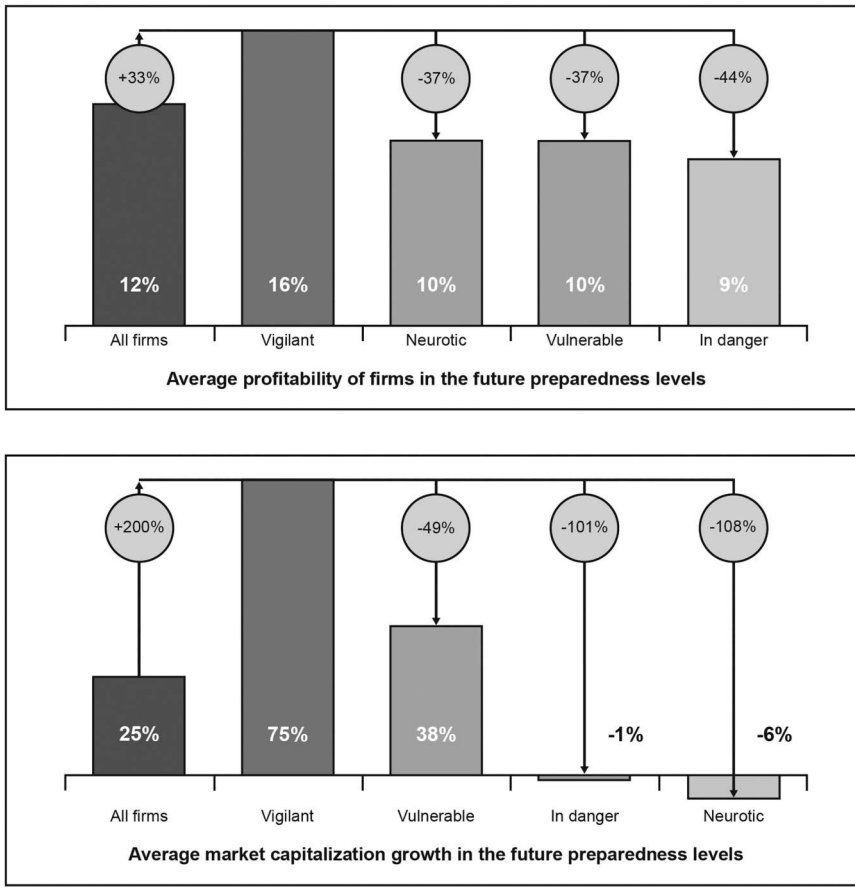

Figure 13.2 Effects of strategic foresight activities on firm performance (Rohrbeck, Kum, Jissink, and Gordon 2018).

13.2 Proliferation of strategic foresight

Here I highlight two studies (Schwarz 2008; Schwarz, Rohrbeck, and Wach 2020) on the proliferation of strategic foresight. The more recent study (Schwarz, Rohrbeck, and Wach 2020), takes a closer look at the stage of strategic foresight and the challenges that arise here. This discussion will also lead to the following chapter on applying strategic foresight.

Schwarz (2008) studied the future of strategic foresight in large German corporates. He cites the examples of German corporates and their strategic

foresight activities, at Daimler, Deutsche Bank, BASF, Siemens, Deutsche Bahn, Lufthansa, BMW, Allianz Group, Deutsche Post, EADS, Siemens, Volkswagen, Munich Reinsurance Group, and Deutsche Telekom. While many of these activities have changed over the years, it underlines the fair assessment that the majority of large corporations have implemented strategic foresight activities.

Based on the respondents of large German corporates, defined corporations with an annual turnover of at least €500 million and with more than 10,000 employees, an assessment on their usage of strategic foresight approaches can be made.

Figure 13.3 shows that the approaches used the most are environmental scanning, trend monitoring, trend research, strategic early warning, and the scenario technique, followed by quantitative forecasting and other methods for thinking creatively about the future.

The survey (Schwarz 2008) also investigated how strategic foresight is carried out in terms of its organisational setup. Thirty-six per cent of the respondents reported that strategic foresight is carried out by single employees, followed by 28 per cent in an own department. Only 18 per cent stated that strategic foresight is an integral part of the planning process or that external consultants (17 per cent) are brought in. The results further revealed that 56 per cent of strategic foresight is carried out in departments

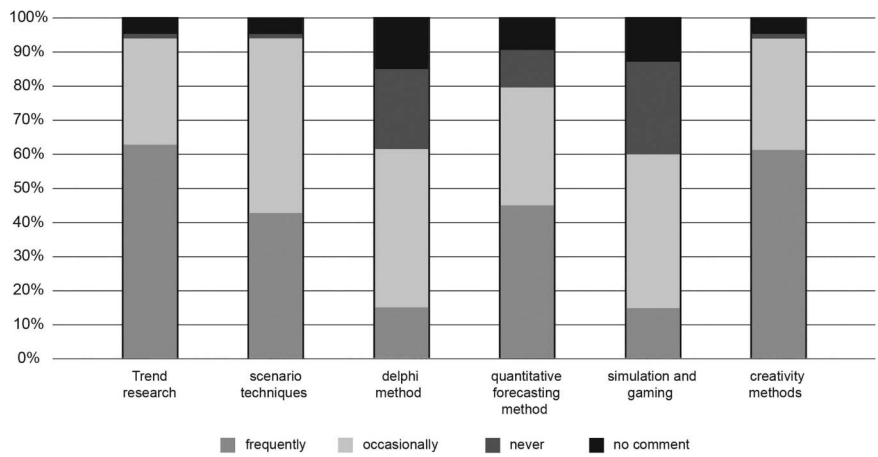

Figure 13.3 Methods used strategic foresight, large German corporates (Schwarz 2008).

such as strategy, planning, corporate development, or marketing and only 23 per cent in technology-related departments.

The study therefore concludes that strategic foresight in the future is likely to increase in relevance.

In a more recent study (Schwarz, Rohrbeck, and Wach 2020) the foresight activities among firms of the Dow Jones Sustainability World Index were assessed. The DJSI World consists of the top 10 per cent of companies from a sustainability perspective per industry, based on the largest 2,500 companies in the Dow Jones Global Stock Market Index. In the 2015 DJSI World, used for this empirical analysis, 317 companies were listed.

While the assessment could be made that all these firms exercise strategic foresight activities, they appear to do so to different degrees. The assessment (Figure 13.4) is along the strategic foresight process, already introduced in this book.

In the *perceiving phase* only 22 per cent of the surveyed firms state that their *scanning* activities ensure that 80 per cent of all trends that will shape their industry in the next five to ten years are detected. Only 4 per cent in the survey state that they are using cultural products, such as *science fiction* novels or movies as a source in their scanning activities.

In respect to the *prospecting* phase, 25 per cent state that they used approaches such as *scenario planning*. In respect to the probing phase, however, only 15 per cent report that they are applying tools such as *business wargaming* to understand their future competitive landscape.

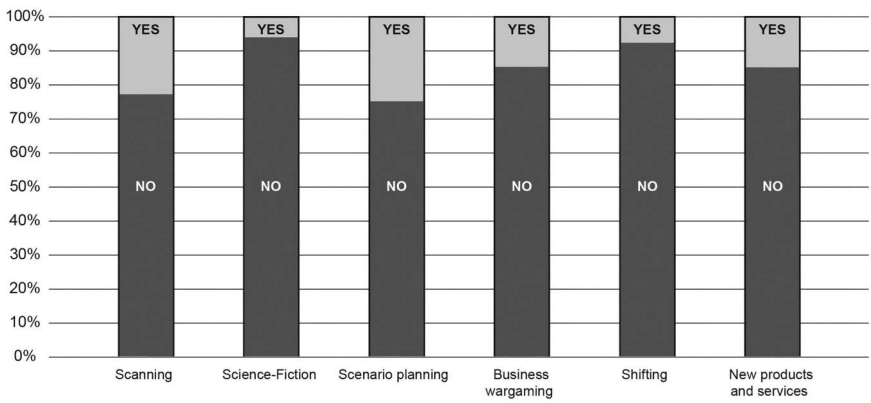

Figure 13.4 Assessment of strategic foresight practices (Schwarz 2019).

Concerning the *transforming phase*, only 15 per cent of the firms in our sample report that identified trends and/or developed scenarios regularly support them in *shifting* resources of the firm into new strategies. A mere 14 per cent state that longer-term future trends or scenarios are often the starting point for the development of *new products and services*.

While interesting to see that the majority of firms in this sample exercises strategic foresight to some degree, the level of sophistication, summarised in Figure 13.4, calls for improvement. Throughout this book, numerous challenges and the approaches to strategic foresight have been highlighted. In the following chapter I will suggest some ways of working with strategic foresight.

References

Costanzo, L. A. 2004. "Strategic Foresight in a High-Speed Environment." *Futures* 36 (2): 219–235.

Danneels, E. 2011. "Trying to Become a Different Type of Company: Dynamic Capability at Smith Corona." *Strategic Management Journal* 32 (1): 1–31. https://doi.org/10.1002/smj.863.

Huy, Q. N. 1999. "Emotional Capability, Emotional Intelligence, and Radical Change." *Academy of Management Review* 24 (2): 325–345. https://doi.org/10.5465/amr.1999.1893939.

Rohrbeck, R., C. Battistella, and E. Huizingh. 2015. "Corporate Foresight: An Emerging Field with a Rich Tradition." *Technological Forecasting & Social Change* 101: 1–9. https://doi.org/10.1016/j.techfore.2015.11.002.

Rohrbeck, R., and J. O. Schwarz. 2013. "The Value Contribution of Strategic Foresight: Insights from an Empirical Study of Large European Companies." *Technological Forecasting and Social Change* 80 (8): 1593–1606. http://doi.org/10.1016/j.techfore.2013.01.004.

Rohrbeck, R., and M. E. Kum. 2018. "Corporate Foresight and Its Impact on Firm Performance: A Longitudinal Analysis." *Technological Forecasting and Social Change* in press (January): 1–30. https://doi.org/10.1016/j.techfore.2017.12.013.

Rohrbeck, R., M. E. Kum, T. Jissink, and A. V. Gordon. 2018. "Corporate Foresight Benchmarking Report 2018: How Leading Firms Build a Superior Position in Markets of the Future." *SSRN Electronic Journal*. Aarhus, Denmark. https://doi.org/10.2139/ssrn.3178562.

Schwarz, J. O. 2008. "Assessing the Future of Futures Studies in Management." *Futures* 40 (3): 237–246.

———. 2019. "Strategy Orientation in The Fashion Industry: Short- Or Long-Term?" *Journal of Futures Studies* 24 (1): 77–90.

Schwarz, J. O., R. Rohrbeck, and B. Wach. 2020. "Corporate Foresight as a Microfoundation of Dynamic Capabilities." *Futures & Foresight Science* 2 (2): e28. https://doi.org/10.1002/ffo2.28.

Senge, P. M. 1990. *The Fith Discipline*. London: Century Business.

14

WORKING WITH STRATEGIC FORESIGHT

SEVEN PRINCIPLES

I end this book with principles of working with foresight. These principles are based on my practical experience in working with companies on strategic foresight and on my academic research.

In the context of analysing the strategic foresight process, Schwarz (2005) has used a case study to identify some pitfalls in implementing this process, which is also relevant for our discussion:

1. **Starting with scenarios**: If scenarios are used as a starting point for a strategic foresight process, these scenarios must be alternative pictures of the future, in contrast to variations of a favourable business case. This pitfall limits further scanning and monitoring activities.
2. **The lonely foresight-manager**: Being well networked is essential for the foresight manager, both to detect weak signals in the business environment and to remain abreast of informed about ongoing changes in the organisation. The inclusion of different perspectives is an imperative. It has been argued that a variety of perspectives is non-negotiable in making sense of changes in VUCA-dominated business environments (Seidl and Werle 2018).

DOI: 10.4324/9781003302735-18

3. **A trend is a trend**: Attention must be devoted to conceptualising a trend and how that trend evolves from a weak to a strong signal (Liebl and Schwarz 2010; von Groddeck and Schwarz 2013). If this is not done, there is a risk of missing blind spots, and the organisation will be flooded with irrelevant information.
4. **The quantitative temptation**: The inclusion of quantitative analysis in a strategic foresight process must be done carefully because the future cannot be predicted.
5. **Organisational early warning disability**: Here a critical issue is raised in terms of the purpose of a strategic foresight process in an organisation. Is it about only providing trend input? Is it part of the strategic planning process? Or is it deliberately designed to contribute to changing an organisation? Here the emphasis is on how open and willing an organisation is to challenge its assumptions and mental models about the future of its business or industry. Schwarz (2005) observed several situations in his case where trends critical to the strategy of the organisation were avoided, to prevent conflicts between the foresight manager and senior management. This attempt to avoid or ignore information that does not conform to perceptions is of little to know use to individuals and to organisations. This phenomenon is known as 'cognitive dissonance' (Festinger 1957).

The seven principles of working with strategic foresight, listed here, will be explored in the next chapter.

1. Theory is key
2. Engagement of leadership
3. Starting small
4. Overall engagement
5. Cross-industry collaboration
6. Training of leadership
7. Facilitation skills

14.1 Theory is key

Although it might seem counterintuitive in a corporate setting, it is essential for an organisation to have a sound theoretical basis for doing foresight. In corporate settings, I often hear complaints that 'this is too academic'.

However, I understand this to mean that the people at the organisation either do not understand it or think that it is too complicated.

I enjoyed watching a conversation at MIT between strategy guru Henry Mintzberg and the Ricardo Semler, CEO, and majority owner of Semco Partners, on the usefulness of MBAs. Semler described conversation with a French CEO who had asked a team to solve a problem. The team came back with the successful implementation of a new process that solved the problem. The CEO then said to his managers, 'Well, it seems to work in practice, but does it work in theory?'

This is an elegant twist to the often-asked question 'Will this work in practice?' The question 'does it work in theory?' indicates the capability of reflecting what has been done and why something is working. I need a context to reflect practice; this is where theory comes into play. Reflecting practice in light of theory means creating a deeper understanding of practice and leas to a better understanding of the levers of a practice for its continued improvement.

Developing foresight is a complex task. To do this, organisations are tasked with identifying trends, making sense out of them, creating pictures of and understanding the future, and making decisions. This entails dealing with uncertainty, complexity and challenging the beliefs or mental models of the members of an organisation. Of course, foresight is the exploration of something that does not exist yet: the future. A sound theoretical understanding, as described in this book, is therefore necessary. Further, the growing body of research on foresight allows for multiple insights to understand how to apply foresight or what the challenges might be.

Before engaging with strategic foresight, one needs to understand what the cognitive and organisational challenges are most likely to arise. Further, it is imperative to clarify how trends should be conceptualised and perceived. Applying the tools described in this book, requires an actual understanding of the challenges involved. In this sense, the theoretical backgrounds to foresight discussed here have very practical implications for an organisation's development of foresight.

14.2 Engagement of leadership

From the beginning, the engagement of leadership is critical. In particular, as the outcomes of a strategic foresight process are most likely to be at one

point part of the decision-making of a company's leadership team. Further, challenging the mental models of a leadership team and discussing alternative picture of the future is a challenge by itself for leadership teams.

I will now describe one of the greatest lessons that I learned from doing foresight work. As an internal strategy consultant at a large corporation, I had the exciting task of developing scenarios, applying Royal Dutch Shell's scenario planning methodology. Although I knew the literature and had access to training by Kees van der Heijden (Schwarz 2021), I had no exposure to the decision makers who were the ultimate customers of this project. After a lengthy process of developing the scenarios with input from many other stakeholders inside and outside of the organisation, my boss gave a 20-minute presentation of the scenarios to the leadership team. No feedback.

In hindsight, I would argue that a 20-minute presentation would go nowhere without involvement of the leadership team in the project. My master's students and I have had similar experiences when doing scenario planning exercises for corporations. The more engaged the corporate representatives were in the process, the more they could engage with its results.

In contrast, all of my most successful scenario planning exercises have had strong engagement by the leadership of the organisation. However, engagement is not involvement in every step of process or attendance at every workshop. But wisely choosing how to engage leadership either through interviews or through small and well-designed workshops can make a huge difference.

14.3 Starting small

In this book strategic foresight has been predominantly discussed in the context of large corporations. These often have the resources to dedicate entire teams to developing foresight or even have their own think tanks. However, strategic foresight can also be developed on a much smaller scale.

A good starting point might be to discuss the frames of the leadership team in respect to the future of an industry. Establishing a small-scale future literacy laboratory might be a first step. Another approach might be to hold a simple trend workshop in which participants review several trends, while asking questions such as 'do we have a common understanding on what this trend is?' and 'what could this trend imply for our business?'

As a starting point one can refer to freely available trend collections such as Future Agenda (https://www.futureagenda.org) or the Megatrend Hub of the EU Commission (https://knowledge4policy.ec.europa.eu/foresight/tool/megatrends-hub_en). Of course, these high-level trends might not be industry specific, but they might be a good start into having strategic conversations in an organisation.

At this point, I would warn against depending on software tools for strategic foresight, but they can be useful in obtaining buy-in from leadership.

14.4 Overall engagement

As we discussed in Chapter 13, the overall engagement of the members of an organisation is fruitful in many ways. Including many members of an organisation in detecting trends, for instance, both uses the intelligence in an organisation and ensures that multiple perspectives are reflected. At the same time, it creates buy-in into strategic foresight activities.

The same applies in the strategic foresight process for the phase of prospecting or probing. Tools such as the futures literacy laboratories, scenario planning, business wargaming, or design thinking can be easily made available to the members of an organisation, ideally fostering cross-hierarchical and cross-functional collaboration.

And while not widely used, doing parts of the strategic foresight process online or scenario planning interventions online (Schwarz 2020), also has the potential to include large and diverse groups, for instance, by inviting international colleagues without incurring travel costs. Here the COVID-19 pandemic surely has necessitated more strategic foresight work to be conducted online.

It is also possible to identify an implementation gap in strategic foresight (Schwarz, Rohrbeck, and Wach 2020). Organisations are much better at perceiving and prospecting than at probing and transforming. This underlines the argument in this book that foresight needs to be perceived as part of a change journey, rather than an analytical exercise that produces reports on the future.

A last aspect can be mentioned here. The existence of the strategic foresight process might signal to others that the 'future is taking care of' (Schwarz 2009). By creating overall engagement the danger of this

Figure 14.1 Implementation gap in strategic foresight.

perception is averted, and it reiterates that these types of activities are relevant to the entire organisation.

But engagement can also be perceived in a different way. From my perspective, diversity, the engagement of many different perspectives, is crucial in foresight work. It has been argued that diverse perspectives are crucial when it comes to decision-making processes on innovations and that diverse teams tend to be better at identifying opportunities and risks (Hill, Tedards, and Swan 2021).

14.5 Cross-industry collaboration

Statements like 'We all live in the same future' or 'We all have the same customer' reveal another important principle of strategic foresight work. If the aims of strategic foresight are to understand possible current trends and weak signals and to think about alternatives futures, then how can we include many perspectives? While some organisations might already have this kind of diversity, it often makes sense to engage a mode of cross-industry collaboration to include multiple perspectives but also expertise in understanding trends and possible futures.

A prime example of cross-industry collaboration is the Foresight Academy (https://www.foresightacademy.com). The Foresight Academy consists

of several companies that partner to explore how the future could look. To do so, however, these companies have to trust each other. One principle of the Foresight Academy is thus that only one player per industry can join, to avoid competitiveness.

14.6 Training of leadership

Schwarz, Rohrbeck, and Wach (2020) have found, based on an empirical investigation, that corporate foresight training for managers has a positive impact on the dynamic capabilities of a firm. The implication is that leaders need to be trained in sensing change or developing peripheral vision, making decisions under uncertainty, being confronted with an uncertain future, and how to reconfigure strategic resources accordingly.

It has also been argued that foresight is not something that people are born with but that it is a way of thinking, of gathering information, and updating beliefs. These habits can be cultivated and learned (Tetlock and Gardner 2015). I have described how both organisations and individuals can be trained to develop foresight capabilities.

From my perspective, having a leadership team with this capability is one side of the strategic foresight coin. Having a good process in place, perhaps with the assistance of software tools or consultants, does not guarantee that the results of strategic foresight processes will be useful for a leadership team. However, and this is the other side of the coin, if that element of training is in place, then one can ensure that the phases of perceiving, prospecting, and probing actually translate into the phase of transforming.

14.7 Facilitation skills

A theme of this book is that strategic foresight is closely linked to the capability of those running such a process to facilitate discussions and workshops. This is especially true for tools such as futures literacy laboratories, scenario planning or business wargaming. Bowman and MacKay (2020) insist on the facilitator's role in managing people and process in a scenario planning workshop. They add that it takes a rare skill to take a

group of people from a position of perceived uncertainty concerning the future of their industry to one where they have the confidence to take on strategic challenges.

Scharmer (2009) has argued, in developing Theory U, that there are two ways of learning: learning from the past, which is well developed; and learning from the future, which is not. However, as he observed the manner in which 'impressive leaders' use future possibilities, he wondered how one could be better at sensing and connecting with future possibilities. I have described in Section 2.4 how assumptions concerning the future of individuals can be made explicit through a structured process. Further, as I discussed in Chapter 9, challenging mental models and creating alternative pictures for the future follow similar ideas.

Strategic foresight tools can be considered as facilitators as well. Hence, an approach such as scenario planning must be less understood as a many-step process that needs to be followed but more as an organisational intervention. Moreover, this puts an emphasis not only on the individuals involved in such an exercise but also on how to facilitate these interventions.

Adam Kahane (2021) has worked in scenario planning at Royal Dutch Shell and in the facilitation of the Mont Fleur scenarios. The purpose of the Mont Fleur scenarios in South Africa during 1991–1992 was to think creatively about the future of the country, highlighting a number of challenges for facilitation. He points out that the task of a facilitator is to remove obstacles to contribution, to create opportunities for participants to voice their ideas, skills, and resources. The facilitator should also remove obstacles to connection. Kahane (2021) argues that all collaboration requires connection. This implies engaging participants emotionally, requiring them to get to know each other better. His argument is that as soon as participants in a workshop know each other well, they can more easily engage in the kind of discussion that than can enable an organisation to transform. Removing the obstacles to equity means holding workshops that are open to all participants.

References

Bowman, G., and R. B. MacKay. 2020. "Scenario Planning as Strategic Activity: A Practice-Orientated Approach." *Futures & Foresight Science* n/a (n/a). https://doi.org/10.1002/ff02.32.

Festinger, L. 1957. *A Theory of Cognitive Dissonance*. Palo Alto: Stanford University Press.

Hill, L. A., E. Tedards, and T. Swan. 2021. "Drive Innovation with Better Decision-Making: Don't Let Old Habits Undermine Your Organization's Creativity." *Harvard Business Review* (November-December): 70–79.

Kahane, A. 2021. *Facilitating Breakthrough: How to Remove Obstacles, Bridge Differences, and Move Forward Together*. Oakland: Berrett-Koehler Publishers.

Liebl, F., and J. O. Schwarz. 2010. "Normality of the Future: Trend Diagnosis for Strategic Foresight." *Futures* 42 (4): 313–327.

Scharmer, C. O. 2009. *Theory U: Learning from the Future as It Emerges*. San Francisco: Berrett-Koehler Publishers.

Schwarz, J. O. 2005. "Pitfalls in Implementing a Strategic Early Warning System." *Foresight* 7 (4): 22–30.

———. 2009. "The Symbolism of Foresight Processes in Organizations." In *The Handbook of Research on Strategy and Foresight*, edited by L. A. Costanzo and R. B. MacKay, 82–89. Cheltenham: Edward Elgar.

———. 2020. "Revisiting Scenario Planning and Business Wargaming from an Open Strategy Perspective." *World Futures Review* 12 (3): 291–303. https://doi.org/10.1177/1946756720953182.

———. 2021. "From Alternative Pictures of the Future to an Organizational Intervention: A Commentary on Rowland and Spaniol." *Futures & Foresight Science* n/a (n/a): e2105. https://doi.org/10.1002/ffo2.105.

Schwarz, J. O., R. Rohrbeck, and B. Wach. 2020. "Corporate Foresight as a Microfoundation of Dynamic Capabilities." *Futures & Foresight Science* 2 (2): e28. https://doi.org/10.1002/ffo2.28.

Seidl, D., and F. Werle. 2018. "Inter-Organizational Sensemaking in the Face of Strategic Meta-Problems: Requisite Variety and Dynamics of Participation." *Strategic Management Journal* 39 (3): 830–858. https://doi.org/10.1002/smj.2723.

Tetlock, P., and D. Gardner. 2015. *Superforecasting: The Art and Science of Prediction*. London: Random House.

von Groddeck, V., and J. O. Schwarz. 2013. "Perceiving Megatrends as Empty Signifiers: A Discourse-Theoretical Interpretation of Trend Management." *Futures* 47: 28–37.

15

CONCLUSION

The relevance of strategic foresight is most likely to increase in the future. In the near future, new acronyms will be developed to show that VUCA is not only not going away but increasing. Strategic foresight supports individuals and organisations alike in dealing with VUCA.

For me however one aspect of strategic foresight is central, and I hope this book has demonstrated this. While it is essential to follow a process in strategic foresight, this is only one side of the coin. Strategic foresight needs to change the minds of leaders and decision-makers. It needs to challenge mental models, assumptions and redirect our attention. Many drivers of VUCA, for instance digitalisation and sustainability, are trends or megatrends that have been around for decades. Nonetheless, organisations are still struggling to meet these challenges.

A strategic foresight intervention needs to ensure that not only reports are produced, but that the stakeholders in an organisation are engaged in a way that is conducive to generating, understanding, and making decisions based on new insights. A foresight intervention must achieve a common

DOI: 10.4324/9781003302735-19

understanding in an organisation on what the changes, the trends, in the respective environment are, what they mean, how possible futures could look like, and of course what this implies for an organisation.

This implies the positioning of strategic foresight not only to inject future into a strategy, which already is difficult, but to understand strategic foresight as a starting point for the transformation of an organisation. In other words, foresight and change/transformation are the two sides of the same coin. If an organisation develops foresight, it most likely will also need to change or even to transform itself to steer to a desired future. And while understanding and implementing strategic foresight in this way is a challenge, it is also the most fascinating aspect of foresight.

And in the end dealing with the future is what organisations and individuals do and how they act on what they perceive.

I read the future like a picture book
I have always believed in what I see when you're near
Each day I look in your eyes
I see a lifetime with you so crystal clear

'So Much More Together', The Solsonics, 1994

INDEX

Note: *Italic* page numbers refer to figures.

3D printing 77

abnormalities 45, 47, 49–50
acting phase 97–8
action learning 96
Adidas 45
ambiguity 1–2, 14; in Delphi method 75, 79; dislike for 22
anonymity, in Delphi method 73
anticipation: and futures thinking 24–6; theory of 95–6, 99
anticipatory assumptions 26, 97
anticipatory systems 26, 98
Arnold, Henry 71
artificial intelligence 17
assumptions: in business wargaming 130–1; challenging 24, 58, 85, 152, 160; divergence between experts 88; in futures literacy 96–9; making explicit 134, 158; reframing 24, 26
Audi: and science fiction 58; and trend receivers 65–7

bandwagon effect 73
behavioural economic analysis 66
Berger, Gaston 13
biases, in Delphi method 80
blind spots 36, 55, 76, 93, 142, 152
BMW 81, 147
Bobos 52
Bouée, Charles-Edouard 58
Bowles, Edward L. 71
boxplot diagrams 74
brainstorming 37, 73, 104, 116
BSH 67
business environment 1–3; perceiving changes in 1, 24–5, 39, 122, 134, 145; surprises in 35; trends and weak signals in 86, 141; and wargaming 105, 108, 130
business intelligence, competitive 103; *see also* competitive intelligence
business objectives, coordination of 143

business wargaming 5, 102; applications of 103–8; basic structure of *106*; and competitive intelligence 133–4; and DJSI World Index firms 148; engagement with 155; facilitation of 157; inner mechanics of 108–11; learnings and advantages of 111; and open strategy 120, 122–4; and strategic foresight process 34, 36, 39; and strategy process 129–32; and trends 43
buy-in 123, 155

catalysts 96–7
change: early signals of 107, 111; and foresight 3–4, 161; rapid and unpredictable 127; responding to 143; sensing 25, 157
change management 3, 39–40, 103, 120, 123
change mindset 109
change vision 120
client team 105
climate crisis 71
cluster analysis 79
clustering, of Delphi projections 80
cognitive activities 20–1
cognitive biases 25, 80
cognitive dissonance 152
cognitive limitations 25
cognitive systems 54
Collbohm, Frank 72
collective intelligence knowledge creation 96, 98
competitive advantage 3, 36, 46, 126–9
competitive dynamics 102, 130
competitive intelligence 5, 132–5
competitive landscape 103, 122, 134, 148
competitor foresight 34
complexity 1, 14, 65, 153; of application of strategic foresight 141–2; of business wargaming 132; and futures literacy 95; in narrative 58; and scenario planning 87; of trends 52
complexity theory 96
concentration 110
confidence, in Delphi method 74, 80
confirmation bias 22, 25
consensus: artificial 79; in futures literacy 98
conservatism, strategic 122
constructivist perspective 53–4
control team 105, 110
the cool, realm of 47
corporate culture 16, 145
corporate foresight 3–4; emergence of 13; maturity of activities 145; trainings 25, 128, 157
countertrends 52–3
Coupland, Douglas 56
COVID-19 pandemic 2–3, 155
creativity: and foresight tools 37; in futures literacy laboratories 99–100; and strategic foresight 143
crisis response preparation 103–4
cross-industry collaboration 59, 67–8, 109, 156–7
cultural products: and design thinking 118; and trend research 55–7, 59
curiosity 65
customer foresight 34, 63–4
customers: identifying new groups of 143; and strategic options 2–3

Daimler 14, 147
decision cycles 104
Delphi method 5, 12–13, 38–9; adaptation and outlook 80–1;

application example 76–8; challenges of 78–9; design aspects of 72–5; further development of 79–80; historical development of 71–2; scales used in 74; selecting experts in 75–6; types of questions 75
Delphi projections 75, 80
descriptive statistics 79
design, and trend research 56
design layout, for Delphi method 79–80
design thinking 36, 39, 114–15, 155; phases of 116–18; tools used in *115*
desirability bias 80
Deutsche Bank vii, 14, 147
Deutsche Telekom 58, 147
developing foresight: cognitive barriers to 21–2; and leadership 135; and literature 56, 58; and theory 153; tools used in 33–4; and wargaming 103
dialogue partners 64, 68
diffusion 44, 46–53
digitalisation 17, 68, 160
discontinuities 1, 35, 65, 105
discourse theory 54–5
diversity: in Delphi method 76; of perspectives 156
DJ Kool Herc 49–50
DJSI World Index firms *148*
Douglas, Donald 71
Douglas Aircraft Company 72
driving, autonomous 66–7
Duchamp, Marcel 45
dynamic capabilities 17, 25, 108, 126–8

early warning: disability 152; strategic 11, 34, 133–4, 147
Easy Rider study 66, *67*
education and training, wargaming in 103–4
emerging trends 3, 47, 116
emotional capacity 142
emotional engagement 110
emotions, and strategy techniques 111
Encyclopaedia Britannica 4
engagement: formats 123; of leadership 153–4; overall 155–6
environmental scanning 11, 14, 36, 147
European airlines 107
European generics and biosimilars industry 76–8
evidence, and foresight tools 37
expertise: and foresight tools 37; self-rated 80; in understanding trends 156
experts, in Delphi method 71–9

facilitation skills 157–8
FDTF (Foresight Design Thinking Framework) 116–17
feedback: controlled 73–4; and flow-state 110
financial models 105
firm performance, and strategic foresight 144–5, *146*
flow-state 110–11
forecasting, and strategic planning 87
forecasting methods, traditional 13–15
foresight: cognitive barriers to developing 21–2; and dynamic capabilities 128; and innovation 114; use of term 3–4; *see also* corporate foresight; developing foresight ; strategic foresight
Foresight Academy 69, 156–7
foresight diamond 37, *38*
foresight interventions 160–1
foresight managers 72, 151–2

foresight methods 13, 15, 17, 115
foresight practices 13–15, 128
foresight processes 15, 25, 92
foresight research 15, 17
foresight school 12–13
foresight tools 16, 25, 37–40, *39*
French prospective school 13
Freud, Sigmund 45
fringes 46–7, 51
the future: memories of 24, 85–6; restoration of control over 23–4; *see also* thinking about the future
Future Agenda 155
future exploration, structured 116–17
future preparedness 145
futures, creating alternative 133, 158
futures literacy 25–6; competence of 98; description of 96; history of 95–6
futures literacy laboratories 24, 26, 95; challenges of 99–100; engagement with 155; example of 98–9; facilitation of 157; four phases of 96–8, *97*, 100; and open strategy 120, 124; starting small 154; in strategic foresight process 36, 39

gaming 38, 109–11
German corporates, strategic foresight practices of 146, *147*
glocalisation 51–2
graffiti art 49–50
group response, in Delphi method 73–4
groupthink 22
Groys, Boris 45

Harvard Business Review 58, 86
hierarchical levels 122, 135
hip-hop 49–51
Hornbach 67
human factors 69
hypotheses, well-founded derivation of 80

idea generation 116–17
Ikea 67
implementation gap 155, *156*
implication matrix 91, *92*
information overload 36
inner futures 23
innovation: fuzzy front-end of 114; and open strategy 122; and scenario planning 117; and science fiction 58; and strategic foresight 143; trends as 44, 51–2
innovation activities 109
innovation management 14–15, 114–15
inside-out scanning 36
insights, individual 116
interaction, and foresight tools 37
intuitive logic school 87
iteration, in Delphi method 73–4
iterative study design 66–8, *67*

Kahn, Herman 12, 86
Kant, Immanuel 65
key drivers 88–9
key uncertainties 87, 89, 122
Kodak 3–4
Koons, Jeff 45
Kotter, John 120

La prospective school 87
Laclau, Ernesto 54
language, in Delphi method 80
leadership: engagement of 153–4; and strategic foresight 134–5; training of 157
leadership skills 128, 134
learning: fast 115; from the past and the future 158; strategic 134; and strategic foresight 142; sustainable 110
legitimisation, collective 122

life worlds study 67–9, *68*
Likert scale 74, 80
Linstone, Harold A. 72
literature, and trend research 56–9
locus of control 78
lonely foresight-manager 151

marginalised subcultures 47, 52
market team 105
markets, new 48
media, futures of 98–9
Megatrend Hub, EU Commission 155
megatrends 44, 53–5, 116–17, 160
mental filters 22
mental models 21; challenging 24, 122, 128, 152–4, 158, 160; and scenario planning 87, 92–3
mental slack 25, 134
military wargaming 102–3, 107
Miller, Riel 25, 95–6
Mintzberg, Henry 153
Mont Fleur scenarios 158
Mouffe, Chantal 54

Naisbitt, John 53
narrative turn 58
narratives 55–9
needfinding 116
needs, non-articulated 143
neoclassical school of management 1
the new 45–6, 52–3; agents of *64*
new products 117, 132, 143, 149; *see also* product development
next big thing 47, 77
normalisation 45, 47–53
normality: future 52–3; phenomena of 45, 48–9

occurrence, probability of 77, 79–80
OECD (Organization for Economic Cooperation and Development) 95
online strategic foresight work 155
open strategy 40, 86, 120–4
openness to outcomes 95, 100
organisational environment, scanning 36
organisational interventions 86, 123, 158
organisational learning 92, 143–4
overconfidence 22, 25

paradessence 51–3
paradoxical forms 51
perceiving phase 35, 38, 130–2, 134, 148
peripheral vision, developing 24–5, 157
perversity 48
PEST (political, economic, social, and technological) framework 34, 87–8
polyvalence 59
Porter, Michael 132
post-normalisation 47, 51, 53
practical experience 78, 151
probabilistic modified trends school 87
probing phase 36, 39, 114, 124, 132, 148, 155
product development 115
Project RAND 12–13, 72
prospecting phase 36, 39, 123–4, 131–2, 148, 155
prototyping 36, 56, 98, 115–18
psychiatric disorders 21–3
pyramiding 65

quadrophonic sound 45
qualitative methods 37, 79, 87
quantitative methods 37
quantitative temptation 152

RAND Corporation 71–2, 78, 86; *see also* Project RAND
Raymond, Arthur C. 71

R&D activities 12–13, 15, 36, 143
reasoning, creative and analytic modes of 115
red teams 103
reframe phase 97
relevance-uncertainty matrix 88, *89*
rethink phase 97
reveal phase 97
revision rounds 74
robust leadership framework 134, *135*
Rohrbeck, René 144
role models 56–7
Rosen, Robert 95
Royal Dutch/Shell: and scenario planning 13–14, 86, 92, 154, 158; strategy process *129*

scenario analysis 66, 130
scenario blueprint 89
scenario matrix 89, *90*, 122
scenario planning 5, 13–14, 85–6; cross-industry 109; and design thinking 115–17; engagement with 155; evolution of 86–7; facilitation of 157; and futures thinking 24–5; leadership engagement with 154; and open strategy 122–4; process of 87–93, *88*; scope definition 88; in strategic foresight process 34, 36, 39; and strategy process 129–30; and trends 43; value contribution of 142
scenario planning project 90
scenario technique 38
scenarios: building 89; implications of 90–1; starting with 151; visualisation of *91*, 92
science fiction 37–8, 55–9, 116–18, 148
self-consciousness, loss of 110
semantics 53
semi-quantitative methods 37
semi-structured interviews 88
Semler, Ricardo 153
Sennett, Richard 58
sensemaking: collaborative 108–9; future-oriented 13; and prospecting phase 36; and scenario planning 93
sensemaking capabilities 16, 108
sentiment analyses 79
Shakar, Alex 51
Shell approach 87
Siemens 81, 147
signifiers, empty 54–5
simulation 38
skate-boarding 49, 51
SMEs (small and medium enterprises) 16
social convention 45, 47, 51
software tools 155
spirals 23
stakeholder team 105
starting small 154–5
statistical group assessment 73–4, 79
strategic conversation: and foresight process 92; and scenario planning 123
strategic conversations, art of 86, 122
strategic foresight: antecedents of 126–35, *127*; dimensions of *5*; as emerging field 141; future of 16–17, 146; history of 11–16, *12*; as open strategy 123; phases of 35–6, 38–40, 114; pitfalls of implementation 151–2; principles of working with 152–8; proliferation of 146–9; relevance of 160–1; systematic approach to *35*; use of term 4; value contribution of 142–5, *144*
strategic foresight process 5, 34–6; and competitive intelligence 133–4; and design thinking 114; and

dynamic capabilities 128; focus of 34; tools used in 37–40
strategic issue management 5
strategic planning: and foresight 14–15; and scenario planning 87
strategic resources 25, 142, 157
strategic surprises 35, 43
strategic thinking 24
Strategische Frühaufklärung vii, 34
strategy: entrepreneurial view on *2*; use of term 4
strategy development 58, 85, 123, 129
strategy formulation, sources for 2–3
strategy process *129*, 130–2, *131*, 142
strategy testing 103
street credibility 47, 50
structure of the book *6*
sustainability 68, 160
system-thinking, collaborative 13

teams, in business wargames 103–5
technology, in science fiction 56
technology forecasting 14
technology foresight 34
technology roadmapping 15
theory, as key to strategic foresight 152–3
thinking, analytical and intuitive 115
thinking about the future 5, 20; cognitive aspects of 22–3; enabling 23–5
time, altered sense of 111
time distortions 22–3
time horizons 72, 97, 131
tipping points 36
transformation, eight steps to *121*; *see also* change
transforming phase 36, 39–40, 120–4, 149, 157
trend analysis 44, 97
trend collections 155
trend management 43, 53–4
trend monitoring 147
trend receivers 39, 63, 66–9; identification and implementation 65–6; method 64–5
trend research 38; cultural products and 55, 59; and design thinking 115–16; and future normalities 52; and German corporates 147; and scenario planning 88; and trend lifecycle 46–7
trend workshops 154
trends 2–5, 43; conceptualisation of 44–55, 152; definition of 44; and design thinking 116; development of 126; early warning of 133; lifecycle of *46*, 47, *48*, *49*, 51, 53, 55; and narrative 59; perception of 21, 24; and scenario planning 86–9, 92, 116, 122; in strategic foresight process 36, 38–9, 153
TUNA (turbulence, uncertainty, novelty, and ambiguity) 2, 141
Turoff, Murray 72

uncertainty 1–2; ability to handle 97, 153; and business wargaming 108–9; decision making under 25, 128, 157; and key drivers 88–9; perceived 40, 158; planning in view of 14–15; and value of strategic foresight 142–4
UNESCO 25–6, 96
United States, military forecasting 12
urgency, sense of 120

van der Heijden, Kees 86, 154
video games 109–10
vigilant firms 145
visionary competence 64, 69
VUCA (volatile, uncertain, complex, and ambiguous) environments 2, 11, 141; actions to take in 24;

and business wargaming 108; drivers of 160; and leadership 134; scientific literature on 15; variety of perspectives in 151

Wack, Pierre 86
wargaming: results of 107; typology of 103, *104*; *see also* business wargaming
Warhol, Andy 45
weak signals 3, 5, 43; AI detecting 17; early warning of 133; and megatrends 53; as metaphor 54; and narrative 59; and networking 151; perceptions of 21–2, 24; and scenario planning 86, 92; in strategic foresight process 35–6, 38–9; and trend life cycle 47; trends developing from 126
Wiener, Anthony J. 86
wind-tunnelling exercise 91

Yamamoto, Yohji 45
youth subcultures 50