FUTURES THINKING AND ORGANIZATIONAL POLICY

CASE STUDIES FOR MANAGING RAPID CHANGE IN TECHNOLOGY, GLOBALIZATION AND WORKFORCE DIVERSITY

Edited by Deborah A. Schreiber and Zane L. Berge

Futures Thinking and Organizational Policy

Deborah A. Schreiber · Zane L. Berge
Editors

Futures Thinking and Organizational Policy

Case Studies for Managing Rapid
Change in Technology, Globalization
and Workforce Diversity

palgrave
macmillan

Editors
Deborah A. Schreiber
University of La Verne
La Verne, CA, USA

Zane L. Berge
University of Maryland, Baltimore County
Baltimore, MD, USA

This book is dedicated

To my loving husband, Rick, partner of 45 years, who supports and encour-
ages me to always strive toward future accomplishments while enjoying life
experiences along the way.
Deborah A. Schreiber

To learners everywhere. The future is yours.
Zane L. Berge

Preface

Historically, organizations planned strategically, recognizing the desired endpoint and working toward it from the current state. To be successful in today's market, organizations must maintain a *futures thinking* orientation. Futures thinking begins with the current status and uses foresight to lay down a path to meet estimated future needs.

Foresight is not so much about predicting the future, as it is the ability to recognize changing events and accurately plan for probable future outcomes. The process of foresight begins with observation and interpretation of signals (i.e., behaviors or events) generated by change. This change today comes from three primary trends: technological advances, globalization, and workforce diversity.

Use of foresight methodologies enables organizations to identify *trigger points*—recognizable points in time when action is needed. This action may increase collaboration, reallocate resources, or flatten hierarchical structures, all to help the organization to become more flexible and adaptable to unforeseen challenges.

This book distinguishes between the concepts of foresight and futures thinking. The role of foresight in organizations is to generate scenarios of possible (or preferred) future outcomes, to inform planning

and management of response(s) to unexpected challenges. The role of futures thinking is to assess the viability and executability of these response actions and ultimately implement those that translate scenarios into success.

Purpose

The purpose of this book is to provide practical application of foresight and organizational policy to support futures thinking within corporations and other institutions, with the ultimate outcome being sustained actualization of future success. Fifteen case studies, representing for-profit companies, educational institutions, as well as, nonprofit and government agencies, describe effective use of foresight methodologies to prepare and respond to rapid change in today's marketplace. Each case study then discusses the organizational policies developed to ensure that successful management strategies support and institutionalize futures thinking efforts.

The primary focus of this book is the case studies. Each case study describes futures thinking and the relationship of this practice to the structure and roles within the organization. Readers will observe emerging patterns and trends that relate to attitudes and behaviors within the organization that enhance or constrain use of foresight methods, and the underpinnings of organizational policy for implementation and accountability for futures thinking, as well as, a means to institutionalize and sustain resulting success.

Audience

The intended audiences for this book include faculty and students in college business and organizational leadership programs, as well as, all professionals working in management and leadership positions. The wide range of organizations represented in the case studies provides diverse perspectives on foresight and futures thinking for individuals from corporations, nonprofits, government agencies, and educational institutions.

Readers would use this book mainly to analyze how others have successfully integrated futures thinking into their organizations, and the benefit of aligning organizational structure and function to support these efforts. Readers would also use this book to explore the role that organizational policy plays in institutionalizing futures thinking as part of the culture and identity of the organization.

As a text, this book will have significant impact on undergraduate and graduate programs in organizational leadership, business management, and educational leadership, and as a must-read for professional managers and leaders, because there are few, if any, publications currently available that address the specific issue of sustainability of futures thinking.

Guiding Principles

The guiding principles for the case studies in this book include examination of rapidly changing trends in technology, globalization, and workforce diversity, and the impact on the economic and political well-being of the organization. Case studies describe the foresight methodologies used to plan and respond to rapid change, and the organizational policies developed to ensure that these actions are sustained.

Foresight methodologies described in the case studies include scenario techniques, environmental scanning, Delphi analysis, roadmapping, and systems thinking. Organizational policy issues addressed include employee communication and collaboration, compliance issues, liability, security, growth, innovation, and experimentation of product/service development and workforce contribution.

Discussion of overall successful management strategies within each case relates to structure and functions within the organization. Recommendations include instilling evolving new roles for employees, managers, and the organization, as well as, shifting paradigms in leadership, human resources (HR), management information systems and information technology (MIS and IT), marketing, and finance. Organizational structure is highlighted in some cases which includes description of benefits of flattened hierarchies for facilitating futures thinking.

Organization of the Book

This book is organized into three primary sections: Introduction (Chapters 1 and 2), Case Studies (Chapters 3 to 17), and Conclusion (Chapters 18 and 19). The Introduction discusses fundamental concepts and principles related to futures thinking in organizations. The Case Studies present fifteen examples of field application of foresight and futures thinking in organizations around the world, including China, Russia, The Netherlands, Europe, and the United States. The Conclusion provides final discussions and supplemental learning materials. Explanations below describe each chapter in further detail.

Chapter 1 provides a comprehensive review of the concept of futures thinking and its evolution from traditional strategic planning. New roles for employees, managers, and the organization itself are explored, providing best practices organizationally to meet the criteria needed to support futures thinking. Chapter 2 describes the emergence of a maturity model that profiles organizational capability for futures thinking. This model distinguishes between organizational capacity for initial efforts to use foresight to build scenarios and plan for future outcomes, and organizational capacity which enables execution of plans that turn scenarios into success.

Chapters 3 to 17 present case studies that describe practical applications of foresight and futures thinking in an array of organizational types, including for-profit corporations, educational institutions, and nonprofit and government agencies. These case studies describe the practice of futures thinking in response to three primary sources of rapid change impacting organizations today: technology, globalization, and workforce diversity. Further discussions within each case highlight the role that internal organizational policy plays in facilitating management strategies to sustain futures thinking efforts.

Chapter 18 reviews the methodology used by the editors to collect and analyze case study data and provides final discussion of findings and their implications. Recommendations for further research are also included. Chapter 19 provides a number of learning activities for professional development. These activities include discussion questions

related to each case study and two additional hands-on experiences which enable self-assessment of futures thinking capability in one's own organizations.

Description of Case Studies

Part II: Technological Change

Alfred Akakpo, Evans Akwasi Gyasi, Bentil Oduro, and Sunny Akpabot begin this case study section on technological change with a Chapter 3. The purpose of this case study is to describe Tesla's management strategies, organizational policies, and foresight approaches used to plan and implement a pragmatic strategy for the future mass production of electric vehicles (EVs) at affordable prices. The challenges posed by increasing global instability in the automotive business, changing technology and alarming increase of carbon dioxide emissions, all heightened the immediate need for change from traditional treatment of automotive practices to something innovative, yet executable. The Tesla organization has developed an ambitious plan and strategy in response to these challenges through long-range battery technology that will enable them to complete production of high volume and low-cost electric cars with no fumes, noise, or dirt to millions.

The next case Chapter 4 by Patrick van der Duin and Andreas Ligtvoet describes how Dutch infrastructure providers practice foresight. Given the longtime horizons of investments and strategic decisions among these organizations, the future is a very relevant topic to all of them. It turns out that the way these organizations carry out foresight can vary. Some organizations use scenario-thinking, others rely more on quantitative methods for data analysis. Some start their foresight process by analyzing problems, while others are more vision-driven. Given the impact of external developments on the future of infrastructures, all infrastructure providers have increased their focus on the relationship between their business and societal context. In addition to their foresight activities, infrastructure providers also prepare themselves for uncertain futures by making their organization more flexible, which has a positive impact on their strategic adaptivity.

In Chapter 5, Reimo Jahn and Hans Koller discuss the novel business models and increasing innovation speed that pushes global competition in technology-driven markets. Especially, small and medium-sized family firms struggle with allocating resources to cope with volatile market conditions and high-frequency innovations. Foresight as early detection of environmental change has been proven efficient for preparing companies for the future. This chapter reports on a nine-month foresight program conducted with participants from several departments within STULZ, a family firm in the industry of heating, ventilation and air conditioning (HVAC). Findings from in-depth case-work and semi-structured interviews show that the foresight program encouraged innovative thinking among employees and gave space for creative exchange. In summary, STULZ employees identified 29 future scenarios, 8 early warning signals as well as innovative projections for 3 novel products, 4 service proposals, and 15 processes. Also, the foresight program affected processes of change and established employees' confidence in STULZ's adaptability. The chapter adds insights on the significance of long-term management strategies, as well as, future-oriented organizational policy to sustain business success among the microcosm of a family firm.

Marc K. Peter, in Chapter 6, analyzes how the Swiss bank PostFinance (PF) utilizes foresight as a key driver for strategic discussions and innovation in banking for decades. Today's approach to foresight in strategy development has emerged over the past two decades with the introduction of early warning management in 1998, a new strategy process in 2000, a contemporary foresight framework in 2005/06 and a future-oriented, foresight embedded digital transformation strategy in 2016/17 to support PF's ambition to become a digital powerhouse. PF's foresight framework includes all major components from environmental scanning, scenario-building, and action setting based on open conversations from scenario workshops. The key outcomes from corporate foresight are successful strategies via an established foresight framework through socially constructed planning practices, especially the network of future agents/trend scouts, and the foresight continuum which fosters debates and supports flexible decision-making.

Anna Sacio-Szymańska and Kacper Nosarzewski present a comparative study of two cases in Chapter 7. Case A refers to strategic foresight implemented in a large private company from the fast-moving consumer goods (FMCG) sector; in this instance, a producer of beverages. Case B portrays organizational foresight practices implemented in a scientific institution, which conducts applied research within manufacturing and maintenance fields. Both organizations are based in Poland and are of comparable size. Both share the same motivation to uptake foresight as means of capturing technological change and supporting strategic investment decisions. It is the actual method of foresight, its outcomes and follow-up activities that differ to a great extent in the two entities. The reason to compare such diverse case studies of organizational foresight is to share valuable lessons learned, with a view to point out factors that do or do not allow an organization to take full advantage of internal foresight processes.

The last chapter in this part (Chapter 8), by Konstantin Vishnevskiy, Jonathan Calof, and Dirk Meissner point out that there are many models of foresight program delivery. This chapter looks at how a University Foresight program was used to help an aviation company become more innovative. In Russia, much foresight activity (including research, teaching, projects, consulting) is delivered by the Foresight center which is part of the Institute for Statistical Studies and Economics of Knowledge (ISSEK) at National Research University Higher School of Economics (HSE). The center is a designated Regional United Nations Industrial Organization (UNIDO) for technology management for Russia and the CIS. The case looks at how the HSE Foresight Center helped a Russian aviation company successfully implement an innovation strategy through a comprehensive foresight project. By use of multiple techniques including expert interviews, desk research, patent analysis, bibliometrics, trend analysis, wildcard analysis, roadmapping and more, the HSE foresight center was able to provide recommendations in a broad range of areas including safety, energy efficiency, environmental impact, and the quality of onboard services. The roadmap, specifically, presented a detailed plan for the development and implementation of innovative technologies for the next 10 years. This plan contained both the company's own developments and the adaptation of best solutions

offered by third-party manufacturers. In addition, the HSE foresight center helped the client organization set up foresight-based innovation processes within the executive function.

Part III: Globalization

Magnus Boman and Tobias Heger begin the cases in this part on globalization with Chapter 9. The chapter analyzes the impact of corporate foresight by means of its *circles of impression*, from top management and outward at varying distances from the management board. The concept is demonstrated to be useful and possible to apply to a wide target class, including strategic and networked foresight efforts. The comparative study described here focuses on two organizations: an industrial for-profit company and a nonprofit non-governmental organization (NGO). Delivered at a critical time for large global enterprises, the study of foresight activities was carried out in complete independence, scoping by time to point of entry and by general area, as provided by the stakeholder. The study covered four future trends, with one—robust artificial intelligence—reported on here to exemplify and detail the forms of reporting. In the introspective and critical analysis of this foresight work, the role of foresight *validator* is added to the three roles of corporate foresight known in the research literature: strategist, initiator, and opponent. As the concept of *circles of impression* is shown to generalize to both global corporate and global nonprofit organizations, a final discussion merges experiences with related conclusions and recommendations for ongoing studies.

In Chapter 10, Lee Henderson shares a study that used the Delphi Technique to envision strategies that will ensure success for Sino-Foreign Universities in 2030. Transnational Education (TNE) partnerships in Mainland China have faced significant issues and their future is uncertain. The unprecedented speed of change in Mainland China's higher education system made it imperative to conduct a study that looked beyond the nation's 5-year planning system. The study involved the executive management of Sino-Foreign University partnerships, whose data informed the envisioning of scenarios. The scenarios suggest the importance of an internet and social media strategy which is a radical change considering the regulations for foreign online education

in Mainland China. Furthermore, a societal involvement strategy recognizes a new role for Sino-Foreign University partnerships that will create greater competition among partnerships. This chapter shows that organizational policies jointly related to experimentation and accountability can sustain futures thinking within a centrally planned yet global higher-education system.

Michael A. Rostek reminds us in Chapter 11 that the future is difficult to predict to any useful degree as uncertainty rules. Indeed, uncertainty is a predominate characteristic of the twenty first century security environment and armed forces around the world continue to strive to understand and define how their national security policies fit within this paradigm. In this age of complexity, military planners often get caught in the trap of attempting to diminish uncertainty rather than learning how to function with it. So, in the face of such a complex and uncertain global security environment, where do military planners start? This chapter discusses a futures methodology that can provide capacity to systematically explore, create, and test both possible and desirable futures to improve military decisions. Because of this project, the Canadian Army has begun to institutionalize futures thinking to help military strategists more effectively plan in the complex and uncertain global security environment.

David M. Stehlik and James P. Foot's Chapter 12 examines the recent embedding of foresight techniques within the Florida and Ohio Army National Guard organizations' strategic planning processes. Each state's decision to move strategic planning in that direction was unique—as are their foresight methodologies and training. Furthermore, each is being recognized by their sector peers for its unique success story. The kind of foresight techniques and implementation methods—and the sustained organizational support for such—that supports anticipation amid rapid change, even working for massive organizations with profoundly rich organizational histories and cultures are discussed in detail. For Florida, it was the inclusion of specific environmental scanning efforts, and for Ohio, it was the use of future scenarios. The two techniques are providing tremendous value to each organization by helping clarify their ambiguous and ever-evolving strategic environments, informing and safeguarding the relevance of their long-term strategic plans. Moreover,

these new process efforts are not simply shaping the organizations' strategic plans; perhaps more importantly even, they are also shaping the cultures and mentalities of the next generation of the National Guard's strategic planners.

In Chapter 13, Steven Walker tells how a leader of a financial institution used systems thinking as a foresight tool to help survive global economic crisis during the Great Recession of 2008. Due to the leader's systems thinking perspective, several behavioral themes emerged. Organizational policies were then developed to help institutionalize these behaviors. The outcome was successful response to an oncoming global economic catastrophe. Strategic management strategies, supporting futures thinking, ultimately guided and stabilized the organization throughout this economic crisis, effectively leading to future growth.

Part IV: Workforce Diversity and Wellbeing

Part IV of case studies begins with a chapter which describes futures thinking at Aviva Plc, a British multinational firm headquartered in London offering a broad range of financial services in life, general insurance, and pensions. Bentil Oduro, Sunny Akpabot, Alfred Akakpo, and Evans Akwasi Gyasi in Chapter 14 kicks off the section of cases on workforce diversity and wellness. Aviva Plc employs over 28,000 people around the world, with a current customer base ~31 million globally. As a service sector employer, Aviva recognizes that success of the organization depends on developing and maintaining the well-being of a very diverse group of employees and customers. The purpose of this case chapter is to discuss the foresight methods adopted by Aviva to help align diverse contributions from employees with maximum service to customers, while increasing flexibility, capability, and competitiveness in ever changing environments. This chapter will also assess the key factors and business efforts underlying the company's long-term success, including a range of management strategies and organizational policies used by Aviva to sustain a competitive edge in the insurance industry' global market.

California State University, East Bay (CSUEB) represents one of the most diverse campuses in the United States and has started several

programs in long-term and futures thinking to celebrate diverse alternative visions of the future. Ian Pollock and Lonny J. Avi Brooks describe this phenomenon in Chapter 15. In the summer of 2016 for five weeks, multiple university stakeholders, including the University President, deans, faculty, staff, and the university advancement team engaged in a futures design thinking process to envision a new twenty first century commons space at the university. The goal was to transform and expand the university's central library within the next ten years by 2026 and for the next fifty years to 2066. Six teams of stakeholders underwent a forecasting, human-centered design process shaping a twenty first century approach to education. In assessing this forecasting efforts, the following question was addressed: How did design futures thinking shape our vision of the new library and information commons space on the CSUEB campus? Although initial steps have been taken to realize the outcomes from this project, additional important work is needed to institutionalize full innovative changes.

Chapter 16 by Priscilla Gill and Tami France describes workforce leadership diversity and its substantial impact on organizational economic, political, and cultural well-being. Research still places women in <5% of CEO positions and this chapter suggests the inability to recruit and retain women and ethnic minorities in healthcare professions puts the future of academic medicine in jeopardy. France and Gill point to the challenge of establishing sustainable organizational strategies to close the gap and promote a culture where all levels of leadership are more inclusive of women and ethnic minorities. The chapter highlights Mayo Clinic's journey to accelerating diverse leader readiness through foresight and futures thinking. Mayo Clinic discovered a dearth of preparation for leadership that mirrors the global society. These findings resulted in a targeted development program to ensure a diverse leadership talent pool is prepared to effectively lead with fortitude and impact through rapid global, technological, and environmental changes.

The final case study is by Yvette Montero Salvatico and Frank Wilson Spencer IV (Chapter 17). Faced with aggressive growth targets and a challenging global labor market, The Walt Disney Company turned to Strategic Foresight to create a more adaptive, resilient, and transformative

organizational culture. Over the course of four years, Walt Disney International (a segment of the company) established a culture of future thinkers through a multiphased change management effort. This included recurring learning and development programs based on the Natural Foresight® Framework, the establishment of regional Futures Teams across the globe, and a dedicated project management lead. Because of the effort, the following three organizational outcomes were realized: (a) processes have been updated to include Strategic Foresight; (b) revenue-leading futures intelligence has led to innovative new product offerings; and (c) success within the International division has inspired other segments within the organization to follow suit. Recognizing the importance of Strategic Foresight, international leadership has declared futures thinking to be one of the organization's top leadership competencies.

La Verne, USA   Deborah A. Schreiber
Baltimore, USA   Zane L. Berge

Contents

Part V   Conclusion

Notes on Contributors

Alfred Akakpo holds a Ph.D. in strategy and applied management from Coventry University. He has more than six years of experience in teaching and research in management and leadership. He is currently a lecturer in management and leadership at Coventry University with research interests in corporate governance, board diversity, and informal sector employment.

Sunny Akpabot graduated from Coventry University Business School with a Ph.D. in Strategy and Applied Management. He has over seven years of experience teaching in Business and Management related topics and with research interests in these areas. Dr. Akpabot is currently a lecturer in management and leadership at Coventry University.

Lonny J. Avi Brooks is Associate Professor in the Communication Department at California State University, East Bay, which is, in turn, part of the newly formed School of Arts Media. He teaches in the Strategic Communication and Communication & Media studies concentrations at CSUEB and he is the Co-Principal Investigator for the Long Term and Futures Thinking in Education Project (www.longtermandfuturesthinking.org) and has piloted the integration of long-term

and futures thinking into his Communication courses for the last four years. Dr. Avi Brooks is an Executive Producer and Co-creator of theafrofuturistpodcast.com with Ahmed Best, Executive Producer, host and fellow co-creator.

Zane L. Berge is Professor in the Training Systems graduate programs at the University of Maryland, Baltimore County campus. He teaches graduate courses involving learning and development in the workplace and distance education. Prior to UMBC, Dr. Berge was founder and director of the Center for Teaching and Technology, Georgetown University, Washington DC. There is where he first combined his background in business with educational technology working in the areas of online scholarly journals and discussion lists, and online education and training. Today he specializes in distance education and online learning.

Magnus Boman has been a professor in Intelligent Software Systems at KTH Royal Institute of Technology (Stockholm) since 2003. His field of expertise is artificial intelligence and data science. Professor Boman ran the Innovation Radar strategic business catalyst for the European Commission (EIT Digital) in 2011–2015 and assisted by a global network of technology scouts and a virtual team of foresighters, benefitted from input from innovation managers and product managers from some of the largest companies in Europe. Since then, he has led several foresight studies for companies and organizations, and is currently preparing to do networked foresight for Viable Cities, a 12-year strategic innovation program for future smart and sustainable cities, with 50+ stakeholders in Sweden.

Jonathan Calof is a full Professor of International Business and Strategy at the Telfer School of Management at the University of Ottawa. Dr. Calof combines research, teaching and consulting in competitive intelligence, technical foresight and business analytics to help organizations develop key insights on their competitive environment, and to help drive the kind of innovation that responds to the external environment of tomorrow. In recognition of his research contribution in these fields, Dr. Calof has received several awards and honors from both academic and professional groups including being appointed lead

research fellow at the National Research University, Higher School of Economics (Russia), Extraordinary professor at North-West University (South Africa), Honorary Prof. Yunnan Normal University (China), lifetime achievement award from Frost and Sullivan, and Fellow of the Strategic and Competitive Intelligence Professionals (SCIP). Dr. Calof was also recently awarded SCIP's member of the year award for his influence on the practice and the field of competitive intelligence.

James P. Foot is a retired Colonel from the US Army National Guard. He received his Doctorate of Strategic Leadership with an emphasis in Strategic Foresight from Regent University and currently works as a Senior Analyst and Strategic Planner in the Business Transformation Office of the Army National Guard Headquarters. Dr. Foot is a Senior Examiner with the Army National Guard Army Communities of Excellence program and has over 15 years' experience working with the Baldrige Framework for Excellence. He and his wife, Lana, reside in Little Rock, AR.

Tami France has a passion for diversity and inclusion work that elevates global mindsets. She leverages this interest as she designs, delivers, and publishes about effective leadership development experiences with diverse groups. Tami has lived and worked internationally and has presented her research in global forums. She is a senior learning and development professional and coach inside the Department of Human Resources at Mayo Clinic. She earned her Ph.D. in Leadership and Change with a focus on cross-cultural leadership and professional success. Dr. France is a certified professional in human resources and is pursuing post graduate work and certification through the College of Executive Coaching and International Coach Federation.

Priscilla Gill is passionate about building the workforce of the future. As Director of Workforce Learning and an Executive Coach at Mayo Clinic, Dr. Gill established the organization's coaching practice and directs the enterprise-wide learning function to help physicians, scientists, and administrative staff adapt to the rapidly changing environment in healthcare. Her doctorate is in Organizational Leadership and Human Services Administration with a research focus on leadership

development of women and ethnic minorities in healthcare. She has served as a community leader to develop and support women of African descent, board member of the International Coach Federation Phoenix, and has held corporate responsibility for diversity and inclusion. Dr. Gill enjoys using her varied experience and understanding of the business world to help leaders create engaging cultures that deliver results.

Evans Akwasi Gyasi is a lecturer with over six years of research and teaching experience at leading UK academic institutions, including North Warwickshire and Hinckley College, and University of Warwick. Dr. Gyasi currently is lecturer in Management and Leadership at Coventry University. Dr. Gyasi is a Certified Prince2 Project Manager and Cost control expert. Academic credentials include a Bachelor's degree in Economics, a Master's degree in Oil and Gas Management, and a Ph.D. in Operations and Cost Engineering from the University of Warwick. Dr. Gyasi's research focus includes operations and cost management, cost modelling, business strategy, change management, energy policy and economics, and business performance optimization. He is the author of the book titled *A Bayesian Approach to Cost Estimation for the Offshore Deep Water Drilling*.

Tobias Heger is founder and Managing Partner of *Rohrbeck Heger— Strategic Foresight + Innovation Consultants*. As an industrial engineer, he has a background in business and technology and has been working with multinational corporations, medium-sized companies, start-ups, public–private partnerships, and scientific institutions in the past. His areas of expertise lie in foresight in corporate and network settings, strategy development under uncertainty, innovation management, and the interface of R&D and intra- and entrepreneurs. Recently, he has been involved in strategy and foresight projects in several fields, including: automotive, telecommunications, energy, photonics, and filtration industries. Tobias Heger regularly reflects on strategy and foresight implementation in scientific studies and discussions, and he has published various articles in journals and presented at conferences.

Lionel H. Henderson holds a DBA in strategy from Athabasca University. He has more than a decade of experience in higher

education programs and has lectured business subjects in both undergraduate and graduate programs. He has held several administrative positions and has collaboratively worked with the Northern Consortium of UK Universities and their partner universities to develop Transnational Education programs in China. Dr. Henderson is currently a senior lecturer at The Sino-British College and a Full Member of the World Futures Studies Federation with research interests in institutional futures and strategic planning.

Reimo Jahn, M.Sc. is a research assistant and doctoral candidate at the *Institute for Technology and Innovation Management* at the Helmut Schmidt University in Hamburg. After studying Business Administration in Germany, Sweden, and South Korea, he graduated in Management & Marketing at the Free University Berlin and worked as a student researcher at Charité and HTW Berlin.

Prof. Dr. Hans Koller is Professor and Director of the *Institute for Technology and Innovation Management* (TIM) at the Helmut Schmidt University in Hamburg. After studying Business Administration at Ludwig Maximilians University (LMU) in Munich, he received his Ph.D. and Habilitation from the Technical University Munich (TUM). He is a member of the Scientific Committee of the Innovation and Product Development Management Conference.

Andreas Ligtvoet is a senior consultant at Technopolis Group, a consultancy on science, technology, and innovation. His main thematic interest is on the green economy: sustainable energy and circular economy. Futures and foresight studies have been a career-long interest of his.

Dirk Meissner is Deputy Head Laboratory for Economics of Innovation at HSE and Academic Director of a related Master Program "Governance of Science, Technology and Innovation." He has over 20 years of experience in research and teaching technology and innovation management and policy. Prior his academic career Dirk was management consultant for technology and innovation management with Arthur D. Little. Dirk has edited over 10 special issues for leading journals, such as *Technological Forecasting and Social Change*, *Industry and*

Innovation, *Technological Analysis and Strategic Management*, *Journal of Engineering and Technology Management*, and is associate editor of *Technological Forecasting and Social Change* and *Journal of Knowledge Economy*, and editorial board member at *Small Business Economics* and *Journal of Knowledge Management*.

Kacper Nosarzewski is currently a partner at a Warsaw-based strategic foresight and analysis consultancy 4CF and member of the board at Polish Society for Futures Studies. Kacper, over the last several years, has worked with a broad range of clients, including: Polish and Dutch Ministries of Defense, other agencies with the Norwegian, Colombian and Tunisian governments, and Brazilian mining corporations. He has assisted a number of private companies from FMCG, Hi-Tech and retail sectors, as well, improve their adaptive foresight capacities. Kacper Nosarzewski is a member of the Polish Node of The Millennium Project.

Bentil Oduro is currently a Course Leader and Lecturer in Sales, Marketing, and Public Relations at the Coventry University Group. He has extensive teaching experience in the UK higher education sector. Prior to joining the Coventry University Group, he was an Assessor and Lecturer at the University of Sunderland Business School and possesses wealth of industry experience as a consultant for small and medium-sized businesses in developing marketing and management strategies to compete with leading firms. Bentil is a Chartered Manager and Fellow of the Higher Education Academy, as well as, Fellow of both the Chartered Management Institute and Institute of Sales Management. In addition, he holds Bachelor and Masters' degrees in Applied Economics and Business Management, respectively. Mr. Oduro is currently pursuing a Ph.D. in Strategy and Applied Management at Coventry University.

His research interest areas are SME marketing, entrepreneurship, business development, business strategy, international marketing, and business research.

Marc K. Peter is the Head of Centre for Digital Transformation and Marketing at the FHNW School of Business in Olten, Switzerland.

Prior to joining FHNW, Dr. Peter held roles in strategy, technology, sales and marketing at PostFinance, eBay, E*TRADE, and LexisNexis. Dr. Peter has a Doctorate from CSU Sydney, an Executive M.B.A. from UAS Bern/Babson College/PKU Beijing and a Master of Marketing from the University of Basel. He studied corporate finance at UC Berkeley and electronic business engineering at UAS Bern. In addition, he completed various executive programs at Harvard Business School, Stanford University, and Columbia University.

Ian Pollock holds a Master of Fine Art degree in New Media Art Practice from the University of California, Berkeley, and a Bachelor's in Fine Arts t in New Genres from the San Francisco Art Institute. Ian Pollock worked as an educator in fine and applied media art in the US, Egypt, and the United Arab Emirates. Currently, he is Assistant Professor of Art, and the Director of the Graduate Multimedia Program, at the California State University, East Bay. His work with communications technologies, the web and with telephones around public space is featured in several anthologies of digital media art. Prior to working in education, Ian Pollock worked in television launching the San Francisco Government Access Channel Citywatch, the web and in advertising.

Michael A. Rostek began his work with futuring in 2006 while leading a Canadian Army research team studying the deep future of the Canadian Army. Retired from the Regular Army in 2011, Michael honed his futuring experience as Program Director for the University of Ontario Institute of Technology's (UOIT) Futures Forum. Today, he continues to teach and practice futuring as university professor and Reservists in the Canadian Armed Forces.

Anna Sacio-Szymańska is a senior researcher at the Innovation Strategies Department of the Institute for Sustainable Technologies, National Research Institute. She is also vice president of Foresight Europe Network. Anna holds a Ph.D. in Management from Cracow University of Economics. Her principal areas of interest, work, and scientific study include: strategic foresight, technology and foresight, science and business cooperation, design and evaluation of science

and innovation, as well as, policies at regional, national and EU levels related to smart specialization strategies. At present, Dr. Sacio-Szymańska leads a European research project on building futures literacy under Knowledge Alliance scheme of Erasmus + program.

Yvette Montero Salvatico is a Principal and Managing Director at Kedge, LLC. She is also co-founder of The Futures School. Previously, Ms. Salvatico led the effort to establish the Future Workforce Insights Division at The Walt Disney Company.

Deborah A. Schreiber is Associate Professor at the University of La Verne (La Verne, CA). Dr. Schreiber teaches organizational development and future-oriented leadership in the Organizational Leadership Ed.D. program. Dr. Schreiber possesses thirty years of experience designing educational programs, developing curriculum, and teaching classroom-based and online courses. She also consults with nonprofit and corporate organizations designing competitive digital strategies for use of mobile devices for learning and business. As a scholar and researcher, Dr. Schreiber has been honored with the Charles A. Wedemeyer Award for Distinguished Scholarship for her book *Distance Training: How Innovative Organizations are Using Technology to Maximize Learning and Meet Business Objectives.*

Frank Wilson Spencer IV is a Principal and Creative Director at Kedge, LLC. The primary focus of Kedge is to develop futures-empowered organizations in a world of volatile change. Mr. Spencer's clients include Lego, Daimler, Hasbro, Procter and Gamble, and The Walt Disney Company. He is also Co-founder of The Futures School.

David M. Stehlik is the interim director for the Master of Organizational Leadership program within the School of Business and Entrepreneurial Leadership at the University of Saint Francis (Fort Wayne, IN). He received his Doctor of Strategic Leadership degree with an emphasis in Strategic Foresight from Regent University. He is also the Founder and Principal Research Director at Fourscene LLC—a strategic intelligence firm. Dr. Stehlik is CompTIA A+, Network+, and Security+ and EC-Council CEH certified.

Patrick van der Duin is a macroeconomist and worked at KPN Research, Delft University of Technology, and Fontys Academy for Creative Industries. He studies how organizations apply foresight methods and manage innovation processes. He published in journals, such as *Futures*, *Technological Forecasting and Social Change*, and *The Journal of Futures Studies*. Recently he edited *Foresight in Organizations. Method and Tools* (Routledge, 2016). Currently, he is the managing director of the Netherlands Study Center for Technology Trends, a public-private think-tank on technological and societal developments.

Konstantin Vishnevskiy is the Head of the Department for Digital Economy Studies at the National Research University Higher School of Economics (Moscow, Russia). He holds a Ph.D. from Moscow State University, Faculty of Economics. Topic of his dissertation is "The Role of Foresight in Government Innovation Policy." Konstantin has long-standing experience in the development of roadmaps, the elaboration of Foresight methodology and corporate innovation development programs, the integration Foresight into government policy, as well as, financial and econometric modeling. He participated and led groups in many high-level research projects on Foresight of S&T development on national and regional levels both in Russia and abroad. Dr. Vishnevskiy has authored more than 70 scientific publications on long-term planning and Foresight, roadmapping, macroeconomic regulation and government policy, and programs of innovation development for business. He has delivered approximately a hundred reports to professional conferences and workshops concerning Foresight, roadmapping, and innovations.

Steven M. Walker is assistant professor of leadership studies at National University in San Diego, CA and a part-time instructor of leadership studies at Gonzaga University in Spokane, WA. His primary research interests focus on crisis leadership, leadership for sustainability, complex adaptive leadership, and leadership during economic recessions. Dr. Walker lives in San Diego, California with his wife and son where they enjoy surfing and hiking in their spare time.

List of Figures

List of Tables

Part I

Introduction

1

Introduction to Futures Thinking in Organizations

Deborah A. Schreiber

Throughout the mid- to late-twentieth century, organizations engaged in strategic planning to remain competitive. Leaders identified a desired endpoint and worked toward it from their current state. To succeed in today's market, however, organizations must embrace a *futures thinking* orientation. Futures thinking begins with the current state and uses foresight to lay down a path to meet estimated, yet unknown, future needs.

Foresight is not so much about predicting the future, as it is the ability to recognize changing events and accurately plan for possible future outcomes. The goal of using foresight methods within organizations is to understand potential triggers—recognizable points in time when action is needed. This action may increase collaboration, reallocate resources, or flatten hierarchical structures, all to help the organization become more flexible and adaptable to unforeseen challenges. The role of futures thinking is to assess the viability and executability of these response actions, and ultimately implement and institutionalize those that translate scenarios into success.

D. A. Schreiber (✉)
University of La Verne, La Verne, CA, USA

Challenges facing organizations today are extremely dynamic and stem from three rapidly changing forces: technology, globalization, and workforce diversity. Technologically, artificial intelligence (AI) and the Internet of Things (IoT), for example, have brought about embedded biosensors and advanced robotics, as well as cryptocurrency and block-chain support platforms. With such technological advances, companies are expanding their markets around the world, creating a new level of global industry driven by digitization and big data analytics. As the workforce needs to respond and support new trends in technology and globalization, a question becomes one of where to find needed talent within the everchanging fields of healthcare, banking, computer and digital engineering, transportation and utilities. Cost, availability (i.e., impact of immigration), and digital connectivity all play a part in an organization's effort to secure the diverse skills and perspectives needed to ensure futures thinking.

Following is a review of the evolution of futures thinking within organizations, beginning with strategic planning and leading to the use of foresight methodologies. The impact of convergent/divergent think-ing and sensemaking as related to strategic and corporate foresight is also discussed, as well as emerging new roles for employees, managers, and the organization itself. Additionally, barriers exist which may inter-fere with an organization's evolution from use of foresight to full futures thinking capability and the closing section of this chapter describes these potential constraints.

Background: Strategic Planning, Organizational Foresight, and Futures Thinking

A primary goal of all organizations is financial viability (Kumar and Chaudhary 2013; Swift 2012). Businesses strive for increased value to shareholders; universities seek tuition, fees, and endowments to pay for the costs of providing education; and government and nonprofit agen-cies work to ensure funds for public well-being. When customers and clients find value in the products and services the organization provides, the enterprise can grow and profit.

Growth in population and rapid changes in communication and distribution of products and services have increased significantly around the world. With sixty million companies operating globally in today's market competition has never been keener. Seven hundred eighty million professionals compete for 20 million jobs (Weiner 2018). Given that many of these jobs are digitally accessible, global competition is ever increasing. Consumer spending for household consumption across top-ranking countries (including the United States, China, Japan, Germany, the United Kingdom, France, India, Brazil, Russia, and Canada) totaled nearly 30 million USD in 2016 (World Bank 2018). The overall economy in the United States alone recently reached $19 trillion (International Monetary Fund 2017).

The world is operating in what futurists refer to as the Fourth Industrial Revolution (Weiner 2018),[1] and complacency is not an option if an organization wishes to remain in business. Beginning in the mid-twentieth century, companies began to respond to increasing competition by formalizing organizational structure and function. An accompanying management effort became known as strategic planning, and this process was used to analyze and direct resources and relationships toward attainment of long-term financial goals (Candy and Gordon 2011).

As Mintzberg recognized in 1994, however, "strategic planning is not *strategic thinking*" (para. 1) and increasing uncertainty in the marketplace demanded a more effective approach. Concepts of *foresight*, *foresight methodologies*, and *futures thinking* arrived on the scene. For some businesses, these new approaches became part of their organizational mindset. Foresight and use of foresight methodologies, for example, help organizations formally recognize changing events (Rohrbeck et al. 2015). Subsequent *trigger points signaling* when action must be taken spurs an organization to respond; (Caron 2013, p. 67). Futures thinking occurs when the organization identifies which of these actions is most viable for meeting the demands of an unknown future (McGrail 2013).

Strategic planning. Strategic planning conjures many scenarios for individuals who worked in organizations in the United States throughout the 1980s and 1990s. Driven by total quality management (TQM)

theory, executives sought to develop a systematic approach to efficiency while maintaining quality on the production line and in customer service (Martínez-Lorente et al. 1998). Entire teams of operational staff learned the definitions of *parody*[2] and *value-add*,[3] and began writing detailed strategies for enhancing a company's return-on-investment (ROI) while ensuring continued quality (Leonard and McAdam 2001). The outcome of these efforts were numerous strategic plans designed by organizations to guide performance and increase profits over a 3- to 5-year span.

Modern strategic planning began in the early 1920s with Harvard Business School's development of formal processes to guide business purpose and policy (Blackerby 2003) and grew in popularity throughout the final decades of the twentieth century (Mintzberg 1994). Common among organizational attempts at strategic planning at that time was the use of an analysis tool referred to as SWOT (Strengths, Weaknesses, Opportunities, and Threats). Research by Helms and Nixon (2010) and Jorgensen (2008) describe SWOT analysis as a simple procedure for identifying strengths and weaknesses internal to the organization, as well as opportunities and threats from outside the organization. SWOT analysis, as a strategic planning process, is easy to use by individuals and easy to formalize by organizations; and it works well for executive management as an assessment of immediate competitive capability. However, as research by Porter (1996, 2008) illustrates, SWOT analysis and strategic planning do little to help an organization understand broader implications from the industry at-large.

Absent from strategic planning in most organizations is understanding the impact of near-future change within similar and diverse industries. Such changes may occur through such events as unexpected mergers and acquisitions, or through reduced or redirected government funding. Strategic planning works well in a world that stands still (Mintzberg 1994). However, with increasing uncertainty, more effective techniques are needed to ensure an organization's survival.

By the late 1990s, many for-profit companies, nonprofit organizations, educational institutions, and government agencies began brainstorming future scenarios, and creating roadmaps into the future, to keep from being blindsided by unforeseen or misunderstood challenges (Day and Schoemaker 2005; Rohrbeck 2010). Corporate executives

sought in earnest to use approaches that "…not only supported strategic decision-making but also innovative management" (Rohrbeck et al. 2015, p. 9). Organizations came to understand that both hindsight and foresight are important skills for maintaining a competitive edge.[4]

Organizational Foresight. Historically, use of foresight by organizations began as a form of scenario-building and evolved from military application of war games. As early as the fifth century BC, ancient Greeks played *petteia* to learn a variety of viable war strategies (Callen 2013, p. 2). In the fifteenth century AD and later in 1811, the Chinese and Prussian army (respectively) engaged in brainstorming to create possible future scenarios of military operations based on theoretical study (Hilger 2012; Homans 2011). Herman Kahn brought scenario thinking into the twentieth century, as a member of a modern-day think tank for strategic military issues (Nekkers 2016; Rohrbeck et al. 2015). Kahn also elevated this practice to a higher level of sophistication, being one of the first to "…use systems analysis to identify the mechanism, patterns and structures that may lead to a future event…" (Nekkers 2016, p. 14).

Scenario thinking, or *scenario-building*, is a process used to describe possible future outcomes for an organization. Scenario thinking and scenario-building, terms used interchangeably here, may be thought of as a product of foresight. With the increasing presence of scenario-building in modern organizations following WWII, a variety of specific and related methodologies emerged. Organizations witnessed the introduction of the Delphi method in the 1950s (Marchau and Linde 2016; Rohrbeck et al. 2015), roadmapping in the 1970s (Romgens 2016), and formalized technology forecasting throughout the 1980s and 1990s (Cunningham and Kwakkel 2016).[5] Most recently, twenty first century organizations are looking to predictive analytics as the foresight tool of choice (LaRiviere et al. 2016).

Foresight methodologies each contain strengths and weaknesses, and organizations benefit most by selecting the strategy that best meets their needs. For example, the Delphi method, which employs a sequence of questions to obtain experts' opinions that may require personal and/or professional judgment, can be used to generate both consensus and diverging opinions on solutions to future challenges. Roadmapping, on

the other hand, is an exploratory method that is specifically "…demand (need) driven" and engages stakeholders, as well as, experts, to identify alternative plans for reaching future requirements (Romgens 2016, p. 145). Predictive analytics, which is less clear for some than the other methodologies, uses techniques from data mining, statistics, machine learning, and AI to analyze big data, and is as a way to predict the future (LaRiviere et al. 2016). It is unclear how helpful predictive analytics is, however, as the data used reflect current trends and not actual future behaviors.

The goal of organizational foresight, and use of foresight methodologies, is to formalize observation of internal and external environments, to recognize changes that may have significant impact on the organization and respond when necessary to maintain organizational health and competitiveness. One of the biggest challenges for students of foresight and futures thinking, however, is the presence in the literature of multiple terms used to discuss these concepts.

Organizational foresight is referred to in the literature by several labels, including *managerial foresight*, *entrepreneurial foresight*, *strategic foresight*, and *corporate foresight*. Managerial foresight describes future thinking as information processing by decision-makers, to address issues valued by the organization (Fidler 2011). Entrepreneurial foresight reflects a proactiveness toward future innovation by individuals outside of traditional organizational roles and functions (Fontela et al. 2006). Strategic foresight focuses on *high-quality forward views*—a phrase first used by Slaughter (1997) and later by Floyd (2009)—that emerge from consideration of past, present, and possible future outcomes (Rohrbeck and Schwarz 2013). Strategic foresight implies specific consideration of the organization's bottom line, informing organizational response in such a way as to increase ROI.

Corporate foresight is a term often used in the past to connote general foresight practices in business organizations (Gracht et al. 2008). More recently, however, corporate foresight is a concept derived from strategic foresight, and its meaning today comes from a metanalysis led by Rene Rohrbeck, a prominent researcher in the field of foresight and futures thinking (Rohrbeck et al. 2015). This study distinguishes between strategic foresight that drives development of public policy

(e.g., in science, technology, and innovation), and strategic foresight that relates specifically to an organization's future. Conceptually, corporate foresight today encompasses the latter definition of strategic foresight, as well as, how the use of foresight methodology is organized and implemented by the organization to generate value.

Futures thinking. Futures thinking, as a formal study of the future, dates back to the early eighteenth century. As described by Margolis (2000), a rare tome written by Samuel Madden, a clergyman living in 1730, reflects "thinking systematically about the future" (para. 2). Ossip Flechtheim (1945), considered the founding father of modern futurism, and later Professor Wagenfuhr (as described by Gracht et al. 2008, p. 1), agree, suggesting that futures research represents the systematic and critical examination of future questions. More recent works by Slaughter (1997) and Wendall Bell (1996) bring futures research to the attention of organizations—cautioning that thinking about the future is a dynamic process which evolves over time and distinguishing between concepts of *probable* and *preferable* futures (respectively). Finally, research by Inayatullah (2007), applies futures research in the field, linking futures thinking to methods and tools through a conceptual model called "six pillars of futures studies" (para. 21).

Futures research and the concept of futures thinking, as described in the literature today, presents the same challenge for readers as the concept of foresight (discussed earlier). Research articles refer to futures thinking by a myriad of terms, including forecasting and envisioning (McGrail 2013), scenario-planning (Gracht et al. 2008), and futuring (Millet 2011). Some publications even present strategic foresight and futures thinking as interchangeable ideas (Gould 2014; Inayatullah 2007).

This book distinguishes between the concepts of foresight and futures thinking within organizations. Foresight is a process and capability which facilitates conscious observation of changing events (including behavior and attitudes) which may impact an organization. Several foresight methodologies may be employed to build scenarios of potential future outcomes due to these changes, and to identify actions needed to reach these outcomes. Futures thinking, on the other hand, takes the foresight process one step further. Futures thinking occurs when the

organization can identify which of these actions is most viable for meeting the demands of the most likely future challenge, and then actually executes the action. In other words, organizational foresight, and use of foresight methodologies, gets the organization only part of the way to future success. The final step requires futures thinking—knowing *when* and *how* to execute action to ensure future organizational health and competitiveness.

Making a distinction between foresight and futures thinking may appear an academic exercise to some readers. Yet many organizations today build strong foresight capability without translating insight into successful action (Rohrbeck et al. 2015). Restructuring roles and functions within an organization provides one helpful strategy, and this will be discussed at length later. Actualizing futures thinking as an organizational capability, however, also requires something else. It requires that leaders and staff embrace new mental models on insight and understand the role of divergent and convergent reasoning. It also requires clarification that futures thinking within organizations is *not* the opposite of design thinking (as is suggested in some current literature).

Design thinking and futures thinking are two concepts often compared in the literature by the extent to which each uses convergent and divergent reasoning. For example, Roumiantseva (2016) states that design thinking begins with a situation that needs attention, and "… generates lots of observations, insights and ideas during the divergent thinking process, but then …converging to one concrete product…" (para. 15). In comparison, other research describes futures thinking as a process which ends with a divergence of ideas, creating multiple scenarios of possible future outcomes, much like forecasting (Inayatullah 2007; Joos 2017; Roumiantseva 2016).

In contrast, this book presents the premise that scenario-building and forecasting are not futures thinking,[6] nor processes that end with a divergence of thought. Scenario-building and forecasting represent foresight and foresight methodology. And yes, while each process begins with divergent thinking (Duin 2016), the output (i.e., future scenarios) represents convergence. This convergence is evidenced by the concrete descriptions assigned to each possible outcome (Webb et al. 2017).

To clarify, divergent thinking is driven by context and situational impact, generates diverse ideas, follows channels of remote association, and embraces ambiguity and abstraction (Cramer et al. 2016; Webb et al. 2017). Divergent thinking often results in creation of a "mash-up" framework[7] of diverse elements that requires sensemaking, a process of spotting emerging patterns to make sense of related future risks and opportunities (McGrail 2013). Convergent thinking, on the other hand, follows a line of reasoning characterized by generally understood principles of association, looks for emergence of a solution, and implies concretizing action (Bol 2016; Webb et al. 2017).

Foresight and futures thinking *both* follow an iterative process of divergent and convergent thinking, however, for different purposes. The role of foresight in organizations is to generate scenarios of possible future outcomes, and to inform planning and management of response(s) to unexpected challenges (Rohrbeck et al. 2015). The role of futures thinking is to assess viability and executability of these response actions, and ultimately implement those that translate scenarios into success stories (Hagerman 2017).

New Roles for Employees, Managers, and the Organization

In developing capability for foresight and futures thinking, organizations identify best practices in three areas as most impactful: team collaboration, flexible access to resources, and flattened hierarchical structures. Research by Bodin et al. (2016) and Sarpong and Maclean (2011) finds that cross-functional teams work more productively than individuals when building scenarios to plan for possible future organizational outcomes, as well as, for product innovation. Regarding allocation of resources, Hemp (2002), Howell (n.d.), and Shuquair and Abdel-Aziz (2015) suggest that money and manpower must be easily distributable to initiatives leading to the future, while also supporting current critical business. Additionally, research by Bersin et al. (2017) and Battistella and De Toni (2010) discovers that removing layers of

organizational structure and authoritative oversight opens flow of information and more effective use of foresight.

The challenge persists regarding the best approach *organizationally* to meet the criteria needed to support futures thinking. Jacob Morgan (2014) and his colleagues at Chess Media Group have worked on this issue extensively in recent years and found that defining new roles and functions for employees, managers, and the organization itself helps. The following discussion provides further explanation.

Employees. Employee roles emerging today in organizations that use foresight and futures thinking, center on collaborative teams made up of diverse individuals (Griswold 2013). This diversity may come from gender, ethnicity and cultural experience, socioeconomic background, as well as, education and content expertise. The goal is to create an environment that facilitates diverse thought and broad-reaching insight about disruptive behaviors in the marketplace and determine possible strategies for responding. As noted by Rock and Grant (2016), diverse teams are twice as likely to create innovative strategies than homogeneous groups.

Scenario thinking, and scenario-building represent a process that integrates observation, simulation, and insight (Nekkers 2016), and as the first step toward foresight and futures thinking within organizations, benefits significantly from the contribution of diverse collaborative teams (Sarpong and Maclean 2011). Team membership alone increases communication, interpersonal engagement, and shared decision-making (Schreiber and Hoffman 2017), which results in more brain-power and creativity, as well as, faster reaction times (Sabbag 2016). The resulting increase in information and interaction facilitates iterative re-examination of facts, impressions, and intuitions, which in turn, enables the team to produce a highly successful participatory scenario-building experience (Bodin et al. 2016).

As the presence and contribution of complex teams evolve in futures thinking organizations, so must the role of the individual team member. In the past, jobs supporting traditional strategic planning were often also team positions, however, the tasks completed by strategic planners focused on collecting and analyzing information from current organizational perspectives. Foresight and futures thinking within organizations, however, depend on individuals thinking outside-the-box, and

making contributions "*around*" current process rather than "*inside*" it (Mintzberg 1994, para. 4). The traditional role of strategic planner within teams must now become one of *trend receiver* if the organization is to improve its futures thinking capability.

"Trend receiver," as a concept, comes from research by Hofmann (2015, p. 14), and describes individuals capable of organizing information with *visionary competency*. Visionary competency enables individuals to gain insight from patterns of behaviors. However, as research by Bengston (2017) suggests, this insight goes significantly beyond the frame-of-reference of the working environment (which includes forces driven by constituencies, customers, and competitors), and considers (and reflects upon) the broader contextual environment (driven by technological, social/political, and economic forces). The key takeaway about visionary competency for teams is that it relates to foresight, in that trend receiving often provides the spark which ignites critical scenario-building and futures thinking (Hofmann 2015).

Finally, it is helpful to recognize that an interesting challenge exists for highly diverse and expert teams. The same characteristics that facilitate high-octane output are also the same traits that can cause team disfunction (Gratton and Erickson 2007). Individual IQ (intelligence quotient), EQ (emotional quotient), and creative thinking ability (including visionary competency) all affect team member interactions (Schreiber and Hoffman 2017; Hofmann 2015). In some cases, individuals may block open access to information or refuse to share knowledge; trust may wane; and limited individual or group accountability may occur (McQuerrey 2017). Research illustrates that such conflict issues can come from size of the team (i.e., too large) or misunderstanding/lack of understanding of others' diverse thought (Gratton and Erickson 2007).

Volumes of literature exist which discuss the concept of teams and barriers to effective teamwork. Recent publications include texts by Iglesias-Chiesa (2017), Cooke and Hilton (2015), and Lencioni (2002). It is the manager's role today and its impact on diverse team functionality, however, that is of interest here. Consequently, managerial guidance and support of diverse teams in futures thinking organizations, through modeling and flexible distribution of resources, respectively, is discussed in the next section.

Managers. Traditional roles and responsibilities of managers focus on providing oversight to specific functions and departments within an organization. This may include hiring and firing staff, monitoring and distributing budgets, translating business goals into practice, and mentoring employees (Reh 2017). Rapid changes in technology, workforce diversity, and globalization, however, present inordinate challenges to organizations today, and positioning a few people at the top to facilitate company business no longer works. As described by Gleeson (2017) "one person – or a few people – simply don't have the time or resources to sift through mounds of data… to disseminate the right data to the right people in real time" (para. 2).

Matthew Prince, co-founder of CloudFlare, suggests that in today's market, survival of an organization depends on what is done, not who is managed; and states "…checking [job titles and] egos at the door ensures that the quality of an idea – not a person's rank – always wins" (Haden 2017, para. 1).[8] Morgan (2014) agrees, stating that emerging managerial roles in the twenty first century focus less on lines of authority and more on an individual's belief in shared power and collective intelligence, as well as, the ability to "lead by example [and] embrace vulnerability" (p. 114).

Future-proofing an organization, as Randel (2017) refers to it, requires that a company or institution acknowledge and utilize managers as one of the most important resources within the organization. In this view, the middle manager, specifically, is recognized as an individual more exposed to organizational information and employee interaction than anyone else. The key interest for futures thinking organizations, is to harness collection of this information, and guide further interaction toward building foresight capability. Research by Darkow (2015) suggests that one way to do this it to integrate middle managers strategically into business projects. In this role, the middle manager becomes not an authoritative lead, but one member of a cross-functional team building scenarios for innovative development.

Many futurists support shifting the manager role from one of oversight to one which formally partners with other team members to strengthen the sensemaking process within the organization (Kilpi 2017). Rohrbeck et al. (2015) agree, concluding that "deep embedding"

managers with foresight expertise into traditional corporate functions such as marketing and product development, complements the long-term view and long-term planning efforts of the organization (p. 14). Bengston (2017) also sees participation of managers in teams as beneficial for team-driven innovation, insofar as managers can encourage thinking beyond current organizational perspectives. The manager, as a member of expert work teams, can also influence flexible budgeting processes, which increase team access to needed resources, including data, money, and manpower (Anderson 2000; Reecer 2014).

The future-oriented manager sees employees as colleagues and believes in "empowering them…" (Morgan 2014, p. 214). Although a challenge for some is *giving up power* (Krow 2017, para. 3), one can learn to relinquish control and build organizational capability for futures thinking by engaging in the following behaviors and attitudes: trust the process, respect employee expertise, collaborate from *within* cross-functional teams, follow from the front, and encourage others to lead from behind. Clearly, a new role for managers is emerging in future-oriented organizations, and this role is one which communicates the vision of the organization and guides others to it; increases delegation and decision-making throughout the organization; elevates individual responsibility at all levels; knows when to get out of the way; challenges convention (and encourages others to do the same); and supports the notion that one can lead from any position (Gleeson 2017; Morgan 2014; Tsakas 2017).

Organization. Organizational *structure and function* refers to how individuals are grouped to perform tasks. At work, organizational structure and function impacts all operations, including division of labor, reporting and accountability, and distribution of budgets.

Historically, mid-twentieth century industrial manufacturers relied on multi-tiered organization of employees and tasks to oversee production lines and meet demands of relatively stable markets. This era was characterized by double-entry bookkeeping and typed hardcopy correspondences; movement of information, people, and goods and services, was slow (Chandler 1992). By early twenty first century, digital technologies changed not only the speed with which information traveled, but also opened a Pandora's box of new products and services never

experienced. The everchanging landscape of world markets ushered in an era of hypercompetitive business transactions, with work-related functions going from assembly lines to elaborative team configurations, located both virtually and onsite (Rishapal 2014; Rohrbeck et al. 2015).

As jobs and employee responsibilities evolved, leaders of corporate businesses, educational institutions, and government agencies began to take notice of disfunctions developing within their organizations due to misalignment of structure and function. Throughout the 1970s and 1980s, the presence of silos of workers within organizations constrained communication to such an extent that at times, limited information was available to inform decisions, and deliverables went unmet (Abedalla 2014; Tett 2016). By the year 2000, executives recognized the need to reorganize employees and tasks, and riding a wave of popular demand, embraced the idea of a *flat* organizational structure (Anderson and Brown 2010; Kubheka et al. 2013; Roelofsen and Yue 2017).

Flat organizational structures reflect open workspaces, limited levels of supervisory oversight, and decentralized tasks and responsibilities (Rishipal 2014). Functions are most often defined by teams that are driven by specific project requirements (Roelofsen and Yue 2017). Benefits of flattened organizational structures include removing barriers to communication and the sparking of unplanned conversations and exchange of ideas that can often result in increased collaboration and creation of new initiatives (Abedalla 2014; Lam 2016). Decision-making occurs more quickly within organizations with flattened structures, since decisions are made by individuals directly involved with the work.

With increased speed, agility, and adaptability resulting from flattened hierarchies,[9] some executives today are going a step further, and revisiting the concept of holarchy as an optional organizational design (Koestler 1967; Roelofsen and Yue 2017). Holacracy represents extremely decentralized management functions, accompanied by minimal organizational structures. There are no titles, no bosses, and no direct line of supervision. Accountability comes from tracking decisions and related outcomes via web applications (Lam 2016).

Futures thinking organizations depend on open communication and open access to information, brainstorming within and outside of

workplace perspectives, consideration of contextual references when building scenarios, and freedom to challenge conventional thought—all characteristics that are often supported by flattened organizational structures. The question, however, is *how flat*? If more is better, then holarchy would be the answer. However, in some holacracies, employees report high levels of confusion, due to ambiguity and lack of clarity of processes (Lam 2016). Employee concerns also abound regarding individual responsibilities, accountability compensation, and how to access resources to support work efforts (Bernstein et al. 2016). Research by Monarth (2014) suggests that with limited (or, no) organizational structure, chaos may reign; and although self-regulation is needed to support creative team collaboration, an innate desire often kicks in to know "who's boss and who's not" (para. 8).

Upon reflection of strengths and weaknesses of hierarchical structure within organizations (i.e., from siloed companies to flattened start-up businesses), it is the perspective of this book that it is better for an organization, striving to increase futures capabilities, to shift paradigm thinking from *layers* of structure and function, to *team-centric configurations*. Bersin et al. (2017) agree, defining "team-centric" organizations as highly agile and adaptive networks of distributed activity (para. 8). Team centricity also aligns well with new emerging roles for employees and managers, as discussed in earlier sections.

Team-centric configurations, as related to organizational structure and function, integrate team fluidity and networks of teams, to build and sustain futures thinking capability. Team fluidity represents a dynamic process of repeated group forming-disbanding-reforming, to create self-regulated teams distributed throughout the organization, as determined by business needs (Bersin et al. 2017). Leadership within teams rotates among team members based on content and context of tasks (Schreiber and Hoffman 2017). The evolving network of teams within today's organizations may be visualized as floating cells within a massive rolling bubble of activity. Bernstein et al. (2016) equate this image to "self-managing structures akin to biological organisms" (para. 16).

The structural design of team-centric configurations integrates both centralized and decentralized distribution of tasks and responsibilities

(Bernstein et al. 2016). Battistella and De Toni (2010), for example, discuss the positive impact on futures thinking generated by specific centralized business units dedicated to development and use of foresight. Paired with decentralized efforts, such as middle managers (with foresight expertise) embedded into traditional corporate functions of marketing and product development, enables the organization to facilitate significant collaboration among in-house networks of teams (Darkow 2015).

The concepts of team-fluidity and networks of teams within team-centric configurations apply beyond in-house applications. Both intra-organizational groups and inter-organizational partnerships expand futures thinking efforts. As described by Rohrbeck et al. (2015), the substantial investment needed for large projects related to climate, renewable energy, electric mobility and immigration, and war, results in "private-public partnerships operate[ing] as quasifirms, with business plans and CEOs" (p. 17). The key to success here is ensuring the shared access to information and shared ownership of resources, two critical processes needed to support broad inter-organizational efforts. Fortunately, research by Shuqair and Abdel-Aziz (2015) describes how to develop and integrate "priority systems" (not hierarchies) to facilitate shared allocation of resources (p. 4); and Roelofsen and Yue (2017) discuss how to establish distributed processes for monitoring and reporting that enhance, rather than hinder, team self-regulation and accountability.

Recognizing and Interpreting Triggers

Emerging new roles for employees and managers, as well as the organization itself, are becoming well understood as evidenced by the previous discussion. The question remains, however, how best to use this information to build organizational capacity for foresight and futures thinking. Futures thinking begins with the current state and uses foresight to develop a path(s) to meet estimated, albeit unknown, future needs. Use of foresight methodologies begins with recognition of changing events and then planning possible future scenarios.

Observation of changing events and correct interpretation of near- and long-term impact, are not easy tasks. Current literature speaks at length about lessons-learned and best practices of how organizations responded (or did not respond) to challenges in the past (Day and Schoemaker 2005; Inayatullah 2007; Porter 2008). Limited concrete guidance is provided for how to improve observation of the world in real-time and distinguish between signals that *mean something* and those that represent noise.[10]

Organizations strive to observe signals to accurately identify important triggers—points in time when action must be taken to accommodate change and/or overcome challenges. Trigger points occur most often when changing events are observed that relate to an organization's own goals and are interpreted as having potential impact on the organization's future. Triggers may result from undercurrents (weak signals) or blatant disruptions (strong signals) in the way people behave and business is conducted (Dickson et al. 2017).

Misinterpreting or ignoring strong signals, and/or missing a weak signal or a signal that is absent, occurs far too often in organizations (Krupp and Schoemaker 2014). Life in the fast lane of today's cyber-world makes it difficult to pause for reflection. As Churchill muses, "… [when people] stumble over the truth… most… pick themselves up and hurry off as if nothing ever happened" (Hawkins 2013, para. 24).

Factors that influence observation and interpretation of signals relate directly to individuals and to the organization at-large. An individual's biases and prejudices about gender and race, as added to his or her specific orientation to life (i.e., perceptions of time, authority, and uncertainty), drive whether a signal is perceived as positive/negative or relevant/irrelevant (Baker and Nofsinger 2010; Hofstede 2011). Regarding outlook from the organization, structures, and functions may filter information and narrow perceptions of signals into *groupthink*, or on the other end of the continuum, permit an overload of information to bombard personnel, driving staff, and administrators to "jump to the most convenient and plausible conclusion" (Schoemaker and Day 2009, para. 3–4) in defense of inertia or impotence due to overwhelming input.

Research by Phillips (2017), Schoemaker and Day (2009), and Silver (2015) recommends various strategies for observation and interpretation of signals, as part of the process of futures thinking (which relies initially on accurate identification of trigger points). First and foremost, individuals and organizations must beware of their biases and prejudices. The next directive is to begin with skepticism, but then use your past experiences and trust your instincts. Finally, it is helpful to pay attention to the *fringe*, and determine what constitutes a weak signal versus background noise (Webb 2016). These directives, although helpful, speak in abstractions. For example, what exactly constitutes the *fringe*; and how does one learn from past experiences which consist of a hodgepodge of random interpretations, with little process or syntax?

Looking for more concrete guidance for signal observation and interpretation, some organizations today embrace computer programs and data metrics to collect and analyze information related to individual behaviors and business processes. Three prevalent applications include: organizational network analysis (ONA), key performance indicators (KPIs), and high-level scanning with projects such as the *Crow's Nest*. Below is a brief description of each case.

Reporting on survey findings, Deloitte (Bersin et al. 2017, para. 14–15) describes a company that used ONA software to collect data from social networking applications (i.e., email, instant messaging, and physical proximity imaging), generating communication networks of "connectors and experts," which contributed to reorganization of a sales department that was underutilizing employees with significant expertise. Another firm, The Performance Group, worked with a client who used data metrics to identify customer acquisition cost-to-lifetime value, and found it to be an *acute* KPI for service companies, who then benefitted from "know[ledge] of the data flowing into the KPI and having some control over it" (Taylor 2016, para. 8). Finally, Schoemaker and Day (2009) describe IBM's growing capability for scanning "zones of the periphery" (including emerging technology, customer diversity, and globalization), whereby project teams operate above the fray—analogous to look-outs in a "crow's nest" on a ship—and attempt to pick up weak signals that may trigger opportune action (para. 19); and when the CIA paired similar types of scanning groups with technology venture firms,

the intent was to observe and accurately interpret signals that would drive development of successful future scenarios for fighting terrorism (para. 20).

Digital data analytics brings a certain structure to observation and interpretation of signals. This structure, defined by the parameters of the software, guides *organization* of the data. Although the amount of data generated by digital metrics can be abundant, the manner of organizing this information—the frame-of-reference within which this information is presented—strengthens business capability for accurately interpreting the information. As noted by Boylan and Turner (2017), structured information (rather than random data) enhances "purposefulness of reasoning" (p. 183).

Source of Change and Type of Disruption

Reflecting upon the structure of data analysis supported by data metrics in the examples above, it appears that three organizational processes emerge that may be helpful as operational descriptors when interpreting signals in the future: communication (ONA), resource allocation (KPIs), and social/political climate (i.e., terrorism). With further insight garnered from studies by Baker and Nofsinger (2010), Cascio (2009), Gartner and Bellamy (2010), Inayatullah (2007), Rohrbeck et al. (2015), and Schoemaker and Day (2009), this book proposes a conceptual framework to guide observation and interpretation of signals. This framework is built upon two primary characteristics of signals—the *source* of the change that initiates the signal and the *process* that it most disrupts. The three primary sources generating signals today include technology, globalization, and workforce diversity. The processes which appear most often to be affected include communication, resource allocation, and social/political climate. The process of communication may include both individual and/or organizational behaviors; resource allocation refers to movement of time, money, information and/or manpower; and the social/political climate relates to personal and/or professional cultures. Figure 1.1 illustrates this conceptual framework.

Organizations lose competitiveness, or even become obsolete, when complacent toward or ignorant of signals radiating from significant change impacting the company. Blackberry Limited, once famous for introducing businesses to secure mobile phones with attached keyboards, is one of these companies. After losing significant market share to Apple and Google, Blackberry announced in Fall 2016 that it intended to no longer manufacture its cell phones (LaMonica 2016). Blackberry phones, so popular in the late 1990s that they were dubbed *Crackberries,* upon initial introduction, quickly became part of an employee's total communication strategy. Individuals used the device to converse with their boss and colleagues anytime anywhere. They also, however, began using the mobile phone to keep in touch with their friends, children, and other family members. Blackberry Ltd. continued to market applications which focused on business communication, and unfortunately, overlooked the growing demand from their clients' employees for renovation of the physical device itself (i.e., desire for upgrades to touch-screen technology). Blackberry Ltd. failed to recognize that it would be the individual user/consumer, "not the business customer," who would drive the smartphone revolution (Gustin 2013, para. 8).
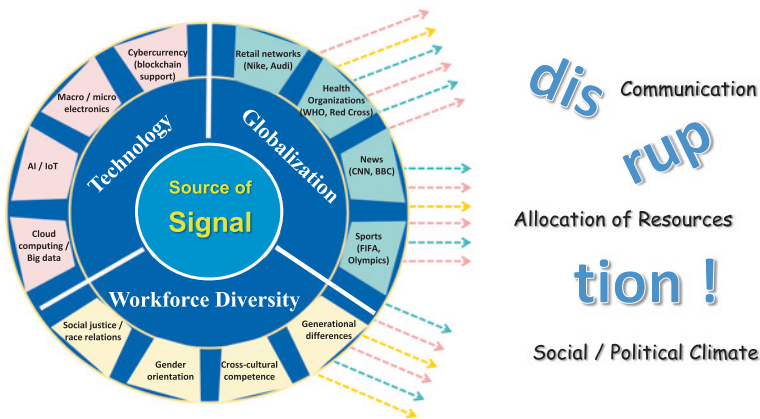
Fig. 1.1 Observation and interpretation of signals by *source* of change and the type of organizational *process* or characteristic most impacted by the resulting disruption

Another case of a company being blindsided by missed and/or misunderstood signals involves Mattel, Inc. Founded in 1945, Mattel existed for nearly 40 years with one product, the Barbie doll and its accessories, generating 50% of the company's toy sales. Barbie's design encompassed the "ideal" woman of the 1950s and appealed to young girls (and their mothers) for years (Daniels, n.d., para. 2). Then, with significant social and cultural shifts in gender perspective throughout the 1970s and 1980s, toy designers inside Mattel urged updating Barbie. The CEO and other top executives hesitated to change. The attitude *if it isn't broken don't fix it* prevailed (Daniels, n.d.). Around this time, a new style of doll, the Bratz line, by MGA Entertainment, surged onto the scene. Within a few years, the Bratz dolls were being designed as customized figures, with hip "personality and attitude," reflecting the fast-paced globalization of fashion, music, and television markets (Daniels, n.d., para. 3). Although initially targeted to girls 7–11 years old, the Bratz line morphed into popstar figures, and both boys and girls well into their young teen, fell into doll mania (Sunderland 2016). Mattel Inc. lost 30% of its revenue from traditional sales, and then entered an eight-year court battle against MGA Entertainment, claiming stolen proprietary information related to the Bratz design.[11]

The two cases described above possess many similarities. Blackberry Ltd. and Mattel Inc. both consciously observed signals; and each company appeared to recognize the source from which the signals radiated. Blackberry understood that it was advancing technology that drove development and manufacture of its cellular phone; Mattel pinpointed globalization of celebrities as the driver behind creation of dolls in the image of popstars. The downfall for each of these companies was the lack of understanding of the specific process impacted by the disruptive change. Mattel underestimated the impact the cultural shift in gender perspectives would have on social/political climate of their intended markets. Blackberry Ltd. misunderstood that the consuming increase in cellular phone use reflected a sweeping change in communication habits of individuals.

Closing Remarks

Futures thinking in corporate organizations, educational institutions, and nonprofit and government agencies, encompasses a systems approach to facilitate four primary processes: observation and interpretation of signals, identification of trigger points, use of foresight to build scenarios and plan action, and translation of scenario(s) into success. Figure 1.2 illustrates the iterative nature of futures thinking within organizations.

Consideration of all internal and external factors that may influence a specific developmental effort such as futures thinking requires complex thinking and taking a systems approach enhances meeting this challenge. Many theoretical models exist in the literature that illustrate the characteristics of a systems approach. Research by Dettmer (2007) and Bible and Bivins (2011) describe two systems approach models for business development. Research by Dick and Carey (1996) and Morrison et al. (2010) describes systems approach models for education and learning. Common to all of these models is an iterative process that embraces divergent and convergent thinking throughout the process, and formative and summative assessment as related to process and outcomes.

Readers may use Fig. 1.2 as a guide through the overall process of futures thinking. As the rate of change in the world ever-increases, an organization strives to observe signals to accurately identify important triggers—points in time when action must be taken to accommodate
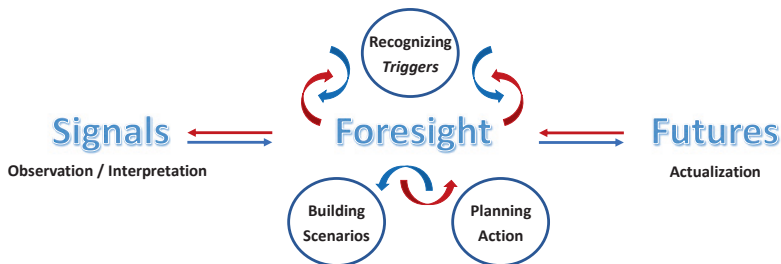
Fig. 1.2   Systems approach to futures thinking

the change and/or overcome related challenges. Understanding the specific source of the signal (i.e., technological, global, or workforce) aids in understanding the organizational process or characteristic most likely to be affected (i.e., communication, allocation of resources, or social/political climate). Utilizing a systems approach to futures thinking integrates divergent and convergent thinking while facilitating the iterative process of building probable and preferred future scenarios, planning actions, reviewing and revising scenarios, re-planning and piloting action items, as the organization moves forward to the ultimate actualization—the translation of foresight into successful future outcomes.

Notes

1. This phenomenon has also been referred to as Globalization 4.0 Suominen (2017).
2. Parody = strict alignment of scope of management to attainment of desired outcomes (providing no more and no less in production and service).
3. Value-add = strong return on investment; extra benefit or profit for company with no or limited additional cost.
4. Hindsight provides learning from past experiences and helps one understand cause and effect. Foresight enables conscious recognition of a disruption in behaviors, and assessment of the effect it may have on future outcomes.
5. See Patrick van der Duin's book *Foresight in Organizations—Methods and Tools* (2016) for more information on foresight methodologies, as well as, use of creativity in futures thinking.
6. Futures thinking culminates in action and is actualized when success in the future occurs.
7. Mash-up frameworks reflect images that display information from multiple sources. See Roumiantseva (2016) for further discussion.
8. Quotation by Matthew Prince in Jeff Haden's article *Why There Are No Job Titles at My Company* (2014).
9. *Speed* refers to pace of operational processes; *agility* relates to flexibility with which resources (including data, money, and manpower) are moved and accessed; and *adaptability* encompasses an organization's ability to change and evolve in response to challenges.

10. Many books and articles exist which describe the concept of foresight and use of foresight methodologies to build forward-looking scenarios (Duin 2016; Morgan 2014; Nekkers 2016; Rohrbeck et al. 2015). However, our intent here is not to delve further into scenario-building, but to provide specific parameters for observing and interpreting signals that prompt scenario-building in the first place.

11. Mattel Inc. has received positive judgements, as well as, reversals of court opinions, throughout this legal battle. Some issues are still unresolved.

References

Abedalla, R. W. (2014). The silo effect of information technology on the organizational productivity: A qualitative research study. *International Journal of Computer, 15*(1), 42–50. Retrieved from: http://ijcjournal.org/index.php/InternationalJournalOfComputer/article/viewFile/320/319.

Anderson, A. (2000, January 12). Best practices: Developing budgets. *Inc.* Retrieved from: https://www.inc.com/articles/2000/01/16379.html.

Anderson, C., & Brown, C. (2010). The functions and dysfunctions of hierarchy. *Research in Organizational Behavior, 30*, 55–89. Retrieved from: https://www.researchgate.net/publication/251530804_The_Functions_and_Dysfunctions_of_Hierarchy.

Baker, H. K., & Nofsinger, J. R. (2010). *Behavior finance: Investors, corporations and markets* (pp. 3–4 and 629–635). Hoboken, NJ: Wiley.

Battistella, C., & De Toni, A. (2010). The organization for corporate foresight: A multiple case study in the telecommunication industry. Retrieved from: https://www.pomsmeetings.org/ConfPapers/015/015-0443.pdf.

Bell, W. (1996). The sociology of the future and the future of sociology. *Sociology Perspectives, 39*(1), 39–57.

Bengston, D. N. (2017). Ten principles for thinking about the future: A primer for environmental professionals. *Forest Service Northern Research Station General Technical Report NRS-175*, 19. Retrieved from: https://www.fs.fed.us/nrs/pubs/gtr/gtr_nrs175.pdf.

Bersin, J., McDowell, T., Rahnema, A., & van Durme, Y. (2017, February 28). The organization of the future: Arriving now. *Deloitte Insights*, para. 14–15. Retrieved from: https://www2.deloitte.com/insights/us/en/focus/human-capitaltrends/2017/organization-of-the-future.html.

Berstein, E., Bunch, J., Canner, N., & Lee, M. (2016). Beyond the holacracy hype. *Harvard Business Review,* July Issue. Retrieved from: https://hbr.org/2016/07/beyond-the-holacracy-hype.

Bible, M., & Bivins, S. (2011). *Mastering project portfolio management.* Fort Lauderdale, FL: J. Ross Publishing.

Blackerby, P. (2003). *History of strategic planning.* Retrieved from: http://www.blackerbyassoc.com/history.html.

Bodin, R., Chermack, T., & Coons, L. (2016). The effects of scenario planning on participant decision-making style: A quasi-experimental study of four companies. *Journal of Future Studies, 20*(4), 21–40. Retrieved from: http://jfsdigital.org/wp-content/uploads/2016/09/01_Articles02_TheEffects_0614%E4%BA%8C%E6%A0%A1.pdf.

Bol, S. (2016). Creativity in foresight. In P. van der Duin (Ed.), *Foresight in organizations: Methods and tools* (pp. 191–199). New York, NY: Routledge.

Boylan, S., & Turner, K. (2017). Developing organizational adaptability for complex environments. *Journal of Leadership Education*, 183. https://doi.org/10.12806/V16/I2/T2. Retrieved from: http://www.journalofleadershiped.org/attachments/article/503/0631_boylan.pdf.

Callen, M. (2013). Rules for petteia and its variants. Retrieved from: https://nestorgames.com/rulebooks/petteia_en.pdf.

Candy, V., & Gordon, J. (2011). The historical development of strategic planning theories. *International Journal of Management and Information Systems, 15*(4), 208–225.

Caron, F. (2013). *Managing the continuum: Certainty, uncertainty, unpredictability in large engineering projects* (p. 67). Milan, Italy: Springer.

Cascio, J. (2009, October 21). Futures thinking: Asking the question. *FastCompany.* Retrieved from: https://www.fastcompany.com/1413317/futures-thinking-asking-question.

Chandler, A. D. (1992). Organizational capabilities and the economic history of the industrial enterprise. *Journal of Economic Perspectives, 6*(3), 79–100. https://doi.org/10.1257/jep.6.3.79.

Cooke, N. J., & Hilton, M. (2015). *Enhancing the effectiveness of team science.* Washington, DC: National Academies Press.

Cramer, T., van der Duin, P., & Hesselmans, C. (2016). Trend analysis. In P. van der Duin (Ed.), *Foresight in organizations: Methods and tools* (p. 57). New York, NY: Routledge.

Cunningham, S. W., & Kwakkel, J. H. (2016). Technology forecasting. In P. van der Duin (Ed.), *Foresight in organizations: Methods and tools* (pp. 80–108). New York, NY: Routledge.

Daniels, C. (n.d.). *CheggStudy: How Mattel's Barbie lost the war against the Bratz doll*. Retrieved from: http://www.chegg.com/homework-help/questions-and-answers/read-case-study-mattel-s-barbie-lost-war-bratz-doll-compose-persuasive-500-700-word-essay–q10091597.

Darkow, I. L. (2015). The involvement of middle management in strategy development: Development and implementation of a foresight-based approach. *Technology Forecasting and Social Change, 101*, 10–24.

Day, G., & Schoemaker, P. (2005). Scanning the periphery. *Harvard Business Review,* November Issue. Retrieved from: https://hbr.org/2005/11/scanning-the-periphery.

Dettmer, W. H. (2007). *The logical thinking process: A systems approach to complex problem solving*. Milwaukee, WI: Quality Press.

Dick, W., & Carey, L. (1996). *The systematic design of instruction*. New York, NY: HarperCollins.

Dickson, T., Yakola, D., & Hall, S. (2017, October). Disruption, friction and change: The hallmarks of a true transformation. *McKinsey Quarterly*. Retrieved from: https://www.mckinsey.com/business-functions/mckinsey-recovery-and-transformation-services/our-insights/disruption-friction-and-change-the-hallmarks-of-a-true-transformation.

Fidler, D. (2011). Foresight defined as a component of strategic management. *Futures, 43*(5), 540–544.

Flechtheim, O. (1945). Teaching the future. *Journal for Higher Education, 16*, 460–465, and in *Forum, 104*, 307–311.

Floyd, J. (2009). The why, what and how of strategic foresight. Retrieved from: https://joshfloyd.com/articles/article1_v0.1.pdf.

Fontela, E., Guzman, J., Perez, M., & Santos, F. (2006). The art of entrepreneurial foresight. *Foresight, 8*(6), 3–13. Retrieved from: http://file:///C:/Users/Deborah/Downloads/The_art_of_entrepreneurial_foresight.pdf.

Gartner, W. & Bellamy, M. (2010). *Enterprise* (pp. 134–157). Mason, OH: South-Western Cengage Learning.

Gleeson, B. (2017, March 27). The future of leadership and management in the 21st century organization. *Forbes Leadership.* Retrieved from: https://www.forbes.com/sites/brentgleeson/2017/03/27/the-future-of-leadership-and-management-in-the-21st-century-organization/#138c63a6218f.

Gould, S. (2014, June 30). Leading though futures thinking: An introduction to using futures thinking questioning and methods and guideline on how to facilitate a basic 'Strategic Foresight' session. *The Sector Readiness and Workforce Capacity Initiative.* Retrieved from: http://futurethought.

pbworks.com/w/file/fetch/47891055/2011-Millett_Five-Futuring-Principles_Applied-History.pdf.

Gratton, L., & Erickson, T. (2007). 8 ways to build collaborative teams. *Harvard Business Review, 85*(11), 200–109. Retrieved from: https://hbr.org/2007/11/eight-ways-to-build-collaborative-teams.

Griswold, A. (2013, September 27). Why 'thought diversity' is the future of the workplace. *Business Insider.* Retrieved from: http://www.businessinsider.com/the-future-of-workplace-diversity-is-here-2013-9.

Gustin, S. (2013, September 24). The fatal mistake that doomed BlackBerry. *Technology & Media.* Retrieved from: http://business.time.com/2013/09/24/the-fatal-mistake-that-doomed-blackberry/.

Haden, J. (2017). Why there are no job titles at my company. *Contributing Editor, Inc.* Retrieved from: https://www.inc.com/magazine/201310/jeff-haden/why-there-are-no-job-titles-at-my-company.html.

Hagerman, A. (2017, October 9). Spotting the patterns: 2017 trends in design thinking. *Stanford Social and Innovation Review.* Retrieved from: https://ssir.org/articles/entry/spotting_the_patterns_2017_trends_in_design_thinking.

Hawkins, J. (2013, January 19). The 40 greatest quotes from Winston Churchill. TownHall. Retrieved from: https://townhall.com/columnists/johnhawkins/2013/01/19/the-40-greatest-quotes-from-winston-church-ill-n1492794.

Helms, M., & Nixon, J. (2010). Exploring SWOT analysis—Where are we now? *Journal of Strategy and Management, 3*, 215–251. Retrieved from: https://www.researchgate.net/publication/247630801_Exploring_SWOT_analysis_-_where_are_we_now_A_review_of_academic_research_from_the_last_decade.

Hemp, P. (2002). Growing for broke. *Harvard Business Review,* September Issue. Retrieved from: https://hbr.org/2002/09/growing-for-broke.

Hofmann, R. (2015). Visionary competence for long-term development of brands, products, and services: The trend receiver concept and its applications at Audi. *Technology Forecasting & Social Change, 101*, 83–98. Prepublication copy available at http://researchanddrawing.com/wp-content/uploads/2015/06/tfs_trend-receiver-concept_rupert-hofmann.pdf.

Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online Readings in Psychology and Culture, 2*(1). Retrieved from: https://scholarworks.gvsu.edu/cgi/viewcontent.cgi?article=1014&context=orpc.

Homans, C. (2011, August 31). War games: A short history. *FP.* Retrieved from: http://foreignpolicy.com/2011/08/31/war-games-a-short-history.

Howell, M. (n.d.). Budgeting for the preferred future. VisionRoom. Retrieved from: http://visionroom.com/budgeting-for-the-preferred-future/.

Iglesias-Chiesa, C. (2017). *Build your own team: Leadership based on a passion for people*. Candlelight Publishers.

Inayatullah, S. (2007). Six pillars: Futures thinking for transforming. *Foresight, 10*(1), 4–21. Retrieved from: http://citeseerx.ist.psu.edu/view-doc/download;jsessionid=1CAAFBE7D7B8E3D5FB733BF67192AA64?-doi=10.1.1.510.9662&rep=rep1&type=pdf.

International Monetary Fund. (2017). Report for selected countries and subjects: United States. Retrieved from: http://www.imf.org/external/pubs/ft/weo/2017/02/weodata/weorept.aspx?pr.x=13&pr.y=6&sy=2016&ey=2018&scsm=1&ssd=1&sort=country&ds=.&br=1&c=111&s=NGDPD%2CPPPGDP%2CNGDPDPC%2CP-PPPC&grp=0&a=.

Joos, P. (2017, January 19). Thinking in scenarios improves forecasts. *INSEAD.* Retrieved https://knowledge.insead.edu/economics-finance/thinking-in-scenarios-improves-forecasts-5161.

Jorgensen, J. J. (2008). Michael Porter's contribution to strategic management. *BASE—Revista de Administração e Contabilidade da Unisinos, 5*(3), 236–238. Retrieved from: http://www.redalyc.org/html/3372/337228636008.

Kilpi, E. (2017, September 30). *Sense making and protocols as the future of management*. Retrieved from: https://eskokilpi.wordpress.com/2017/09/30/sense-making-and-protocols-as-the-future-of-management/.

Koestler, A. (1967). *The ghost in the machine*. London: Hutchinson & Co., Publishers Ltd.

Krow, E. (2017, June 14). The key to employee-empowering leadership. *Forbes CommunityForceTM.* Retrieved from: https://www.forbes.com/sites/forbescoachescouncil/2017/06/14/the-key-to-employee-empowering-leadership/#5b4219861267.

Krupp, S., & Schoemaker, P. (2014). *Winning the long game: How strategic leaders shape the future*, 83–109. United States: PublicAffairsTM—Perseus Book Group.

Kubheka, I., Kholopane, P., & Mbohwa, C. (2013). The effects of flattening hierarchies on employee performance in organizations: A study of a South African retail group. *International Conference on Law, Entrepreneurship and Industrial Engineering* (ICLEIE'2013), April 15–16, 217–222. Johannesburg (South Africa). Retrieved from: http://file:///C:/Users/Deborah/Downloads/PDF%20Document.pdf.

Kumar, R. & Chaudhary, S. (2013). Financial viability as a tool of competitiveness: A study of selected Indian sugar companies. *National Conference on Paradigm for Sustainable Business: People, Planet and Profit* organized by Department of Management Studies Indian Institute of Technology. Retrieved from:: http://file:///C:/Users/Deborah/Downloads/iitpaper.pdf.

Lam, B. (2016, January 15). Why are so many Zappos employees leaving? *The Atlantic.* Retrieved from: https://www.theatlantic.com/business/archive/2016/01/zappos-holacracy-hierarchy/424173/.

La Monica, P. R. (2016, September 28). End of an era: BlackBerry will stop making its own phones. *CNN Tech.* Retrieved from: http://money.cnn.com/2016/09/28/technology/blackberry-outsource-phones/index.html.

LaRiviere, J., McAfee, P., Rao, J., Narayanan, V., & Sun, W. (2016). Where predictive analytics is having the biggest impact. *Harvard Business Review,* May Issue. Retrieved from: https://hbr.org/2016/05/where-predictive-analytics-is-having-the-biggest-impact.

Leonard, D., & McAdam, R. (2001). The relationship between total quality management (TQM) and corporate strategy: The strategic impact of TQM. *Strategic Change, 10*(8), 439–448.

Lencioni, P. (2002). *The five dysfunctions of a team: A leadership fable.* San Francisco, CA: Jossey-Bass.

Marchau, V., & van de Linde, E. (2016). The Delphi method. In P. van der Duin (Ed.), *Foresight in organizations: Methods and tools* (pp. 59–79). New York, NY: Routledge.

Margolis, J. (2000, November 5). And now for the forecast. *The Guardian.* Retrieved from: https://www.theguardian.com/theguardian/2000/nov/06/features11.g21.

Martínez-Lorente, A., Dewhurst, F., & Dale, B. G. (1998). Total quality management: Origins and evolution of the term. *The TQM Magazine, 10* (5). Retrieved from: http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=96294E419544E4458DA89B0A315D65CD?doi=10.1.1.574.2414&rep=rep1&type=pdf.

McGrail, S. (2013, June 24). Futures thinking in a nutshell—How to explain it? Retrieved from: http://www.facilitatingsustainability.net/?p=1680.

McQuerrey, L. (2017, July 5). Examples of poor teamwork. *Career Trend.* Retrieved from: https://careertrend.com/examples-poor-teamwork-12860.html.

Millet, S. M. (2011). Five principles of futuring as applied history. *World Futures Society, 45*(5), 1–4. Retrieved from: http://futurethought.pbworks.

com/w/file/fetch/47891055/2011-Millett_Five-Futuring-Principles_Applied-History.pdf.

Mintzberg, H. (1994). Fall and rise of strategic planning. *Harvard Business Review*, January Issue. Retrieved from: https://hbr.org/1994/01/the-fall-and-rise-of-strategic-planning.

Monarth, H. (2014). A company without job titles will still have hierarchies. *Harvard Business Review*, January Issue. Retrieved from: https://hbr.org/2014/01/a-company-without-job-titles-will-still-have-hierarchies.

Morgan, J. (2014). *The future of work*. Hoboken, NJ: Wiley.

Morrison, G., Ross, S., Kalman, H., & Kemp, J. (2010). *Designing effective instruction* (6th ed.). Hoboken, NJ: Wiley.

Nekkers, J. (2016). Developing scenarios. In P. van der Duin (Ed.), *Foresight in organizations: Methods and tools* (pp. 11–39). New York, NY: Routledge.

Phillips, J. (2017, February 16). Signal vs. Noise. *Innovation.* Retrieved from: https://www.qualitydigest.com/inside/innovation-column/signal-vs-noise-021617.html.

Porter, M. E. (1996). What is strategy? *Harvard Business Review, 74*(6), 61–78. Retrieved from: https://ais.ku.edu.tr/course/17479/3_WhatisStrategy.pdf.

Porter, M.E. (2008). The five competitive forces that shape strategy. *Harvard Business Review, 86*(1), 78–93. Retrieved from: https://hbr.org/2008/01/the-five-competitive-forces-that-shape-strategy.

Randel, A. (2017, February 14). How to future-proof your organization: Focus on the middle. *The Ready.* Retrieved from: https://medium.com/the-ready/how-to-future-proof-your-organization-focus-on-the-middle-2baaf041790.

Reecer, C. (2014, September 18). Budgeting is key to business' financial success. *WESST.* Retrieved from: https://www.wesst.org/2014/09/budgeting-is-key-to-business-financial-success/.

Reh, F. J. (2017, November 26). Learn what skills you will need to succeed. *Management and Leadership.* Retrieved from: https://www.thebalance.com/what-is-a-manager-2276096.

Rishipal, Dr. (2014). Analytical comparison of flat and vertical organizational structures. *European Journal of Business and Management, 6*(36). Retrieved from: http://www.iiste.org/Journals/index.php/EJBM/article/viewFile/17351/17948.

Rock, D., & Grant, H. (2016). Why diverse teams are smarter. *Harvard Business Review,* November Issue. Retrieved from: https://hbr.org/2016/11/why-diverse-teams-are-smarter.

Roelofsen, E., & Yue, T. (2017). Case study: Is holacracy for us? *Harvard Business Review*, April Issue. Retrieved from: https://hbr.org/2016/07/beyond-the-holacracy-hype.

Rohrbeck, R. (2010). *Corporate foresight: Toward a maturity model for the future orientation of a firm* (pp. 71–120). Heidelberg: Physica,-Verlag, Springer.

Rohrbeck, R., & Schwarz, J. (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., Battistella, C., & Huizingh, E. (2015). Corporate foresight: An emerging field with a rich tradition. *Technological Forecasting and Social Change, 101,* 1–11.

Romgens, B. (2016). Roadmapping. In P. van der Duin (Ed.), *Foresight in organizations: Methods and tools* (pp. 145–168). New York, NY: Routledge.

Roumiantseva, A. (2016, October19). The fourth way: Design thinking meets futures thinking. Fidelity Labs (in collaboration with D. Weissburg). Retrieved from: https://www.linkedin.com/pulse/fourth-way-design-thinking-meets-futures-anna-roumiantseva.

Sabbag, M. (2016, June 14). Why organizational structures are moving towards collaboration. *REWORK.* Retrieved from: https://www.cornerstoneondemand.com/rework/why-organizational-structures-are-moving-towards-collaboration.

Sarpong, D., & Maclean, M. (2011). Unpacking scenario thinking in product innovation teams: A practice approach. In *Proceedings of 18th International Product Development Conference*, Delft, The Netherlands, June 5–7. Retrieved from: http://eprints.uwe.ac.uk/14784/2/IPDMC_full_paper.pdf.

Schoemaker, J. H., & Day, G. S. (2009). How to make sense of weak signals. *MIT-Sloan Management Review Magazine.* Spring Issue (para. 19). Retrieved from: https://sloanreview.mit.edu/article/how-to-make-sense-of-weak-signals/.

Schreiber, D., & Hoffman, J. (2017). Simen-Schreiber leadership model for healthcare teams. *Imperial Journal of Interdisciplinary Research, 3*(10), 517–531.

Shuqair, H. I., & Abdel-Aziz, D. M. (2015). Efficient and strategic resource allocation for sustainable development in Jordan. *Journal of Architectural Engineering Technology, 4*, 138. https://doi.org/10.4172/2168-9717.1000138. Retrieved from: https://www.omicsonline.org/open-access/efficient-and-strategic-resource-allocation-for-sustainable-developmentin-jordan-2168-9717-1000138.pdf.

Silver, N. (2015). *The signal and the noise: Why so many predictions fail—and some don't* (pp. 232–328). New York, NY: Penguin Books Group, The Penguin Press.

Slaughter, R. A. (1997). Developing and applying strategic foresight. Retrieved from: https://pdfs.semanticscholar.org/b5f9/80009dcb5ba0e3f6920ff947c9878d164d3b.pdf.

Sunderland, M. (2016, January 26). Meet the designers behind the controversial Bratz dolls. *Broadly.* Retrieved from: https://broadly.vice.com/en_us/article/qkgyvx/meet-the-designers-behind-the-controversial-bratz-dolls.

Suominen, K. (2017, April 30). Globalization 4.0: How the internet and e-commerce are hacking protectionism. *The Future of World Trade.* Retrieved from: https://katisuominen.wordpress.com/.

Swift, L. (2012). Assessing the financial viability of academic programmes. *Journal of Higher Education Policy and Management, 34*(3). MTEM Special Issue.

Taylor, J. (2016, March 29). Best practices for picking the right KPIs for your business. *Mindful Metrics.* Retrieved from: https://www.klipfolio.com/blog/best-practices-for-picking-business-kpis.

Tett, G. (2016). *The silo effect* (pp. 91–107). New York, NY: Simon and Schuster.

Tsakas, R. (2017, July 26). How entrepreneurs can successfully challenge convention. *Forbes CommunityVoiceTM. Retrieved from:* https://www.forbes.com/sites/forbescoachescouncil/2017/07/26/how-entrepreneurs-can-successfully-challenge-convention/#6f3ff0ad7aa7.

van der Duin, P. (2016). *Foresight in organizations: Methods and tools.* New York, NY: Routledge.

von der Gracht, H., Jahns, C., & Darkow, I. (2008). *The future of logitstics: Scenarios for 2025.* Wiesbaden: Springer Gabler.

von Hilgers, P. (2012). *War games.* Translation by Ross Benjamin. Germany: Verlag Ferdinand Schoningh GmbH and Wilhelm Fink Verlag GmbH & Co.

Webb, A. (2016). *Signals are talking: Why today's fringe is tomorrow's mainstream* (pp. 93–150). New York, NY: Perseus Books, LLC, subsidiary of Hachette Book Groups Inc.

Webb, M., Little, D., Cropper S., & Roze, K. (2017). The contributions of convergent thinking, divergent thinking, and schizotypy to solving insight and non-insight problems. *Thinking and Reasoning, 23*(3). Retrieved from: http://www.tandfonline.com/author/Webb%2C+Margaret+E.

Weiner, J. (2018, January). Making connections. In *Alaska Beyond Magazine.* (pp. 73–79). Retrieved from: http://www.paradigmcg.com/digitaleditions/abm-0118/html5/.

World Bank. (2018). Household final consumption expenditure (current US$). Retrieved from: https://data.worldbank.org/indicator/NE.CON.PRVT.CD?year_high_desc=true.

2

Organizational Capability Model for Futures Thinking

Deborah A. Schreiber

Introduction

Review of the case studies in this book attests to the fact that managing rapid change in technology, globalization, and workforce diversity demands futures thinking to sustain competitiveness in today's business world. Futures thinking represents an iterative process that incorporates several activities. These activities begin with observation and interpretation of signals (i.e., signals which reflect change and may impact an organization's future). Once signals are detected, an organization may then use foresight methods to develop future scenarios and action plans in response to change. A culminating organizational activity is implementation of the most viable plan of action to actualize future success.

D. A. Schreiber (✉)
University of La Verne, La Verne, CA, USA

The capability for futures thinking within an organization appears to operate along a continuum. This continuum consists of knowledge, skills, behaviors, and attitudes related to use of foresight and futures thinking for planning and taking action. The *stages* along the continuum describe the level of maturity an organization exhibits for collecting and analyzing data to actualize change related to future outcomes. These efforts are not dissimilar to re-engineering processes in that there is a redefining of roles and responsibilities to facilitate teamwork, collaboration (with internal and external business partners), distributed decision-making, and innovative strategies for allocation of resources.

Figure 2.1 illustrates a capability maturity model (CMM) that profiles organizations as they strive toward actualizing future success. There are four levels (or *stages*) of capability positioned along the maturation continuum. Moving along the continuum, each level of maturity represents increasing sophistication in organizational processes, and alignment of structure and function to support these efforts. The *maturity level* discussed here reflects the concept described by Paulk et al. (1993) when researching data

Stages of Organizational Capability for Futures Thinking

Stage 4
Institutionalization of Futures Thinking

Stage 3
Establishment of Organizational Policy

Pivotal Stage

Stage 2
Experienced Use of Foresight

Stage 1
Separate / Sporadic Team Scenario-building

Sophistication of Organizational Processes

Maturation Continuum

Alignment of Organizational Structure and Function

Fig. 2.1 Schreiber-Berge maturity model for futures thinking: Stages of organizational capability. (This figure is revised version of image originally found in Schreiber and Berge (1998). Reprinted with permission.)[1]

information systems some years ago. Each level within this early CMM is viewed as a "well-defined evolutionary plateau toward achieving a systematic and systemic process" (p. 7). Research over time illustrates applicability of the CMM analogy to other disciplines. Schreiber and Berge (1998) utilize a similar maturity model to profile organizational technology capability for distance learning; Curtis et al. (2009) describe *people* maturity models for strategic human capital management; and Grim (2009) describes maturity measurements for foresight practices within organizations.

Discussion

Within the model of futures thinking presented here, organizations exhibit four stages of capability along the road to actualizing future success. As mentioned earlier, a number of activities are involved. First, an organization may employ one or more foresight methodologies in an effort to facilitate conscious observation and sense-making of changing events (including behaviors and attitudes) which may impact the organization. These changing events operate within both internal and external contexts to the organization. Foresight generates scenarios of probable and preferred future outcomes. Within the second stage of capability, as foresight efforts become more sophisticated, individuals from across disciplines engage in integrated collaboration and team networks form. The organization becomes more effective in planning actions to overcome disruptive challenges. Finally, the fourth and ultimate capability level for futures thinking occurs when the organization institutionalizes its efforts and consistently executes action(s) most viable for success.

As an organization evolves from a level of immaturity to a level of sophistication in its use of foresight and actualization of future outcomes, it experiences a point of transition that is pivotal to its evolutionary progress. This third stage of development is defined by the establishment of organizational policy and procedure related to futures thinking. These policies and procedures are driven by organizational vision and mission, and subsequent use of foresight and execution of action are recognized as strategic contributions to meet demands of rapid change.

Development of Schreiber-Berge Model

Challenges facing organizations today due to rapid change in technology, globalization, and workforce diversity have motivated a number of researchers to study the concepts of foresight and futures thinking. Only a few individuals, however, have developed models of capability in these areas based on organizational maturity. In addition to the work completed here, two individuals stand out as experts in the field—Rene Rohrbeck and Terry Grim.

Rene Rohrbeck, in Rohrbeck (2010, p. 72) and Rohrbeck et al. (2015, p. 11), describes five dimensions of ability for corporate foresight and future orientation of a firm. These constructs include: (1) *information usage* (a firm's sense and absorption of data); (2) *method sophistication* (employment of one or more foresight methodologies to interpret data); (3) *people and networks* (translation of data through informal means into actionable insights); (4) *organization* (translation of data through formal mechanisms such as processes into actionable insights); and (5) *culture* (impact of organizational culture to promote or prevent translation of data into actionable insights).

Research by Terry Grim (2009, p. 75) also recognizes five levels of organizational ability, however, for use of foresight specifically, with the following characteristics highlighted: (1) ad hoc (no or only marginal awareness of foresight methods); (2) *aware* (knowledgeable of best practices in foresight methods with high impact, yet low probability of events); (3) *capable* (processes put in place across the organization to review and evaluate change, with acceptable level of return-on-investment); (4) *mature* (best practices in foresight methods recognized and resources invested to support efforts); and (5) *world-class* (implementation of unique industry practices).

The organizational capability model for futures thinking presented in Fig. 2.1 incorporates new ideas from case studies in this book, as well as, constructs from earlier work by Schreiber and Berge (1998), and seminal research by Grim (2009), Rohrbeck (2010), and Rohrbeck et al. (2015). For example, the concept of *informal* (ad hoc) means of translating information into action, referred to by Rohrbeck et al. (p. 11) and Grim (p. 75), respectively, is shown in Stage 1 of the Schreiber-Berge model, and occurs through work by independent project teams which may

or may not be interdisciplinary (Akakpo, Gyasi, Oduro and Akpabot, Chapter 3). These teams are situated throughout the organization and/ or across interagency partnerships (Vishnevskiy, Calof, and Meissner, Chapter 8). Further distinctions are made within the Schreiber-Berge model between team experiences that are organized and repeated group activities, versus sporadic and isolated events (Stehlik and Foot, Chapter 12; Sacio-Szymańska and Nosarzewski, Chapter 7).

Another example of the development of the Schreiber-Berge model for futures thinking, as related to previous research and new case studies, reflects Rohrbeck et al.'s reference to *formal mechanisms* used to translate data into action items (2015, p. 11). The contributing authors in this book describe this concept more specifically as *organizational policy* (Rostek, Chapter 11; Gill and France, Chapter 16). These policies facilitate innovation and instill accountability for change.

Finally, the Schreiber-Berge model describes capability for futures thinking along *four* levels of maturity (rather than five) because the concepts of organizational culture and uniqueness of foresight practice (as discussed by Rohrbeck et al. (2015) and Grim (2009), respectively, as the fifth dimension or level) are addressed within Stages 3 and 4 here. Within Stage 3, organizational policy helps to shift behaviors and attitudes to new paradigms. Such paradigm shifts are then institutionalized in Stage 4 as part of the identity of the corporation or institution (Montero Salvatico and Spencer, Chapter 17).

Criteria presented in Table 2.1 guides assessment of an organization's capability for futures thinking and may be utilized to develop an understanding of next-steps in the organization's maturation process. Probing questions are included to help determine degree of presence of particular organizational traits related to each criterion. (This information results from analysis of the case studies included in this book. Some additional information comes from external sources and is included to provide clarification.)

The next section provides further explanation of the Schreiber-Berge model for futures thinking as it aligns organizational characteristics related to the above criteria to each stage of capability. The resulting profiles for futures thinking illustrate the significant and unique influence of each stage of capability on the organization as it attempts to actualize and institutional efforts to attain probable and/or preferred future outcomes.

Table 2.1 Criteria to guide assessment of organizational capability for futures thinking.[a]

Process/characteristic	Questions to help determine degree of presence of processes and characteristics associated with futures thinking
Access to information	– Who controls access to data? – Is information held within functional silos? – Is information shared across disciplines? – What is level of understanding of information? Does sense-making occur? – Are *signals* viewed as reflecting change in events (internal and external to organization)? – Is information collection and analysis driven by pre-structured platform (i.e., within data analytics software)?
Structure and function of organization	– What is organizational structure (i.e., multilevel or flattened hierarchy)? – What degree of team presence is there (i.e., non-existent, ad hoc, or formally embedded)? – Does organization embrace team-centric configuration? – What is team structure (interdisciplinary… significant level of cross-cultural diversity in race, age, gender…)? – Is there diversity of thought across organization? – What is team function (collaborative… high-functioning… dynamic rotation of team leader…)?
Emerging roles for twenty first century team members	– Is role of *trend receiver* recognized within organization? – Do one or more individual possess visionary competence (i.e., the ability to recognize spark or trigger that ignites critical scenario-building)? – Do individuals understand *source* of signal and/or *type* of process or characteristic within organization that is most disrupted by the rapid change? – Are the concepts of *probable* and *preferred* future outcomes understood? – What degree of divergent and convergent thinking is utilized (to generate scenarios and probable/preferred future outcomes… to determine viability of action plans…)?

Table 2.1 (continued)

Process/characteristic	Questions to help determine degree of presence of processes and characteristics associated with futures thinking
Resource [re]allocation	– Does shared decision-making exist for allocation of resources (including time, money, information, and manpower)? – Does organization possess flexibility and adaptability for resource re-allocations?
Knowledge of time	– Does organization possess knowledge and understanding of timeframe for change and its impact on realizing outcomes (i.e., *when* to implement action, and the effect on current, as well as, future practices)? – Are possible short- and long-term secondary effects taken into account when considering future-based scenarios (re: inside and outside organization)?

[a]Criteria derived from review of the literature in Chapter 1, case studies in Chapters 3–17, as well as, the following external sources: Schreiber and Berge (1998), Grim (2009), Rohrbeck (2010), and Rohrbeck et al. (2015)

Profiles of Organizational Capability

Stage 1: Separate/sporadic team scenario-building. Initial attempts at futures thinking within organizations often include single events of foresight, with an individual or small project team observing signals of change and then in response, building scenarios of possible future outcomes. These activities tend to be isolated from one another within the organization and occur sporadically (Grim 2009; Pollock and Avi Brooks, Chapter 15). Access to information is limited. Hierarchical layers of administration constrain data flow and keep information within silos (Abdella 2014; Tett 2016). Designated functions such as Finance and Human Resources in the organization control allocation of resources (i.e., money and manpower, respectively).

In this early stage of futures thinking capability, an organization possesses limited knowledge of foresight methodologies. For example, the ability to recognize the Delphi method as a formalized forecasting strategy is absent when individuals begin to observe and then attempt to

process new information. Individuals and inexperienced teams, in fact, possess minimal sense-making skill at this level for new information—unaware of the source of signals or the type of organizational process or characteristic disrupted by changing forces (van der Duin and Ligtvoet, Chapter 4). As a consequence, companies and institutions operating at Stage 1 are often vulnerable to vendor-driven tools for data collection and analysis (Boman and Heger, Chapter 9). Conclusions drawn when using such tools may identify challenges and possible future outcomes for the organization, however, these results are based solely on the structuring device of the data analytics software.

Unique challenges surely exist for organizations new to the practice of using foresight and actualizing futures thinking. However, increased organizational competitiveness can occur at this stage when action plans are informed through scenario-building. These action plans, developed with little or no cross-functional collaboration, unfortunately seldom align to broader business goals and objectives. At this point, limited expectation exists for repeated success (Pollock and Avi Brooks, Chapter 15).

Research suggests that improving organizational capability for futures thinking in the early stages of maturity begins with alignment of structure and functions within the organization to increase access to information and build skills for making sense of this information. A flattened organizational hierarchy provides a first step. This type of environment opens work spaces, limits supervisory oversight, and decentralizes tasks and responsibilities (Rishipal 2014). Flatter organizational structures remove barriers to communication, spark unplanned exchanges of ideas, increase shared dialogue, and breed familiarity and acceptance of diverse thought (Abedalla 2014; Lam 2016; Montero Salvatico and Spencer, Chapter 17).

Functionally, supervising managers working within flattened organizational structures may be embraced as a significant resource to facilitate growth and maturation at this early stage of futures thinking. These individuals are exposed to organizational information and employee interaction more so than anyone else in the company or institution. A primary goal for future-oriented organizations is to harness the collection of information and to guide interaction toward building foresight. Research by Darkow (2015) and conclusions presented by Stehlik

and Foot (Chapter 12) suggest that this may be accomplished by integrating middle managers strategically into project teams. As discussed in Chapter 1 of this book, the role of the manager then is not one of authoritative lead but as an embedded member of the cross-functional team, with the responsibility to collaborate and to build scenarios for innovative business development.

Stage 2: Experienced use of foresight. Organizations profiled with Stage 2 capability for futures thinking are experienced in the use of foresight and have cultivated repeated success with implementation of actions to increase organizational competitiveness to meet future demands. This type of organization embraces a flattened organizational structure and alignment of function to increase open access to information and facilitate shared decision-making for flexible [re]allocation of resources when circumstances warrant (Akakpo et al., Chapter 3).

Growing maturity for futures thinking within an organization is characterized by the presence of sophisticated interdisciplinary teams that are defined by high-functioning behaviors, including cross-functional collaboration, rotating team leadership, and sharing access to data, budgets and manpower. Hierarchical structures within this type of organization support team-centric configurations, with growing partnerships extending beyond intra-agency groups to inter-agency and international arrangements (Montero Salvatico and Spencer, Chapter 17; Socio-Szymańska and Nosarzewski, Chapter 7).

Sophisticated team partnerships enhance futures thinking at this level of capability. Team members within these partnerships employ foresight methodologies with high degree of expertise. Individuals comprehend the strength of specific strategies for scenario-building (i.e., the Delphi approach is best used to collect current expert opinion, and roadmapping facilitates creative exploration of future alternatives). These team members access a broad range of information and data and are expert in signal detection and interpretation, including the ability to identify the source of signals and the type of disruption that may result (as related to organizational behaviors and attitudes). Some team members evolve into the role of trend receiver (Peter, Chapter 6). This individual, as described by Hoffman's research (2015) and discussed in the previously-mentioned chapter, is someone who is able to organize information

with visionary competence—recognizing relationships among concepts and principles that are not obviously manifested.

Stage 2 organizations exhibit significant capability for use of foresight to inform planning and management of viable action items to meet immediate demands due to rapid change in technology, globalization, and workforce diversity. The challenge arrives in the form of sustainability of effort. For example, sophisticated intra- and inter-agency teams, as well as, international and global cross-industry partnerships, all depend on staff mobility, resource flexibility (i.e., time and money), and adaptability of protocols and procedures for diplomacy and accountability (Henderson, Chapter 10). Executive leadership, internal champions, and even external foresight consultants, committed to futures thinking can facilitate the needed support. However, without institutionalized formal processes, any change in administration, personnel, or other organizational circumstance (i.e., budget, politics, or social culture) may result in the deterioration of current futures thinking capability (Henderson, Chapter 10; Vishnevskiy et al., Chapter 8).

Stage 3: Establishment of organizational policy. Establishment of organizational policy reflects the third level of maturation for organizational capability for futures thinking within the Schreiber-Berge model. Organizational policy conveys to employees what is expected of them (individually) and the organization (collectively). These expectations may relate to personal and professional behaviors, utilization of resources, innovation and growth, compliance, liability, and/or security. Setting clear expectations reinforces practices designed to benefit the workplace, staff, and customers (i.e., all recipients of products and services).

One of the primary contributions made by organizational policy is its positive impact on the change process (Lohry 2017). Organizational policy can minimize resistance to change and increase readiness for action (Brookins 2016; Schein 1999). Companies and institutions exhibiting increased maturity for futures thinking develop internal policies to grow capacity in foresight and actualize probable and preferred future outcomes (Gill and France, Chapter 16; Montero Salvatico and Spencer, Chapter 17; Rostek, Chapter 11). Effective organization policies accomplish the following tasks: promote innovative ideas and support creative implementation strategies, facilitate new evolving roles and

structures, define criteria for accountability, increase communication, and facilitate shared dialog (van der Duin 2016; Morgan 2014; Schein 1999)—all of which are crucial to successful implementation and institutionalization of futures thinking.

As an organization evolves from early stages of immaturity to a level of sophistication for futures thinking, this third level of capability reflects a stage of transition—a pivot point in the organization's evolutionary progress. The goal of the organization at this stage is to develop and implement internal (and sometimes, external) organizational policies that aid in the transformation or paradigm shift of organizational behavior and attitudes (Oduro, Akpabot, Akakpo, and Gyasi, Chapter 14; Rostek, Chapter 11). The behaviors and attitudes supportive of futures thinking encompass the following characteristics: openness to hearing innovative strategies, making time and resources available to employees to enable commitment and participation in the process of foresight and futures thinking, strengthening supporting teams (i.e., increasing skill, trust, and commitment), aligning functional groups, such as finance, human resources, and information systems to futures thinking efforts, and finally, clarifying identity and context (culture) of the organization (Gill and France, Chapter 16).

Companies and institutions that successfully transition from early stages of futures thinking to a more mature level of capability achieve the following results: (a) executive leadership recognizes prospective impact of internal policies to facilitate futures thinking and engages whole-organization input when developing specific policy parameters; (b) interdisciplinary and cross-industry team members with foresight expertise inform policy content; and (c) employees, managers, and leadership embrace policies that flatten organizational structures and align functions toward organizational flexibility and adaptability.

Stage 4: Institutionalization of futures thinking. The existence of organizational policies and procedures for futures thinking enables corporations and institutions to mature to a level of capability that supports institutionalization of efforts. Implementation of most viable actions occur and help to sustain continued competitiveness in a world of rapid change. Flexibility and adaptability are hallmarks of this level of futures thinking capability (Jahn and Koller, Chapter 5).

Institutionalization of futures thinking within organizations builds upon the outcomes achieved by establishment of related organizational policy. These outcomes include: open access to information, equitable treatment of personnel, increased collaboration, shared decision-making for resource [re]allocation, clear accountability, and available support. Increased collaboration and shared dialog facilitate an exchange of information which can "affect an individual's image of the organization" (Jahn and Koller, Chapter 5, p. 93; Rohrbeck and Schwarz 2013). Enhanced working relationships result and institutionalization of new policies and procedures occur. This strengthens organizational well-being and sustains futures thinking (Oduro et al., Chapter 14).

Shared decision-making for [re]allocation of resources (i.e., time, money, and manpower) is another hallmark of mature organizations with high capacity for futures thinking. This characteristic is most evident when sophisticated partnerships operate with significant expertise and fluidity. Shared decision-making succeeds in sustaining futures thinking only when policies of accountability for open discussion and innovative thinking exist, however (Henderson, Chapter 10). At this stage, institutionalization of related policies can support divergent thinking, with progression to convergence into strategic imperatives designed to address current business demands yet provide flexibility to meet unknown future challenges (Peter, Chapter 6).

Organizations operating at the Stage 4 level of the Schreiber-Berge CMM for futures thinking enjoy a CEO and executive management team who are completely onboard with innovative frameworks to support implementation of foresight and establishment of organizational policies to institutionalize and sustain sophisticated partnerships (Peter, Chapter 6). Additional characteristics of organizations at this high level of futures thinking capability include: foresight activities driven by vision and mission of the organization; business action plans aligned to the broad view of organization's business goals and objectives; strong levels of organizational identity and employee trust and commitment; team fluidity and diverse strategies used for data collection and analysis; and finally, an understanding of time effects as related to near- and long-term futures thinking (Gill and France, Chapter 16; Oduro et al., Chapter 14; Walker, Chapter 13).

Conclusions

Managing rapid change in technology, globalization, and workforce diversity demands futures thinking within organizations to sustain competitiveness in today's market economy. Futures thinking encompasses both use of foresight methodologies and establishment of related organizational policies. Foresight generates scenarios of possible future outcomes and informs planning and management of organizational response to unexpected change. Organizational policy institutionalizes foresight efforts and facilitates actualization of most viable option(s) for future success.

Review of the case studies in this book identifies a range of capabilities across organizations for futures thinking. Collating this information into a coherent summary illustrates four unique organizational profiles of capability. A recap of these profiles is provided in Table 2.2, with full discussion already presented in the section above.

Each organizational profile presented in Table 2.2 reflects a level or stage of organizational capability within the Schreiber-Berge maturity model for futures thinking (see Fig. 2.1). Based on analysis of information collected from the fifteen case studies found in Chapters 3–17, the results suggest that a maturation continuum best describes the evolution of organizational capability for futures thinking. Within this model, organizations exhibit four stages of capability along the road to actualizing future success.

The unique contribution of the Schreiber-Berge maturity model for futures thinking is the recognition that newly established organizational policy, as related to futures thinking, acts as a pivotal point in the evolution of an organization's capability for use of foresight and actualization of future outcomes. These policies guide behaviors and attitudes toward openness to hearing new innovative strategies, availing time and resources to participate and commit to related processes and aligning organizational structure and function to increase individual and team communication, collaboration, and shared decision-making.

Table 2.2 Profiles of organizational capability for futures thinking.[a]

Stage 4—Institutionalization of Futures Thinking
• Flexibility and adaptability are hallmarks of organization
• Foresight activities are driven by mission and vision of organization
• Action plan(s) align with broad view of organization's business goals
• Organizational identity/culture are clear; employee skills, trust, and commitment are strong
• Iterative process of divergent-convergent thinking occurs as related to scenario-building, planning next-steps, and executing most viable action items
• Open flow of information occurs; diverse strategies used for data analysis
• Team fluidity exists; intra- and inter-agency partnerships are commonplace
• Time effects are understood

Stage 3—Establishment of Organizational Policy
• Executive leadership recognizes prospective impact of internal policies to facilitate futures thinking
• Policy developers understand role of internal organization policy and appropriate areas for impact
• Policies support flattened organizational structure and emerging new roles for employees/managers
• Policy development includes broad engagement of individuals and teams; shared dialog occurs through casual conversations and sensing interviews
• Interdisciplinary teams with foresight experience inform policy content
• Shared decision-making drives development and implementation
• Policies provide support for futures thinking with time and resources: time to participate in foresight activities and resources to support implementation of viable actions
• Primary goal of policy to support futures thinking is to enhance employee contribution in foresight through flexible and adaptable organizational structure and function

Stage 2—Experienced Use of Foresight
• Experienced use of foresight; sophisticated interdisciplinary teams present
• Team members expert in creative thinking; some individuals possess visionary competence
• Broad access to information; expert in signal detection and interpretation
• Trend receivers exist; understand *source* of change signaled and *type* of disruption possible
• Shared decision-making exists for reallocation of resources
• Begins to understand timeframe for implementation of actionable items
• Flattening of organizational structure
• Team-centric configurations begin (goes beyond individual embedded expert)

Table 2.2 (continued)

Stage 1—Separate/Sporadic Team Scenario-building
- Sporadic scenario-building activities; limited knowledge of sophisticated foresight methodologies
- Minimum access to data; information often retained in silos within organization
- Accurate interpretation of signals not guaranteed
- Absence of shared decision-making for resources (i.e., time, money, manpower)
- Multilevel hierarchical structure within organization
- Project teams present yet independent of one another; embedded foresight expert(s) possible
- Implementation of action plan may occur; minimal alignment with broader business goals and objectives
- No expectation of repeated foresight behaviors and/or repeat of successful outcomes

[a]Compilation of organizational capabilities derived from review of the literature in Chapter 1, case studies in Chapters 3–17, as well as, the following external sources: Schreiber and Berge (1998), Grim (2009), Rohrbeck (2010), and Rohrbeck et al. (2015)

Note

1. Schreiber, D. A. (1998). Organizational technology and its impact on distance training. In Schreiber, D. A. and Berge, Z. L. (Eds.), *Distance training: How organizations are using technology to maximize learning and meet business objectives* (p. 13). San Francisco, CA: Jossey-Bass Inc. Publishers.

References

Abedalla, R. W. (2014). The silo effect of information technology on the organizational productivity: A qualitative research study. *International Journal of Computer, 15*(1), 42–50. Retrieved from: http://ijcjournal.org/index.php/InternationalJournalOfComputer/article/viewFile/320/319.

Akakpo, A., Gyasi, E., Oduro, B., & Akpabot, S. (2018). Foresight, organization policies and management strategies in electric vehicle technology advances at Tesla. In D. A. Schreiber & Z. L. Berge (Eds.), *Futures thinking and organizational policy: Case studies for managing rapid change in technology, globalization and workforce diversity*. New York, NY: Palgrave Macmillan Publishers.

Boman, M., & Heger, T. (2018). Circles of impression: External foresight in global enterprises. In D. A. Schreiber & Z. L. Berge (Eds.), *Futures thinking and organizational policy: Case studies for managing rapid change in technology, globalization and workforce diversity*. New York, NY: Palgrave Macmillan Publishers.

Brookins, M. (2016). *What causes resistance to change in an organization?* Retrieved from: http://smallbusiness.chron.com/causes-resistance-change-organization-347.html.

Curtis, B., Hefley, B., & Miller, S. (2009). People capability maturity model (P-CMM). Version 2.0, Second Edition, in *Technical Report CMR/SEI-2009-TR-003.* Software Engineering Institute, Carnegie Mellon University. July. Retrieved from: ftp://ftp.cert.org/pub/documents/09.reports/09tr003.pdf.

Darkow, I. L. (2015). The involvement of middle management in strategy development: Development and implementation of a foresight-based approach. *Technology Forecasting and Social Change, 101,* 10–24.

Gill, P., & France, T. (2018). Accelerating diverse leader readiness through foresight and futures thinking. In D. A. Schreiber & Z. L. Berge (Eds.), *Futures thinking and organizational policy: Case studies for managing rapid change in technology, globalization and workforce diversity*. New York, NY: Palgrave Macmillan Publishers.

Grim, T. (2009). Foresight maturity model (FMM): Achieving best practices in the foresight field. *Journal of Futures Studies, 13*(4), 69–80.

Henderson, L. (2018). Envisioning successful Sino-foreign universities in 2030: Consideration for current and prospective partnerships. In D. A. Schreiber & Z. L. Berge (Eds.), *Futures thinking and organizational policy: Case studies for managing rapid change in technology, globalization and workforce diversity*. New York, NY: Palgrave Macmillan Publishers.

Hofmann, R. (2015). Visionary competence for long-term development of brands, products, and services: The trend receiver concept and its applications at Audi. *Technology Forecasting & Social Change, 101*, 83–98. Prepublication copy available at http://researchanddrawing.com/wp-content/uploads/2015/06/tfs_trend-receiver-concept_rupert-hofmann.pdf.

Jahn, R., & Koller, H. (2018). Foresight as a facilitator for innovative capability and organizational adaptability: Insights from a family firm in the HVAC industry. In D. A. Schreiber & Z. L. Berge (Eds.), *Futures thinking and organizational policy: Case studies for managing rapid change in technology, globalization and workforce diversity*. New York, NY: Palgrave Macmillan Publishers.

Lam, B. (2016, January 15). Why are so many Zappos employees leaving? *The Atlantic.* Retrieved from: https://www.theatlantic.com/business/archive/2016/01/zappos-holacracy-hierarchy/424173/.

Lohry, J. (2017, September 26). *Advantages of clear roles and responsibilities in an organization.* Retrieved from: https://bizfluent.com/info-12124590-advantages-roles-responsibilities-organization.html.

Montero Salvatico, Y., & Spencer IV, F. (2018). Disney's workforce of the future: From HR initiative to organizational culture. In D. A. Schreiber & Z. L. Berge (Eds.), *Futures thinking and organizational policy: Case studies for managing rapid change in technology, globalization and workforce diversity.* New York, NY: Palgrave Macmillan Publishers.

Morgan, J. (2014). *The future of work.* Hoboken, NJ: John Wiley & Sons.

Oduro, B., Akpabot, S., Akakpo, A., & Gyasi, E. A. (2018). Pledge toward workforce diversity and organizational wellbeing: A case study of Aviva Plc. In D. A. Schreiber & Z. L. Berge (Eds.), *Futures thinking and organizational policy: Case studies for managing rapid change in technology, globalization and workforce diversity.* New York, NY: Palgrave Macmillan Publishers.

Paulk, M., Curtis, B., Chrissis, M., & Weber, C. (1993). Capability Maturity Model[SM] for software. Version 1.1, in *Technical Report CMR/SEI-93-TR-024.* Software Engineering Institute, Carnegie Mellon University. February. Retrieved from: https://www.sei.cmu.edu/reports/93tr024.pdf.

Peter, M. (2018). The evolving approach to strategic corporate foresight at Swiss bank PostFinance in the age of digital transformation. In D. A. Schreiber & Z. L. Berge (Eds.), *Futures thinking and organizational policy: Case studies for managing rapid change in technology, globalization and workforce diversity.* New York, NY: Palgrave Macmillan Publishers.

Pollock, I., & Avi Brooks, L. (2018). Diverse alternative learning visions 2026–2066: Transforming and reframing the university as a lifelong social design lab. In D. A. Schreiber & Z. L. Berge (Eds.), *Futures thinking and organizational policy: Case studies for managing rapid change in technology, globalization and workforce diversity.* New York, NY: Palgrave Macmillan Publishers.

Rishipal, Dr. (2014). Analytical comparison of flat and vertical organizational structures. *European Journal of Business and Management, 6*(36). Retrieved from: http://www.iiste.org/Journals/index.php/EJBM/article/viewFile/17351/17948.

Rohrbeck, R. (2010). *Corporate foresight: Toward a maturity model for the future orientation of a firm* (pp. 71–120). Heidelberg: Physica-Verlag, Springer.

Rohrbeck, R., & Schwarz, J. (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., Battistella, C., & Huizingh, E. (2015, December). Corporate foresight: An emerging field with a rich tradition. *Technology Forecasting and Social Change, 101*. Retrieved from: https://www.researchgate.net/publication/282666273_Corporate_Foresight_An_Emerging_Field_with_a_Rich_Tradition.

Rostek, M. (2018). Institutionalizing futures thinking in the Canadian army. In D. A. Schreiber & Z. L. Berge (Eds.), *Futures thinking and organizational policy: Case studies for managing rapid change in technology, globalization and workforce diversity*. New York, NY: Palgrave Macmillan Publishers.

Sacio-Szymańska, A., & Nosarzewski, K. (2018). Anticipating and managing change in large organization strategic environment: Using foresight and organizational policy to enable futures literate decision making. In D. A. Schreiber & Z. L. Berge (Eds.), *Futures thinking and organizational policy: Case studies for managing rapid change in technology, globalization and workforce diversity*. New York, NY: Palgrave Macmillan Publishers.

Schein, E. (1999). *Process consultation revisited: Building the helping relationship*. Reading, MA: Addison-Wesley Publishing.

Schreiber, D. (1998). Organizational technology and its impact on distance training. In D. A. Schreiber & Z. L. Berge (Eds.), *Distance training: How organizations are using technology to maximize learning and meet business objectives* (pp. 3–18). San Francisco, CA: Jossey-Bass Inc Publishers.

Schreiber, D., & Berge, L. (1998). *Distance training: How organizations are using technology to maximize learning and meet business objectives*. San Francisco, CA: Jossey-Bass Inc Publishers.

Stehlik, D., & Foot, J. (2018). Foresight renewal: Beginning and ending with foresight in the Florida and Ohio Army National Guard organizations. In D. A. Schreiber & Z. L. Berge (Eds.), *Futures thinking and organizational policy: Case studies for managing rapid change in technology, globalization and workforce diversity*. New York, NY: Palgrave Macmillan Publishers.

Tett, G. (2016). *The silo effect* (pp. 91–107). New York, NY: Simon and Schuster, Inc.

van der Duin, P. (Ed.). (2016). *Foresight in organizations: Methods and tools*. New York, NY: Routledge Publishing.

van der Duin, P. & Ligtvoet, A. (2018). Defending the delta: Practices of foresight at Dutch infrastructure providers. In D. A. Schreiber & Z. L. Berge (Eds.), *Futures thinking and organizational policy: Case studies for managing rapid change in technology, globalization and workforce diversity*. New York, NY: Palgrave Macmillan Publishers.

Vishnevskiy, K., Calof, J., & Meissner, D. (2018). Corporate foresight and roadmapping for innovation in Russia: A joint university corporate experience. In D. A. Schreiber & Z. L. Berge (Eds.), *Futures thinking and organizational policy: Case studies for managing rapid change in technology, globalization and workforce diversity*. New York, NY: Palgrave Macmillan Publishers.

Walker, S. M. (2018). Futures thinking: Strategy used by Trust Bank to survive global economic collapse during great recession of 2008. In D. A. Schreiber & Z. L. Berge (Eds.), *Futures thinking and organizational policy: Case studies for managing rapid change in technology, globalization and workforce diversity*. New York, NY: Palgrave Macmillan Publishers.

Part II

Technological Change

3

Foresight, Organization Policies and Management Strategies in Electric Vehicle Technology Advances at Tesla

Alfred Akakpo, Evans Akwasi Gyasi, Bentil Oduro and Sunny Akpabot

Introduction

This case study discusses the rapid advancement and changing trends in electric vehicle (EV) technology at Tesla, and the use of foresight and organizational policy to build and sustain management strategies to ensure competitive success. According to Andersen and Rasmussen (2014, p. 4), foresight is a method that links the future in a 'qualified and active way' to 'strategically plan for organizations future' in a sustainable manner. Due to uncertainty and increasing global instability in businesses and changing technology, the foresight approach has become one of the most sustainable strategic options for planning and establishing long-term visions and strategies by businesses and government institutions. Foresight approaches are important in building how

A. Akakpo (✉) · E. A. Gyasi · B. Oduro · S. Akpabot
Coventry University, Coventry, UK
e-mail: ab5563@coventry.ac.uk

S. Akpabot
e-mail: ab1919@coventry.ac.uk

organizations develop their capabilities and plan for the future in a strategic and sustainable function. Not only does it enable a range of strategic options in the future but also enhance the understanding of the challenges and risk that may occur.

There are many studies that have examined the use of foresight methodologies to shape future thinking, however, evidence available shows that there are limited research reports that critically analyze and evaluate how organizations' policies and management strategies have been integrated to ensure future leadership and sustainability. That is why this case study is important and timely. The foresight approach will be used to critically analyze and evaluate Tesla's management strategies. Organizational policy will be discussed to illustrate its role in institutionalizing effective foresight and management strategies for the future development of electric vehicles.

Tesla Inc. is a US electric car manufacturer, founded in 2003. It is one of the first electric vehicle manufacturers in the world. Tesla released its first electric vehicle in 2008, a two-seater sports car called Roadster. It was the first car powered by lithium-ion batteries. It traveled over 200 miles and it made the world distance record of 311 miles. In 2012 Tesla released Model S, a seven-seater electric vehicle adored by most Americans. A survey carried out in 2014 revealed that the Model S was the most loved vehicle by Americans, this was nicely put by Morgan Stanley as "the world's most important car company," (Automotive Policy Council 2014; Baer 2014). Tesla employs over 30,000 employees, including more than 25,000 employees in the US.

One of the major challenges facing the world today is climate change as a result of greenhouse effect and atmospheric pollution from burning of fossil fuels. Vehicles that use gasoline from fossil fuel produce carbon compounds such as CO_2 and other toxic emissions into the atmosphere leaving humanity vulnerable to things like pollution and greenhouse gases. It is observed that the concentration of CO_2 in the atmosphere has been increasing exponentially and it is believed to be over 400 parts per million. The alarming increase of CO_2 brought about by increased burning of fossil fuels is now considered to be the cause of increasing climate change and rising global warming (Thompson 2016). To control environmental pollutions as a result of these CO_2 emissions, Tesla, one of American's automotive maker and solar panel manufacturer is leading the revolution in the auto industry to produce more efficient and cleaner energy sources to power future vehicles.

Discussion

The Role of Foresight and Insight into the Development of Electric Vehicles

The increasing demand for fossil fuels and energy consumption due to increase in global population, the general environmental degradation and climate change have all added to the search of a clean sustainable way to produce energy for the automotive industry. In the automotive industry, product innovation in design and manufacturing that will rely on less fossil fuel is attracting more attention. Electric vehicles, whether pure electric or hybrid (EV/HEVs), are now becoming a reality and commercially available and have been gaining acceptance not only among environmentally conscious individuals, but also among mainstream consumers (Jemala 2010). Tesla Motors, through use of foresight, now differentiates itself by solely manufacturing electric vehicles to compete with gasoline vehicles. This outcome has evolved from innovative management strategies and vision.

As Tesla attempted to engineer outcomes that are competitive in the automotive industry, the organization employed forecasting and environmental scanning techniques in their planning. Tesla was able to identify that the global electric vehicle market size in 2012 was worth 83.5 billion US dollars, and this was expected to grow at a compound annual growth rate of about 19% (Statista 2018). Tesla wanted a piece of this market. And to address related technology advancement in the automobile industry, Tesla developed long-term policies and strategies to meet future demands for electric vehicles in the form of lithium batteries for EVs in large quantities. To do this, Tesla has made its patent open to the public to attract individuals and organizations with expertise in the electric car industry. This enabled a win-win situation for both new contributors to tap into the future electric vehicle market, and Tesla to broaden efforts of innovative collaboration.

Thus, this has led to the building of Giga factories that produce large-scale lithium batteries to generate economies of scales to power electric vehicles. Giga factories are expected to produce batteries to power

500,000 EVs by 2020. It is hoped that this foresight will help to lower the price of lithium batteries by 30% in the near future and eventually lead to lower prices of the Model 3. In addition, Elon Musk recruited experienced and well qualified personnel in the persons of Jeffrey Brian Straubel, an international engineering designer (to be in charge of the technical direction of the organization) and Deepak Ahuja, who brings more than 20 years of global automotive financial experience to the Tesla team. This is a strategy to meet the future employee requirements if the organization (Tesla 2018).

Tesla is leading the revolution of the manufacture of EVs. Its business plan is to revolutionize the automotive car industry through innovative battery technology to bring electric motoring to the masses. Tesla has a vision of the world without gasoline vehicles. Tesla's foresight approach is based on the disruptive product innovation model, which seeks to trigger an electric transport revolution that will consign gasoline cars to history and kill off the combustion engine. The disruptive innovation approach is an approach that creates a new market and value network which eventually extinguishes an old existing technology, market or network value by displacing it with new products and market leads within the industry (Assink 2006).

The model S, one of Tesla's flagship electric cars leading the revolution, is expected to be developed to travel 480 km on a single charge. Such a revolutionary vehicle demands an extraordinary factory to create the state of the art machine from scratch. To do this, Tesla employed the best talent in the industry in the person of Gilbert Passin, vice president of manufacturing, a former employee of Toyota's plant in Canada. This led to the birth of a mega factory like no other, known as the Giga factory. This brought a totally fresh approach to car manufacturing. The wall and floors of the factory are painted white, the machinery are red in color, skylight and windows flood the factory with sunlight. Bicycles are provided as a means of transport for workers to move around the factory. The floor space of the factory is filled with the most advanced technologies, automatic production lines capable of building thousands of cars in a day, super-efficient multitasking robots, self-guided smart cars and computerize

schedulers. Since the inception of the organization in 2003, Tesla has been pursuing an electric vehicle revolution with a step by step strategy. In an unconventional move, Elon Musk, the CEO, said the company must invest in its reputation first and worry about profit later. The strategy is multiphased.

Stage one of the strategy is to make a small number of high-value cars that will prove that electric powered cars can be desirable, fast and long range. Stage two is to produce cars that cost half as much and sell in much bigger numbers. This led to the birth of the Model-S, to maximize battery range and efficiency. To increase the battery range for the future EVs, Tesla adopted a stumping strategy, which means 97% of Model-S were built with light aluminum plates, a rare and extreme feature in mass car production. In stage three, the strategy is to adopt the powertrain manufacture approach (this is when the heart of the Model-S are built, including the motors and battery parts). This ensures high performance and long power range through advanced motor technology, a secret only available to the organization. The final stage of the strategy is to produce high volume and low-cost electric cars in millions in the near future with no dirt, fumes, noise and quiet street.

Organizational Policies to Institutionalize Efforts

This section describes the success achieved by Tesla as a result of adopting the flexibility model that is helping the organization leverage its capabilities in the niche electric car market. This flexibility approach is demonstrated through a coupling of innovation and development to ensure cooperation with supplemental partners, as well as, creating organizational policies that support joint ventures and alliances. The importance of adopting a flexibility approach for planning and operation cannot be overstated as related to design and production of the initial Model-S.

Tesla has remained focused and on-track in building processes and policies to institutionalize supplemental partnerships. Research shows that such strategies complement technology innovation through

inter-organizational collaboration (Ebersberger et al. 2010; Mazzola et al. 2012). Research by Lecocq and Looy (2009) reveals that companies that achieve better innovation performance tend to have broad research and development alliances. For example, Tesla's partnership with Panasonic is a testament to this finding. In the words of the Co-Founder and CEO Elon Musk, the partnership "is a powerful endorsement of our technology that Panasonic, the world's leading battery cell manufacturer, has chosen to partner with Tesla to advance electric vehicle performance and value" (Tesla Motors 2011, para. 5).

Tesla was convinced that incorporating Panasonic's next-generation cells into Model-S batteries would facilitate unrivaled range and performance, and such cooperation and alliances have been critical factors to Tesla's successes. However, it is also important to emphasize that these partnerships require a high level of flexibility from the participating parties. Tesla embraces an openness to different strategies and ideas toward fulfilling its vision, and this is one of the reasons why broad partnerships are being regarded as one of Tesla's successful business strategies.

In addition to Tesla's flexibility, one other factor that describes the organization's success is its unique capabilities for competitiveness. The distinction between Tesla and other brands, and the reasons why it is growing rapidly in terms of market share, is because of Tesla's excellent customer service model which focusses on "innovative service plan, supercharger stations, and battery swap features" (CSR Hub 2016). Hence Tesla is well placed as both an innovative technology and service company.

Chen and Perez (2015) advocate that Tesla is expanding across the world and aims to produce more lithium ion cells in 2020 than the total current world output using the battery plant called the Giga Factory. The fact that Tesla was adjudged number one in the 'World's Most Innovative Companies List' by Forbes 2015 suggests that the brand is successful (Dyer and Bryce 2015). Evidence from Dyer and Bryce (2015) also suggests that Elon Musk, the company's founder, envisions Tesla as a leading technology and design company which strives to provide sustainable clean energy EVs to the world. Finally, the customer service model at Tesla is built upon the foundation of the Mendelow matrix. This process helps to categorize customers and other

stakeholders in order of power and interest they have in the company and the services it offers (Dyer and Bryce 2015). Related organizational policies have evolved which ensure a dynamic response by Tesla to the needs of their customers.

Since 2008 when the Roadster model was launched, Tesla has created many other high-performance electric vehicles which has positioned the company as one of the giants in the electric car manufacturing industry (Sharma 2016). The exceptional technology, incredible aesthetics and high-performance standards of the Tesla cars, and superior response to customer satisfaction, have helped the company to achieve a 5-star rating in safety from the US National Traffic Safety Administration. After selling more than 50,000 of the Model S in 2012, Tesla introduced Model X, the cross over version which had more than 100,000 sales in 2015 (Andrews and Johansen 2013). Model 3 which is a cheaper version of the earlier two models was introduced in 2017 for the mass market which has been doing very well (Clausen et al. 2012; Andrews and Johansen 2013).

Innovation, and organizational policy and process to support innovative contributions by diverse groups, are core competences of Tesla. Use of foresight related to such competences result in competitive ideas that provide an advantage over business rivals. Tesla's bold innovation has resulted in the creation of new products, new processes and new markets making it one of the global leaders in electric car manufacturing (Miller and Olleros 2007). Francis and Bessant (2005) and Miller and Olleros (2007) submit that Tesla is among the very few companies that design and deliver cars in the current market that possess long driving range, sportive performance and classic designs. This capability is anchored by strong research and development and combination of employee ideas. The fact that every employee is made part of the decision-making process of designs and car models ensures that everyone dream, remain passionate and deliver consistently to use of foresight and scenario-building within the company.

Finally, the open innovation approach used by Tesla enables the company to combine multiple know-hows derived from employees, research and other companies to design innovative vehicles. These successes discussed above, and the vision of the company, have helped shape

organizational policy and management strategies to sustain the gains made. Tesla's flexibility in partnering with other organizations, however, is anchored in its supplier policy which expects all collaborators and affiliates to conduct their operations in a manner that adheres to Tesla supplier policy and principles. Tesla ensures that all members work collaboratively with their partners and suppliers to encourage compliance with the following principles:

- Adherence to Tesla's Human Rights and Conflict Minerals Policy, with disciplining of employees or contractors, including potential termination of contract, when failure to meet related guidelines.
- Transition away from dealing with any partner or supplier that is believed to be engaged in activities that do not adhere to the organization's ethos.
- Carry out independent third-party audit of supply chain due diligence at identified points in the supply chain.

Management Strategies to Sustain Success

One of the primary strategies that has positioned Tesla as leader in electric vehicles is the drive for continued innovation (Collis and Rukstad 2008). There has been proven consistency in leadership commitment to innovation and strategic collaboration (Crittenden and Crittenden 2008). This is demonstrated at all levels of leadership in the organization, including top management who are involved in team activities to train and develop hard working employees for new leadership and management roles. Supporting such team efforts is paramount to facilitating collaboration among different expertise in the automotive, electronics and software fields. This is evidenced in the tweet made by Elon Musk that reads "So much blood, sweat and tears from the Tesla team went into creating cars that you'd truly love. I hope you do." (CNBC 2017).

Tesla's leadership commitment promotes an organizational culture that creates human resources centered on competence for innovation. The organizational culture empowers employees to use individual initiatives to search for new ideas that make the business stand apart from

other competitors in the automotive industry. For example, through Tesla's organizational culture, employee capabilities are maintained and channeled to the strategic effectiveness and success of the business (Meyer 2018).

The unparalleled innovation shown over the years has helped Tesla to focus on global expansion and gradual shift from their initial high-price-low-volume strategy to one of low-price-high-volume (Gao et al. 2016). Equally, adopting an open patent strategy has consolidated the gains of the company and positioned it as a pioneer in sustainability. Tesla's resulting supercharger stations allow car owners to plug in for free and ride for another 270km with just 30 minutes of charging time (Holmberg 2011). Battery swap strategies implemented by Tesla have also inspired customers to buy their cars, as the burden of paying for new batteries in the coming years has been alleviated (Halla 2015). Another key issue related to sustainable growth of the company is the architectural features of their batteries, which makes it very difficult to imitate (Gao et al. 2016).

The above strategic management approaches enhance Tesla's competitive advantage and sustainability through building alliances and external collaborations for continued innovation. For example, the design of Tesla's electric vehicles is based on an adaptation of Porter's five forces model (Dess and Davis 1984; Tesla 2016). This design significantly differentiates Tesla's EVs from other automotive industry products. The use of integrated environmentally friendly technology coupled with the unconventional way in which the vehicle is put together is seen as unparalleled in the industry (Gao et al. 2016; Tesla 2016). This new architecture ensures cars are built with clean energy planning (Halla 2015); and such a strategy is regarded to be difficult to replicate by most established automobiles (Chen and Perez 2015). This has set Tesla apart as a brand and positioned it the top global competitor on electric automotive vehicles.

One final strategic approach to sustainability comes from Tesla Motors' use of market penetration as a tool to increase its sales revenue and profit. This is achieved through aggressive advertising in its current chief market (United States). Customer contact through discussion forums and other venues enable authentic review and evaluation of the vehicles produced at Tesla. Customers appear to appreciate this

follow-up engagement related to purchase of a Tesla vehicle when compared to other brands. Evidence suggests that this approach is viable in aiding the growth and sustainability of the company. New offices and facilities are being built across the globe to ensure that Tesla remains on course to achieve its vision of a global company. Tesla will strive to use this advantage to achieve and maintain dominance in the global industry of electric vehicles.

Conclusions

In conclusion, Tesla embraces foresight methods and planning, and use of organizational policy, to sustain strategic management as a global competitor in the electric vehicle industry. The leadership team, as well as, all employees, are guided by the organization's long-term strategies and policies to revolutionize the automotive industry and produce sustainable clean energy-powered vehicles that are competitive in price and based on noise- and pollution-free technology.

To achieve long-term goals and prepare for unknown future challenges, Tesla strives to assemble the best talents in the industry, with the following personnel onboard: Deepak Ahuja (Chief Financial Officer, an engineer who transited into finance, formally with Ford in charge of small car development); J. B. Straubel (Chief technical officer, a co-founder of Tesla, who played key roles in the company's technical and production department); and Gilbert Passin (VP of Manufacturing, a former employee of Toyota's plant in Canada, now in charge of the new Giga factory outside of Sparks, Nevada). Tesla's future intent is to accelerate the transition to sustainable energy through low-cost and affordable electric vehicles, with a planned production of 500,000 cars per year by the end of 2018 (Tesla 2017). Strategic partnerships with third party organizations such as Panasonic are in place to aid the development and manufacture of lithium batteries to support this effort. The expectation is that Tesla will lead production of autonomous EVs as well (Thompson 2016).

Tesla embraces an unconventional approach to research and development, partnerships with relevant organizations, and efficient supply

chain management strategies to enable the organization to cut operational costs while delivering growth, profitability, reliable, affordable and sustainable of long-range cars for the automotive market. Tesla has always made it clear that its ambitious goal is to revolutionize the EV market by producing low-cost and long-range vehicles. This plan is on course with integration of advanced intelligent robotic computers, expansion of supercharging networks which offer free electric filling stations that are capable of charging vehicles within 30 minutes and travel for 480 Km, and institutionalization of continued use of foresight and organizational policies that sustain successful business outcomes.

References

Andersen, P. D., & Rasmussen, B. (2014, November 6). *Introduction to foresight and foresight processes in practice: Note for the PhD course Strategic Foresight in Engineering.* Department of Management Engineering, Technical University of Denmark. Available from: http://www.orbit.dtu.dk/files/96941116/Introduction_to_foresight.pdf.

Andrews, R., & Johansen, M. (2013, November 5). Organizational environments and performance: A linear or nonlinear relationship? *Public Organization Review, 12*(2), 175–189. American.

Assink, M. (2006). Inhibitors of disruptive innovation capability: A conceptual model. *European Journal of Innovation Management, 9*(2), 215–233.

Automotive Policy Council. (2014, November 14). *State of U.S. automotive industry.* Available from: http://www.americanautocouncil.org/sites/default/files/State_Of_The_US_Automotive_Industry_2014.pdf.

Baer, D. (2014, November 6). The making of Tesla: Invention, betrayal, and the birth of the roadster. Retrieved from: http://uk.businessinsider.com/tesla-the-origin-story-2014-10.

Chen, Y., & Perez, Y. (2015, November 5). *Business model design: Lessons learned from Tesla Motors.* Research gate. Retrieved from: http://www.cepn-paris13.fr/epog/wp-content/uploads/2015/09/Chen-and-Perez-2015.pdf.

Clausen, T., Pohjola, M., Sapprasert, K., & Verspage, B. (2012). Innovation strategies as a source of persistent innovation. *Industrial and Corporate Change, 21*(3), 553–585.

CNBC. (2017, December 26). *With one simple tweet, Elon Musk shows a masterful lesson in leadership.* Retrieved from: https://www.inc.com/

chris-matyszczyk/with-1-christmas-tweet-elon-musk-just-gave-a-masterful-lesson-in-leadership-and-customer-relations.html.

Collis, D. J., & Rukstad, M. G. (2008). Can you say what your strategy is? *Harvard Business Review, 86*(4), 82–90.

Crittenden, V. L., & Crittenden, W. F. (2008). Building a capable organization: The eight levers of strategy implementation. *Business Horizons, 51*(4), 301–309.

CSR Hub. (2016, November 5). *Tesla Motors CSR ratings*. Retrieved from: https://www.csrhub.com/CSR_and_sustainability_information/Tesla-Motors-Inc/.

Dess, G. G., & Davis, P. S. (1984). Porter's. (1980). Generic strategies as determinants of strategic group membership and organizational performance. *Academy of Management Journal, 27*(3), 467–488.

Dyer, J., & Bryce, D. (2015, November 5). Tesla's high end disruption gamble. *Forbes*. Retrieved from: http://www.forbes.com/sites/innovatorsdna/2015/08/20/teslas-high-end-disruptiongamble/#6a77d9bc4e2f.

Ebersberger, B., Bloch, C., Herstad, S. J., & Van de Velde, E. (2010). Open innovation practices and their effect on innovation performance. *International Journal of Innovation and Technology Management, 9,* 1–22.

Electrek. (2016, November 6). *Tesla has now over 30,000 employees (25 K in US) after SolarCity/other acquisitions*. Retrieved from https://electrek.co/2016/11/25/tesla-30000-employees-solarcity/.

Francis, D., & Bessant, J. (2005). Targeting innovation and implications for capability innovation practices and their effect on innovation performance. *International Journal of Innovation and Technology Management, 25,* 171–183.

Gao, P., Kaas, H. W., Mohr, D., & Wee, D. (2016, November 5). *Disruptive trends that will transform the auto industry*. McKinsey. Retrieved from: https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/disruptive-trends-that-will-transform-the-auto-industry.

Halla, B. (2015, November, 5). Piecing together the Tesla strategic puzzle. *Harvard Business Review*. Retrieved from: https://hbr.org/2015/09/piecing-together-the-tesla-strategy-puzzle.

Holmberg, S. R. (2011). *Emerging green technology entrepreneurs: Entrepreneurial pathways in the hybrid and plug-in hybrud/electric vehicle space*. ICSB World Conference Paper, Stockholm.

Jemala, M. (2010). Evolution of foresight in the global historical context. *Foresight, 12*(4), 65–81.

Lecocq, C., & Looy, B. V. (2009). The impact of collaboration on the technological development. *Technovation, 25*(3), 171–183.

Lehtinen, P. (2015, November 6). *The advancement of electric vehicles-case: Tesla Motors*. Dissertation submitted at University of Tampere: Department of Management Studies. Retrieved from: http://tampub.uta.fi/bitstream/handle/10024/97521/GRADU-1435294550.pdf;sequence=1.

Mazzola, E., Bruccoleri, M., & Perrone, G. (2012). The effect of inbound, outbound and coupled innovation on performance. *International Journal of Innovation Management, 16*(6), 8–9.

Meyer, P. (2018, March 12). Tesla Inc.'s organizational culture and its characteristics (analysis). *Business Management*. Retrieved from: http://panmore.com/tesla-motors-inc-organizational-culture-characteristics-analysis.

Miller, R., & Olleros, X. (2007). The dynamics of games of innovation. International performance of regions: Time invariant or driven by life cycle dynamics? An explorative investigation of European Regions in the field of biotechnology. *Scientometrics, 80*(3), 845–865.

Sharma, S. (2016). *The Tesla phenomena—A business strategy report*.

Statista. (2018, November 05). Size of the global market for electric vehicles in 2012 and 2019 (in billion U.S. dollars). Retrieved from: https://www.statista.com/statistics/271537/worldwide-revenue-from-electric-vehiclessince-2010/.

Tesla. (2016, November 05). Annual report on orm 10-K for the year ended December 31 2016. Retrieved from: https://www.sec.gov/Archives/edgar/data/1318605/000156459017003118/tsla-10k_20161231.htm.

Tesla. (2017, December 13). *Tesla's Giga factory*. Retrieved from: https://www.tesla.com/en_GB/gigafactory.

Tesla. (2018, March 12). *Management*. Retrieved from: http://ir.tesla.com/management.cfm.

Tesla Motors. (2011, November 06). Panasonic enters into supply agreement with Tesla Motors to supply automotive-grade battery cells. Retrieved from: https://news.panasonic.com/global/press/data/en111011-3/en111011-3.html.

Thompson, C. (2016, December 9). *Tesla has big, big plans for the next 4 years*. Retrieved from: http://www.businessinsider.com/everything-tesla-promises-to-accomplish-by-2020-2016-7.

4

Defending the Delta: Practices of Foresight at Dutch Infrastructure Providers

Patrick van der Duin and Andreas Ligtvoet

Introduction

Physical infrastructures, such as (air)ports (rail)roads, conduits, pipes, and poles, literally shape our everyday lives and thereby our world (Walsh et al. 2015). And not just our present world, but our future world as well. They require enormous investments and can last for decades, centuries, and in some cases even millennia, which makes uncertainty a keyword in any decisions about how to plan for the future (Kwakkel and Van der Pas 2011). One would expect the organisations responsible for managing infrastructure to have developed a keen sense of futures thinking and possibly specific foresight methods. This is not always the case.

P. van der Duin (✉)
The Netherlands Study Center for Technology Trends,
The Hague, The Netherlands
e-mail: vanderduin@stt.nl

A. Ligtvoet
Technopolis Group, Amsterdam, The Netherlands
e-mail: andreas@rflxf.nl

What makes infrastructure providers specifically interesting is the fact that the initial decision to build infrastructure is sometimes literally path-dependent or "locked-in" (Egyedi and Spirco 2011), especially in a densely built country such as the Netherlands. It is important to emphasise that infrastructure providers are closely related to or embedded in governmental and political arenas that, to a greater or lesser degree, determine their strategic policy and innovation agenda. This means that major decisions may be made on a political spur, while more incremental or maintenance-related decisions require careful readjustment of increasingly rationalised budgets. Some infrastructure providers operate at arm's length of government, while others are under tighter control or even part of the national government. They exploit a geographical monopoly, although they are subjected to national or international benchmarking. Notably, the ports compete with rivalling ports in North-Western Europe.

Traditionally, Dutch infrastructure providers are predominantly technology-driven, and decision-making is often dominated by an engineers' focus on measurement and optimisation, although changing infrastructure is considered to be more and more a dynamic socio-technical process (Bolton and Foxon 2015). Indeed, it is expected that in the (near) future, infrastructure providers will need to learn to deal with fundamental societal changes and at the same time "offer a certain level of predictability to society" (Loorbach et al. 2010, p. 1195). The specific geographical location of the Netherlands in Europe (at the delta of the rivers Rhine and Meuse, with road and railroad connections to the *hinterland*) makes its infrastructure a very important asset for its welfare. The infrastructures are indeed, according to agencies such as the World Economic Forum, of international top quality (see *The Global Competitiveness Report 2017–2018*). But given trends like shifting international political and economic powers and the servitisation and digitalisation of the economy, to sustain this high quality and make the Dutch infrastructure future-proof, looking to the future and innovation is vital.

In this chapter, we describe foresight practices among Dutch infrastructure providers and how they relate to their strategy and organisational processes. In particular, we describe how they apply different foresight methods and how their foresight processes are given shape.

Our findings are based on 32 interviews with employees from the Ministry of Infrastructure and the Environment (I&M, responsible for the main Dutch infrastructure facilities) and six infrastructure providers: Port of Rotterdam (port), Schiphol Airport (airport), Vitens (water company), Alliander (energy company), ProRail (train), Rijkswaterstaat (RWS, executive agency of I&M). Interviewees were chosen based on the strategic character of the job, such as director of strategy, innovation manager, strategic policy advisor, or asset manager.

Box 1. Overview of the Organisations

Alliander is one of the distribution system operators (DSOs) of the Netherlands. These organisations build, operate, and maintain the regional and local electricity and gas networks that transport energy to the end users. All DSOs are local monopolies and their tariffs and operations are regulated. Alliander is active roughly from the northwest to the east of the Netherlands, maintaining 90,000 km of electricity cables and 42,000 km of gas pipelines. With the ongoing changes in the energy system (energy transition), DSOs are caught between the need to efficiently and effectively fulfil their legal duties and taking an entrepreneurial stance in providing new energy services.

The **Port of Rotterdam** Authority (PoR) is responsible for the planning and operations of the largest port in Europe. With its length of 42 km, 223 million tons of liquid bulk and 127 million tons of containers, the PoR boasts not only unlocking the hinterland of the Netherlands, but also the German heavily industrialised Ruhrgebiet. The largest engineering feat of the PoR was the construction of the man-made 2.000 hectare Maasvlakte II area into the North Sea. The PoR is moving away from a landlord model (simply renting out land) towards a model in which the port is co-developing and co-determining the activities in the port and actively stimulating desired developments (e.g. in the realm of sustainable development).

ProRail maintains the Dutch national railway network infrastructure of more than 7.000 km and more than 400 railway stations. The organisation is also responsible for allocating rail capacity and traffic control. With its major organisational value focused on safety, it tries to optimise the utilisation of the network to cope with increasing streams of passengers as well as more freight.

Rijkswaterstaat (RWS) is the Ministry of Infrastructure's engineering organisation that is responsible for roads, waterways, and coastal development. The organisation has a history dating back to the eighteenth century. In recent years, RWS has shifted away from maintaining a large corps of in-house engineers and becoming a coordinator and manager of

market intelligence using competitive contracts for building, operating, and maintaining its assets. In the coming decades, RWS faces a large asset renewal challenge, as many of its dikes, sluices, quays are nearing end-of-life and need to be rebuilt to last the coming century.

Schiphol is the main national airport of the Netherlands, located close to Amsterdam. In 2016, it was the third busiest European airport with 63 million passengers and 479,000 aircraft movements. The vicinity to residential areas has proven a challenge for the expansion of Schiphol: whereas the airport remains ambitious to expand its activities, environmental regulations provide a challenge.

Vitens is a water company that serves the north and east of the Netherlands with 5.6 million connections, 49,000 km of pipelines, delivering 330 million cubic meters of water. Whereas the business may seem relatively stable, Vitens is continuously updating and improving its networks. Future challenges lie in the underground becoming more crowded: not only water extraction is an important function, other developments like geothermal energy lay their claim on Vitens' operating realm.

The **Ministry of Infrastructure and the Environment (I&M)** is responsible for improving quality of life, access, and mobility in a clean, safe, and sustainable environment. The Ministry strives to create an efficient network of roads, railways, waterways and airways, effective water management to protect against flooding, and improved air and water quality.

Ways of Foresight

Types of Foresight Methods

Literature distinguishes three types of foresight: explorative, predictive, and normative (Van der Duin 2016). Scenarios are an example of an explorative method, while technology forecasting and quantitative modelling are predictive methods, and "backcasting" (or roadmapping) is a normative approach to the future.

Virtually all infrastructure providers use scenarios, since they operate in a complex environment where different but related events can cause emergencies (Turoff et al. 2016). And for the short term, infrastructure providers use quantitative models aimed at domain- or business-specific parameters (including space requirement, transport flows, passenger numbers).

The infrastructure providers may use explorative and predictive methods as well. Although the normative approach was not mentioned explicitly in the interviews, infrastructure providers spoke of "points on the horizon" and "the road(s) leading to it": "You should not keep staring at that point on the horizon thirty years later. You have to constantly watch the road leading to it and the various roads that lead to it, and realize that there may in fact be more points on the horizon" (Port of Rotterdam). As such, this "normative approach" is clearly a border area between the foresight study (the horizon) and strategy (i.e. the road(s) leading there). ProRail mentioned backcasting, but not directly as a foresight method, but as a way of evaluating the prognosis. And, although Schiphol did not mention backcasting specifically, they did mention that, with regard to their "Masterplan 2035", they looked back at the present and wanted to fill this "tactical gap" with "product development".

It is customary for infrastructure providers to apply an explorative approach less often than other methods. They frequently used scenarios, but then often favoured one specific scenario. Infrastructure providers indicate that nowadays they prefer to work out the various scenarios to determine what the uncertainties are and what can make a difference. There are, however, different flavours in this approach: ProRail indicates that four scenarios are quite a lot to handle and that they really only use two because, in combination with the "variations for the line management" and the large number of "input variables", using four scenarios becomes very complicated. Alliander, on the other hand, experienced a "shift from one world view to working in scenarios". And while, in the past, they used a world view that was "expressed higher up in the organization", they now work with scenarios, because the "absolute nature of the world view" started to prove problematic.

Vitens sees scenarios as the next step in organisation development, with "professionals" using the scenarios to choose a project for the right reasons and to prevent working towards the "justification of someone's truth". Scenarios allow them to question certain choices in a transparent way.

RWS uses scenarios often and, with regard to the coastal protection programme, the decision was made to combine two extremes of the economic and climate scenarios. These scenarios then indicate the full "bandwidth of uncertainty". Of course, without having the absolute guarantee that the future will, in fact, unfold within that bandwidth.

Formal and Explicit Use of Methods

One could argue that foresight is a conscious activity, shaped by the use of methods in specific processes. However, although foresight nowadays takes place often among infrastructure providers, the various interviews indicate that people also look at the future in a more implicit (or informal) way. For instance, Vitens indicated that there are often "personal estimations" when looking at the future. With regard to innovations, they indicated that a lot happens on the basis of "common sense and then talking about it". Although that often happens within predefined frameworks, it is still a "gut feeling". It also shows a decisiveness, because it prevents people from talking too long about different business cases and instead deciding and acting quickly.

The Port of Rotterdam states that "there (is) no fixed method other than an overarching function". They use a goods transport model for the short-term and, for the long-term estimates, they use trends and scenarios, which "are somewhat more methodological". Alliander prides itself on using a BCS method, in other words, "Basic Common Sense", which in practice means reading a lot, understanding the logic of relevant knowledge, and combining it with their own, personal expertise. However, Alliander does "objectivise" trends by not only consulting experts, but also collecting and analysing data and, if not data are available, trying to quantify information by making estimations themselves.

Process of Foresight

The infrastructure providers do not have a very special process for carrying out foresight. The processes involved are a combination of desk/literature research into trends and other foresight studies, interviewing experts and organising workshops and other kinds of meetings.

Compared to other organisations, infrastructure providers collaborate a lot with colleague organisations. With regard to mapping future opportunities for its long-term agenda "Rail", ProRail works together with the ministry of I&M, although it is I&M that makes the ultimate decisions. Although all infrastructure providers acknowledge this kind of cooperation, a *shared* process has, of course, drawbacks as well.

Infrastructure providers also look around them in a *broad* sense, not only looking at domain-specific developments, but also focusing on societal developments. ProRail, for instance, not only looks at rail-related developments, but also at technological, political, and legal developments. I&M sees foresight as a "kind of integral foundation" for including not only developments regarding public transport, but also developments regarding the Dutch road (and highway) system, because the two affect each other. And Alliander pays more and more attention to the interaction between electricity production and demand, regarding various energy sources and at various levels (local, regional).

At I&M, with regard to the process a distinction is drawn between whether an internal decision has to be made or there has to be a discussion with the outside world. In both cases, the outside world is involved and an attempt is made to map the environment in a "value-free" way. The process does not begin with policy but with "whatever comes your way", and with a joint search for (new) solutions, making it easier to enter the networks of other parties with which those solutions have to be worked out.

Another distinction can be made regarding whether the process is top-down or bottom-up, or a combination of the two. At Alliander, the scenarios are constructed in a top-down manner, whereby a vision and a mission were formulated, after which the environment is included. Alliander then looks at energy-related trends (like electric transportation, heat pumps). Alliander uses scenarios to facilitate decisions, "to make the right choices in a more objective manner". Incidentally, the decisions that have to be made are not the direct outcome of the scenarios. For instance, certain decisions are not always 100% certain (no-regret), which Alliander calls the "defensive" or "always-right variant", but there are also "active decisions", mapping what needs to be done now to avoid problems down the line. Interestingly, those are the decisions that are postponed for as long as possible, which means that they are not very active in the end.

Vitens states that "(T)he need to look further ahead (…) now in fact comes from below", meaning that their foresight process is bottom-up. Although the need may come from below, Vitens wants to control and determine its objectives, which can be interpreted as top-down. This foresight process is aimed explicitly at "the question as to what the environment demands". That way, attempts are made to "trigger" the company's managers, rather than looking for "futures gurus". In its foresight studies, Vitens increasingly works in "demand-oriented" or "business-oriented" manner, rather than in a "bottleneck-driven" manner. This requires a cultural change, because it is more complicated than identifying bottlenecks to indicate the urgency of (short-term) investments.

Schiphol explicitly speaks of "steering groups", with which as many of the people involved (internally) have to be reached and to whom plans are presented. This process is not easy to facilitate because the people who are involved have different backgrounds and serve different interests. They see it as necessary, because it allows the company both to better implement its own ideas and to receive valuable feedback. Schiphol also conducts an "external context analysis" (macrotrends, aviation trends, real estate, consumer trends), as well as mapping "stakeholder expectations".

In reviewing how infrastructure companies conduct a foresight study, it appears that the process and perspective vary. If it is important to them, the organisation will consider an output such as a foresight study. I&M actually claims that the main value of "those trajectories" (i.e. carrying out foresight) is the process itself: "The outcome is verse two, but the conversation that takes place about it, the images that people have, what can potentially be done and what the bandwidth of the development is, is the basis for the choices being presented and that are ultimately made".

Implementation of Foresight and Strategy

Types of Strategy Processes

The time that strategies were determined at the head office and then distributed across the organisation is over (Hickford et al. 2015). The interviews show that among infrastructure providers, strategy processes

have a highly iterative character, with different parties, inside and outside the organisation, providing input at different times. Strategies are put up for discussion and people are constantly readjusting plans. This does not always involve major changes, but there is an awareness that updating the strategy (through small changes) is a healthy process.

The Port of Rotterdam, for example, aims at making sure that the strategy process "is iterative", whereby strategic initiatives are bottom-up and there are also strategic goals may be developed in parallel. ProRail also characterises its strategy process ("planning and control cycle") as both top-down and bottom-up. A list of spear-point priorities is drawn up, which creates a "certain focus". Yet at the same time, based on the 10-year management concession of ProRail, a plan is made from the bottom-up, after consulting 230 stakeholders, that states what ProRail wants to do and achieve.

Schiphol states that it is not enough for the board to approve the vision that has been developed: "You need to get the top managers of the organisation on board as well". This is different from a number of years ago, when the then CEO stated that he himself was the strategy. Since then, the Corporate Strategy department was set up, as an intermediary between the board and the financial department. Now, the strategy has become more of a process around discussion and consultation, signifying more a "validation step" than as an "iterative" process, as the company puts it. In addition, an internal audit of the strategy is carried out by the Corporate Auditing Systems department. In addition to seeing strategy as a "validation step", Schiphol states that the current strategy "(is) basically the sum of the group strategy, with a translation of the businesses". Also, it is noted that the operational side of the company complained that it was not being heard enough ("did you listen to us enough" as one of the interviewees put it) when thinking about what the airport should look like in 10 years' time. Because Schiphol considers having a broad support base to be important, some strategists regret this (when acknowledged). However, there was one voice from Schiphol arguing that the work floor did not always respond very enthusiastically to those long-term plans and that, as such, not much should be expected from the operational side in terms of innovation. Having said that, "… assets last so long that innovation isn't likely".

At Vitens, the approach to strategy development (and the same goes for the nature of the foresight process) is in line with the strategy process described above. As Vitens summarises it: "From reactive to proactive, from short term to long term, from bottom-up to top-down". As far as the latter is concerned, they also mentioned that plans often come from the bottom-up and are then integrated by the "strategic departments". So top-down does not automatically mean that the strategic departments decide everything for the rest of the organisation.

RWS appears to be something of an exception to the rules outlined above, since (strategic) decision-making is more formal and based more on "protocols", whereby the various "intermediate layers" make their contribution, while Minister and Parliament make the final decisions.

"Strategic Options" and Foresight

Infrastructure providers often establish a connection between foresight and strategies, and this becomes clear in the formulation of the so-called strategic options. This term was used explicitly by Schiphol and it is closely related to terms like policy intentions, decision-making trajectories, social cost-benefit analyses, and strategic innovation projects. In essence, these are new initiatives that the infrastructure manager wants to develop to make its infrastructure future-proof. The interviews indicate that foresight studies are used both to generate strategic options and to test them.

The connection between foresight and strategic decision-making is not always made formally and explicitly. A number of infrastructure providers do not mandate the use of foresight and the process is left to the potential (or intended) users whether or not to use the foresight studies. On the one hand, this is because infrastructure companies may not have the means or power to enforce new strategy, while, on the other hand, a mandatory use of foresight could create resistance, as indicated at I&M. I&M also points to the many strategic and foresight activities that exist and that continuous attempts are made to coordinate them all through consultation. This remains a loose process, which is considered appropriate for a strategy unit where people have a degree of freedom.

Schiphol identifies a "main question", from which three "strategic options" are formulated, which are then tested for robustness, growth, and risk in various scenarios and the extent to which they fit the mission. The strategic option that shows the best performance is then worked out into a "strategic theme".

RWS uses its "Network Management Vision" to increase its "grip on the coherence between the things that we do", as well as to prevent everyone from making their own "partial vision". The vision remains at a "certain level of abstraction, but it does indicate the direction". The vision is no blueprint, "it is more a kind of dot on the horizon" indicating the expectations of a possible future. According to RWS, this vision is under permanent development, and it is updated when there is a need for it, and there is not only room for new developments, the decision is also made whether or not to pursue certain developments.

The fact that a foresight study does not immediately lead to a decision does not necessarily mean that it has been a futile exercise. ProRail, for instance, stated that the uncertainties that emerge in the foresight study can also show that you do not have to make a decision until two years into the future.

At I&M, people have drawn the conclusion that "you (need to) separate the knowing phase of the decision-making process from the wanting-phase". That also means that not all "positive social cost-benefit analyses" are also "established politically". In other words, science deliberates, politics decides, which, of course, creates the paradox (or dilemma) that foresight is (or should be) independent from decision-making processes, but on the other hand, have to be relevant to the decision-making and, as such, should not be separate from it.

Navigable Strategies

Often infrastructure providers look for a middle way between a strategy (or a policy direction) that aligns in a concrete way to what the objectives are, and a strategy that reflects on an abstract level where the organisation wants to go in the future. RWS, for instance, indicated that it does not want a blueprint, but is thinking in terms of a dot on

the horizon. In addition, RWS defines strategy as follows: "Strategy is about the function of your organisation in society", which is echoed by the Port of Rotterdam, when it states that: "The port is more than a production machine, it also serves a purpose in the environment, and is part of the business that is the Netherlands".

The level of concretisation is connected to how far into the future an organisation looks and what strategy provides a match. It will not be a surprise that short-term strategic objectives are more concrete and accurate than long-term ones. Schiphol draws a distinction between strategy and innovation, by having strategy focus on questions like: what is the airport working towards? Where should piers be built? What is the road structure like? While innovation: "… is more a matter of how you can provide services in a smarter or new way". However, when these services both yield large-scale cost reductions and improve the passenger's experience, "you're talking about long-term innovation".

The role of the infrastructure providers' strategy departments appear to that of both domain expert and facilitator of the strategy process. Schiphol states that, in recent years, the management style has been focused on process, which is considered useful, because it means there is more attention to realizing the future visions, as people quickly move to who is going to do what and who is responsible.

Interviews show that the role of foresight studies by the infrastructure providers is not only intended to provide concrete directions to the organisations' own decisions, but also a kind of background against which strategic considerations are made and a way to enter into a dialogue with stakeholders. For instance, the "Port Vision 2030" of the Port of Rotterdam is not only intended as an "investment agenda", but also as a list of priorities for the years to come, as a "consideration framework" and (communication) tool to enter into a dialogue with external parties. Schiphol also indicated that the strategic plan is not a goal in itself, but a tool to help make better choices and provide direction.

Vitens lets itself be inspired by policy papers of I&M and then produces a framework memo that discusses who the stakeholders are, whether Vitens is acting as a public or private institution, what the organisation's own values are, and last but not least, what the long-term vision regarding the infrastructure looks like. This framework memo is

then further worked out into an operational "blueprint", which indicates how Vitens will carry out the plans, what its legal obligations are, and how it engages in "environment management". At Vitens, this is worked out in further detail with regard to personnel requirements (i.e., new personnel, competencies). To prevent operational plans from becoming disjointed and separated, Vitens has set up an "integral vision", in other words, a "long-term vision for the entire infrastructure", and not just for the source of water extraction.

Organisational Policies to Sustain Foresight Efforts

External Analysis: Dealing with Stakeholders Within the Foresight Process

All infrastructure providers are much aware that they do not operate in a vacuum, but that they are surrounded by various stakeholders with whom they need to engage to carry out their plans, and who may affect the content of those plans. This is certainly true when it comes to foresight; a dialogue must be sought, both in terms of conducting the foresight study and mapping the potential consequences of the foresight study.

Stakeholders are not included in the foresight process, however, just to maintain the peace. Often, this engagement is related to the fact that many infrastructure providers have a full say about the area in which they operate. RWS, for instance, indicates that a highly relevant subject like the coastal defense programme "(is) something that lies outside of our organisation" and that RWS "(is) merely one of the players". Vitens calls its approach to innovation "Open Innovation" and regularly invites technology suppliers and other colleagues to explore and test things together. And although Vitens invests a lot in that process, the inevitable question there is (rightly): "What does it yield?" Alliander uses the term "democratically inclusive" and works together with other knowledgeable institutions.

Involving stakeholders by itself is not enough however; it is vital to invite the right stakeholders. I&M is aware that you cannot invite everybody, so a direction is indicated in advance, without compromising on openness, and the constant questions being asked is who should be involved and what are the right parties?

The elaborate contact network with stakeholders does not mean that the infrastructure providers allow themselves to be directed solely by external parties. During an interview at the Port of Rotterdam, it became clear that although there is openness to the environment, that does not mean that external parties are seen as being on an equal footing or that the Company allows itself to be led by them. In light of the diversity of the stakeholders, it is difficult to be led by the environment anyway, because those stakeholders all have different wishes and ideas. Nor does the open attitude mean that all foresight studies, and (especially) resulting strategies, are fully shared with the outside world. In particular, with regard to commercial aspects, the company itself feels it has behaved "like an oyster" and the quarterly results have a "fairly high consolidation level". Alliander also does not publicise its investment plans, because they may contain sensitive information (i.e., where it intends to build) which could lead to speculation. At a higher level of abstraction however, Alliander's plans are public and can, for instance, be read on the Quality and Capacity Document (QCD) website.

In part, involving stakeholders in foresight studies is also necessary in the sense that innovations increasingly require the involvement of different (societal) parties. Alliander in its "Democracy by Design" reflects on both the political and ethical implications of the development of "smart cities" and it makes sense that many diverse parties be involved in the conversations.

Many stakeholders fill different roles at different times, and not all roles are equally important. For instance, as far as Schiphol is concerned, the Dutch airline KLM is a very important stakeholder, with whom many discussions and negotiations take place at a strategic (and operational) level. This stakeholder is so important to Schiphol that it also affects the other stakeholders. Regarding Vitens, all the provinces are important stakeholders, and they are autonomous in their policies. Added to that are 150 municipalities and some 100 more stakeholders who carry varying degrees of influence.

"Strategic Space"

So, infrastructure providers do not operate in a vacuum and they have to deal with many diverse stakeholders, including competitors, legislators, investments specialists and technologists. However, given the special nature of the infrastructure providers, their "strategic room" is different from that of organisations that are either fully government-controlled or privately owned. On the one hand, the infrastructure providers are strongly affected by legislation and governmental and societal obligations, while on the other hand, the level of competition is lower than it is among fully private organisations. There are few competitors and (as a result) users tend to switch to a different supplier less often. Of course, this relative quiet is also the result of good strategic actions on the part of the infrastructure providers themselves.

For instance, Vitens only purifies groundwater and no seawater or surface water and, compared to other countries, states that it has "almost unbelievably low losses through leakage". The Port of Rotterdam, on the other hand, does operate in a competitive environment (with Hamburg and Antwerp), which is little different from the environment in which fully private and commercial companies operate. RWS and Alliander indicated that they have no competition, while Alliander stated that, although it does not face immediate competition, there is still a need to change to think about "future energy systems".

ProRail states that, compared to the Port of Rotterdam, it has less room to decide what kind of organisation it wants to be and what developments it wants to go through, because ProRail is a task-oriented government organisation with an obligation to implement government (I&M) policies.

The relatively large strategic space that infrastructure providers possess appears to have a positive effect on looking to the future, because less burden is placed on operational activities and more time is available to spend on determining future developments. However, they do not control everything. The Port of Rotterdam, for instance, states that the outside world is (extremely) dynamic and stubborn, and yet the port is not "100% malleable".

I&M points to the *physical* strategic room and wonders whether in 20 years 95–98% of the constructed environment will still be the same. Also, it is unknown whether governments that have a say about the physical environment can steer infrastructure to provide genuine break-throughs (i.e., self-driving cars).

Flexibility and Adaptability of the Organisation

An important reason to look to the future, and to apply foresight methodologies, is that organisations need time to adapt to changing and unexpected circumstances (Janssen and Van der Voort 2016). It takes time to change the competencies of employees, the organisational structure and assets in such a way as to align them with the new situation (Vecchiato and Roveda 2010). More and better foresight increases an organisation's ability to anticipate and gives organisations enough time to change and, perhaps, change the new circumstances in such a way that they have an advantage, at which point the organisation is no longer a follower, but determines the new situation (Labaka et al. 2016).

Built-in inertia within some infrastructure providers highlights the need for use of foresight methodologies (Schuckmann et al. 2012). Infrastructure providers today can experience rapid change without warning and many are working to increase their adaptability and flexibility to respond successfully. Vitens suggests that organisational development and personnel development are a priority. According to Vitens, the question is: "How do you keep people lean, focused and flexible, so that developments can be absorbed when challenges occur?" The Port of Rotterdam also wants to be adaptive, for example, wanting to be prepared for unforeseen developments, like the emergence of shale gas or a nuclear disaster in Japan not long ago; while Alliander tries to realise a "maximum scenario" by making sure their solutions are flexible and "modularly scalable", meaning that the chosen solution can be realised in "small steps". (This is also seen as more of a bottom-up approach in planning investments for the future, in part because it

involves including the customer more closely and in doing so, calculating the scenarios in a more "diverse" way (i.e., taking into account the types and use of energy sources)). According to I&M, the goal of employing foresight study is to stretch the mindset, to show that the future is not entirely certain, and to illustrate that "you need to deal with the future in a flexible and adaptive way". Schiphol considers itself "very rigid" because of incorporating one planning process—seldom does Schiphol plan with an "upward flexibility" and a "downward flexibility". According to the company, the rigidity is explained by the fact that it is a "traditional infrastructure company" and the regulations that are in place.

Adaptiveness not only has to do with the organisation but also with the way decisions are made. RWS conducted a study into what can be decided or done within a given environment, taking the "IJsselmeer" (the largest Dutch lake with 1100 km^2) as an example and assuming that the lake's water level would rise by 20 centimetres. According to RWS, this is an "adaptive path" that lies between the extremes of doing nothing and experiencing a massive rise in sea levels and can be interpreted as a first step with which you enter another decision-making process. In addition, RWS, in its business plan for the future ("Rijkswaterstaat Next"), is in the process of including how "to turn RWS into a more agile organisation". That refers to the period 2016–2020, has a high level of abstraction, looking, in particular, at what the potential consequences of trends can be for the organisation.

Increased adaptiveness does not mean, incidentally, that infrastructure providers are continuously adjusting their strategies when there are new developments or an unexpected event occurred. The Port of Rotterdam states that the "vision and dot on the horizon" remain, but you have to actively respond to "things that come your way". Also, although various possible scenarios are taken into account, an organization may have a vision (i.e., "the picture you want to go to") "on the horizon". The key however is that this vission must be robust, and flexible and adaptable enough to accommodate unknown future influences.

Concluding Remarks

Infrastructure providers are very involved in the future, both in the short and in the (very) long term, without losing site of ongoing affairs. They are very much aware that the future will be different from the present and that they are not fully in control of many of the things that concern them. Infrastructure providers are not able, nor have they been, to make decisions about everything that they themselves manage. Many of the elements of infrastructure providers are involved in looking ahead to innovation, but often strategy departments possess the essential and procedural responsibility for the strategic processes (which may be top-down or but bottom-up. These strategy processes are often iterative and, although the input from futures explorations is important, it is not all-important.

The research described in this case chapter shows that foresight for strategy and foresight for innovation are two sides of the same coin. This is also supported in theory by Fidler (2011), Van der Duin (2006), and Havas and Weber (2017). Infrastructure providers spend a lot of effort integrating foresight activities into innovative strategic processes.

The openness of the infrastructure providers is expressed in the numerous productive relationships that they have with their stakeholders (Zanni et al. 2017). Infrastructure providers realise that they are not independent, and with regard to the use of sources of information, the infrastructure providers operate in a modest way and above all collect information informally. To an extent, this informality is also reflected in the use of futures explorations, which is to say that the infrastructure providers can name the futures research methods they use, and why, although that does not always happen on a continuous basis, but more on a project basis. The process with which they build futures explorations often combines interviews and workshops, a process that is not unique in the world of futures research, although it is a proven recipe. In this process, then, they also often use other people's futures explorations, which are also often "translated" to their own specific situation.

Despite the enthusiasm, and the quality and the scope of futures research among infrastructure providers, the short term continues to

play a very dominant role. However, most infrastructure providers do not see this as a major issue, but accept it as "a fact of life" and try to fit the long-term explorations as closely as possible, or "translate" them (quantitatively), to the short term.

The "strategic room" of the infrastructure providers suggests a kind of "freedom in constraints". Participating futurists do not hesitate to develop new, innovative initiatives that require an exploratory vision of the future. As an industry, however, infrastructure providers are much aware of the influence of regulators and other important stakeholders.

References

Bolton, R., & Foxon, T. J. (2015). Infrastructure transformation as a socio-technical process—Implications for the governance of energy distribution networks in the UK. *Technological Forecasting and Social Change, 90,* 538–550.

Egyedi, T., & Spirco, J. (2011). Standards in transitions: Catalyzing infrastructure change. *Futures, 43,* 947–960.

Fidler, D. (2011). Foresight defined as a component of strategic management. *Futures, 43,* 540–544.

Havas, A., & Weber, K. M. (2017). The 'fit' between forward-looking activities and the innovation policy governance sub-system: A framework to explore potential impacts. *Technological Forecasting and Social Change, 115,* 327–337.

Hickford, A. J., Nicholls, R. J., Otto, A., Hall, J. W., Blainey, S. P., Tran, M., & Baruah, P. (2015). Creating an ensemble of future strategies for national infrastructure provision. *Futures, 66,* 13–24.

Janssen, M., & Van der Voort, H. (2016). Adaptive governance: Towards a stable, accountable and responsive government. *Government Information Quarterly, 33,* 1–5.

Kwakkel, J. H., & Van der Plas, J. W. G. M. (2011). Evaluation of infrastructure planning approaches: An analogy with medicine. *Futures, 43,* 934–946.

Lebaka, L., Hernantes, J., & Sarriegi, J. M. (2016). A holistic framework for building critical infrastructure resilience. *Technological Forecasting and Social Change, 103,* 21–33.

Loorbach, D., Frantzeskaki, N., & Thissen, W. (2010). Introduction to the special section: Infrastructure and transitions. *Technological Forecasting and Social Change, 77,* 1195–1202.

Schuckmann, S. W., Gnatzy, T., Darkow, I., & Van der Gracht, H. (2012). Analysis of factors influencing the development of transport infrastructure until the year 2030—A Delphi based scenario study. *Technological Forecasting and Social Change, 79,* 1373–1387.

Turoff, M., Bañul, V. A., Plotnick, L., Hiltz, S. R., & De la Huerga, M. R. (2016). A collaborative dynamics scenario model for the interaction of critical infrastructures. *Futures, 84,* 23–42.

Van der Duin, P. (2006). *Qualitative futures research for innovation*. Delft: Eburon.

Van der Duin, P. (2016). *Foresight in organizations: Methods and tools*. New York: Routledge.

Vecchiato, R., & Roveda, C. (2010). Strategic foresight in corporate organizations: Handling the effect and response uncertainty of technology and social drivers of change. *Technological Forecasting and Social Change, 77,* 1527–1539.

Walsh, C. L., Glendinning, S., Castán-Broto, V., Dewberry, E., & Powell, M. (2015). Are wildcard events on infrastructure systems opportunities for transformational change? *Futures, 67,* 1–10.

World Economic Forum. *The Global Competitiveness Report 2017–2018*. Geneva: World Economic Forum.

Zanni, A. M., Goulden, M., Ryley, R., & Dingwall, R. (2017). Improving scenario methods in infrastructure planning: A case of long distance travel and mobility in the UK under extreme weather uncertainty and a changing climate. *Futures, 115,* 180–197.

5

Foresight as a Facilitator for Innovative Capability and Organizational Adaptability: Insights from a Family Firm in the HVAC Industry

Reimo Jahn and Hans Koller

Introduction

Among the most crucial tasks for organizational management is, undoubtedly, the preparation for future development. One way to deal with the uncertain and erratic future is by utilizing the methods, tools, and procedures of foresight. Foresight has been shown to be effective for companies in multiple ways, i.e., for anticipating latent trends, observing environmental changes, or challenging autochthonous mind-sets (Ansoff 1975; Heger and Boman 2015). Thus, engaging in foresight exercises can be beneficial for an organization's 'future-readiness', i.e., the degree to which an organization is able to anticipate external changes and ready to respond to them. It also works as a facilitator for organizational adaptability and innovative thinking (Von der Gracht et al. 2010; Öner et al. 2014).

R. Jahn (✉) · H. Koller
Institute for Technology and Innovation Management, Helmut Schmidt University, Holstenhofweg 85, Hamburg 22043, Germany
e-mail: reimo.jahn@hsu-hh.de

In recent years, the capabilities of adaptability and innovative thinking have become exceptionally significant since organizations face various challenges posed by highly dynamic customer needs, increased innovation frequencies, and global competitors pursuing technology-driven innovations—even in industries that have not been affected by disruptive technologies for decades (Reger 2001; Vecchiato and Roveda 2010). Insufficient innovative capability and the need for strategic readjustment are particularly threatening for family firms since, as most of them are small and medium-sized enterprises (Bersch et al. 2014), they suffer from a shortage of resources and personnel compared to larger sized organizations (Rothwell and Dodgson 1993). At the same time, family firms are of high significance for many national economies (Villalonga and Amit 2009), especially in Germany where family firms represent 92% of all businesses and account for nearly half of all revenues and workforce (Gottschalk 2014, p. 25).

One family firm—STULZ GmbH, a Hamburg-based hidden champion in the industry of heating, ventilation and air conditioning (HVAC)—is the subject of the case study presented in this chapter. Toward that purpose, the following discussion first, portrays the foresight efforts and methods used in the case of STULZ, as well as, their effects on innovative capability and organizational adaptability; second, examines the long-range strategies that STULZ's management mapped out to implement foresight; and third, describes the organizational policies STULZ needs to maintain successful foresight efforts.

STULZ—A Family Firm in the HVAC Sector

Founded shortly after World War II by Albert Stulz, as a producer and retailer of white goods and plastic components, STULZ began manufacturing individualized systems for air-conditioning. Shortly after the mid-1960s, the white goods and plastics division was hived off in an associate company (MONTAPLAST) leaving the HVAC branch as a stand-alone company under the name STULZ. Each of the firm's two divisions was later governed by one of the two sons of Albert Stulz. In 1971, STULZ specialized in engineering climate solutions and providing maintenance services for data centers to serve the aspiring German

computing market. Beginning with a number of foundations and acquisitions throughout Western Europe during the 1980s, business also started flourishing outside Germany leading to a total of 19 subsidiaries in 2017. The firm grew into a global market leader in precision air-conditioning before Albert Stulz's grandson was introduced as Managing Director in 2013, which made STULZ a family-run firm in its third generation. Today, STULZ employs more than 2300 staff taking care of manufacturing, retail, maintenance, and repair for both original and third-party climate products in more than 130 countries.

Issues and Challenges at STULZ

The authors came to learn about the organizational situation at STULZ in early 2015 when management invited them for a debate on supervising masters students. Employees and management described a company in the midst of a transition, as STULZ's technological field of operation, the HVAC-market, was being affected by many environmental changes. On the one hand, the growth of digital business solutions and increasingly inter-connected devices is driving the need for additional cooling power in ever-growing data centers and server farms. Simultaneously, changes in climate may cause increasing demand since the control of thermal and humid conditions by HVAC-systems reduces the risk of technical malfunction in system-critical data processing in business facilities.

Branch research forecasts currently also identify a growing interest for smart appliances in the residential market as well as increasing construction activities in the non-residential market, which may serve as main drivers for growth while government policies continue to incentivize energy saving climate solutions. On the one hand, such trends allow a brightly promising prognosis for the HVAC-market. On the other hand, staff and management members are concerned about a number of more or less diffused issues regarding the market served, including: the ongoing technological progress, converging industries, rapid changes in the competitive mechanical structure, dynamic customer needs, and high innovation pressure (this last item being among the most severe issues). A repeatedly expressed worry involved disruptive technologies (i.e., computer processors with zero heat emission)

which may permanently harm STULZ's business model. Namely, innovation-driven competitors in Europe and the United States, as well as, upcoming low-cost technology providers from Eastern Europe and Asia, resulted in awareness among employees, as indicated below:

> We currently have no problem at all. But we will definitely get a problem if we continue like this. In principle, everything changes around us and I am not sure whether we are keeping pace. […] Maybe we will wake up tomorrow realizing that no one wants to buy these cans anymore.
> *Marketing Manager*

Technology-driven industries are typically affected by rapid innovation processes and accelerating product life-cycles (Vecchiato and Roveda 2010); therefore, dealing with the long-term future can be expected to be highly relevant for future revenues of companies competing in such markets. This is particularly the case for a firm like STULZ that, regarding its size and market position, faces a 'stuck-in-the-middle' problem as it is too large to ignore relevant technological trends or simply follow other competitors' lead and too small to spend vast resources on foresight and innovation management.

Lack of Innovative Capability

The authors quickly identified STULZ's indistinct innovation culture as a significant drawback since a supportive organizational environment is directly related to innovation success in family firms (Gudmundson et al. 2003). Apparently, STULZ did not maintain its own R&D facilities or functional structures to initiate or foster innovative projections on its own, but rather relied on in-depth cooperation instead. In fact, the innovation manager himself emphasized this shortcoming (see below).

> Possibilities to bring in innovations are missing completely here […] We want to get a process off the ground to internalize innovations in the future. To establish the preconditions for internalization because, until now, it has been the task of individual persons to pursue these things.
> *Innovation Manager*

An illustrative example was given by another employee who reported in detail on the discouraging experience he had with a service invention that was not promoted by the management:

> […] it has fallen on deaf ears. That's why I pursued it myself. More or less on my own, even at home because I have been convinced by its potential […] I hung on stubbornly, talked to customers off my own bat […] feedback came from customers and it was more than positive. Meanwhile it turned out to be a USP [Unique Selling Point] for us. That means, it is to some extent prerequisite for contracts and it spread among the competition. *Project Manager, IT*

STULZ showed tremendous engagement in collaborations, a feature of organizational behavior that, according to Graves and Thomas (2008), is not characteristic among family firms. STULZ's internal organization however continued to maintain a strictly hierarchical structure which inhibited innovative efforts in favor of 'buying in' innovations by engaging in occasional corporate takeovers and cooperation. Instead of seeking innovation capability by pursuing innovations internally, STULZ looked back on a history of gaining state-of-the-art technology by acquiring other organizations and, with them, their intellectual property.

> [We are] often the one that adopts the technique as it is, who buys high-quality components for a low price, assembles them quickly and sells the whole device. We are not particularly innovative. […] in general we are not a researching company. We do not even have a research department where people can tinker or experiment. *Supervisor, Industrial Engineering*

Lack of Confidence in Organizational Adaptability

Especially in light of increasingly volatile business contexts, the managerial ability to formulate strategic responses as a form of adaption to environmental change is a necessity for securing long-term profitability (Teece 2007). This turns out to be particularly challenging for family firms since they are often reluctant to explore new market possibilities (Nieto et al. 2015) and tend to be more conservative, risk-averse

and resistant to change than non-family firms (Kets de Vries 1993; Gomez-Mejia et al. 2007). Similarly, there is no exception in this case: STULZ grew to global market leadership in several niche markets in the HVAC industry during the last decade but many employees stated a serious disparity between business performance and innovativeness. Instead of seeking a pioneer role in novel business solutions, the focal firm tended to stick to long-established technologies. This enabled STULZ to offer high-performance HVAC technology while still manufacturing climate systems by hand only. Any kind of innovative or foresight effort was constrained to individuals among the top management team and round-table talks involving middle management. This constitutes what innovative capability existed at STULZ for the last several years (see comments below).

> Well, it has always been this conservative attitude. It is not necessarily bad to say: 'We are successful now so we focus on what we did so far.' That's alright. But at the same time, I think you have to look ahead or to the right and to the left and that is what foresight is good for. We have never been proficient at this. *Project Manager, IT*

When the founder's grandson returned to Germany after spending eight years managing the US subsidiary, he brought fresh momentum to the management team. As appointed managing director, he was eager to foster innovativeness and incorporate insights, gained by the working staff, into managerial decision-making. Successions like the one from second to third generation at STULZ can easily jeopardize organizational adaptability, especially in a market context that is characterized by new challenges and turbulence (Miller et al. 2008). However, some employees perceive the succession in the managerial team as a promising signal of maintaining the organization's viability and prosperity.

> […] And it suits the current time and mood that I perceive—the new generation—the shift in the management board from one generation to another and it causes a lot. […] We need to look ahead. And not just up to the edge of the plate but a little beyond that. *Director, Business Development*

Foresight to Enhance Innovative Capability and Organizational Adaptability

Indeed, new strategic approaches should help STULZ to overcome the challenges put forth by the market's increasing demand due to technological change. As a step toward more agility and innovation-orientation, the board of directors encouraged implementing a *distinguished function* in order to boost innovativeness and maintain it in the long run. Strategic management initiatives like these involve foresight efforts for many reasons. As foresight and innovation both facilitate novelty in future market environments, future research precedes, as well as, accompanies innovation management (Costanzo 2004). Inter alia, foresight can be utilized to generate anticipatory intelligence for gaining insight on future customer needs (Ruff 2006). Nevertheless, foresight is not only an auspicious tool to understand future customer needs, it also helps to identify new customer groups and to explore potential business (Heger and Rohrbeck 2012).

Therefore, as discussions proceeded, it was encouraged that a foresight program, as a pre-stage antecedent to the general strategic framework for the planned innovation, be drafted by STULZ management. This foresight program took the form of fixed-group workshops that were planned, initiated, and guided by a three-person research team. The foresight project was affirmed by the managing director, securing executive support for the project—a factor that is generally considered vital for a foresight venture's success (Gemünden and Kock 2009), and granted vast resources and wide access to the company's facilities.

Discussion

Foresight Workshop Design

The overall design of an intended foresight workshop program follows the idea of a collaborative foresight strategy using the Communication and Process-oriented Approach (CPA) as outlined by Koller (2008). The CPA advocates the institutionalization of information processing

in so-called 'radar groups' that integrate knowledgeable employees from all organizational departments and relevant external experts (i.e., business partners, users, suppliers, communities, etc.). Gathering information from early warning indicators and appropriate information sources, as well as, weak signals of changing environmental conditions that affect the focal organization's business model, are essential elements of the process. Such steps are deemed necessary for sensitizing the radar group[1] participants for future-related issues. Discussing 'weak signals' of relevant change within the radar group is intended to lead to mutual evaluation, and allows awareness of important changes to be transferred to those responsible at higher hierarchical levels—a point which appeared pivotal for the project's success since upstream knowledge and idea diffusion was apparently impaired at STULZ. Furthermore, discussion within the radar groups strengthens the institutionalized processes through accountability measures, and results in increased verbal and mental activity concerning future perspectives.

Information gathered during the foresight program diffuses within and between departments via communications structures, leading to increased awareness among the content experts involved, as well as, among the management team. In turn, management appreciation for the information collected by radar groups reinforces the foresight activity and participants' future-oriented cognition. Thus, foresight endeavors are an integral part of strategic management efforts. Following the idea of the CPA, the workshops combined a flexible methodological approach of brainstorming, brain-writing, free creative discussion, and scenario technique with more formal tools like sector analysis and competitive analysis, environmental scanning, technology roadmapping, or SWOT analysis. In all radar groups, participants focused on a time horizon of five to twenty years in the future.

The Foresight Program

Participants were selected by the innovation manager in consultation with employees from diverse departments and the research team. Potential participants needed to be content knowledgeable, maintain widespread contacts inside and outside the organization, and hold the

ability of creative, holistic, and long-term thinking. For general information, the foresight project was widely announced via e-mail elucidating the program's outline, its objectives and the need for middle management's backing. A selection of 36 staff members was invited to a kick-off workshop presenting the program's aims and overall outline. Neither the management nor anyone among the selected participants had engaged in foresight activities prior to this effort. The participants were assigned to six topically focused working groups with four to six designated members. During a two-hour brainstorming phase, these 'radar groups' collectively determined their respective search field, i.e., the section of the environment deemed relevant by the participants. See Table 5.1 for an overview of the radar groups.

After the kick-off session, the radar groups met regularly during the second half of 2015 (16 sessions in total) under supervision from the research team and innovation manager. Workshop duration was 90 minutes on average, not including preparation and follow-up work. Every session was logged and edited protocols were handed to the group's participants retrospectively. During the workshop phase, the groups consisted of fixed participants from the organization's internal staff. For a single session, however, partners from subsidiaries in the United States, Sweden, and Switzerland were invited via conference call.

In December 2015, a final project presentation was given to all employees summarizing the six radar groups' insights by the participants. A project compendium was produced and distributed comprising

Table 5.1 The six radar groups at STULZ

Radar group	Search fields	Participant count
Strategy	Strategic development, intelligence, new services and markets	5
Customers	Customer groups, customer demands	6
Technology	New applications, product development	9
Supply chain	Internal and external supply chain, networks, coordination	7
Key solutions	Environmental conditions, technical know-how	4
Competition	Competitors, new entrants, potential substitutes	5

87 pages of findings, results, and implications. At least two members of the research team attended all 16 sessions as uninvolved observers conducting detailed protocols for comparative analysis. Direct participation also allowed for investigation of informal structures and political behavior. In order to gain more insight into the organization and how the project affected it, two researchers conducted audio-recorded interviews with nine workshop participants from different departments within two months after the final presentation. In summary, a total of 754 pages of data was collected (including: session protocols, interview transcripts, workshop materials, email correspondence, field log notes, and publicly available information like brochures or web content) and archived in a common database for further analysis.

Conclusions

Over a timespan of five months, the effect of foresight efforts materialized. Foresight participants co-created future-oriented knowledge via communication and interpersonal interactions. Participating individuals then merged the generated knowledge into consistent pictures of future paths, diffused knowledge into the organization, and transformed signals of environmental changes into tacit knowledge (i.e., anticipating relevant opportunities and detecting threats). In summary, the radar groups created 29 possible paths of future development, identified 19 opportunities and seven threats, collected eight early warning signals for future monitoring, and came up with innovative projections for three novel products, four service proposals, and 15 new processes.

Innovative Capability

Communication platform. The foresight participants not only engaged in long-term thinking and future vision-building but also in creative thinking. According to Van der Duin (2006), creativity is expedited by considering future visions. In order to build genuinely novel knowledge, i.e., engaging in creative thinking, the workshops were designed

to arouse the combining, refiguring, and modifying of future-related information. Scenarios, for instance, consider a range of possible alternatives by generating multiple images of future paths. These narratives initiate cognition processes and lay the foundation for explorative discussions about strategic course and innovative projections (MacKay and McKiernan 2004).

In line with Von der Gracht et al. (2010), interaction during the workshop sessions opened a creative space to encourage innovations. Participants reported that the workshops stimulated innovative thinking and gave space for creative exchange in the forms of ideation, discussion, modification, and diffusion of innovative projections. Surprisingly, solely the opportunity to have innovative projections discussed, challenged, and modified by others within the company was received gratefully. However, the created knowledge contained a number of forward-looking concepts, e.g., for key technologies, disruptive service offerings, or novel business models. Some argued that the foresight workshops established a temporary communication platform for any kind of innovative projections that have not been diffused within STULZ so far. Thus, it worked both as an instrument for both creative thinking and as a communication channel for innovative ambitions.

> […] I just call it fooling around, fooling around freely. What could we do, where is it going, let your creativity burst, give it a free run and think: what is possible? *Innovation Manager*

> That every single employee knows, if you have an idea or an intuition or anything alike, there is a channel for it to transport it upstairs […] That is one of the biggest resources […] that every employee has the certainty: 'If I want to make a difference I have a channel for that.' *Project Manager, IT*

Integration of diverse informants. Foresight methodologies can provide the collaborative tools to generate diverse views on product development and technology management (Bradfield et al. 2005). This is especially important since the assets for creating successful innovation may be located both inside and outside the organization (West et al. 2014). That is, innovation depends on collaborative knowledge integration, as

well as with external sources of information from partners, including suppliers, users, or research associates (Chesbrough 2006). As anticipated from the outset of the foresight project, workshop members from different departments successfully collected future-oriented information and collectively built anticipatory knowledge. This informational exchange not only provided insights for the participants about their co-workers' perspectives, it also enabled the creation of genuinely new knowledge, challenged basic assumptions, and encouraged participants to elaborate on distinct issues:

> It was very interesting to generate the exchange across the departments and […] you are unbiased if it is not your actual field of expertise so you just ask: "Why didn't you do it that way?" And sometimes the answer is so obvious but you simply did not think of it. *Employee, Strategic Purchase*

> It actually surprised me a little, I mean, I come around a lot and watch out for things. But there are still some affairs you have not heard of before. The world is large in the end. *Project Manager, IT*

Creation of novel knowledge. Collectively conducted foresight activities fosters the socialization, articulation, combination, and internalization of tacit knowledge by drawing on a broad and diverse range of knowledgeable stakeholders (Vecchiato 2015). Sometimes these efforts of networking and information sharing are even more important than the foresight results themselves (Cuhls 2003). Although the radar groups were organized according to the foresight program assignments only, participants reported on intensive exchange also of non-foresight-related content across employee groups, departments, and even beyond the organization's boundaries. This phenomenon was not intended by project set-up but has been appreciated unanimously:

> I believe, in our company, globally and also here, we do have way more knowledge than we are aware of. And if we were aware of all the things that we know, we had made considerable headway. *Comment at Final Presentation*

And these radar groups consisted of people from many departments. And there was exchange with others who see the things from another perspective […] This foresight is a pool filled with information. *Employee, Marketing Intelligence*

Organizational Adaptability

Sensing change. One way to support organizational adaptability is to gather relevant information about possible future changes like discontinuities or trends that emerge as opportunities or threats (Day and Schoemaker 2004). Hence, foresight enhances a firm's prospect of successfully adapting to environmental velocity by sensing relevant change before strategic responses are formulated. Exchanging future-related information during the workshops helped to trigger long-term thinking among the participants, as well as, sensitize both employees and managers to new prospective content. Disseminating information related to detected signals of possible change may cause awareness for developments of change among STULZ's staff. Learning about future shifts that may emerge as opportunities or threats also influence mental models held by employees (Barr et al. 1992) and may, therefore, initiate or accelerate processes of organizational change, at least in the form of inner shifts (Karp 2004).

It is not about getting to know how we have to do it, this way or that way. It is rather about deriving tendencies. It is about these findings affecting tendencies and the strategy. *Project Manager, IT*

[…] they showed some scenarios that I have never thought of but which are worth considering for future decision-making. *Managing Director*

Signaling change. At the outset of the foresight program at STULZ, it became apparent that the organization's need to adapt to environmental change was commonly agreed to by employees and management. According to Mendonça and Sapio (2009), such future-oriented engagement is often in high demand during times of uncertainty and turbulence. Recognizing the need for change is a vital factor in change

management (Burt 2007), and it often enhances the willingness of involved parties to allow and support organizational change. It was argued that the mere foresight program itself initiated processes of change at STULZ, i.e., foresight not only accrued from the need for organizational adaptability, it also reinforced it. Likewise, management understood the workshop series itself as impetus for change and increased flexibility while employees' confidence in the organization's vitality and adaptability was facilitated merely by realizing how much knowledge already exists within the organization (see individuals' comments below).

> Merely approving this project is a sign of openness for change. Things like this do not happen overnight. […] Well, I see signals of this change and the willingness to change some things. You can sense it now. *Employee, Manufacturing*

> Just the groups and their meetings, the exchange. It changes a lot within the people. I believe, this change is now more intense than ever before […] And for [management] a lot has changed to the better. They get most valuable information on a silver plate. *Sales Manager*

Shaping change. By collectively building future-oriented knowledge, participants in the foresight activities shared information, challenged basic assumptions, and facilitated organizational learning (Blackman and Henderson 2004; Van der Heijden 2005). Literature sugggests, that as a side-effect, foresight activities foster the internal exchange of information affecting the participants' image of the organization (Rohrbeck and Schwarz 2013). This phenomenon occurred at STULZ, as one participant highlighted that merely realizing how much knowledge already exists within STULZ facilitates confidence in the firm's vitality. Running the foresight program with many experts, then, is a powerful means by which to actively and positively influence the course of the organization. Participants took positions on whether foresight was a way to actively influence the organization, as the comments below suggest:

> If we provide information for our management regularly, and if this makes them think again, then [foresight] for sure is a way to alter the future, yes. *Supervisor, Industrial Engineering*

A lot of information was mentioned that has no ties with our business. And you deal with it because you want to understand the meaning of it and you have to deal with it actively. So you educate yourself. […] And I will do everything I can to report warning signals to people who actually make a difference around here – like supervisors or managers. *Employee, Manufacturing*

Management Strategies to Support Foresight

STULZ management acknowledged the foresight program, and the CPA process in particular, as a powerful tool to help employees build skills for future-thinking and increase capability for innovation. The workshops contributed to these capabilities in multiple ways, including: as a communication platform for ideas, and as a creativity space for innovative thinking. Collecting market intelligence, encouraging open discussions, and promoting novel ideas rendered the radar groups' work supportive for innovation success, as depicted in the literature by Fang et al. (2012), Van der Duin (2006), and Rohrbeck and Gemünden (2011). Foresight at STULZ provided a creative space for innovative thinking and debating, in order to initiate, reflect, discuss, modify, and challenge current or future innovations. Thus, the workshops are essential part of the evolving innovation strategy to turn STULZ from a passive innovation purchaser to an active innovation facilitator.

Moreover, foresight stimulated a process of sensitizing for future-oriented information among the participants. As suggested in the literature, foresight does not strive for exact prediction of the future, rather, it creates anticipative pictures to foster understanding about the drivers of change as well as their interdependencies (Cuhls 2003). Thus, being interested in long-term developments at STULZ, the foresight activities facilitated sensitivity for signals of future shifts and awareness of change. This also changed the perception of employees' own roles within the company as they prepared information for managerial staff and, thus, had impact on STULZ's future decision-making. Instead of leaving innovative initiatives to a few employees, all staff should be encouraged to engage in fostering STULZ's innovative capability. Thus, the workshops

and radar groups resemble evolving strategic activities directed at the goal to optimize organizational adaptability and flexibility.

The foresight program has now set a precedence for strategic discourse and future learning among participants at STULZ, in preparation for strategic decision-making and response formulation. As a result, three main strategies were carved out by management in order to ensure future success at STULZ:

1. Strengthen the core business of climate solutions for data centers.
2. Simultaneously, follow a diversification strategy, especially regarding software solutions.
3. Support the convergence of STULZ's numerous international subsidiaries.

Managerial decisions based on foresight discussions can influence the way a company's capability-system evolves over time (Laamanen and Wallin 2009). Hence, the foresight program and the strategies derived thereof may enhance STULZ's prospect of successfully adapting to environmental change. But the workshop program also sent a clear signal to the employees that concerns about environmental change, as well as, the need for organizational change, were taken seriously. The mere set-up of a foresight project motivated the staff and built confidence in the responsibility of the management, and adaptability of STULZ as a whole. Foresight can, thus, impact actively the means of change, turning it into a powerful management tool to initiate or facilitate organizational change at STULZ. This perspective is supported by many authors, including Heger and Boman (2015), Rohrbeck and Schwarz (2013), and Vecchiato (2015).

Organizational Policies to Sustain Successful Foresight Efforts and Future-Thinking

In order to sustain success of foresight and future-thinking at STULZ, the authors compiled a list of organizational policies that need to be developed. Policies such as these provide means of ensuring accountability for foresight and future-thinking activities. First, the foresight efforts in the form of radar

groups should be institutionalized permanently to continue reaping the benefits of a communication platform for future-thinking. Regular meetings provide one strategy for these groups to oversee constant readjustment of future projections to current data and intelligence. Second, employees from a diverse range of departments at STULZ, and its subsidies, should be invited to take part in the radar groups' discussions. A broad knowledge base was acknowledged as significant driver of the foresight ventures' impact and persuasiveness. Third, a constant information flow between the radar groups and the management team needs to be maintained. By distributing their insights, the radar groups may inform managerial decision-making and enhance strategic maneuvering.

During the final presentation to STULZ by the research team, both the managing director and CMO expressed their deep commitment to institutionalize the foresight program. Immediately after the finalization of the foresight program, elaborate plans were made to implement a permanent foresight process with multiple radar groups, with each headed by a distinguished employee, to meet quarterly in loose composition, with assigned tasks being to observe and interpret markets and competitors, discuss relevant future themes (i.e., trends, signals, ongoing changes, potentialities, and threats), facilitate broader communication among staff and management, and to work as an 'innovation platform'. Currently, STULZ remains a medium-sized family-firm in the midst of a challenging transition. The success, of course, is sustaining the current structure and function while looking and planning for the future. After months of collaborative future-thinking, a forward-looking company is developing whose management drew sustainable conclusions from environmental changes and whose employees appear full of confidence in their employer's future abilities.

Note

1. Radar group participants are individuals available to receive data from multiple sources for the intent of identifying trends that may impact the organization. This term is a play on words related to engineering and the study of electrical and acoustical wavelengths.

References

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.

Barr, P. S., Stimpert, J. L., & Huff, A. S. (1992). Cognitive change, strategic action, and organizational renewal. *Strategic Management Journal, 13*(1), 15–36. https://doi.org/10.1002/smj.4250131004.

Bersch, J., Gottschalk, S., Mueller, B., & Niefert, M. (2014). The Mannheim Enterprise Panel (MUP) and firm statistics for Germany. *ZEW—Centre for European Economic Research Discussion Paper*, no. 14–104. https://doi.org/10.2139/ssrn.2548385.

Blackman, D. A., & Henderson, S. (2004). How foresight creates unforeseen futures: The role of doubting. *Futures, 36*(2), 253–266. https://doi.org/10.1016/S0016-3287(03)00144-7.

Bradfield, R., Wright, G., Burt, G., Cairns, G., & Van der Heijden, K. (2005). The origins and evolution of scenario techniques in long range business planning. *Futures, 37*(8), 795–812. https://doi.org/10.1016/j.futures.2005.01.003.

Burt, G. (2007). Why are we surprised at surprises? Integrating disruption theory and system analysis with the scenario methodology to help identify disruptions and discontinuities. *Technological Forecasting and Social Change, 74*(6), 731–749. https://doi.org/10.1016/j.techfore.2006.08.010.

Chesbrough, H. (2006). *Open innovation models: How to thrive in the new innovation landscape*. Boston, MA: Harvard Business School.

Costanzo, L. A. (2004). Strategic foresight in a high-speed environment. *Futures, 36*(2), 219–235. https://doi.org/10.1016/S0016-3287(03)00145-9.

Cuhls, K. (2003). From forecasting to foresight processes? New participative foresight activities in Germany. *Journal of Forecasting, 22*(2/3), 93–111. https://doi.org/10.1002/for.848.

Day, G. S., & Schoemaker, P. J. (2004). Driving through the fog: Managing at the edge. *Long Range Planning, 37*(2), 127–142. https://doi.org/10.1016/j.lrp.2004.01.004.

Fang, S. R., Chou, C. H., Yang, S. M., & Ou, C. C. (2012). Enhancing innovation through learning: The roles of market orientation and interorganisational knowledge stores. *Technology Analysis & Strategic Management, 24*(3), 285–298. https://doi.org/10.1080/09537325.2012.655414.

Gem–nden, H. G., Kock, A. (2009). Bei radikalen Innovationen gelten andere Spielregeln [There are different rules with radical innovations].

In P. E. Harland & M. Schwarz-Geschka (Eds.), *Immer eine Idee voraus: Wie innovative Unternehmen Kreativit–t systematisch nutzen* [Always an idea ahead: How innovative firms make systematic use of creativity] (pp. 31–52). Zittau: Harland.

Gomez-Mejia, L. R., Haynes, K. T., Nunez-Nickel, M., Jacobson, K. J., & Moyano-Fuentes, J. (2007). Socioemotional wealth and business risks in family controlled firms: Evidence from Spanish olive oil mills. *Administrative Science Quarterly, 52*(1), 106–137. https://doi.org/10.2189/asqu.52.1.106.

Gottschalk, S. (2014). *Die volkswirtschafiliche Bedeutung der Familienunternehmen* [The economic significance of family firms]. Stiftung Familienunternehmen. Accessed 31 August 2016. http://www.familienunternehmen.de/media/public/pdf/publikationen-studien/studien/Studie_Stiftung_Familienunternehmen_Volkswirtschaftliche-Bedeutung_Berichtsband.pdf.

Graves, C., & Thomas, J. (2008). Determinants of the internationalization pathways of family firms: An examination of family influence. *Family Business Review, 21*(2), 151–167. https://doi.org/10.1111/j.1741-6248.2008.00119.x.

Gudmundson, D., Tower, C. B., & Hartman, E. A. (2003). Innovation in small businesses: Cul-ture and ownership structure do matter. *Journal of Developmental Entrepreneurship, 8*(1), 1–17.

Heger, T., & Boman, M. (2015). Networked foresight: The case of EIT ICT labs. *Technological Forecasting and Social Change, 101,* 147–164. https://doi.org/10.1016/j.techfore.2014.02.002.

Heger, T., & Rohrbeck, R. (2012). Strategic foresight for collaborative exploration of new business fields. *Technological Forecasting and Social Change, 79*(5), 819–831. https://doi.org/10.1016/j.techfore.2011.11.003.

Karp, T. (2004). Learning the steps of the dance of change: Improving change capabilities by integrating futures studies and positive organisational scholarship. *Foresight, 6*(6), 349–355. https://doi.org/10.1108/14636680410569920.

Kets de Vries, M. (1993). The dynamics of family controlled firms: The good and the bad news. *Organizational Dynamics, 21*(3), 59–71. https://doi.org/10.1016/0090-2616(93)90071-8.

Koller, H. (2008). Intercultural technology intelligence: A process and communication oriented approach. In R. Meckl, M. Rongping, & M. Fanchen (Eds.), *Technology and innovation management* (pp. 71–82). Munich and Vienna: Oldenbourg.

Laamanen, T., & Wallin, J. (2009). Cognitive dynamics of capability development paths. *Journal of Management Studies, 46*(6), 950–981. https://doi.org/10.1111/j.1467-6486.2009.00823.x.

MacKay, R., & McKiernan, P. (2004). The role of hindsight in foresight: Refining strategic reasoning. *Futures, 36*(2), 161–179. https://doi.org/10.1016/S0016-3287(03)00147-2.

Mendon–a, S., & Sapio, B. (2009). Managing foresight in changing organisational settings: Introducing new perspectives and practices. *Technology Analysis & Strategic Manage-ment, 21*(3), 285–289. https://doi.org/10.1080/09537320902750558.

Miller, D., Le Breton-Miller, I., & Scholnick, B. (2008). Stewardship vs. stagnation: An empirical comparison of small family and non-family businesses. *Journal of Management Studies, 45*(1), 50–78. https://doi.org/10.1111/j.1467-6486.2007.00718.x.

Nieto, M. J., Santamaria, L., & Fernandez, Z. (2015). Understanding the innovation behavior of family firms. *Journal of Small Business Management, 53*(2), 382–399. https://doi.org/10.1111/jsbm.12075.

–ner, M. A., Benson, C., & Beser, S. G. (2014). Linking organizational change management and organizational foresight. *Strategic Change, 23*(3/4), 185–203. https://doi.org/10.1002/jsc.1970.

Reger, G. (2001). Technology foresight in companies: From an indicator to a network and process perspective. *Technology Analysis & Strategic Management, 13*(4), 533–553. https://doi.org/10.1080/09537320127286.

Rohrbeck, R., & Gem–nden, H. G. (2011). Corporate foresight: Its three roles in enhancing the innovation capacity of a firm. *Technological Forecasting and Social Change, 78*(2), 231–243. https://doi.org/10.1016/j.techfore.2010.06.019.

Rohrbeck, R., & Schwarz, J. O. (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.

Rothwell, R., & Dodgson, M. (1993). Technology-based SMEs: Their role in industrial and economic change. *International Journal of Technology Management*, 8–22. Special publication on small firms and innovation.

Ruff, F. (2006). Corporate foresight: Integrating the future business environment into innovation and strategy. *International Journal of Technology Management, 34*(3–4), 278–295.

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and micro-foundations of (sustainable) enterprise performance. *Strategic Management Journal, 28*(13), 1319–1350. https://doi.org/10.1002/smj.640.

Van der Duin, P. (2006). *Qualitative futures research for innovation*. Delft: Eburon.

Van der Heijden, K. (2005). *Scenarios: The art of strategic conversation* (2nd ed.). Chichester: Wiley.

Vecchiato, R. (2015). Creating value through foresight: First mover advantages and strategic agility. *Technological Forecasting and Social Change, 101,* 25–36. https://doi.org/10.1016/j.techfore.2014.08.016.

Vecchiato, R., & Roveda, C. (2010). Foresight in corporate organisations. *Technology Analysis & Strategic Management, 22*(1), 99–112. https://doi.org/10.1080/09537320903438179.

Villalonga, B., & Amit, R. (2009). How are U.S. family firms controlled? *Review of Financial Studies, 22*(8), 3047–3091. https://doi.org/10.1093/rfs/hhn080.

Von der Gracht, H. A., Vennemann, C. R., & Darkow, I. L. (2010). Corporate foresight and innovation management: A portfolio-approach in evaluating organizational development. *Futures, 42*(4), 380–393. https://doi.org/10.1016/j.futures.2009.11.023.

West, J., Salter, A., Vanhaverbeke, W., & Chesbrough, H. (2014). Open innovation: The next decade. *Research Policy, 43*(5), 805–811. https://doi.org/10.1016/j.respol.2014.03.001.

6

The Evolving Approach to Strategic Corporate Foresight at Swiss Bank PostFinance in the Age of Digital Transformation

Marc K. Peter

Introduction

Across the globe, financial institutions are highly impacted by a changing market environment which includes political drivers (e.g., new legislation and regulations), emerging competition from non-banks (e.g., PayPal®, Apple® Pay), changes in consumer behavior (e.g., peer-to-peer business models), and technology (e.g., mobile devices, cybersecurity). Hence, organizations in this industry must understand the external drivers, in order to retain a competitive advantage via successful corporate strategies.

PostFinance (PF) is one of Switzerland's leading financial institutions with 3 million customers, 4000 employees, operating revenue of approximately USD 1.74 billion, and assets of approximately USD 124 billion in 2016. It is government owned and part of a

M. K. Peter (✉)
FHNW School of Business, Olten, Switzerland
e-mail: marc.peter@fhnw.ch

larger group of companies of the Swiss Post (PostFinance 2017a). It is the leading provider of universal payment services and offers other financial products, such as savings, investments, mortgages, and loans throughout Switzerland, a country with a population of 8.4 million (FSO 2017).

PF recognizes that "… traditional banking services face a substantial threat if we do not take appropriate measures. We will, therefore, focus more clearly on the digital world in the future and develop PostFinance from a traditional financial service provider into a digital powerhouse. We are convinced that this transformation will help us to better meet the challenges of the future" (PostFinance 2017a, p. 3). In order to retain a high competitive advantage, PF has a long tradition of innovation and digitalization over the past decades: it was the first financial institution that launched ATMs in 1978. Ten years later, an electronic payment solution followed, and twenty years later, in 1998, the bank's e-banking platform was introduced. In 2002, PF became the first bank to launch an e-invoicing and settling solution so customers could load admission tickets and user authorizations for sports and cultural events onto their RFID[1] enabled debit card. In 2010, it was again the first Swiss bank to launch a banking app (PostFinance 2017b).

The approach PF has taken to innovate and develop strategically is one in which foresight and future planning play an important role[2], for example, early warning management activities date back to 1998, when a proposal for such a system was presented to the executive team.[3] It was centered on the idea of weak signal detection and management, described as "unclear data which might indicate strategic discontinuity". From this time on, PF managed workshops with senior executives to identify and discuss early indications of change until 2002/2003.[4] In late 2003, the need for additional foresight activities was identified, especially to close knowledge gaps.[5] Consequently, a proposal for a formal foresight process to understand future developments and impacts to the organization was prepared for the executive team in 2004 and introduced in 2005 for the strategy workshop in early 2006.

Fig. 6.1 A contemporary branch of Swiss bank PostFinance (PostFinance AG, 2017)

Over the past ten years, PF has applied this foresight process as part of its strategy development process. With advancement of the notion of "digital transformation", the most recent strategic initiative to sustain competitive advantage evolved in 2016/2017 (Fig. 6.1).[6]

Strategy and Foresight at PostFinance

Strategy Development Process

PF's strategy planning process was first introduced in 2000. While the strategy covers a three-year planning horizon, drivers from the external environment are long-term, up to ten years. Each year, all business units initiate the strategy development process in July/August in order to contribute to the executive management workshop in January (bottom-up approach).

At the same time, the foresight process enriches both the corporate as well as business unit strategies. During the initial executive workshops, key drivers and potential strategic programs will be discussed and feedback is provided back into the business units (top-down approach). Following this, the two profit centers "private customers" and "business customers" as well as service centers create their final strategies and relevant budgets. The executive team and senior managers meet for a second workshop in February to discuss and approve the proposed business strategies and then communicate their plans to the organization at the end of June (Table 6.1).

Table 6.1 PostFinance's strategy processes from 2000 with the foresight component since 2005/2006 (author's illustration[7])

Process step	Timing	Description
Strategy preparation	July/August	Strategy development process kick-off
Foresight activities (from 2005/2006)	July to September	Integrate insights from foresight (signals, drivers and potential consequences from scenarios)
Definition of core strategic topics	August to September	Proposal with key topics based on ongoing analysis and insights from foresight activities
Strategic analysis	July to September	Strategic analysis of environmental drivers via business units
Business unit strategy alignment	October to November	Understand input from business units around key strategic topics via meetings/workshops and enrich the strategic analysis
Strategizing with the executive team	January to March	Present strategy analysis and develop long-term strategy via an executive workshop in the first week of January and a two day workshop in March
Development of strategic programs	March	Validate assumptions via market research, scenarios and define strategic initiatives (as part of the workshop in March)
Development of market/business unit plans	April	Market strategies and business plans for all functions
Strategy validation and presentation	March to June	Prepare the final strategy document
Strategy communication	End of June	Create and implement the communication plans

The foresight framework, launched in 2005/2006, introduced new organizational processes, roles, and tasks that would enrich the strategy development framework with an additional, future-oriented component. Overall, PF's strategy development process demonstrates a balance between both a top-down and bottom-up approach to sharing and discussing insights with management and strategizing future directions in formal and informal meetings, and cementing foresight activities and thinking across the organization. This ongoing investment in foresight impacted PF's cultural values and created a dynamic organization which enabled long-term orientation and innovation management.

Foresight Framework

Foresight at PF is not only a knowledge building activity to support strategy, but more importantly, a way to prepare the organization for the future in terms of its behavior and culture. PF's foresight framework covers a horizon of up to ten years. Strategy development along with foresight and innovation are described as being central to the organization. The driving factors behind PF's strong innovation capabilities are seen in the following four areas (Kneissler 2006):

1. High management attention: foresight is recognized, funded, and supported by the CEO and executive management. Foresight input is required and openly shared/discussed during the annual strategy development activities.
2. An innovation-friendly culture ("new is good"): the company is open to new ideas; it promotes innovation activities in an open, non-bureaucratic environment, mainly driven by its business units rather than from a centralized foresight or innovation team.
3. Short routes ("flat hierarchy"): PF has a flat management structure; most team leaders are only one or two hierarchical levels from the CEO.
4. A feeling for the future: due to PF's foresight activities, both management and employees anticipate and understand potential future changes. Insights from foresight activities are shared in workshops and communicated via the strategy process.
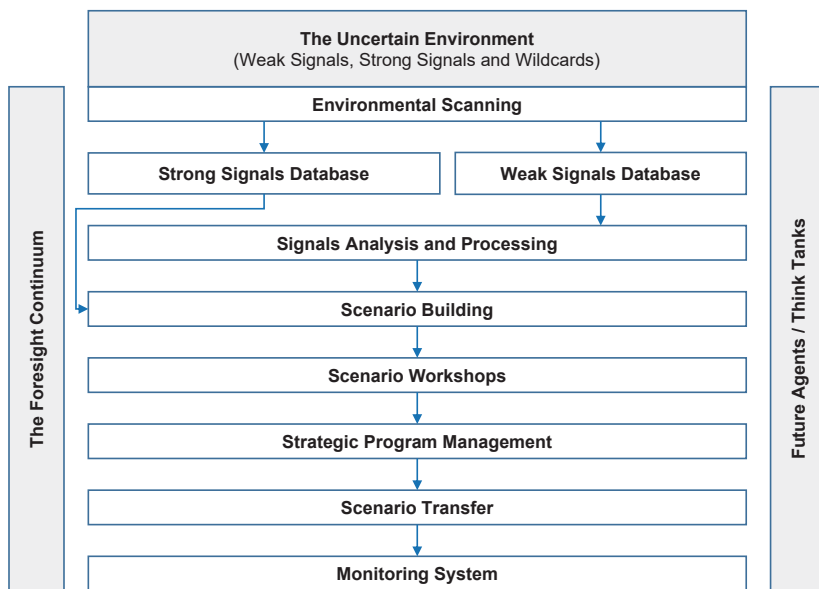
Fig. 6.2 The PostFinance foresight framework (internal documents[9]; Peter and Jarratt 2015, p. 59)

PF's foresight framework created the foundation to support strategy development and innovation. From the beginning, it was stated that from foresight activities, the necessary programs and projects required to generate PF's success in future scenarios shall be identified.[8]

The foresight process would identify, describe, and interpret weak signals in order to build scenarios and integrate insights and consequences, developed through future workshops, in the strategy development process. In this approach, strong signals (e.g., the rise of mobile devices, the aging society) were excluded from the weak signal framework and later added in the scenario workshops. The specific components of the foresight framework include environmental scanning and signal collection, signal analysis, scenario building, scenario/future workshops, strategic program management, scenario transfer, and monitoring (Fig. 6.2).

Through environmental scanning, both weak and strong signals, as well as wildcards (or strategic surprises), are identified and collected. In order to identify and collect weak signals, qualitative methods are used,

such as trend scanning and desk research utilizing reports, future websites, science fiction literature and economic data, as well as information from external partners, and interviews with expert and futurists from a variety of industries. Strong signals are removed from the core foresight model as they can and should be captured via traditional strategy methods by all managers of the business. They will, however, later be integrated to help building scenarios and stimulate the conversation in the scenario workshops.

The weak signal database stores data on every collected signal, including the signal's name, a number for identification purposes, a brief description, a priority flag (if relevant), the time horizon or window within which the signal is most likely to have an impact, and the source of the information. Part of this work is carried out in the signals analysis and processing phase.

As part of the foresight process, scenario building is the chosen methodology for understanding interactions between signals, creating multiple futures, presenting findings, and engaging the organization in a conversation about future change and impact on the organization's strategy. A special focus was set on the identification of appropriate methods to combine weak signals into scenarios (scenario development). The methods applied to work with signals were (1) the combination of weak signals with trends (strong signals) to create bifurcations in timelines, (2) to elaborate patterns of logical consequences, and (3) experiment with cross-overs (Table 6.2).

PF chose to combine and utilize methods one to three as part of its scenario building process. This allows cross-overs to acknowledge and include industry foreign concepts and combine signals to create bifurcations (projections). It then utilizes matrices and impact analysis to understand patterns in logical consequences.

The starting point of this process included multiple workshops, primarily with employees from the corporate development teams (including external experts to review the outputs). Signals were analyzed and interconnections created in the form of a multidimensional matrix. This allowed the team to categorize, cluster, and combine signals. The prioritization of the collected weak signals occurred in a qualitative way, based on conversations, to determine the logical consequences. The multiple

Table 6.2 Methods to combine signals into scenarios (author's illustration from Fuller 2005; in Peter 2011)

Method	1: Combine weak signals with trends to create bifurcations in timelines	2: Elaborate patterns of logical consequences	3: Experiment with cross-overs	4: Entrepreneurial creation of futures
Description	Track a signal's anticipated path through time, considering possible turning points (or "bifurcations") where the path splits into two directions	It is an approach of systems dynamics to combine interconnections between signals and describe consequences.	Structural changes in markets or industries can arise because new practices or technologies (cross-overs) are introduced from another industry	Create entrepreneurial settings in which individuals try to create new ventures that address challenges and issues in the market

projections or potential future developments (bifurcations) were identified and described for each signal, or cluster, if applicable. The methodologies used were brainstorming, visualization of clusters, and open creative conversations. Based on clusters (around signals and projections), core themes were identified and verbally described, tested against the insights and further developed and refined. This led to the creation of the two future scenarios; a convenience world (scenario I) and a security-oriented world (scenario II). Both scenarios were expected to potentially occur in 2015 (ten years in the future). There was a long debate about the impact in the organization under both scenarios. The executive team acknowledged that these are the two scenarios which are used as the basis for testing the bank's strategic plans and the organization's readiness for change. The executive team decided that the "convenience" world has a higher priority than the "security" world because PF believed to be in a good position with regard to security.

Scenarios continue to be presented and discussed in scenario workshops with senior management and key stakeholders with the aim of identifying and understanding the level of potential change in the market and its impact on the organization. This is part of the preparation workshop for the annual strategy development process. Significant or widespread market trends and strong signals will be added to the conversations around the identified scenarios. In addition, the scenarios will be enriched and validated through conversations and input from business units' strategy teams. This is seen as a bottom-up approach, integrating the experiences and views of all managers. The combination of a top-down and bottom-up approach in the foresight model is aligned with the same mechanics in the strategy development process. As a result of these interactions, additional insights and characteristics of the potential outcomes can be added to the draft scenarios.

A report from these workshops with the finalized scenarios and the detailed analysis of potential consequences are then created via the strategy teams. The report includes matrices with descriptions of consequences, for both the industry generally and the organization in particular, if one of the scenarios becomes reality, and a list of core topics which need to be covered in the regular strategy development process. As an example, in the convenience scenarios of PF, banks will have to

build products and product value propositions which would allow them to fulfill specific segment-based needs. In this scenario, the competition for healthy (profitable) customers would increase and mobility (across products and channels) would gain a higher priority. However, in the security-oriented world, customers would choose individual security levels, new products would be established (such as security consulting for small- and medium-sized enterprises), trust and security will become the key themes in marketing communications, a national e-banking platform would be established (instead of banks' individual online sites) and the demand for personal safes would increase. This exercise of evaluating all components of PF under each scenario and formulating strategy accordingly can be considered a stress test in which scenarios help to identify gaps between potential future events and current strategies and strategic developments.

The *scenario transfer* is the point at which insights from signals management and scenarios are integrated into the formal strategy development process, socialized to the operational business units, and implemented in marketing and product plans. It allows the organization to formally prepare and present future-oriented strategic projects for potential growth and to create response strategies for changes driven by the environment. Again, workshops across the organization help to ensure a successful knowledge transfer. Scenarios are communicated as multimedia presentations or movies to increase the impact on the audience and trigger foresight thinking. A time map is then utilized to monitor the signals and scenarios on their path to becoming reality. The organizational unit which ensures the monitoring of signals and updating of the signal database is the future agent network. Its main task is to provide for ongoing development of future scenarios and feeding of the weak and strong signals database.

In addition to the formal outputs delivered from a foresight framework as part of scenario workshops, strategic program management, scenario transfer, and successful organization of foresight ideas, benefit from a foresight continuum. This means that throughout the process of engaging with the uncertain environment and potential

futures, an organization will benefit from flexibility in decision-making, and experience increased innovation capabilities and ongoing learning through strategic debate. It sets an organization into a perpetual state of change and thus helps to mentally prime participants and structurally prepare the organization for upcoming changes.

The Evolved Foresight Approach in 2016/2017

Over the past decade and in light of digital transformation, PF's foresight framework has evolved into a living concept of future-oriented thinking and strategy development.[10,11] The formal framework is seen as the foundation for corporate foresight and its components have been integrated as part of the digital transformation.

The idea of foresight and its application remains the same: it is a long-term view of potential developments in the market and its consequences for PF and supports, as an iterative process, organizational learning, and organizational change. The time horizon for foresight (signals and trends) has changed to five years and scenarios are still an essential part of understanding future potential developments (Table 6.3).

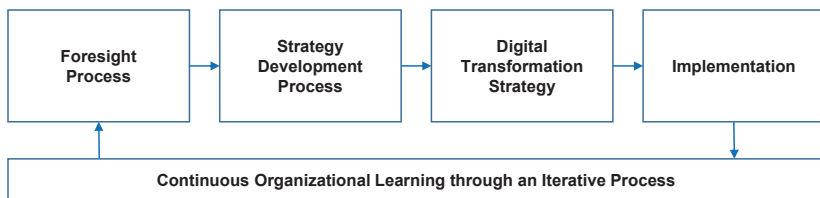**Table 6.3** PostFinance's foresight framework 2005/2006 versus 2016/2017 (author's illustration)

	Approach to Foresight	
Criteria	From 2005 to 2006	From 2016 to 2017
Embedded in strategy development process	Yes	Yes
Time horizon	Up to 10 years	Up to 5 years
Foresight process	Structured, iterative process for the annual strategy development process	Project driven, iterative process to support the digital transformation strategy
Output	Various projects as part of the strategic program management	One single, digital transformation strategy with six competency fields
Foresight network	Yes (future agents)	Yes (trend scouts)
Foresight continuum	Yes	Yes

In the 2016/2017 period,[12] PF built three new scenarios based around economical, technological and monetary policy and regulations-driven signals and trends. A dedicated team developed the three scenarios as a basis for the digital transformation of PF. The results were a set of guiding principles for a new strategic initiative to transform the business.

As part of a wider stakeholder and change management process, these scenarios have been shared and discussed with both the board (for buy-in) and the leadership team (to align expectations and goals). The key benefits from that process and the guiding principles are to understand and learn from presumed future developments and to define the strategic direction from the very beginning of the new strategy. This has resulted in an aligned mindset across all stakeholders and ensured that lower ranking projects are linked to the corporate strategic intent.

While the former strategy and foresight development process has generated strategic programs linked to the corporate strategy, the new foresight approach, therefore, supports one single, digital transformation strategy (Fig. 6.3).

PF's digital transformation strategy is an overarching strategy, consisting of six competency fields, to achieve the strategic intent to become a digital powerhouse. In addition, all proposed strategic fields and projects are evaluated against these indicators to ensure that the original strategic direction will be followed. Both the future agent network (now "trend scouts") and the foresight continuum are regarded as essential. As PF will further invest into its foresight capabilities, future priorities

Fig. 6.3 The PostFinance foresight framework in the age of the digital transformation (author's illustration[13])

include better tools and processes to capture signals, a process to validate internal and external information as part of the foresight process, along with additional investments for customer experience projects following insights from the foresight process.

Established Organizational Policy

PF has introduced three major organizational foresight policies as part of its strategy development process: first, the bank developed and launched a comprehensive foresight framework (see Chapter 2). Second, foresight activities are driven by its established network of future agents/trend scouts. And finally, PF confirmed the foresight continuum, which ensures an enhanced organizational flexibility for strategic decision-making), and driving innovation capabilities and ongoing learning through strategic debate.

Future Agents and Trend Scouts

The main objective of a future agent network is to ensure ongoing feeding and updating of the weak and strong signal database and the development of future scenarios. Future agents (now referred to as *trend scouts*) are seen as the primary source for input into the foresight process. They meet on a both ad hoc and formal basis three to four times a year to discuss changes in the environment based on new signals and to prepare input for strategy reviews, the scenario building and strategy development process. The key success factors at PF are voluntary participation, their proximity to the daily business, and a requirement that their participation is independent of existing company hierarchy. Over the past years, the future agent network was comprised of around fifteen to twenty representatives from different departments, and most departments of the organization were represented.

As a consequence, since its launch in 2005/2006, PF moved away from focusing purely on structured processes and traditional analytical methods: its focus is on exchanging knowledge through a network of internal future agents and strategy workshops, and signal analysis and scenario building mostly based on qualitative methods.

In 2016, the newly appointed trend scouts continue the work of the future agents with the support of a new "trend explorer" platform. PF hopes to achieve a network effect through these agents/scouts, independent of a centralized management structure, to foster communication and collaboration. This network enables open discussion, exchange of opinions and thoughts with a focus on future change, and impact on the organization; it means that knowledge of future potential changes is embedded in the organization across functions and hierarchies; it mitigates the risk that foresight knowledge can be lost; and ensures that more managers consider the potential impacts of future scenarios during planning activities.

Foresight Continuum

The foresight continuum is different from the formal results of a strategy development process (i.e., response strategies or future projects) which are tangible deliverables identified in the formal process. The foresight continuum enables PF to benefit from increased flexibility in decision-making, innovation, and ongoing learning through strategic debate, initiated and enabled by a foresight framework.

Key benefits of a foresight continuum include:

- Open strategic debates, revealing more divergent scenarios for consideration in the strategic planning process;
- More future-oriented strategic projects and the building of an innovation driven culture;
- Strategic imperatives that address current challenges and prepare an organization for change in the long-run; and
- Flexible decision-making capabilities, as strategies are being implemented.

As a result of the foresight process, PF is more open to change: rather than only to deliver tangible results, the goal of foresight within PF is to "carve a certain mindset within the organization that allows long-term issues and trends to be known". This means that the organization can try to anticipate alternative outcomes and everyone understands that instead of "just moving ahead, we could also turn to the right or to the left". Therefore, PF has the ability to describe strategic imperatives that prepare the organization for industry and market reconfigurations.

Identified strategic imperatives support the organization's ability to act as a learning system, as the process has delivered thoughts and ideas for future consideration and additional input to support the strategic decision-making process. This cultural mindset enables the organization to reorient itself as the environment changes. It is concluded that as a result of this process, PF's level of readiness for change has improved as it has created strategies to address both current and future challenges.

Socially Constructed Planning Practices

Ongoing, iterative foresight activities, and benefits from the foresight continuum, are driven by future agents/trend scouts (see concept of *futures net* in Fig. 6.4). The resulting continual assimilation of information into scenarios depicting alternative futures can be regarded as a community-of-practice (Peter and Jarratt 2015).

The iterative foresight framework of PF is a socially planned practice (i.e., community) that drives "foresight-as-communication" through its future agents/trend scouts and their collection and analysis of signals, which stimulate debate and create scenarios for future strategies, which in turn drive innovation. The PF strategies are therefore a summary of different discussions and support the notion of an iterative, ongoing learning process.
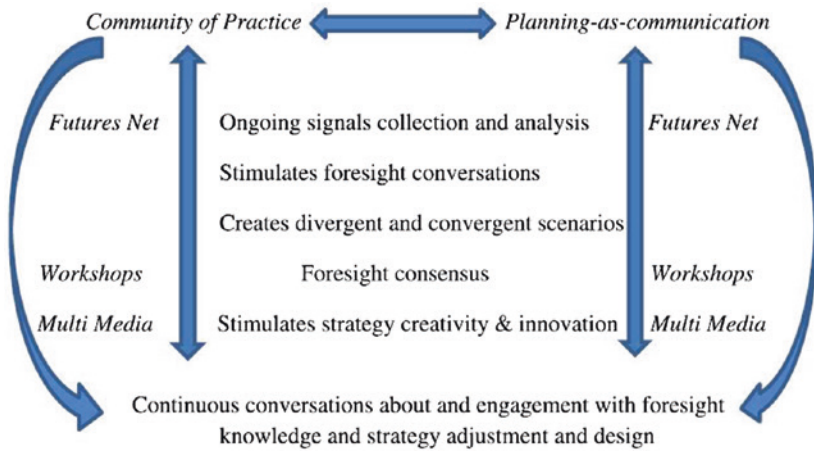
Fig. 6.4 Socially constructed planning practices (Peter and Jarratt 2015, p. 58)

Conclusion

There are numerous advantages to adopting a foresight-centric approach to strategy management. In addition to formal output from the process, PF has shown that there is a strong link between foresight and innovation as a foresight-centric planning process, which reflects more open debate and reveals more divergent scenarios for consideration. Through the open conversations (i.e., community-of-practice), employees are more willing to present and debate ideas across all levels of the organization, in turn re-energizing strategic debate and supporting innovation.

Quantifiable output from foresight in 2005/2006 includes the development of two scenario-based future "worlds". The executive team acknowledged that these are the two scenarios which are used as a basis to test the bank's strategic plans and organization's readiness for change. After long debates and many workshops, management defined a list of actions required under each scenario, but decided to implement the changes required to prepare for the "convenience" world. Under this scenario, PF initiated and introduced the following strategic changes:

– A review of and changes to their medium-term market strategies that included a refreshed market positioning and a modified product portfolio;
– A change management program to support cultural change to shift the organization's mindset to "easier products" to enhance the customer experience, rather than just to launch "more products";
– An upgrade of services in 600 branches and extended banking services; and
– A new organizational structure.

Over the past decade, foresight at PF has retained its core objective, time horizon, and organizational anchoring through future agents/trend scouts. By 2016/2017, results from foresight activities included three scenarios which provided an important contribution to the digital transformation initiative. The initiative is still in progress and shall be implemented over the next strategy period.

Over the past one and a half decades, PF achieved a successful long-term financial performance with an average annual profit growth of 12% in the period 2002–2016 (Table 6.4). In the period from 2002 to 2011, the average operating profit was 21%, and in the period from 2012 to 2016, 39%.

However, despite the various investments into long-term planning and scenario development, PF has underestimated the duration of the low-interest market situation in the past years, and the overall impact on its financial outlook. In addition, PF assumed a faster political process that would allow them (as a state-owned organization) to provide loans and mortgages to commercial clients, which in turn would provide higher returns.

While foresight is not the ultimate driver for growth, it enables an organization to plan for the future and develop strategy accordingly. Results from the foresight process are not only formal and financial. The process also helps to stimulate an innovative and proactive culture; the benefits of the foresight continuum are additional thoughts and ideas, new mental models and paradigms. A downside of foresight-centric approaches to strategic planning is that decision-making can take longer because of its democratic nature and large network. Although time-consuming, it is evident that a dedicated, continuous foresight process is necessary in order to cover issues not necessarily catered to by traditional strategy planning processes.

Table 6.4 PostFinance financial performance 2002–2016 (author's illustration from PostFinance financial reports. PF changed its financial reporting to the International Financial Reporting Standards (IFRS) in 2012 which resulted in a new baseline for the definition of its operating revenue)

Key Metrics	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Operating revenue (CHF million)	867	919	977	1529	1587	1937	2191	2160	2389	2451	1534	1646	1492	1633	1675
Operating profit (CHF million)	202	243	278	312	245	318	229	441	571	591	633	719	475	624	641
Operating profit in % of revenue	23	26	28	20	15	16	10	20	24	24	41	44	32	38	38

Foresight is a contemporary management approach, as it proactively attempts to determine future opportunities and threats. At PF, organizational policies (i.e., institutionalization of trend scouts) ensure continuous development and debate through processes of community-of-practice and foresight-as-communication. Such activities create a culture driven by innovation, and provide strategic alternatives for continuous and discontinuous futures, especially in the age of the digital transformation and technology-driven environments.

Notes

1. Radio-Frequency Identification: a chip on the debit card that contains electronically stored information which will be shared through radio waves with an RFID reader.
2. The basis of this case study is from Peter (2011) and follows a review of PF internal and external documents, seven interviews with PF managers in 2007, as well as two interviews with PF managers in 2017.
3. PF memo "Early Warning Management System", internal document (13 November 1998).
4. PF company presentation "Future Screening", internal document (January 2006).
5. PF memo "Strategy Development Process", internal document (17 October 2003).
6. Interviews with the PF Head of Strategy and PF Business Lead Digital Transformation (19 June 2017).
7. PF strategy process, internal document (9 July 2010).
8. PF project briefing "Future Screening", internal document (18 June 2004).
9. PF foresight framework "Future Screening", internal documents (20 December 2004, 2005).
10. Interviews with the PF Head of Strategy and PF Business Lead Digital Transformation (19 June 2017).
11. Interview with the PF Business Lead Digital Transformation (21 September 2017).
12. Interview with the PF Business Lead Digital Transformation (21 September 2017).
13. Interviews with the PF Head of Strategy and PF Business Lead Digital Transformation (19 June 2017).

References

FSO Federal Statistical Office. (2017). Population Data May 2017. Retrieved from: https://www.bfs.admin.ch/bfs/en/home/statistics/population.html.

Fuller, T. (2005). *Inventing futures: The interpretation of "weak signals" into futures that matter* (Project report). Lincoln.

Kneissler, T. (2006). Future screening and innovation at postfinance. European Futurists Conference, 22 November, Lucerne.

Peter, M. K. (2011). *Future screening: A framework for advancing strategic corporate foresight* (Doctoral dissertation). Charles Sturt University, Sydney, Australia.

Peter, M. K., & Jarratt, D. (2015). The practice of foresight in long-term planning. *Technological Forecasting and Social Change, 101,* 49–61.

PostFinance. (2017a). Annual Report 2016. Retrieved from: https://www.post-finance.ch/content/dam/pfch/doc/ueber_uns/report2016_info_en.pdf.

PostFinance. (2017b). PostFinance's history. Retrieved from: https://www.post-finance.ch/en/about-us/company/history.html.

Anticipating and Managing Change in Large Organization Strategic Environment: Using Foresight and Organizational Policy to Enable Futures Literate Decision-Making

Anna Sacio-Szymańska and Kacper Nosarzewski

Introduction

One of the key values of foresight is to enable organizations to anticipate the future faster, which, ideally, could be linked to tangible outcomes, such as new products, new services, new research paths, and new research projects, all leading to scientific discoveries and to new markets (Boe-Lillegraven and Monterde 2015; Rohrbeck 2010; De Toni et al. 2015; Hiltunen 2013; Grim 2009; Daheim and Uerz 2008; Burmeister et al. 2004; Becker 2003). However, as much as quantifiable value contributions matter for an organization's bottom line, it is institutional learning and culture, related to use of foresight, that may radically reinforce (or weaken) the positive impact of any forward-looking

A. Sacio-Szymańska (✉)
ITeE-PIB—Institute for Sustainable Technologies—National Research Institute, Radom, Poland

K. Nosarzewski
4CF, Strategic Foresight, Warsaw, Poland

undertaking in the long term (Bootz 2010; Cunha et al. 2006; Van der Heijden 2004; Kononiuk and Sacio-Szymańska 2015).

The authors aim to illustrate the above hypothesis by analyzing the context, methodology, outcomes, and implications of foresight processes implemented in two organizational settings: a large private company (case A) and that of a public research institute (case B). The main characteristics of the two case studies are given in Table 7.1.

Case A: BEWA—Manufacturer of Beverages

Case study A describes the process of development and implementation of the innovative foresight tool supporting strategic management in BEWA, a beverage company (Bednarczyk 2016). BEWA is a large company. It employs 275 workers and has been developing rapidly thanks to the innovative market and marketing strategy implemented by the open-minded executive and middle management. Despite rather limited awareness of the brand among customers, BEWA company is one of the largest domestic producers of spring water, mineral water, and beverages in Poland. It is the supplier of water, beverages, and 100% not-from-concentrate (NFC) juice to the largest retail chain in Poland—JMP (Biedronka) and Eurocash, Kaufland, Carrefour, Selgros to name just a few. The company is characterized by rapid growth in sales (volumes sold 2009–2015 multiplied by 6) and exports (sale of approximately 300 mio of bottles per year).

In the early months of 2015, the company's management decided to revise the company's strategy in order to support their medium term-oriented investment decisions. The study aimed to develop (1) a database, and (2) a managerial presentation supporting the identification and monitoring of upcoming opportunities and threats present in the fast-moving-consumer-goods (FMCG) sector, as well as, questioning assumptions through the simulation of possible changes. The project was initiated by company management; and conceptualized and implemented by the analytical and advisory 4CF Warsaw-based strategic consultancy, which specializes in business foresight. It was carried out in the first half of 2015 and consisted of the following phases:

Table 7.1 Comparison of strategic foresight implemented in a private company (case A) and in a public research institute (case B)

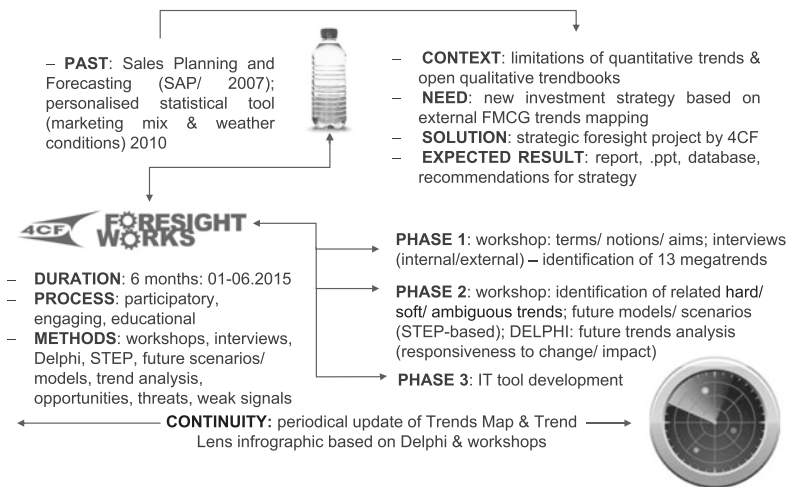| Strategic foresight characteristics	Case A private company	Case B public research institute
Challenge	Capturing technological change and thus supporting strategic investment decisions	
Objectives	Ongoing identification, monitoring, and assessment of upcoming opportunities and threats in a specific sector	Prioritizing lines of long term scientific research and development in selected thematic areas
Thematic focus	FMCG (fast-moving-consumer-goods)	Advanced manufacturing technologies
Implementation model	External (strategic foresight consultancy)	Internal (department of innovation strategies)
Methods	Workshops, interviews, Delphi, STEP, future scenarios/models, trend analysis, opportunities, threats, weak signals	SWOT, STEEPV, key technologies, structural analysis, scenario building, technology roadmapping, workshops, expert panels, online surveys
Outcomes	The database of trends: The Trend Lens Early Warning System (available within the company's intranet and updated regularly)	–List of key R&D priorities in five research areas –Three scenarios of scientific research development –Outline of a 5-year strategic research programme
Implications	–Decision-making system –Knowledge-management system –Further cooperation with the external foresight service provider through semi-annual workshops	–Further research pursued in the area of forward-looking methodologies –Follow-up strategic foresight exercises –Temporary changes in organisational structure
Time horizon	Medium-term (5–10 years)	
Financing source	Internal	Mix: internal and public funding
Realisation (year)	2015	2008–2010 with two follow-up rounds
Current use (in 2017)	Yes	No

Source Authors

Fig. 7.1 Overview of foresight process in BEWA (case A) (*Source* Authors)

(1) methodological study, (2) execution of the study, (3) preparing a report entitled "The Trend Map", and (4) implementation of trends-based Early Warning System called "The Trend Lens". The process and the results are shown in Fig. 7.1.

The first stage of the project was a strategic workshop for board members and key company executives. To work out a common level of communication and introduce a shared concept of foresight, the current strategic objectives were analyzed and reframed in relation to improvised future scenarios. Then the set of 13 Megatrends that would affect the beverage market was identified. The next step consisted of workshops for generating subtrends resulting from the previously selected Megatrends. In total, several dozens of historical trends were identified and then divided into three classes: (1) hard trends,[1] which are characterized by high probability, (2) soft trends,[2] which are less predictable, and (3) ambiguous trends, which could bear both characteristics. This classification helped in the selection of trends to the Trend Map variation called Trend Lens—a continuously updated strategic management and early warning tool (see Fig. 7.2).
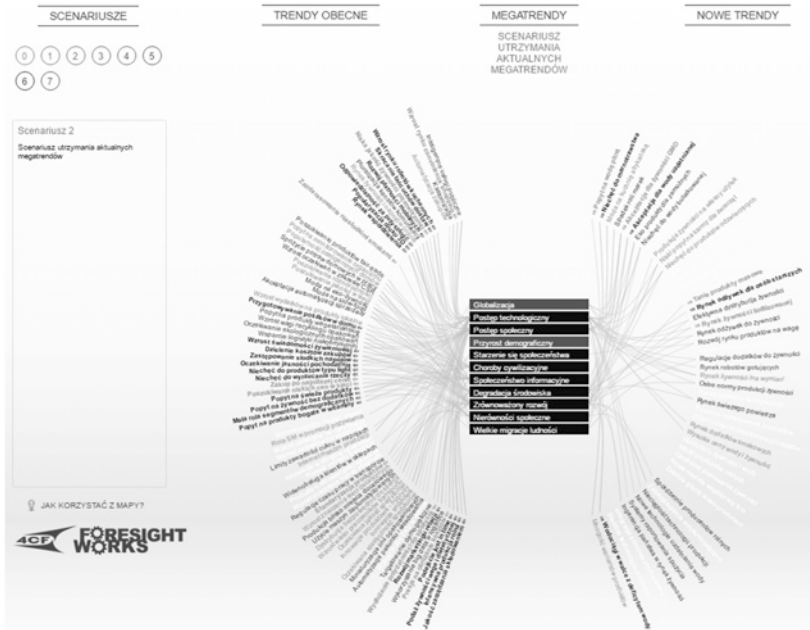
Fig. 7.2   BEWA Trend Lens screenshot (case A) (*Source* Archival)

At the next step, the 4CF team developed a set of 7 scenarios—Models of the Future. These models were in the form of narrative descriptions of the possible socioeconomic and technological development. They were used to generate the set of possible future trends through the confrontation of the classified initial trends, Megatrends, and Models of the Future. This collection helped the 4CF team to identify (using Delphi method) potential areas of threats and opportunities not yet addressed by BEWA's competitors.

The team then included the description of trends in terms of quantitative data—which was executed through interviews and Delphi surveys among employees and management, as well through reframing[3] of the Megatrends and Models of the Future—for the further data processing. The results of these operations were presented in report and presentation. The final step of this part of the project was the confrontation the results of the study with current strategy of the company in order

to update medium- and long-term development plans. The above was realized during the recommendations session conducted by 4CF for the management board of the company.

Practical results from the foresight study included the database of trends identified by The Trend Lens Early Warning System (updated regularly and available within the company's intranet) that need to be considered by BEWA while making decisions on investment. Among the key practical benefits for the company, there are the following:

– Knowledge about highly resistant trends (present with medium to high probability in at least 6 out of 7 scenarios);
– Systematic anticipation of new sector trends before they emerge on the basis of global megatrends (which triggers in-house innovation).

The described foresight process reflects a feedback loop: (1) The Trend Lens tool is updated quarterly based on knowledge management system and scouting, (2) the management board conducts a continuous analysis of the changing positive and negative external factors, and (3) 4CF moderates semi-annual workshops that aim to update The Trend Lens in the company's intranet.

In summary, the implemented approach met the BEWA's management's expectations in terms of getting methodically developed basis for verification of strategic objectives. The management board used the project's products to update the strategy and to verify the means of cooperation with key clients. After one year, since the end of the initial project BEWA is still effectively using the tool, which proves its value in managing the company's strategic development needs.

Foresight Impact and Sustainability Measures (Case A)

When trying to synthesize sustainability measures utilized in BEWA to sustain the future-thinking processes in the organization, it is inevitable to consider the main impacts of foresight activities. Based on the review of some foresight evaluation frameworks (Poteralska and Sacio-Szymańska 2014), the following immediate, temporary and ultimate

foresight impacts, which occurred at BEWA, could be distinguished (Table 7.2).

BEWA's management included knowledge from their foresight process in decision-making on all levels. Tactical decisions were made immediately following the realization of the gap between specific product innovation versus trend development. Planning and strategic communication were improved with new confidential knowledge to be used in exploration and negotiation talks with key partners. Successful strategic acquisition aimed at a "name brand" beverage company to improve market grip and capacity to execute strategic product innovation is a capstone undertaking cementing the new future-oriented strategic agenda.

Case B: ITeE-PIB—Public Research Institute

Institute for Sustainable Technologies (ITeE-PIB) is one of approximately 100 applied research institutes based in Poland, whose tasks are to solve practical problems of an individual or group of companies by applying the latest knowledge and technologies in the co-creation of useful products, services, and processes. ITeE-PIB employs approx. 240 specialists who pursue research in the following fields: surface engineering, manufacturing and maintenance, ecology and environment, industrial biotechnology, tribology, innovation management, and lifelong learning. It holds a unique status of a National Research Institute, which is given to public R&D entities performing research of highest importance to the national economy.

In 2008, ITeE-PIB took on a challenge to set detailed key priorities for its medium-term research agenda, which could be feasibly implemented in the Polish economy. The main objectives of this forward-looking undertaking were:

– To determine research priorities of the institute and a set of corresponding key technologies targeting manufacturing businesses;
– To build alternative scenarios for development of scientific-research at the institute;

Table 7.2 Foresight impacts at BEWA

Immediate foresight impacts	Intermediate (temporary) foresight impacts	Ultimate foresight impacts
• Gap analysis between trends and marketing strategy performed and results directly implemented into product range tactical choices • Increased understanding of the function of foresight among quality and product innovation staff	• Including confidential information from the Trend Lens visualization and sense-making into strategic communication with key partners and into investment decision-making	• Maintenance of competitive edge within strategic segment of the market to optimize company turnover and maximize net value • New investment advised by foresight knowledge
Metrics/Outputs		
• Launching of new product varieties with a more comprehensive bag-in-box NFC blended juice offer	• New private label product line aligned with strategic partners' new brand featuring BEWA innovative NFC and/or exotic juices incl. blended juices in innovative plastic bottle packaging • Strategic acquisition (horizontal expansion)	• Maintenance and expansion of strategically significant relationship with discerning buyers marketing BEWA strategic product innovation under private label
Timing		
2015	2015–2017	2015 onwards

Source Authors

– To design a research programme, that would allow to put the results of the institute's foresight into practice.

The process (Fig. 7.3) was managed by the internal team from within the Innovation Strategies Department.[4]

The main phases of the foresight process illustrated in Fig. 7.3 include (Sacio-Szymańska 2011):

– Analysis of the institute's research potential,
– Selecting priorities for R&D and recommending key technologies,
– Creation of alternative scenarios of the institute's R&D development,
– Development of operational plan for the implementation of the preferred R&D scenario,
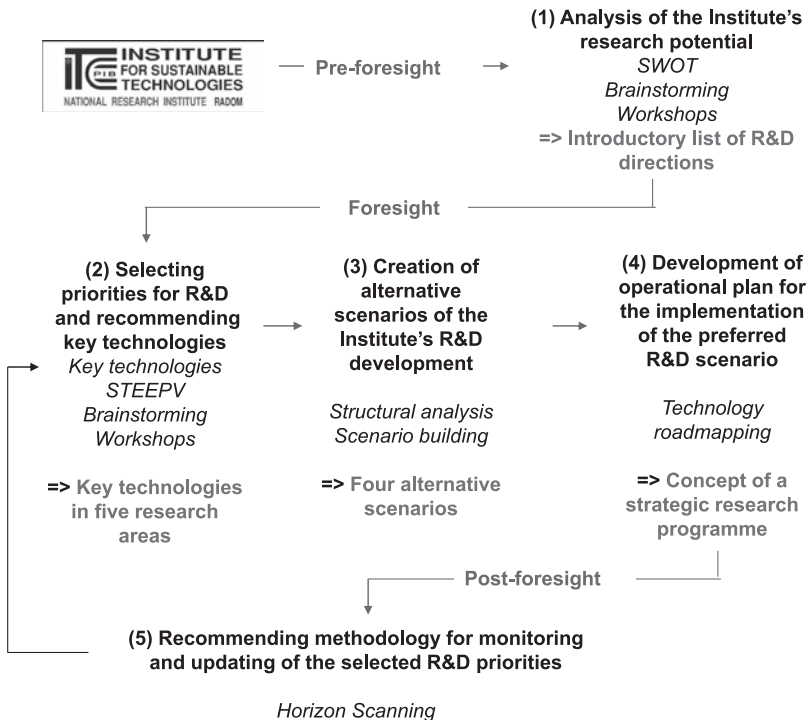
Fig. 7.3 Foresight process at ITeE-PIB (case B) (*Source* Authors)

– Recommending methodology for monitoring and updating of the selected R&D priorities.

The main methods used in the process were: SWOT, STEEP, scenario building, key technologies, technology roadmapping, and structural analysis. Additional methods included: expert panels, workshops, questionnaire surveys, and brainstorming.

Continuing, the processes of generation and selection of the promising R&D priorities and technologies were incorporated into the framework of a pilot strategic foresight project (own funding) and a sectoral foresight: "*Advanced industrial and ecological technologies for the sustainable development of Poland*"[5] coordinated by the institute within the Innovative Economy Operational Programme (EU-funding). Altogether, 74 technologies[6] were generated by internal experts representing ITeE-PIB and external experts representing science and industry. Each technology was characterized (Table 7.3) and the description included information whether the technology was already functioning on the market, was ready to be commercialized, was presently subject to testing or would only emerge in the future. The information on the sectors in which the technology was or could be applied was given, as well as, its development prognosis for 2015 and 2020 and the potential ecological, economic, and social impacts. Also, the alternative technological solutions and their application areas were explained. Information from technology characteristics cards was applied in the prioritization process of the technologies, in which the following criteria were considered:

Table 7.3 Fragment of the designed technology characteristics card

Thematic area:	Advanced material technologies and nanotechnologies and technical systems supporting their design and application
Name of technology:	Hybrid technology of increasing the durability of selected compounds of engines
Development phase of technology:	Design/development
Scope of application:	Mass scale application
Alternative technologies:	Production of coatings from materials resistant to oxidation

(continued)

Table 7.3 (Continued)

Description of technology:	*Aim of technology application*: To increase the endurance to high-temperature oxidation and erosive wear in gases *General characteristics*: Technology consists in the production of advanced material solutions with particular attention paid to hybrid coatings produced with multi-source methods
Areas of current application:	Energy, gas, hot water, air for air-conditioning systems production and supply
Expected development direction:	*2015 prognosis*: Increase of the endurance of ignition plugs of engines on bio-gas *2020 prognosis*: Increase of the durability of valve compounds of engines on bio-gas
Sectors of application:	*Current sectors*: Energy, gas, hot water, air for air conditioning systems production, and supply Example of application: to increase the endurance of ignition plugs of engines on bio-gas *Potential new sectors*: Water supply, waste and sewage management, and activities connected with reclamation Example of application: to increase the endurance of ignition plugs of engines on bio-gas

Source Authors based on http://www.foresight.itee.radom.pl/chartech/index.php (in Polish)

– Sustainable development including subcriteria of ecological, financial, and social effects (Destatte 2010);
– Critical level of technologies including the level of interdisciplinarity of solutions.

Both criteria were considered to be of equal importance, each represented numerically, however in the case of sustainable development criterion, the assigned points could be negative indicating potentially

detrimental impact of specific incremental and emerging technologies on the environment, or their hampering effects on the societal developments (if a solution raised, i.e., serious ethical concerns). The R&D priorities and technologies were grouped under 5 main research fields:

– Specialised research and test apparatus;
– Mechatronic technologies and control systems;
– Advanced material technologies and nanotechnologies;
– Environmental technologies, raw materials, natural resources, and renewable energy sources;
– Technologies of technical and environmental safety.

The next stage of foresight involved scenario building based on key factors and generated technologies determining the suggested scope of research. Key factors were selected with the use of quantitative and expert methods. As a result of the conducted analyses the two key factors identified included: *scientific and research potential* and *financial standing*. Following the scenario-axis technique, the two key factors were projected onto the Cartesian coordinates plane, where the beginning of the axis represented the lowest value of the factor, and the end—the highest (Notten 2005). The four areas marked in that way formed the framework for the creation of scenarios: A (Basic Research), B (Sustainable Development), C (Market), and D (Under threat of existence). Further analyses were focused on scenarios A, B, and C (the negative scenario was considered inadequate for directing future research of the institute).

The final phase of foresight at ITeE-PIB involved the conceptual design of a strategic research programme, which would allow for pursuing research in the five, aforementioned fields and in the detailed priority research directions. Such a programme was conceptualized, launched, and executed by the institute in cooperation with Polish academic institutions and enterprises within the Innovative Economy Operational Programme (co-financed from the EU structural funds) in the 2010–2015 period.[7] It aimed at the development of advanced product and process solutions ready for practical industrial implementation in the thematic fields corresponding to the ones identified within foresight exercise. An important thematic field of the programme

contributed to the research of knowledge and technology transfer processes. It allowed the internal foresight team to continue research on updating foresight methodologies and secured two follow-up rounds of internal foresight processes in collaboration with the institute's and external stakeholders. Nevertheless, after the programme ended in 2015, internal foresight activities were stopped as well.

Foresight Impact and Sustainability Measures (Case B)

The following immediate, temporary, and ultimate foresight impacts, which occurred at ITeE-PIB, could be distinguished (Table 7.4).

The key sustainability measure, which was applied at ITeE-PIB to maintain the future-orientation of the engineering staff (after the first internal foresight project ended), was the setting-up of a temporary task unit/team composed of young researchers who represented all research departments of the institute. Team members were responsible for performing horizon scanning to search for future technological and investment opportunities for their respective departments. The expected key success factor of the team's performance was the number of European project proposals in the institute's key research areas submitted and funded. The horizon scanning activity was an additional task of the team members, whose job description and standard daily activities involved pure engineering tasks. They were provided with methodological guidance and international networking support from the institute's innovation strategies department. What is more, the top management fully supported this organizational innovation.

However, in the long-run, the team dissolved. The discrepancy between each department's future research priorities and the individual call topics at EU-level was one of the key (external) factors that led to low success rate in the EU calls for proposals targeted by respective departments (10%). The hierarchical organizational structure, was another (internal) factor, which most likely affected the team's performance and ability to be successful in the long term. In the case of some departments, delegation of responsibilities did not imply the delegation of authority to subordinates, which made it impossible to immediately

Table 7.4 Foresight impacts at ITeE-PIB

Immediate foresight impacts	Intermediate (temporary) foresight impacts	Ultimate foresight impacts
• Articulation of joint visions and organizational priorities for the future • Better understanding of the function of foresight among engineering research staff • Effective actions taken	• Setting up a temporal team pursuing interdisciplinary research into foresight theory, technology assessment, and scientific-business cooperation • Setting up a temporal internal team of young researchers to perform horizon scanning for future technological and investment opportunities • Creation of follow-up projects	• Ongoing research into foresight theory and practice oriented toward foresight capacity building within the department of innovation strategies • Establishing foresight projects pipeline
Metrics/Outputs		
• The launching of a strategic research program	• Three PhD degrees in the field of foresight and technology management earned by ITeE's innovation strategies department employees • Ten EU-level project proposals in ITeE research priority areas submitted (one funded) • The launching of the Future Engineering conference (2014, 2015, 2016 editions)	• ITeE's active presence in key networks at local, national, or EU-levels in the field of foresight and Industry 4.0 • 4 EU-level project proposals in the field of foresight capacity building submitted (three funded, one under review)
Timing		
2010	2011–2016	2014 onwards

Source Authors

translate project ideas into actions. Both factors combined, contributed to the relatively short longevity of the team.

When initial organizational strategies proved to be short-term solutions; a new sustainability measure was introduced. It implied a switch from distributed technology foresight within various institute's engineering departments to enhancing individual foresight competence among selected employees of the innovation strategies department. It was achieved by partnering with the key national or foreign teams of foresight researchers and practitioners. In the longer term, the strategy resulted in ensuring a continuous pipeline of projects able to attract external customers interested in foresight capacity building.

Nevertheless, building internal foresight capacities across ITeE-PIB departments is itself, a thing of the future.

Comparative Analysis of the Two Cases

Organizational Motivation

In Case A, foresight was initiated by the company management board; conceptualized and implemented by the analytical and advisory strategic consultancy, which specializes in business foresight. The company's management decided to revise the company's strategy in order to support their medium term-oriented investment decisions. The study aimed to develop (1) a database and (2) a managerial presentation supporting the identification and monitoring of upcoming opportunities and threats present in the FMCG sector, as well as questioning assumptions through the simulation of possible changes.

In case B, foresight was initiated by the director of the organization; designed and managed by internal department of innovation strategies. The goals included the generation of the key long-term research priorities, the outcomes of which (i.e., technologies) should be successfully transferred to the commercial sector for public benefit.

In both cases, the underlying motivations for foresight triggered positive organizational changes, however, in case B, they were temporary. In

case A, given the period of time that has passed since the end of the project; it might be too early to conclude whether the so far positive trend of foresight continuity within the organization will last over time.

Methodological Approach

In Case A, foresight process consisted of the following phases: (1) methodological study, (2) execution of the study, (3) preparing a report entitled "The Trend Map", and (4) implementation of trends-based Early Warning System called "The Trend Lens". The final step was the confrontation the results of the study with current strategy of the company in order to update medium- and long-term development plans.

In case B, the main phases of the foresight process included: (1) methodology design, (2) analysis of internal research potential, (3) prioritising lines of R&I and the selection of key development directions, (4) creation of scenarios for R&I development, (5) elaboration of operational plan for the implementation of the preferred R&I scenario, and (6) methodology for monitoring and updating of the selected R&D priorities.

A formally organized, collective methodological approach was in line with the organizational culture of the institute in case B as opposed to less structured foresight processes implemented in more flexible organizational environments in business sector (case A). In spite of the rather traditional foresight methods used (in case B), the initial project objectives were met. Also, in the latter two consecutive internal foresight exercises at ITeE-PIB two methodological improvements were introduced.[8] However, the focus on the scientific weight of the methodology and the scientific evidence of the results did not help in countering the limitations of hidden assumptions (Miller 2007).

The surprise and groundbreaking change in organizational setting of all public institutes of applied research (including new laws set for introduction in 2018), which is taking place in Poland after seven years since the completion of the process, demonstrates that omitting the negative scenario ("Under threat of existence") in further analyses might have been a misjudgement, or biased decision. If openly acknowledged and addressed at

the time of the realization of the process, it could have widened the list of possible, yet challenging tactical options and thus might have helped the institute to be better prepared for the future.

In this context, the designers of the foresight process implemented at BEWA managed to keep it methodologically rigorous, but also more participatory, engaging and educational for the staff of the company. Foresight in the case A revealed common goals and shared assumptions about the future of the organization, it also united the management team and helped them to build confidence needed to make decisions about the future. As a consequence, the improvement of team and leadership capacities (Miller 2007) was another successful impact of the project.

Stakeholders Engagement

In case B, even though the number of external participants who contributed to the institute's foresight analyses surpassed the number of internal experts, their role in the foresight process was limited to the first phase of the research, (i.e., setting of R&D priorities). External personnel participation in the scenario building was restricted to the stage of selecting key influencing factors and the roadmapping phase, a strategy consistent with research findings by Phaal and Farrukh (2000). This phase was thus realized exclusively by internal research personnel of the institute. Not to be overlooked, however, the affiliation of external experts can have a positive impact. In case of the institute, which depends both on public and private financing, the involvement of the innovative SMEs representatives, as well as, relevant governmental stakeholders, should have been strengthened. Whereas, the academic background of the majority of experts may have resulted in the too scientific nature of the selected avenues for R&D development, thus only partially addressing the needs of the business sector.

In case A, on the contrary, a successful merger of confidentiality and participation in the foresight process at BEWA enabled focus on future competitive advantage and practical application of the knowledge generated to business decision-making in a multimillion PLN acquisition project started shortly thereafter.

Organizational Policy

In Case A, the practical result from the foresight study included the database of trends: The Trend Lens Early Warning System (available within the company's intranet and updated regularly) to support strategic decisions on investment, as well as, accessibility as a reframing device for short and mid-term decision-making. Foresight process has been a feedback loop: (1) The Trend Lens tool is updated quarterly based on knowledge management system and scouting, (2) the management board conducts a continuous analysis of the changing positive and negative external factors, and (3) strategic foresight consultancy moderates semi-annual workshops that aim to update The Trend Lens in the company's intranet.

In Case B, apart from mapping the array of research opportunities and setting the scene for pursuing specific technological and application—oriented projects, the organization set temporary teams that aimed to improve the efficiency of foresight methodologies and look for potential research and investment opportunities in the ITeE-PIB's priority areas. However, the organizational changes that facilitated conducting horizon scanning activities in a more systematic manner did not continue. No organizational policy was developed to clarify tasks and set criteria for accountability. Currently, in this case, it is more the task of individual research teams or engineering departments to set their research priorities and keep a sustained track of projects with business actors.

Management Strategies

Among the key practical benefits for the Case A company there were the following: (a) Knowledge about highly resistant trends (present with medium to high probability in at least 6 out of 7 scenarios); (b) Systematic anticipation of new sector trends before they emerge on the basis of global megatrends (which triggers in-house innovation). The implemented approach met the company's management expectations in terms of getting methodically developed basis for verification of strategic objectives. BEWA's management has included knowledge from their

foresight process in decision-making on all levels. The management board used the project's products to update organizational strategy and to verify the means of cooperation with key clients. After one year, since the end of the initial project, the company is still effectively using the tool, which proves its value in managing the company's strategic development needs.

Within Case B, 74 specific technologies were generated by internal and external experts, which were grouped under 5 main research fields, such as mechatronics and control systems, surface engineering, environmental and technical safety, research apparatus. They were the basis to design and launch, in the final and follow-up phases of internal foresight process, a 5-year long strategic research programme co-financed from EU funds, that aimed to pursue research in the so identified areas. However, in the long term, after the completion of the strategic program, the renewal of the R&D strategy was not pursued and the organizational change, which made cooperation among engineering and foresight teams feasible, appeared to be temporary.

Fulfillment of Objectives

In both cases, the objectives of the assumed foresight processes were met. However, unlike the situation in case A, the team responsible for the foresight exercise at ITeE-PIB did not succeed in proving the relevance and positive impact of foresight. Consequently, it did not manage to raise organizational foresight awareness among its hard science research staff. The failure could be associated with the neglect of agreeing (in advance) on the common dictionary of terms, objectives, and expected results with the key stakeholders in the organization.

The foresight team facilitating the process in the case of BEWA avoided making such a mistake. It launched the project with a strategic workshop for board members and key company executives in order to work out a common level of communication and introduce a shared concept of foresight in the context of the then-current strategic objectives of the company. Organizational culture, that is the role of hierarchy, individuality, and interdepartmental competition appeared to

be a factor that limited eliciting groundbreaking ideas and developing cross-cutting organizational vision (in case B). It later resulted in limited engagement and support for follow-up internal foresight activities.

Finally, after two further foresight exercises, the internal foresight process was temporarily suspended at ITeE-PIB and the responsible team started focusing on projects for external clients. On the contrary, the key members of BEWA continue using the database and the method internally, while regularly consulting the outcomes and possible upgrades of the tool and the monitoring process with the foresight consultancy. It clearly was a learning process that developed and embedded new organizational capacities and as such can be classified as a successful case for strengthening organizational foresight capacity and futures thinking.

Notes

1. A Hard Trend is a projection based on measurable, tangible, and fully predictable facts, events, or objects. It's something that will happen: a future fact that cannot be changed. Hard Trend categories include Technology, Demographics, and Government Regulations (Burrus 2014).
2. A Soft Trend is a projection based on statistics that have the appearance of being tangible, fully predictable facts. It's something that might happen: a future maybe. Soft Trends can be changed, which means they provide a powerful vehicle to influence the future and can be capitalized on (Burrus 2014).
3. Reframing is both a conceptual direction to think out of the box and a practical tool. Conceptually reframing means allowing the underlying beliefs commonly accepted within your domain or industry to surface, and to turn these around in order to come up with innovations (Wolfe 2016).
4. In 2009, within "National Foresight Programme Poland 2020" the institute's managing director coordinated the biggest of the three main research area panels, that is "Sustainable Development of Poland". ITeE-PIB staff was actively involved in foresight research, with Innovation Strategies Department designing detailed methodology and managing its implementation (Mazurkiewicz and Poteralska 2009; Sacio-Szymańska and Kuciński 2009).

5. http://www.foresight.itee.radom.pl/.
6. http://www.foresight.itee.radom.pl/chartech/index.php.
7. http://www.programstrategiczny-poig.itee.radom.pl/english/index.php.
8. (1) The improved scenario-building methodology encompassed a quantitative algorithm, which enabled more rigorous identification of key driving forces of highest influence and importance. (2) SWOT analysis was replaced with Intellectual Capital measurement methods, which helped better assess the institute's strengths and weaknesses by estimating the real value of the institute's IC assets (Leitner and Warden 2004).

References

Becker, P. (2003). *Corporate foresight in Europe: A first overview*. RTD K-2 Scientific and technological foresight: Relations with the IPTS. Belgium: European Communities.

Bednarczyk, Z. (2016, October 29–30). *From trend analysis to strategic foresight implementation of a trends-based early warning system in BEWA sp. z o.o.* Future Engineering Conference, Starachowice. Retrieved from: http://www.future.engineering.itee.radom.pl.

Boe-Lillegraven, S., & Monterde, S. (2015). Exploring the cognitive value of technology foresight: The case of the Cisco Technology Radar. *Technological Forecasting and Social Change, 101,* 62–82.

Bootz, J. P. (2010). Strategic foresight and organizational learning: A survey and critical analysis. *Technological Forecast Social Change, 77,* 1588–1594.

Burmeister, K., Neef, A., & Beyers, B. (2004). *Corporate foresight. Unternehmen gestante Zukunft*. Hamburg: Murmann Verlag.

Burrus, D. (2014). *Improve planning by separating hard trends from soft trends.* Retrieved November 6, 2017, from: http://www.burrus.com/2014/02/improve-planning-by-separating-hard-trends-from-soft-trends/.

Cunha, M. P., Palma, P., & Costa, N. (2006). Fear of foresight: Knowledge and ignorance in organizational foresight. *Futures, 38*(8), 942–955.

Daheim, C., & Uerz, G. (2008). Corporate foresight in Europe: From trend based logics to open foresight. *Technology Analysis & Strategic Management, 20*(3), 321–336.

Destatte, P. (2010). Foresight: A major tool in tackling sustainable development. *Technological Forecasting and Social Change, 77*(9), 1575–1587.

De Toni, A. F., Siagri, R., & Battistella, C. (2015). *Anticipare il Futuro: Corporate Foresight. Biblioteca dell'Economia d'Azienda*. Milano: Egea S.p.A.

Grim, T. (2009). Foresight maturity model, achieving best practices in the foresight field. *Journal of Futures Studies, 13*(4), 69–80.

Hiltunen, E. (2013). *Foresight and innovation: How companies are coping with the future*. Basingstoke: Palgrave Macmillan.

http://www.foresight.itee.radom.pl/.

http://www.foresight.itee.radom.pl/chartech/index.php.

http://www.programstrategiczny-poig.itee.radom.pl/english/index.php.

Kononiuk, A., & Sacio-Szymańska, A. (2015). Assesing the maturity level of foresight in Polish companies—A regional perspective. *European Journal of Futures Research, 3,* 3–23.

Leitner, K. H., & Warden, C. (2004). Managing and reporting knowledge-based resources and processes in research organisations: Specifics, lessons learned and perspectives. *Management Accounting Research, 15,* 33–51.

Mazurkiewicz, A., & Poteralska, B. (2009). Sustainable development of Poland. In J. Kleer & A. Wierzbicki (Eds.), *National foresight programme Poland 2020: Discussion of scenario principles*. Polish Academy of Sciences.

Miller, R. (2007). Futures literacy: A hybrid strategic scenario method. *ScienceDirect—Futures, 39*(4), 341–362. Retrieved November 6, 2017, from: https://ssrn.com/abstract=2541587.

Notten, P. (2005). *Writing on the wall: Scenario development in times of discontinuity*. Amsterdam: Dissertation.com.

Phaal, R., & Farrukh, C. (2000). *Technology planning survey—Results* (pp. 5–26). Centre for Technical management, Institute for Manufacturing (Project report). Cambridge: University of Cambridge.

Poteralska, B., & Sacio-Szymańska, A. (2014). Evaluation of technology foresight projects. *European Journal of Futures Research, 2,* 26. https://doi.org/10.1007/s40309-013-0026-1.

Rohrbeck, R. (2010). *Corporate foresight: Towards a maturity model for the future orientation of a firm*. Heidelberg: Physica-Verlag.

Sacio-Szymańska, A. (2011). *Technology foresight as a tool for setting priority R&D directions for the strategic research institutes*. Cracow University of Economics (Doctoral thesis in Polish). Retrieved November 6, 2017, from: http://zasoby.kangur.uek.krakow.pl/djvu/index.php?kat=1200001862&col=doktoraty_fullaccessed.

Sacio-Szymańska, A., & Kuciński, J. (2009). National foresight programme "Poland 2020". EFMN Brief No. 121. In *The European Foresight*

Monitoring Network Collection of EFMN Briefs—Part 2. Brussels: European Commission Directorate General for Research Cooperation.

Van der Heijden, K. (2004). Can internally generated futures accelerate organizational learning? *Foresight, 36*(2), 145–159.

Wolfe, R. (2016). *Breakthrough methods for visioning*. Retrieved November 6, 2017, from: http://www.innovationmanagement.se/2016/02/03/breakthrough-methods-for-visioning/.

8

Corporate Foresight and Roadmapping for Innovation in Russia: A Joint University Corporate Experience

Konstantin Vishnevskiy, Jonathan Calof and Dirk Meissner

Introduction[1]

RussAir (pseudonym) is a large Russian air carrier. The target markets for this company include Russia and near-abroad, in particular, the Commonwealth of Independent States (CIS) countries, as well as the countries of Europe and East Asia. The company occupies one of the leading positions among Russian air carriers, but strategically wanted to increase its foreign sales. Additionally, RussAir in 2011 established a corporate objective for innovation in all business lines.

With limited internal capacity to conduct their own foresight to support this objective, the Case organization turned to the Institute for Statistical Studies and Economics of Knowledge (ISSEK) Foresight

K. Vishnevskiy (✉) · J. Calof · D. Meissner
National Research University Higher School of Economics,
Moscow, Russia
e-mail: kvishnevsky@hse.ru

J. Calof
Telfer School of Management, University of Ottawa,
Ottawa, ON, Canada

Center. The project requirement was broadly defined as technology foresight to support the airlines innovation initiative, to identify the key directions of innovation development, and elaborate a comprehensive strategy of long-term development using Foresight methodology. It was hoped that corporate foresight would enable them to address key challenges facing the air transportation industry such as increased safety, the need for energy efficiency, reducing environmental impact, and improving the quality of on-board services. In addition, it was hoped that foresight could be used to create a vision of the aviation industry's future that could be used to guide future decisions.

In Russia, much foresight activity (including research, teaching, projects, consulting) is delivered by the HSE at the ISSEK Foresight Center, which is a designated Regional United Nations Industrial Organization (UNIDO) center for technology management for Russia and the CIS. Established in 2006, the Foresight Center is a strategic partner of many international organizations, research centers, and universities for performing large-scale foresight studies. The Center's personnel are members of working groups at the Organization of Economic Cooperation and Development (OECD), UNIDO, European Commission, World Bank, and other international organizations.

The Foresight Center is part of HSE's Institute for Statistical Studies and Economics of Knowledge. Collectively this unit performs long-term future studies, develops and promotes foresight methodologies, and engages in consulting and education. The center carries out long-term S&T Foresight studies, organizes work on setting national S&T priority areas and critical technologies for various government departments. It builds up complex roadmaps of innovative development for a range of sectors (ICT, nanotechnology, power engineering, aviation, shipbuilding, space navigation, etc.), for large companies (Gazprom, Rosneft, Nissan, etc.), and for regions (city of Moscow, Tula and Samara regions, etc.).

The HSE Foresight Centre acts as an independent Foresight body drawing upon the resources both of the Foresight center which has over 200 University personnel (professors, researchers, and other staff), drawing expertise as needed from other parts of the University and also drawing when needed on expertise from their international

advisory committee. In this way, the center is able to lever sophisticated approaches developed in-house drawing on broader resources and techniques than those that can generally be developed within an individual corporation's foresight unit.

The Foresight Project

In 2011, a senior executive from the Russian aviation company (referred to in this chapter as RussAir) approached the HSE Foresight Center asking for help with their corporate innovation program. To assist HSE Foresight Center in the project RussAir assigned a senior executive (Chief Officer level) to act as a liaison on the project, helping the HSE foresight team get access to experts within the company to interview and access to documents. This level of commitment also helped in terms of authorizing an appropriate company internal budget for the project. RussAir requested HSE's assistance as they had tried to develop an innovation program on their own but after several months realized they lacked the ability to do the kind of external-oriented foresight type activity required to support innovation and gain an independent objective view. RussAir had been doing ad hoc scanning and innovation and it was not centralized. RussAir indicated that they had some information in all these areas but it was fragmented and that they lacked the knowledge and skills required to conduct foresight and foresight like activities (Gershman et al. 2016; Vishnevskiy et al. 2016).

RussAir asked HSE to prepare an innovation program that would address the following processes: maintenance activity, benchmarking competitors, grand challenges, major drivers of science and technology development, global challenges, sectoral challenges, corporate challenges, SWOT analysis, in depth comparative analysis of airports, competitors' services, description of best practices of foreign carriers, managerial innovation initiatives, technologies. The challenge was to conduct a comprehensive foresight study and elaborate on its basis an innovation development program covering such areas as technology and product innovations, organizational and managerial innovations (including business process and a system of management); innovation of personnel, system of monitoring of innovation development, etc.

Foresight Project Design Parameters

RussAir provided the HSE Foresight Center with a broad project mandate and access to the necessary internal information sources. RussAir also agreed to provide the HSE foresight center with access to any person inside the company that they wished to interview. To ensure that the HSE Foresight Center project went smoothly and that the HSE staff had full support, a "C" level officer from RussAir was assigned that would serve as the liaison between the company and the HSE foresight team. RussAir made it clear that there would not be any budgetary pressures but there was a time pressure as RussAir needed to make their strategic plans within six months. Finally, RussAir also agreed that they would support the HSE Foresight Center by providing timely feedback on the foresight program design, provide ideas on where to find the information, and interact to aid in determining interim findings.

Foresight Study Plan

Given the need to provide recommendation for innovation in several areas of the company, a broad methodology needed to be developed. The study plan included 5 major stages and 16 separate steps (Table 8.1) and 13 different foresight techniques (Table 8.2), several of which were performed multiple times. The approach is consistent

Table 8.1   The study plan
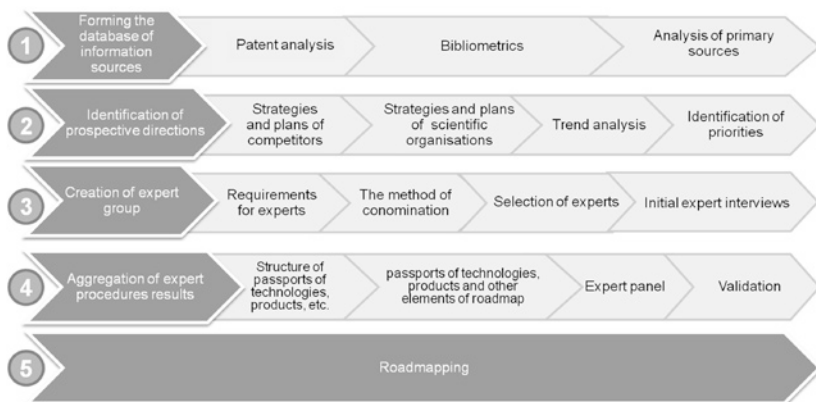
with various foresight literature studies including von der Gracht et al. (2010) and Rohrbeck and Gemünden (2011). Details on the steps and methods are described in the following sections.

Table 8.2 Foresight methods used for the RussAir project

Method	Stages					Output
	1	2	3	4	5	
Scanning	✓	✓				Investigation of the environment
Seminars			✓	✓		Experts communication
						Consensus view of product group's prospects
						Verification of roadmap issues
Literature review	✓	✓		✓	✓	Review of roadmapping for aviation industry best practice
						Desk research
Bibliometrics and patents	✓					Trends highlighting
						List of experts
Benchmarking		✓				Key challenges
						List of prospective technologies, directions of innovation development and other innovation decisions, their key characteristics
Interviews				✓	✓	Collection of initial information concerning company's innovations and characteristics
						Expert's view of key goals of company's development
						Key trends of product range
Expert panels			✓			Verification of the list of key technologies and products and other layers of roadmap
						Evaluation of market dynamics and long-run factors of development
Backcasting		✓				Vision of the future for the company taking into account global trends and competitors plans

Table 8.2 (continued)

Method	Stages					Output
	1	2	3	4	5	
Cross-impact analysis				✓		Development of paths supportive technologies—innovation decisions—KPI
						Evaluation of correlation between product features and potential markets
SWOT analysis		✓				Strengths and weaknesses, opportunities, and threats of company
Wild cards and Weak signals				✓		Areas of potentially high but uncertain demand potential
STEEPV		✓			✓	Identification of social, technology, economic, ecological, political, and value trends
Roadmap					✓	Final document which integrates the results of all methods are listed below

Stage 1: Forming the database of information sources. During this stage, the HSE foresight center personnel analyzed more than 100 documents related to prospects of aviation (e.g., The IATA Technology Roadmap, Airbus Market Outlook till 2025, Flying in 2050, etc.). Patent and bibliometric analysis looking at the most prospective innovation technologies and products potentially suitable for the company were examined. Also at this stage, HSE identified potential experts to interview from the company.

Stage 2: Identification of prospective directions. Benchmarking was used for this phase which included analysis of the strategies and plans of the competitors and appropriate scientific organizations as scientific organizations could be providers of innovation technologies and products. These techniques provided an opportunity to identify what industry competitors and others saw as innovation. As part of this stage, HSE also made a deep analysis of the global trends (social, economic, ecological, value, etc.) in each of the areas targeted for innovation. At this stage, a list of 150 potential trends were formulated that were discussed at the expert panel at the 4th stage. Top global trends found are provided in Table 8.3.

Table 8.3 Global trends affecting the airline industry

• Dependence on the macroeconomic conditions (that influence, e.g., on demand for transportation)
• Increased competition
• Tougher environmental requirements
• Increase in the volatility of prices for components and materials
• Digitalization
• The need to upgrade the aircraft fleet
• Increased role of human capital as a factor of economic growth
• Threat of terrorist acts

Stage 3: Creation of expert group. Expert group membership was initially developed based on identifying appropriate Russian experts. The HSE Foresight Center assessed expertise using bibliometric methods. An array of publications on aviation subjects was identified. Then from this array of publications, Russian experts (authors) were selected who had the highest indicators of publication activity. The Scopus database was used and criteria for selection included:

A. Number of citations (at least 25);
B. Number of publications (at least 10); and
C. The Hirsch index (not less than 5).

Experts were represented as large authoritative research centers (i.e., universities, institutes of the RAS), large organizations of the aviation industry, and business structures. Patent analysis was also done as part of this expert identification phase. This led to a comprehensive list of about 200 leading experts. Unfortunately, due to corporate concerns, the HSE foresight center team was told that they could not bring in experts from outside the organization. So this led to strengthening the role of desk research analysis, benchmarking, and interviews with company's representatives.

Stage 4: Aggregation of expert procedure results. Information gathered during the interviews was put into at tool termed passport. Passport was developed by the HSE Foresight Center. It is a collection of information within a unified structure that is then used to communicate with the experts. The passport includes descriptions, special features, and their dynamics for each element of the roadmap (technology, measures, etc.). It can have a detailed description of for example product features, major suppliers, etc. A passport can also include a SWOT if needed. This structured data contained with the passport document were discussed with the company at the expert panel that together with the results of desk research provided an opportunity to validate the results. Expert panel consisted of representatives of each department involved in the foresight study. These experts had to be nominated by the top management of the company based on criteria developed by the HSE Foresight Center. The discussion was led by a moderator who used abridged version of passport to organize the discussion.

Stage 5: Roadmapping. The priority-setting and list of global trends relevant for the aviation industry as a whole and for the company, in particular, formed the basis for the roadmap. This gave an opportunity to address the challenges including key technologies and respective R&D activities as well as the financial costs of implementation. An action plan (set of decisions) for each year and key performance indicators (KPIs) were developed from the roadmap. The roadmap also included details on expected competitor' developments. The roadmap combined both market pull and technology push approaches. The approach taken to develop the roadmap is consistent with that described by Vishnevskiy et al. (2016). Its central element was a forecast for the development and introduction of innovative solutions, which was linked both to the implementation of the company's priorities and the need to respond to industry-wide challenges (Phaal et al. 2004). Table 8.4 presents the scheme of the roadmap. For confidentiality reasons, specific details on the roadmap are omitted.

Table 8.4   Scheme of RussAir roadmap
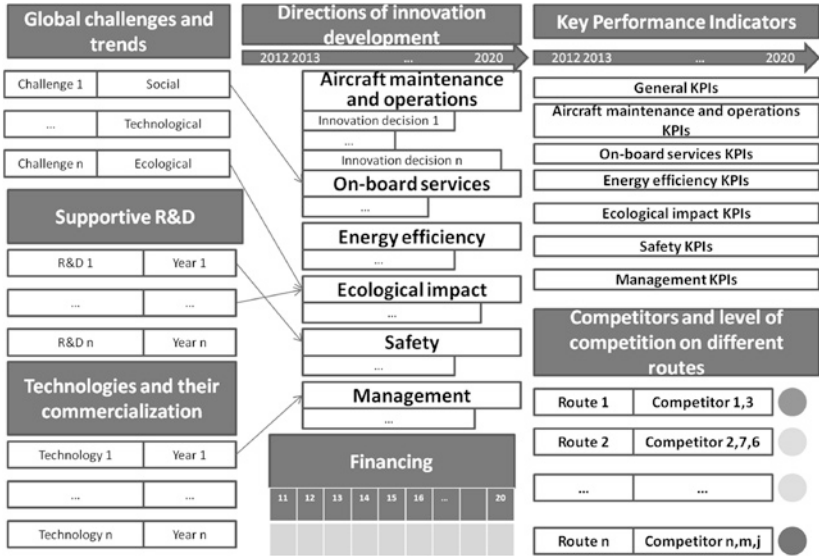
The roadmap included the following major dimensions:

1. Global challenges and trends: STEEPV framework was used in order to shed light not only to technological and economic trends but also to social, ecological, values trends.
2. Analysis of competition: The company has different levels of competition on different routes so an assessment was made of these competitive routs with strategies formulated for each route.
3. Directions of innovation development: These included key measures on six major Areas—aircraft maintenance and operations, on-board services, energy efficiency, ecological impact, safety, and management.
4. Supportive technologies assessment: This consisted of major R&D that should be carried out to help the realization of innovations identified in the six areas.
5. Commercialization of technologies: On the roadmap, this marked the year of potential commercialization of crucial technologies.

6. Key performance indicators: A set of goals for the company for the next eight years (increase in traffic and market share, development of the route network, expansion of the use of modern information technologies and innovative development, improvement of the quality level of the food supply passenger service, etc.) associated with the innovation recommendations arising from the foresight project.
7. Financing—An estimation of the resource requirements needed to finance the activities included in the roadmap.

Layers of the roadmap are linked. For example, the central part of the roadmap, directions of innovation development, links with supportive technologies that are necessary to provide innovation decisions. For each direction of innovation development, there is a set of KPIs mentioned on the certain layer. For each innovations and measures there is financial assessment that present in aggregate in the layer "financing".

Recommendations

Based on the foresight methodology described in the previous section a comprehensive set of recommendations were made to help RussAir become more innovative these included strategic management recommendations as well as organizational changes involving evolving new roles for employees and managers. Additional organization structure and organizational policy transformation recommendation that were designed to help institutionalize and sustain successful outcomes such as the corporate innovation function. The following section provides more detail around these recommendations.

Strategic Management Changes

The foresight analysis in this study indicates that there were many areas in which RussAir needed to innovate, and that in fact, there was a need for large-scale innovations. The activities of the roadmap significantly contributed to the strengthening of RussAir's competitive positions, including such key indicators as the share of the air transportation

market and customer satisfaction with the services rendered. Areas of innovation recommendations arising for the foresight study are presented in Table 8.5. The table show's readers how many areas of the organization foresight touched on. Each area of recommendations also contained a series of innovation project recommendations. These recommendations came largely out of the roadmap which included a detailed plan for the development and implementation of innovative technologies for the next 10 years. The foresight plan identified areas where the company's own R&D capabilities could be used to create innovation as well as areas where there was potential for developing innovative solutions based on adaptating solutions offered by third-party manufacturers.

Table 8.5   Major recommendations

Increasing the efficiency of production activities and related processes: • Aviation technical support and flight operations • Increasing the level of passenger service • Ecological efficiency	*Modernization of production* • Implementation of a production system for information support of maintenance and repair • Modernization of production unit systems • Implementation of key Saber Movement Manager and crew management systems Saber CrewManager
Energy efficiency and energy saving • Replacement of personal computers for terminals—reduction of electricity consumption and resource-saving • Management of printing and copying processes • Management of the equipment park	*Service improvements* • Development of new voice services • Expansion of channels and forms of payment • Implementation of a Customer Relationship Management System • Creation of a mobile site and mobile applications for smartphones
Improvement of organizational and managerial structure: • Improvement and re-engineering of the main business processes • Standardization and quality control systems • Development of an innovation management system • Creation of an innovation ecosystem • Development of innovative IT-technologies • Install systems and processes that will encourage innovative activities of RussAir personnel	*Strengthening Security Systems* • Creation of a system for the protection of personal data, • Alignment of RussAir's information security procedures with established standard in the payment card industry

The innovation program developed for the six areas listed in Table 8.5 were grouped into 11 priority areas. These areas related to the company's production activities and related processes, as well as the organizational and managerial innovations, including the creation of an innovative ecosystem of the company. The key direction of innovative development recommended for RussAir was improving the safety of flights, as well as, the creation of an integrated security system which could also address counter-terrorism. The implementation of the measures proposed in the program may allow for a significant (up to 40%) reduction in the number of emergency situations, as well as, reduce the impact of accidents.

The central outcome of this study included a set of strategic objectives—the Innovative Development Program—for RussAir, with the following goals: to improve the level of passenger service, to create an innovative ecosystem, and to develop an innovative IT program. The analysis conducted as part of the foresight program noted that foreign airlines had developed several advantages that cut across these three areas such as the development of innovative entertainment platforms (In-Flight Entertainment and on-board passenger management systems), which were linked to increased customer satisfaction, increase customer loads, and for some carriers these systems were an additional source of revenues. As part of the foresight program, the aviation company was advised on how to best implement an in-flight entertainment solution. For example, buying a ready solution from leading manufacturers such as Panasonic Avionics and Thales costs about 3–4 million dollars for each system with the development of an entertainment platform requiring significant times with high risks that the system and associated programing not be appropriate for the targeted customers. To reduce the time and costs and increase the likelihood of appropriate programing, it was recommended that the company organize a pilot open competition (crowdsourcing) for the creation of an entertainment platform on-board for further integration into the company's production processes.

In addition, a recommendation was made to establish an innovation working group. The working group would consist of staff responsible for the innovative development of the company, and the representatives of the product quality management department. People could submit

innovative ideas to the working group and a competition type process would be followed whereby there would be an examination of applications submitted for the competition. The process would be supervised by development institutions (e.g., Skolkovo), different agencies, and regional authorities.

The recommendations on how to organize the competition included:

- Use of an open Internet platform to enable a broader number of participants;
- Use of methods for generating ideas (TRIZ, design thinking, lateral thinking) to increase the quality of applications;
- Integration of the proposals of different teams in the final solution.

After a winner was declared, the next step was to either develop the innovation internally or attract get external business incubators, venture investors, and/or others to participate in the development of the proposed solution.

As a result of the competition, the advisor to the General Director suggested that this approach be extended to other strategy areas thereby making an open innovation approach and crowdsourcing research involving passengers a regular input to strategic and operational decisions. Therefore to implement this recommendation, the company launched an online crowdsourcing platform which used open innovation principles.

Organizational Policy Changes

The recommendations resulting from the case study, in addition to new management strategies, included making changes in the organizational structure of the company, including the creation of a vice-president of innovation development position, and the development of a unit which would be responsible for implementing programs of innovation. Given HSE Foresight Center's experience in helping organizations develop foresight capacity, they were able to assist with the implementation of this

function. Additional organizational policy changes were recommended to facilitate re-engineering core business processes, development of a quality management system, upgrading information technologies, and development of incentive systems that would encourage employees to develop and bring forward innovation-based ideas to the organization, both in terms of their own unit and to the competition mentioned earlier. One of the recommendations arising from the foresight project was to change the overall structure of RussAir to a divisional structure along the business lines and the introduction of a linear-functional or matrix management structure in each division (for those business lines that had sufficient complexity). These organizational recommendations were designed to make the organization function more effectively, increase the transparency of business processes, and increase the flexibility of the management structure.

Through the expert identification process of the foresight project and desk research, the HSE Foresight Center team identified several organizations that RussAir may partner with in the future. For example, to assist in the identification, development, and use of advanced technologies the foresight project identified several small and medium-sized businesses, universities, and research organizations. Additionally, it was recommended that outreach activities be embedded in the innovation unit. Based on this particular foresight recommendation, RussAir increased cooperation with universities, developed new educational projects, and participated in the development of educational standards and programs for staff development. They also expanded cooperation with innovative small and medium-sized business companies, including cooperation with the Skolkovo Foundation. This is a foundation tasked with developing programs including investment programs that will encourage a sustainable ecosystem of innovation and entrepreneurship in Russia. The Skolkovo foundation has created an innovation center which has participation from over 1000 companies, a technopark, the Skolkovo Institute for Technology, and a graduate university established in partnership with MIT (Massachusetts Institute of Technology). The foundation has signed R&D partnership agreements with Boeing, IBM, Intel, Microsoft, and many more.

Outcomes from the HSE Foresight Center—RussAir Project

Corporate Foresight provided by the HSE ISSEK Foresight center enabled RussAir to create a vision of the aviation industry's future, taking into account the global challenges, drivers, and barriers of growth. The priority-setting and list of global challenges relevant for the aviation industry as a whole and for the company, in particular, formed the basis for the roadmap. This gave an opportunity to address the challenges including key technologies and respective R&D activity, and also took into consideration the financial costs of implementation. As well, an action list for each year and KPIs were developed which were directly related to the innovation program. The roadmap also provided RussAir with the information, techniques, and output to assess the current and future types of competitors' development. Thus the roadmap became a useful tool in long-term strategy planning for the company. Five years after the foresight project, it is evident that the recommendations have helped the company. RussAir is now approaching the leader in a number of indicators of business performance identified in the roadmap including customer satisfaction, increase in-flights regularity, expansion of rotes, etc. This led to significant leap forward in different rankings including SKYTRAX.

Applicability of Corporate Foresight Project Outcomes

HSE ISSEK Foresight studies have been done in a broad number of areas addressing many different government and corporate policy and strategic priorities. A commonality or dominant theme in the projects, however, are projects characterized by high national science and technology priority. These projects have involved providing recommendations at different stages of the technological chain, identifying market prospects, technology directions, and so forth. Foresight projects have helped identify areas for investments in manufacturing.

Foresight projects have also looked at opportunities for Russia in areas where there are strong market opportunities but limited technological development in Russia. These studies provide foresight based recommendations to assist Russia in the development of research and development (R&D) that would be competitive in international markets. These studies are typically done for government clients and provide policy-oriented recommendations designed to encourage companies to engage in appropriate R&D and recommend federal government goal-oriented programs or identification of technology to import to Russia.

HSE's Foresight Center studies are represented in a variety of sectors (Fig. 8.1). Almost half are in the energy sector (oil and gas, electrical energy, energy saving, nuclear energy); about one third are in transportation and transportation-related industries (space, aviation, and shipbuilding); and several are in advanced technologies including electronic, new materials, and nanotechnologies.

The RussAir project is a good example of work done in the transportation area and it benefited from previous work done by the HSE Foresight Center in transportation. Another example of an HSE Foresight Center project is the centers work in nanotechnology.
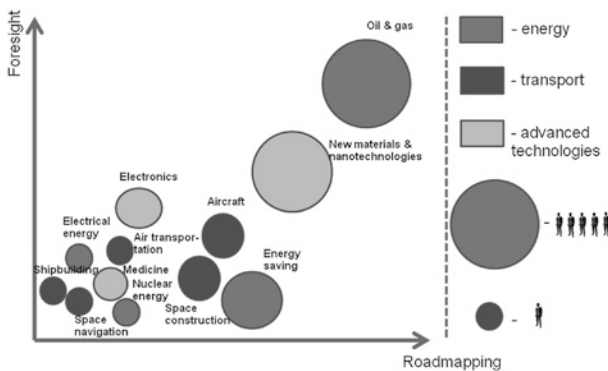
Fig. 8.1   Major areas of HSE corporate foresight in Russia

The HSE ISSEK Foresight Center was asked by Rusnano to assist them in developing a nanotechnology long-term strategy. Rusnano implements government policy for the development of Russia's nanotechnology industry by co-investing in nanotechnology projects. It is an open joint-stock company. The HSE Foresight Center conducted a long-term foresight study and developed a set of technology roadmaps for Rusnano. The aim of the foresight exercise was to identify existing and emerging technology trends and identify promising market niches for nano-products in the mid- and long-term horizon. Foresight identified the most promising areas for nanotechnology investment. More detailed information was gathered in those areas identified as most promising and was elaborated in technology roadmaps during the second stage. Roadmaps touched upon different fields: product groups (e.g., carbon fiber, light-emitting diodes, catalysts for oil processing) and sectors (space and aircraft industry, nuclear energy, medicine, etc.). The roadmaps contained the links between the most promising technologies, the properties of existing and advanced products, and the most promising products and their respective market shares whose sizes and growth rates, in turn, would determine the demand for products. This enabled Rusnano to develop a strategy for the nanotechnology industry which provided insights that linked nanotechnology technology developments within several industries (suppliers and consumers of related products/technologies). The roadmaps provided a set of innovation strategies for each chosen area.

The HSE Foresight Center nanotechnology project, completed in 2012, contributed to the development and implementation of a strategy for the Russian Corporation of Nanotechnologies until 2020. The process identified the need to use roadmaps for building a vision of innovation development in the nanotechnology field. The HSE Foresight report notes that the "Corporation participates in development of mid- and short-term forecasts and plans of scientific, technological and market nanoindustry development, i.e. roadmaps. Roadmaps used by the Corporation as an instrument for orientation and support of other participants of innovation process, and for development of investment projects". These roadmaps have been developed with the participation of leading experts in each subject area from around the world. Each expert group includes around 100 Russian and international specialists.
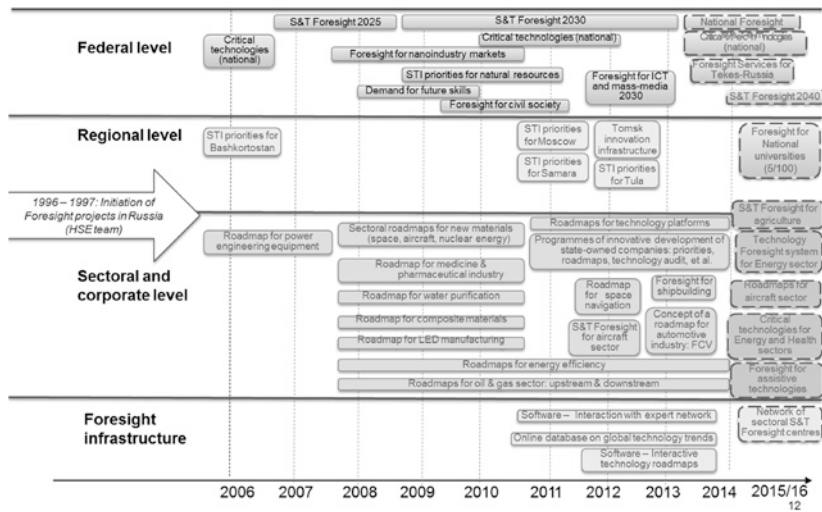
Fig. 8.2 HSE foresight projects (from HSE ISSEK 2015 Report)

The HSE Foresight Center that this chapter has reported on has been used on many projects at the federal, regional, sectoral, and corporate level. As well, they have conducted many activities designed to build and enhance Russia's foresight infrastructure, including running a master program in foresight at HSE, publishing an academic journal Foresight and STI Governance, publishing numerous books, and running foresight seminars and conferences. Figure 8.2 summarizes the center's foresight activities between 2006 and 2015/16 (Gokhberg 2015).

Conclusions

This chapter has reported on corporate foresight completed by the HSE Foresight Center for RussAir. Using a wide array of foresight techniques, the Foresight Center was able to provide RussAir with a broad range of recommendations designed to enhance innovation in many areas of corporate operations. The center's work in building foresight infrastructure proved useful in helping RussAir set up a corporate innovation function. The recommendations arising from the foresight project led to significant improvements in RussAir's performance.

The success of the RussAir project and applicability of its outcomes to other projects mentioned demonstrates how a university-led Foresight program can be used to help government and corporate clients make important strategic decisions. In fact, HSE appears to have developed a strong and sustainable foresight function based on work with RussAir, Rusnano and others, as suggested by research of Calof and Smith (2010). These authors examined factors associated with organizational foresight identified through a three-phased study that examined the top foresight organizations in the world. The study identified eight critical success factors:

1. Focuses on a clearly defined client
2. Clear link between foresight and today's policy/strategy agenda
3. Direct links to senior decision-makers
4. Private–public partnerships
5. Develops and employs methodologies and skills that their clients do not have
6. Clear communication strategies
7. Integration of stakeholders in the program
8. Existence of national-local academic receptor and training capacity.

This HSE Foresight Center case study provides information associated with most of these critical success factors. In particular, for the RussAir project, there was a clearly identified client which led to focused foresight; the foresight being developed was linked to the company's current decision-making needs, and the HSE Foresight Center personnel had direct access to senior decision-makers. The past foresight work and academic environment of HSE resulted in several private–public partnerships that for this project certainly provided both information and expertise. The methodologies and skills employed by HSE were clearly ones that RussAir did not have in full accord (which was the reason RussAir approached the HSE Foresight Center). Finally, it is the national-local academic receptor and training capacity developed by ISSEK that has led to the kind of growing foresight capability and field-based experience that help the development of innovative functions at RussAir.

Note

1. The chapter has been prepared within the framework of the Basic Research Program at the National Research University Higher School of Economics (HSE) and supported within the framework of the subsidy granted to the HSE by the Government of the Russian Federation for the implementation of the Global Competitiveness Program.

References

Calof, J., & Smith, J. (2010). Critical success factors for government-led foresight. *Science and Public Policy, 37*(1), 31–40.

Gershman, M., Bredikhin, S., & Vishnevskiy, K. (2016). The role of corporate foresight and technology roadmapping in companies' innovation development: The case of Russian state-owned enterprises. *Technological Forecasting and Social Change, 110,* 187–195.

Gokhberg, L. (2015). Institute for statistics studies and economics of knowledge major developments. In *Presentation at International Academic Conference Foresight and STI Policy*. Moscow, Russia.

Phaal, R., Farrukh, C., & Probert, D. (2004). Technology roadmapping—A planning framework for evolution and revolution. *Technological Forecasting and Social Change, 71*(1–2), 5–26.

Rohrbeck, R., & Gemünden, H. (2011). Corporate foresight: Its three roles in enhancing the innovation capacity of a firm. *Technological Forecasting and Social Change, 78*(2), 231–243.

Vishnevskiy, K., Karasev, O., & Meissner, D. (2016). Integrated roadmaps for strategic management and planning. *Technological Forecasting and Social Change, 110,* 153–166.

von der Gracht, H., Vennemann, C., & Darkow, I. (2010). Corporate foresight and innovation management: A portfolio-approach in evaluating organizational development. *Futures, 42*(4), 380–393.

Part III

Globalization

9

Circles of Impression: External Foresight in Global Enterprises

Magnus Boman and Tobias Heger

Introduction

This chapter analyzes the impact of corporate foresight by means of its *circles of impression*, from top management and outward at varying distances from the management board. The concept of *circles of impression* includes processes of communication, and the influence of this communication to impact change, and is demonstrated to be useful and possible

M. Boman (✉)
RISE Research Institutes of Sweden, Kista, Sweden
e-mail: magnus.boman@ri.se

M. Boman
KTH, School of Electrical Engineering and Computer Science (EECS),
Stockholm, Sweden

T. Heger
Rohrbeck Heger GmbH, Berlin, Germany

T. Heger
Chair of Innovation Management and Entrepreneurship (IME), University of
Potsdam, Potsdam, Germany

179

to apply to a wide target class, including strategic and networked foresight efforts. The comparative study described in this chapter focuses on two global enterprises: a traditional provider to the mobile industry market, and a nonprofit non-governmental organization (NGO) which provides disaster relief, education, and medical support worldwide. The corporate organization in this study went through a phase of substantial growth in the early 2000s. Currently, however, margins from provision have steadily decreased in the last decade. Increasing demand for new growth fields and profitability has led this company to implement fundamental organizational changes. As part of these changes, the CEO commissioned external independent foresight studies to complement internal foresight activities in mid-2016, with the aim of detecting new opportunities and opposing or validating ongoing innovation activities. The corporate foresight study in this case chapter represents one of those efforts.

The corporate foresight study described here was conducted at the beginning of 2017. The company had previously partnered in an ambitious networked foresight effort that we ran between 2011 and 2015 (Heger and Boman 2015). Through a series of workshops and online collaboration efforts, technical foresight reports were regularly distributed to internal foresighters at the company, as well as, to their counterparts at other large global enterprises in the partner network. Annual foresight reports were also shared at large industry congresses like the *Mobile World Congress* and *CeBIT*. At the company, management representatives told us that the termination of our foresight output in previous years created a small but noticeable vacuum, leading to the project at hand (Boman 2016).

The second part of the comparative study to be reported on here relates to assisting a large global nonprofit NGO prepare for the future. More specifically, a future volunteer procurement procedure, in which a tool for internal communication would support further future preparedness, and once acquired a related goal was to support the organization by proactively considering the effects of organizational change that employment of such a tool may bring. Hence, a foresight effort commenced and within a year a detailed report was delivered with advice for the procurement procedure and supportive communication tool.

The nonprofit organization is cell-based, headquartered in Sweden, with significant autonomy given to each cell. It was decided to ground the study in one cell, selected by the main stakeholder for its well-functioning activity

and high appreciation among staff and volunteers alike. The primary question focused on how to keep good volunteers to remain active, and weaker volunteers to depart, a well-known problem for all NGOs (Drucker 1992).

The main stakeholder in the NGO case was the management member responsible for all national volunteer work in the organization. A second interested party included an IT-person and others, but as the work progressed, current and future volunteer engagement became the center-point of the study. A classic quote of relevance from the literature study is: "The idea of citizen participation is a little like eating spinach: no one is against it in principle because it is good for you" (Arnstein 1969, p. 216). The cell was a school homework support center in a Stockholm suburb. We report here chiefly on the work relevant to the foresight aspects, but in order to grasp application at the organizational level, it is instructive to inspect the organizational roles in the cell at hand, which we do below in the comparative analysis.

Method

The mode of both foresight activities was top-down, which is shown in the literature as common practice (Becker 2002). In each situation, the objectives were defined in advance by top management at the organization. For the industrial case, four areas were scoped from the company side, including a foresight time scale for point of entry (PoE). Three of the four areas are focused on: media, networks, and industries with PoE of 0–3 years, 3–5 years, and 5+ years.

For the NGO case, the suggestion was made to use one particular volunteer site as a lens to view the entire organization. This suggestion came from top management, who also led the work on the future procurement, which our foresight study was meant to assist. The timeframe was to furnish procurement procedure within a year.

The first study is an example of an outside-in approach to corporate foresight to complement internal foresight efforts. Its intention matches Rohrbeck and Gemünden's (2011) three roles of corporate foresight: strategist, initiator, opponent, and a fourth one that we dub *validator*. The former three roles were identified to describe the contributions of corporate foresight to increase the innovation capability of a company that,

respectively, explores new business fields, increases the number of innovation concepts and ideas, and challenges innovation projects to increase the quality of their output (Rohrbeck and Gemünden 2011). We add the *validator* role to this based on a decade of practical experiences in foresight. We have observed that companies have a tendency to seek external validation for their own analyses, partly to actually validate findings and partly to motivate decisions *ex post*, should they fail to deliver results as promised subsequently. It is thus a role primarily observable for outside-in foresight.

Within the first case, further differentiated foresight activities occurred along the following processes: (1) perceiving, (2) prospecting, and (3) probing. *Perceiving* describes scanning the environment, detection of signals of future change, and connecting seemingly unrelated developments from diverse fields. *Prospecting* describes the interpretative step of understanding change and its potential impact, identifying relevant developments, and identifying a range of possible reactions. Finally, *probing* is about triggering action such as exploring new business fields or pursuing new strategies. The foresight study at hand in the case of the multinational corporation was clearly targeted at the perceiving stage of foresight. The company also sports a culture that includes a readiness to listen to external sources, and a willingness to test and challenge basic assumptions (Rohrbeck 2011, pp. 111–112).

For detecting relevant change in the required fields above, a mixed sources approach was used including: conference and congress visits, visits at peer and related companies, interviews with experts, information from scientific, closed, and public databases, observations of (and insights from) daily routines and work in relevance industries, and closed professional mailing lists, usable under the Chatham House rule.

The use of databases and human experts were deliberate, to ensure both broad and deep scanning. While database-based methods enable efficient broad scanning, humans are able to understand and translate related concepts, and to adapt their terminology to match the current discourse and enhance the understanding of selected topics effectively (Rohrbeck 2013). Further, multiple discussion-rounds, following the Futures Wheel method, were used to deduct implications of identified developments, including impact developing over multiple hops (Glenn 2009). The study was intentionally carried out independently, not only with respect to internal foresight efforts, but also in that no company

staff was directly involved. A brief alignment meeting with company representatives was held mid-term to ensure that the study underway shows possible significant impact and novelty. For triangulation, the company invited another trusted independent consultant with whom they had a long-lasting relationship. We note that our study was also external in the sense that we have not enjoyed any long contractual history with the client: our 2011–2015 foresight assignment was for a third party only.

The second case study was also designed as outside-in, independent, and without previous professional engagement with this NGO. The project had its roots in a Corporate Social Responsibility (CSR) outreach activity and utilized websites and social media applications to engage individuals inside and outside of the organization. The CSR outreach method was described in a workshop attended by a dozen computer science experts, after office hours, and in the spirit of contributing to improving the value of volunteer help in an area where this particular NGO had limited experience and expertise.

Results: Industrial Case

This section provides in detail parts of the corporate foresight study and comments on the remainder in general terms, for the sake of brevity. Furthermore, as several trends may now be considered applicable, we chose to detail only one of them here, respecting the proprietary nature of the full account. This account provides ample information to detail the work process, since additional trends follow the exact same reporting structure and were scouted analogously and in tandem. Four separate trends were scouted as part of the original corporate foresight activity: artificial intelligence (AI), computational medicine, the circular economy, and distributed ledger technology. The trend we have chosen for the purpose of illustration here is *Robust AI*; it highlights the tension between human and machine in the industry at hand. To be robust includes not only function at industrial scale and in a commercial environment, but also to be accepted as a means to augmenting humans (rather than replacing them, which always prompts company activities within CSR). It is related to a number of currently intense research and development (R&D) areas, including cyber-physical systems,

mathematical cognition, machine ethics, computational ethics, and machine learning.

An executive summary included a short explanation of the trend. From this, the PoE and its relevance to the company scoping are indicated in Fig. 9.1 by means of asterisks, from one (low) to three (high).

A basic description and its associated challenges and solutions are presented for related activities (Fig. 9.2).

The executive summary report was compact, with only three slides per trend, but with each slide came a structured knowledge repository with comments, footnotes (superscripted numbers in Fig. 9.2), and double-checked references. All trends were analyzed with respect to social impact, business potential, and relevant industry impact (Fig. 9.3).

Within this first case, additionally, one or two examples of value creation within each trend were scouted and analyzed with respect to innovation aspect and relevance. Figure 9.4 illustrates the results for Robust AI.

Company Innovation Capability Increase and Impact of Process

In any corporate foresight that a large company puts trust in, the basis is the plane of influence that the company board operates on. For every step away from the board, the company influence diminishes in that the company's possibility to exert influence on external factors and events diminishes. As often happens, the level of uncertainty also grows. Precisely how many planes of influence that should be considered as far as impact is concerned varies with the task at hand, and with the level of ambition of the foresight activity. We have given examples at four different planes.

Figure 9.5 illustrates the influence cone of corporate foresight and the circles of impression that are formed by intersecting at various distances from the base of the cone. It is important to note that as long as the

Fig. 9.1   Relevance to scoped areas and PoE for Robust AI

DESCRIPTION

Augmented humans with extended intelligence are on the horizon, but specialized AI for certain applications, including very large networks, is already here. This second time around, AI proponents have learned to be more careful with value propositions and hence AI has tacitly crept into many products and services. In AI methods, last year's hype was deep learning, the current is on reinforcement learning, and next will come approximate learning and reasoning.[1] Robust AI, verified or otherwise approved code in which all of these and more may be incorporated, is delivering optimized and self-organizing capability. Autonomous intelligent agents cooperate or compete for best performance in or cross domains like intelligent transport, object recognition, virtual reality, and smart care.

CHALLENGES

Major challenges in regulations, governance, and social acceptance include:

(1) AI is the end-game for computer science: Since AI can be self-organizing, self-refining and self-optimizing, it can conduct its own research, possibly diminishing the role of human scientists. By using unsupervised machine learning methods, AI may not only use but also develop and refine said methods. How to steer autonomous AI agents to produce ethical and useful results in an efficient, transparent and robust manner is an open problem.

(2) Human loss of skills and control: Non-human intelligence is seen by some as a threat, in spite of current lack of evidence:[2] That said, even a gradual replacement of human control (as in adjustable autonomy between pilot and auto-pilot of an aircraft) by specialized AI can cause human competence rot over time.[3]

(3) Multi-national enterprise control of AI: While the U.S. space program was 0.5% of GDP, U.S. AI investment is about 1/100 of that though Obama says "That undoubtedly will accelerate".[4] IBM is a world leader in AI patents, hitting 1,000 in 2016,[5] and in 2015 made Watson a separate business unit, with Watson now embeddable.[6] Google intensified its AI R&D with the acquisition of DeepMind and is driving method development for unsupervised AI for e.g. image recognition, an application where Microsoft is also long active.[7]

SOLUTION PERSPECTIVE

Robust AI rests on cross-disciplinary research into optimization, data science, decision theory, norms, law, protocols and security. Ethics can be built into AI from the outset, rather than depending on humans to dynamically add constraints, via computational ethics.[8]

Fig. 9.2 Challenges to and solutions for Robust AI

company's view of its surrounding world (including its own company) is correct, the planes will actually cut circles and not ellipses out of its foresighting cone. The circles of impression thus become a metaphor for adequately mapping current and future plans onto planes in which the company has a level of influence, ranging from almost 100% to negligible. This is only possible if signals are sent undistorted from sources of less importance and control to the company board. Analogously, any company management strategy that requires company employees,

SOCIAL IMPACT

In 2015, 70 prolific scientists published an open letter on how to make and maintain AI robust and beneficial to society.[2] The letter, now signed by more than 8.000 people, with its addendum on research priorities, expresses concern as well as optimism regarding the future of AI, but calls for action regarding the beneficialness and robustness of AI systems, not least on ethical grounds. This is described as "our AI systems must do what we want them to do." AI shifts our understanding of the job market, and what work is, creating uncertainty, and thereby social fear.[3]

BUSINESS POTENTIAL

Extremely large data sets and the analytics that go with it offer a significant shift in what data sizes and velocities are practical to work with. Cheap tools have become available, and next-generation programming systems are quickly reshaping the computational landscape, not least via visualization of massive data.[4] In addition, there is an economical driver, stemming from a realization that data to and from AI can be extremely valuable.[5]

IT AND TELECOMS INDUSTRY IMPACT

Given that only a tiny fraction of everything that can be logged is actually logged, and even less is saved and possible to recall, humans are likely witnessing merely the beginning of data use in AI. With privacy a showstopper, transparent means to handling AI will create trust among IT and telecoms industry customers. Robust AI can be a driver for much new IT in intelligent solutions, for a market in which buyers are expecting robust smart products and services.

Fig. 9.3 Analysis of trends with respect to social impact, business potential, and relevant industry impact

associates, and subcontractors to adapt must be adequately communicated outwards.

The company in the focal case here took the foresight study as input for new initiatives as well as existing processes, at various distances from the main stakeholder (i.e., the CEO and the board that he reports to). Following is a discussion of an example at each distance level.
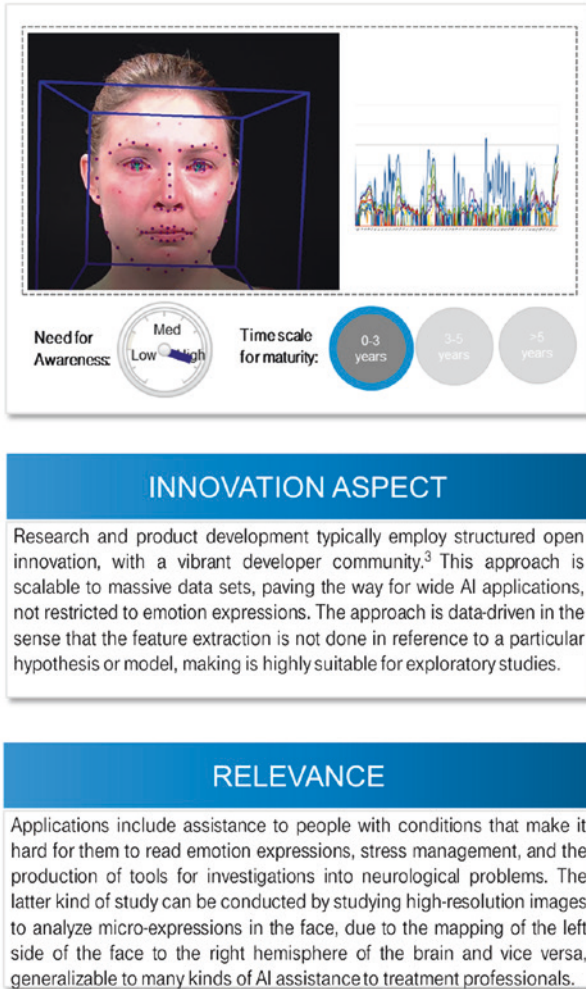
Fig. 9.4 Innovation aspect and general relevance for Robust AI. (The technical description has been omitted here. The illustration comes from automated recognition of emotional expressions in the human face.)

The examples are not exhaustive, yet they are indicative of the various ways in which impact could (and, arguably, should) always be measured in cases of external foresight activities in large companies.
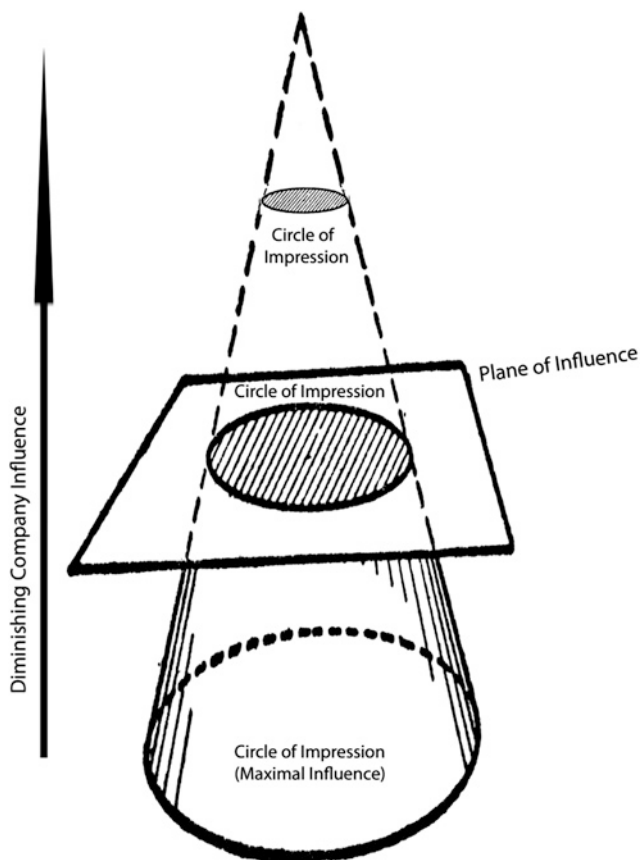
Fig. 9.5 The influence cone of corporate foresight and the circles of impression that are formed by intersecting at various distances from the base of the cone

Head of Research

The Head of Research was informed of this foresight study, and in turn, requested presentation of our results. The one-hour presentation sparked immediate feedback and a vivid discussion, chiefly regarding the current research agenda, which was found largely to be in keeping with the findings. In particular, Robust AI is being covered in an expanding part of the Research department at the company. As the

Head of Research is connected to Management Board members, this relates directly to the *validator* role of external foresight. The external study supports decisions the Head of Research champions and must ultimately defend in front of the board. The discussion was a run-through of all slides that summarized the findings. The brevity of the meeting was intentional because of the extensive knowledge the Head of Research had of both internal and external research into the trends evaluated (and naturally less so of those chiefly classified as Other Industries). Consequently, all other roles—strategist, initiator, and opponent—are sought for on this level as well. This represents the second innermost circle of impression: management with strategic responsibilities, close to the company board.

Long-Term Research Partner

Another result of scouting trends pointed to the need for more R&D. In this specific area, the company already had a trusted research partner actively pursuing research goals at or beyond state-of-the-art. This led to a request from the company for new collaboration in this area—a clear-cut example for the *initiator* role that this study had. When it comes to Circles of Impression, this is an example from the third circle. Whereas the innermost two circles represent potential impact within the organization, the third considers impact outside of the focal organization within trusted partners. As a result, it appears that the company at hand values relatively highly its network of trusted partners. In this example, these were independent researchers that can be collaborated with on matters of sensitive R&D.

Environment

Finally, another trend indirectly led to a collaboration between the authors and a representative of company management related to a scientific paper on company Sustainability Development Goals. This paper was handed out at a roundtable on policy, attended by several ministers of state from different countries, soon after its completion.

While technically not an activity directly part of the foresight project, it can be related to aspects that define the *strategist* role of foresight. Particularly, it can be understood as an attempt to consolidate opinions, spark discussion, and help create a vision for this particular field beyond the focal organization, potentially leading to increasing activity therein.

The company environment represents the fourth circle. While for all organizations grouped in the third circle, the focal organization has more or less direct communication line and at least latent relationships, the fourth circle encompasses everything outside of internal trusted relationships for which the desire to make a lasting impression is still true. For this, instruments in the form of meetings, workshops, and roundtables play a prominent role, as do activities with public appeal. In this example, corporate social responsibility (CSR) and social engagement were supported in various ways through the policy meeting and the engagement to which meetings lead.

Results: NGO Case

The results of the foresight project with a global nonprofit providing services worldwide, presents a number of examples of the circles of impression metaphor in the form of insights, anecdotes, and empirical observations. Established in 1865, this NGO possesses a unique organizational structure, with close to 100 million people working together as staff, members, and volunteers. The case presented here covers work done *pro bono* in 2015–2016.

The second half of this chapter, studying organizational foresight, brings to light four related concepts applicable for comparative analysis: universe of discourse, hypothesis, criteria for choice, and stepped analysis. In order to proceed properly with this comparative analysis, however, we must begin with summarizing the results of the work completed with the NGO. (The final comparative analysis will be presented in the Discussion section later.)

Presented as a case of best practice, the support center at the NGO (i.e., our focus) was indeed found to work well. An engaged and competent leadership facilitated measured growth in center activities and

the number of individuals helped. The center *coordinator lead* had been there for six years, and in the last two he had been a very active leader, constantly pushing for improvements and new means to engaging volunteers. Notably, however, the coordinator had not experienced much horizontal or vertical sharing of information within his own organization. There had been only regular contact with groups similar to his own within the Stockholm region; and most often, this contact was based on the other organizations' initiatives.

The center, regardless, was growing exponentially. There were 900 *volunteers* on the mailing list, with 392 being active that year. Approximately 100 other individuals had come only once to volunteer. The volunteers were organized by almost 30 *coordinators*, a number that had grown steadily in recent years. Some volunteers also took on tasks for which the lead-coordinator had no time (for example, running a social media page for the center). General tasks involved both online and on-site activity, and the center had a streamlined structure, which helped to maximize chances for volunteer engagement (Wisner et al. 2005).

The results of this observational empirical study identified the following eleven steps as important to new volunteer engagement:

1. Find a contact address on the NGO webpage, or local poster or billboard.
2. Click on a link leading to the generic application/screening page.
3. Fill out the application with the volunteer's personal information.
4. Receive an automated verification email. (The email stated it may take up to two weeks to process, however, we received a personal answer from the lead-coordinator the same day.)
5. Read through all the information about the organization, for example, what is expected as a volunteer, how to get there, etc.
6. Sign up as a helper, on one or several occasions, on the center's schedule page.
7. Arrive at the center and engage in a short introduction from one of the coordinators (if this is your first time).
8. Tick your name off on a list of all volunteers signed up for that date.

9. Get matched with an individual to help based on your preferred subject/competence and the needs of the individual in the queue awaiting assistance.
10. Begin helping the individual with whom you are matched.
11. Attend a wrap-up for volunteers 15 minutes before the end of the session, in which the volunteers share their background, what they might have experienced during that day, and their general reflections.

The individuals who were assisted by volunteers at the center were also interviewed, as were the general coordinators, lead-coordinator, and volunteer helpers. The staff generally are nonpaid workers, and tend to be members of the NGO. These interviews elicited comments and situated knowledge. Three primary conclusions from the observational study surfaced:

- Peer-to-peer slow and careful internal information spread appeared to be the most effective option for leveraging the best practice of the center, and mechanisms to make this happen were suggested.
- It became important to avoid introducing any new technical solutions to the center's current use of information and communications technology (ICT) while staff and volunteers were interacting with individuals needing assistance (as this may disrupt the process).
- To export the best practice to a small town with different demographics and social networks, is a considerable challenge, as volunteers in a small town are most likely in need of support from peers, as well as, from the NGO itself. And the life-cycle is also likely to be shorter, in that a small center might start up, serve its purpose, and then cease. This appears to be normal and expected.

The conclusions above, in turn, prompted a number of organizational questions (listed below):

- Would an existing and frequently used intranet at the NGO (thus far used only for administrative purposes) be a resource by which to alleviate the burden of the situation, and is adding personalization to it enough of a motivator to engage its users?

- To what extent is the center a success story, to be extrapolated from and to be inspired by? Can the model be exported from the larger city areas in Sweden to less populated towns?
- Is it a role of the NGO to provide any cross-functional means to support collaboration, for example, between and among coordinators, making it possible to cross geographical distances? Can the gap between cities and towns be bridged in this way?
- Is there a simple ICT solution available today that would fit the entire NGO operation? How simple and reliable are such solutions, and what are the direct and ongoing maintenance costs?
- How does succinct help to the center align with general help to the broader organization, with a minimum viable product for coordinating the coordinators, or enabling peer-to-peer coordinator (digital) collaboration?

In concluding the foresight study with the NGO, two workshops were conducted—one with the primary stakeholder and a few members of the organization's management, and one workshop with lead-coordinators. The latter followed the format and structure that was employed for earlier foresight work (Heger and Boman 2015), which is also described for the company of our first case study here. This fact notwithstanding, it should be clear by now that the two cases considered are almost as contextually different as two foresight studies can be.

Discussion of Comparative Analysis

In a nonprofit nongovernmental organization, the management and board structure are often different from that in a commercial company (Farmer and Fedor 2001). The primary stakeholder in innovative projects such as foresight studies, however, are often quite similar in position and role. For example, the stakeholder reported to in the NGO case was again in upper management (similar to the individual described in the corporate case here). His responsibility (in the first circle) was to coordinate the cells and their lead coordinators (second circle). The lead coordinators were "coordinating the coordinators" (which

constitutes the third circle). In turn, the coordinators managed the volunteers (fourth circle). Although the two organizations considered in this comparative study are decidedly different with respect to profit concerns, they exist similarly in an ecosystem of policymakers, media, as well as, employees and shareholders (stocks/membership). The respective managements also share the problem of communicating future considerations top down, often using multimodal channels that are less than optimal for the purpose. (For instance, a proposal for a new intranet might be disseminated via an email to all employees, a less than ideal modality.)

To continue the analysis, four concepts were identified as a unifying framework for review of foresight in both the corporate and nonprofit organizations studied here. These phenomena or processes include: universe of discourse, hypothesis, criteria for choice, and stepped analysis.

Universe of Discourse

All organizations support communication through a range of objects, events, attributes, verbiage, relationships, etc. This phenomenon defines the Universe of Discourse (UoD). In both studies, UoD was established in close cooperation with the main stakeholders. The UoD in the NGO case, however, was supported by the direct observations made (see Fig. 9.6).[1]

The term *Circles of Impression* is novel, and as a related concept, had to be aligned to standard concepts for this comparative study. The standard term used here was *Stakeholder*. A simple lexicon was created also for term pairs like Company Board—NGO Board.

Hypothesis

The research hypothesis for the comparative study is that the Circles of Impression metaphor is generalizable to a spectrum of organizations, as represented here by a completely commercial multinational enterprise and a nonprofit, non-governmental organization (NGO) working globally to provide free services.
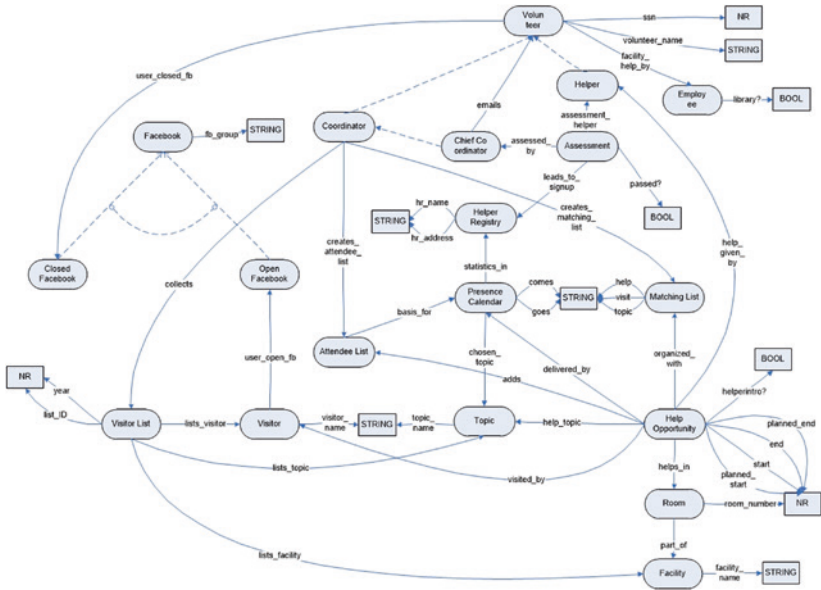
Fig. 9.6 Conceptual model of information flow in the volunteer facility organized by the global NGO. (Translated from Swedish.)

Criteria for Choice

The grounds for this comparison study lie in the lexicon of the organization, as well as, with the main stakeholder in each organization. Both individuals, with organizational support, wanted to understand the future pertaining to daily tasks, and how to secure success in the future, considering ongoing challenges to their respective endeavors. There are two primary, yet somewhat opposing, organizational missions here, however. The NGO embraces an altruistic perspective in helping individuals and society, and the for-profit commercial operation focuses on fiscal profits. This provides motivation to utilize the Circles of Impression metaphor to study foresight in organizations with starkly diverse missions.

Stepped Analysis

Stepped analysis implies sequential review over time. In the NGO case, to picture the entire information flow via the lens of a particular and successful cell in the organization was necessary to establish a common ground with all of the coordinators of volunteers. It thus made sense to present the conceptual model developed (see Fig. 9.6) with a follow-up workshop in which the main stakeholder also participated with the coordinators of volunteers. A lexicon by which to communicate results was in this way not only established, but accepted among the very people modeled, as a result of the observational study.

In the corporate industrial case, the lexicon terms had to be provided much more formally and independently, by means of official material from the company (i.e., marketing material). Meetings with the stakeholder were both formal and informal, however, meeting notes were used to provide feedback rather than the clearly defined entity types and data types used during the NGO case follow-up.

Another difference between the two cases related to the level of sensitivity of the data at hand. While the NGO case was open to broad discussions across the organization, the industry case was kept quiet, so much so that the foresight study was carried out in secret. A year after completion of the industrial case, only a handful of people have seen the results.

Challenges facing all foresight studies involving stepped analysis include access to information regarding possible related trends. In the NGO case, this posed less of a problem because reviews existed primarily within the organization itself, with a focus on internal transitioning of processes to ones better aligned with meeting future challenges. The industrial foresight case, however, required looking at possible trends from other competing companies. The end result for the industrial case in this study may then be for its organization to transition in part by changing its own structure and functions. This would then mean hiring new staff, learning new technologies, starting new projects, renaming and changing short-term targets, and more, in order to more fully adapt to that which the foresight study highlighted and recommended.

This final point—the difference in scope of trend analysis for the two organizations studied—may result in some readers thinking that

a comparison of apples and oranges was conducted, at least in the quantitative parts of the discussion. This possibility notwithstanding, a benefit occurred; and this benefit was that of *hindsight*. The study engaged in analysis by zooming in and out, encompassing circles of impression from varying angles. With greater analysis of each circle, study began to find additional similarities. One such similarity was how the perspectives could be distorted when viewed from the side, in the sense of a tilted view (see Fig. 9.5).

Along these lines, both of the cases in this comparative study could then be coded for either bias or lack of privilege. Bias reflects a conscious choice to look at a company problem from a certain perspective, with foresight being used to identify criteria that simply supports a predetermined decision. For the NGO in this study, this could mean that the upcoming procurement of software for organization communication may have already been tilted toward a favored provider of such software, for instance. Regarding the corporate organization in this study, another concept—the lack of privilege—may result, for political or managerial reasons, that only some members of a company are allowed to view information that the upper management sees, thus limiting others' knowledge and possibilities of rational choice.

Conclusion

The impact of independent corporate foresight activities for multinational enterprises are rarely reported in the research literature, even when anecdotal evidence is of some interest. Here, efforts have been made to describe a process for an outside-in foresight study for both a global corporate entity and global nonprofit organization. The hope is to complement internal insight in some detail. This study was conceptualized with the help of a common model (i.e., the three roles of foresight complemented by a fourth one), and considered for the impact of its effort and contribution to the current knowledge base (the latter by exemplifying, within both corporate and nonprofit organizations, circles of impression at various distances from the most important strategic functions). Even when particulars may vary with the organizations at hand, and with the ambition of foresight, the notion and approach are generalizable to multiple cases.

Note

1. All entity types, relations, and data pictured are inside the UoD; the frame of the picture is thus the frame of reference. Given this information model, creating a unified database (in, e.g., SQL), is straightforward, since all non-lexical objects (i.e., entity types like "coordinator") and lexical objects (i.e., data types like STRING) are listed and related by means of attributes.

References

Arnstein, S. R. (1969). A ladder of citizen participation. *Journal of the American Institute of Planners, 35*(4), 216–224.

Becker, P. (2002). *Corporate foresight in Europe: A first overview, European Commission Community Research* (Working Paper EUR No. 20921), October. Retrieved from: http://www.foresight-platform.eu/wp-content/uploads/2011/04/EFMN-Brief-No.-82-Corporate-Foresight-in-Europe.pdf.

Boman, M. (2016). Innovation Radar, 2015 Annual Trend Report, EIT Digital IVZW, Brussels, Belgium. Retrieved from: https://www.eitdigital.eu/fileadmin/files/2016/publications/A4_EIT-Digital_Innovation-Radar-Report_2015_151218_AS_x.pdf.

Drucker, P. (1992). *Managing the not-for-profit organization: Principles and practices*. New York: Free Press.

Farmer, S. M., & Fedor, D. B. (2001). Changing the focus on volunteering: An investigation of volunteers' multiple contributions to a charitable organization. *Journal of Management, 27*(2), 191–211.

Glenn, J. C. 2009. *Futures wheel, futures research methodology version 3.0* (Chapter 6). The Millennium Project, Washington, DC.

Heger, T., & Boman, M. (2015). Networked foresight: The case of EIT ICT Labs. *Technological Forecasting and Social Change, 101,* 147–164. https://doi.org/10.1016/j.techfore.2014.02.002.

Rohrbeck, R. (2011). *Corporate foresight: Towards a maturity model for the future orientation of a firm*. Heidelberg: Physica-Verlag. https://doi.org/10.1007/978-3-7908-2626-5.

Rohrbeck, R. (2013). Trend scanning, scouting and foresight techniques. In O. Gassmann & F. Schweitzer (Eds.), *Front end of innovation: Managing the unmanageable fuzzy side*. Springer-Verlag.

Rohrbeck, R., & Gemünden, H. G. (2011). Corporate foresight: Its three roles in enhancing the innovation capacity of a firm. *Technological Forecasting and Social Change, 78*(2), 231–243. https://doi.org/10.1016/j.techfore.2010.06.019.

Wisner, P. S., Stringfellow, W. E., & Youngdahl, L. P. (2005). The service volunteer-loyalty chain: An exploratory study of charitable not-for-profit service organizations. *Journal of Operations Management, 23,* 143–161.

10

Envisioning Successful Sino-Foreign Universities in 2030: Considerations for Current and Prospective Partnerships

Lionel H. Henderson

Introduction

Transnational education (TNE) in Mainland China has developed alongside the expansionary efforts of the higher education sector. TNE "involves students studying for the award of a foreign university while remaining in their home country" (Healey and Michael 2015, p. 371). For the purpose of this study, Sino-Foreign universities are defined as TNE institutes that meet the requirements of Willis Type 3 or Type 4 partnerships (2001a). These partnerships are defined by level of access to information and relationships among students, staff, and professors. It was imperative to envision future partnerships based on both Willis Type 3 and Type 4 agreements because of their dominance and competitive position relative to TNE within Mainland China.

L. H. Henderson (✉)
The Sino-British College, University of Shanghai
for Science and Technology, Shanghai, China

Transnational Education

The literature notes that TNE partnerships have various typologies due to their different forms of educational delivery and legal contracts in terms of their teaching and research commitments (Healey and Michael 2015). A typology that is specifically formed for TNE in Mainland China is Willis's (2001a) 4 types. Willis (2001a) suggests that four TNE partnership types are possible. Type 3 and Type 4 partnerships were of particular interest for this study given their long standing popularity and preference by the Ministry of Education in Mainland China (Willis 2001a). Willis' (2001a) Type 3 partnership represents a franchising type partnership that is similar to both Mode 3 (institutional mobility) and Mode 4 (staff mobility) in the General Agreement on Trade in Services (GATS) modes as well as the Franchise and Validation categories in the 4F Framework (Healey and Michael 2015). Willis' (2001a) Type 4 partnership represents an International branch campus and is similar to both Mode 3 (institutional mobility) in the GATS modes, as well as, the Validation and International branch campus categories in the 4F Framework (Healey and Michael 2015). Currently there are no examples of Mode 1 (program mobility) from the GATS modes and the first category (Distance learning) from the 4F Framework in TNE partnerships in Mainland China. All of the Sino-Foreign University partnerships included in this study are examples of all but Mode 1 (program mobility) and the first category (Distance Learning). The GATS and 4F Framework ignore the context of TNE in Mainland China where online education has not been an appropriate consideration.

Issues in Mainland China

TNE in Mainland China has been fraught with challenges since their institutional entrance two decades ago. Twenty years ago, the market environment was immature and Mainland China's legal regulations brought teething problems to joint ventures. Many partnerships struggled yet persevered in order to capture a portion of the student market in the world's most populous nation. A rapid higher education

expansion, a censored online learning environment, and conflicts with communication and commitment were the key issues that Sino-Foreign University partnerships faced.

Higher education expansion: Universities in Mainland China have been undergoing significant growth and change over the last two decades due to the expansion of the industry (Ngok 2008). This phenomenon is a result of the centrally planned higher-education projects known as Project 985 and Project 211, and further industry changes are expected in the future. Project 211 was the initial policy to liberalize and develop modern day higher education in Mainland China to a global standard. In May 1998, Project 985 was proposed by former President Jiang Zemin to create world-class universities in Mainland China. In order to create world-class universities, Mainland China needs to invite the best foreign researchers worldwide to these institutions (Ennew and Yang 2009; Halachmi and Ngok 2009; Ngok 2008). The future of Sino-Foreign universities is uncertain in light of the reforms in the higher education system, especially regarding Projects 985 and 211. The uncertainty provided a motivation to envision Sino-Foreign Universities in 2030, in order to confirm the need of TNE partnerships at that time given the ongoing maturity and strength of China's higher education system, which is a broader question raised by Blass and Woods (2012).

Online education: A separate part of Mainland China's higher education expansion includes the entrance of online higher education programs. More recently, Mainland China has seen an increase in distance education programs at state universities, which suggests changes for domestic online education. Xuetang, a Massive Online Open Course provider (MOOC), has gained recent notoriety due to their association with Tsinghua University and their receipt of sponsorship by Harvard and MIT. Despite the recent trends of MOOC providers, online education has yet to expand into TNE programs in Mainland China.

Separately, the Ministry of Education has not yet approved foreign online degrees for study in Mainland China, which means students who study for foreign online degrees will not have their degrees recognized (Robinson et al. 2009). The lack of approval of foreign online degrees also means that any other degrees completed afterward will be

considered invalid by the Ministry of Education (Ministry of Education 2012). As a result, TNE in Mainland China may benefit from policy reform in terms of foreign online education. The inclusion of online higher education is present in some recognized TNE typologies, yet have failed to be fully compatible in Mainland China to date.

Partnership conflicts: A further motivation to conduct this study was to aid current partnerships given the misunderstandings, uncertainties, and failures that have occurred over the past two decades (Damast 2008; Willis 2001b). A lack of government support and commitment resulted in an operational crisis and even the discontinuation of some partnerships (Damast 2008; Ennew and Yang 2009; Li and Morgan 2008; Willis 2006b, 2008). Another intrigue of using Willis' (2001a) Type 3 and Type 4 partnerships in this study was the possible existing conflicts for prospective partnerships when selecting either partnership type. Prospective partners may have a conflict between sacrificing finances or quality assurances when choosing to commit between Type 3 or Type 4 partnerships, a realization most recently noted in the literature. Specifically, a Type 4 partnership, as an independent campus, is more financially risky but less risky in terms of quality assurance; and alternatively, a Type 3 partnership, as an embedded model within an existing institute, is less financially risky but more risky in terms of quality assurance (Healey and Michael 2015). Constraints of time, money, and resources have caused universities to avoid Type 4 partnerships, despite being highly desired by the Ministry of Education's encouragement, and settle for Type 3 partnerships (Willis 2001a). Currently, there are limited numbers of Type 4 partnerships that are in existence despite their apparent desirability, which suggests the need for a new partnership typology to balance the issues of finance and quality assurance.

To understand the needs and resolve potential conflicts of future partnerships of Sino-Foreign Universities, a deeper review of Type 3, the most popular partnership; and Type 4, the most preferred by the Ministry of Education (Willis 2001a) yet most complex type, was necessary. It is important to note that the standing of both partnerships as originally found in the literature (ibid.) almost two decades ago holds

true to the present. Data were collected from the executive management of Type 3 and Type 4 partnerships in order to gain insight into the future of Sino-Foreign Universities. The choice of the Delphi Technique to collect data for this study is explained below.

Methodology

The Delphi Technique was chosen as this study's methodology in order to envision successful Sino-Foreign University partnerships and strategies in 2030. The properties of the Delphi Technique enabled the researcher to exert cultural sensitivity while collecting the data from a multi-lingual and multi-cultural group of participants representing either the Sino or the foreign partner. Methods research such as this enables exploring the challenges of language, culture, participant and data access, as well as, utilizing the researcher as a key data collection instrument (Guba and Lincoln 1981; Janesick 2001, 2003; Patton 2002; Piantanida and Garman 1999; Shindler and Case 1996). All of these aspects are inherent in conducting research in developing countries such as Mainland China. Further, the Delphi Technique enabled the researcher to be not only a main data collection instrument and ask sensitive questions with a group of participants who are difficult to access, but also achieve ranked consensus from the respondees via the methodology's quantitative properties.

Expert Participants

Given Mainland China's state control, participants who have close involvement with the higher educational authorities were the ones best able to envision future Sino-Foreign university partnerships. The participation of these individuals was only possible through the researcher's privileged contacts and their considerable understanding of the implications for the future of Mainland China's higher education system. It was also important to include participants from both Type 3

and Type 4 partnerships to understand the role of these different partnership types in the potential future of TNE in Mainland China. The differing motivations driving these two types of potentially competing Sino-Foreign University models made diplomacy and careful adherence to a controlled process important. Separately, the Delphi Technique's flexibility allowed the researcher to exert the needed cultural sensitivity to collect data from a set of participants with eclectic views, who due to their competitive interests and elite positions, would not be inclined to jointly merge for discussions.

Cultural Sensitivity

There is a particular cultural sensitivity and deference sensitivity necessary for studies which involve elite populations of participants. Such was the requirement for this study. Not only are the participants of this study of much higher social standing than the researcher, many of these individuals also come from a social context where *face* (Hsu 1996) and *power distance* (Buck et al. 2000) are particularly important. The flexibility of the Delphi Technique enabled the researcher to deal with these cultural issues by allowing the participants to form the initial questionnaire through an open-ended pilot study—a nonstressful process which supports the following outcomes: (a) familiarizes participants with the researcher and research objectives (Chermack 2006); (b) enables participants to freely express their opinions and insight; and (c) and gives face to the participants (Ho 1976; Hsu 1996; Hu 1944). This freedom of expression was also important because Mainland China is a collectivist culture, and the researcher wanted to capture participants' true insights and wisdom (Hui and Triandis 1986). Separately, the process of receiving controlled feedback, which is also a characteristic of the Delphi Technique (Hasson and Keeney 2011), was particularly important in this research endeavor, with Mainland China being a culture of indirect communication (Brew and Cairns 2004). Only with cultural sensitivity was the researcher able to successfully collect authentic information from the participants.

Data Collection

The Delphi study involved 14 participants who represented the executive management of either Type 3 or Type 4 Sino-Foreign University partnerships. The confirmed participants were then classified based on their anonymous institution being associated with either Willis' (2001a) Type 3 or Type 4 partnership model. A pilot round was initially conducted, and then followed by a four-round Delphi study. The goal was to establish a list of future themes, pare down the list, and then rank the pared-down list in terms of importance and likelihood of occurrence (Ratcliffe 2002; Schmidt 1997). A total of 70 themes were established by the participants' responses.

The initial rounds collected qualitative data based on questions which were derived from the futures literature (Amara and Lipinski 1983). Figure 10.1 provides a summary of the open-ended questions used.

1. In the best possible world, what would you hope for Sino-Foreign University and College partnerships in 2030?

2. What recent pivotal events provide insight into Sino-Foreign University and College partnerships in 2030?

3. What major decisions with long-term implications do the Sino-Foreign University and College partners and the Chinese government currently face?

4. a) What major constraints do you experience/have you experienced inside or outside Sino-Foreign University and College partnerships?
   b) How are those constraints handled?

5. If the constraints named in question 4 were removed, and you could direct what is done, what would you do to improve Sino-Foreign University and College partnerships?

Fig. 10.1 Summary of 5 open-ended questions used during rounds of qualitative data collection

The later rounds of quantitative data collection used an instrument that employed a Likert scale, that was also adopted from the literature on futures, to rank each of the final theme's level of importance and likelihood of occurrence (Ratcliffe 2002). A systematic approach was adopted to align the themes derived from specific open-ended questions of the study. It was imperative to incorporate methodological procedures that equally complemented data collection from both the Sino and the foreign executive mangers and would strengthen the trustworthiness of the data (Hasson and Keeney 2011).

After the four rounds, there were 22 final themes that represented constraints, changing qualities, contexts, and strategies for successful Sino-Foreign University partnerships in 2030. Success was defined in this context as a Sino-Foreign university partnership maintaining operational stability in terms of student enrollment, facilities, and academic quality within the forces of Mainland China's contextual environment. The final 22 themes were then quantitatively and qualitatively analyzed to envision scenarios for successful Sino-Foreign Universities in 2030. After a year of data collection, the researcher captured the participants' insight and wisdom to envision the future of Sino-Foreign Universities.

Data Analysis

Quantitative analysis was used to confirm a theme's achievement of consensus in terms of importance and likelihood of occurrence in 2030, as per the literature (Ratcliffe 2002). The envisioned scenarios outline the group consensus, defined by a required 50% of the participants Type 3 or Type 4 partnerships to identically rank a theme (Okoli and Pawlowski 2004). The qualitative analysis built on the theme consensus, as found in the quantitative analysis, to produce 22 pages of narratives using the qualitative data collected, namely, the theme summaries and quotations from each participant's responses within the themes per partnership type. The envisioned scenarios reflect a summary of the 22 narratives'

From Year 2015

51-Leadership

69-Societal Involvement Strategy

44-Leadership

43-Finances

45-Staffing

5-Increasing Academic Quality

16-Academic Quality Developments

18-New Sino-Foreign Universities

To Year 2030
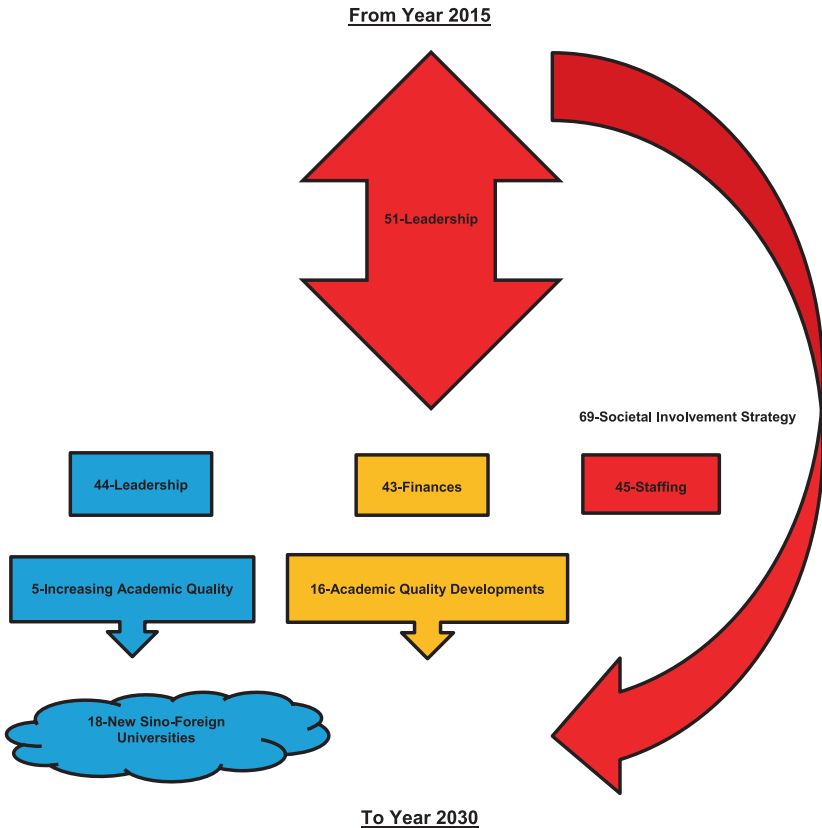
Fig. 10.2 A **likely** scenario for successful **Type 3** Sino-Foreign University partnership toward 2030

themes from the qualitative findings, to give a comprehensive overview of various aspects needed in terms of futures planning. See resulting scenarios in Figs. 10.2, 10.3, and 10.4 below. (See Figs. 10.5 and 10.6 in Appendix A for legend of colors and symbols used in the diagrams of envisioned scenarios.)

From Year 2015

40-External Monitoring

loser Partnership
Cooperation

10-Improved Higher Education Access

36-Policies and Legislation

34-Understanding SFUs' Future
Purpose (s) & Position (s)

63-Internet & Social Media Strategy

20-Research Emphasis
15-Government Developments

To Year 2030
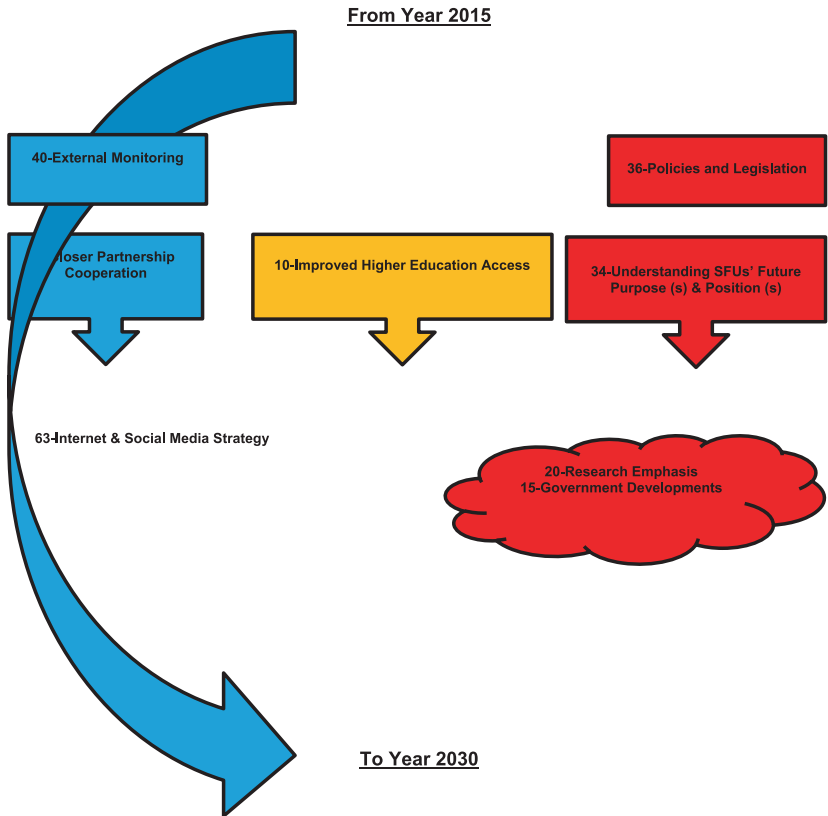
Fig. 10.3 A **most certain** scenario for successful **Type 3** Sino-Foreign University partnership toward 2030

The wisdom and insight of the elite participants paint a picture of the Sino-Foreign Universities of 2030 existing in a very different context than today, with diverse qualities and strategies to consider, as per the envisioned scenarios. The challenge is to ensure the actions taken by the practitioners in their daily operations reflect the envisioned scenarios created by the executive management and sustain Futures thinking to meet future needs.

From Year 2015

53-Blending Higher
Education Systems
52-Communication

51-Leadership
52-Communication

63-Internet & Social Media
Strategy

69-Societal Involvement
Strategy

43-Finances
45-Staffing

5-Increasing Academic Quality
8-Closer Partnership Cooperation

34-Understanding SFUs' Future Purpose(s) &
Position(s)
8-Closer Partnership Cooperation

18-New Sino-Foreign Universities
20-Research Emphasis
16-Academic Quality Developments
15-Government Developments
1-Policy and Regulation Developments

15-Government Developments
1-Policy and Regulation
Developments

To Year 2030

Fig. 10.4 A **likely** scenario for successful **Type 4** Sino-Foreign University partnership toward 2030

Discussion

Sustaining Futures Thinking

After collecting and analyzing data from the executive management, the next task was to engage individuals who manage the daily operations of Sino-Foreign Universities. These individuals are the practitioners, and were key for disseminating envisioned scenarios into the daily academic operations, in hope to further sustain Futures thinking. To begin with preserving a Futures mindset, the practitioners reflected on the three core issues that plagued TNE in Mainland China as previously outlined in light of the envisioned scenarios. The practitioners' recommendation was to instill a culture of experimentation, in order to handle the policies associated with foreign online degrees and the conflicting importance and likelihood of an online and social media strategy in the envisioned scenarios. The practitioners also suggested that a culture of accountability would address the conflicts of partnership commitment and communication, and would complement the societal involvement strategy as found in the envisioned scenarios. Given the relevance of the findings in the envisioned scenarios, the practitioners were stubbornly determined to establish a broader Futures philosophy in their respective institutes.

Change as Experimentation

Evidence to support the practitioner's suggestion of a culture of experimentation was found in some of the most recent Sino-Foreign University partnerships. The nature of the recent partnerships generates an internationalization agenda for American students at Sino-American Universities, instead of prioritizing the education of Chinese citizens, as required in the initial 2003 foreign university decree on which Sino-Foreign Universities were based (Healey 2008). The change in the nature of the partnerships prompted the practitioners, via a culture of experimentation, to consider policy changes to align with the envisioned scenarios that look beyond Mainland

Table 10.1 The proposed typology to envision successful Sino-Foreign University partnerships and strategies in 2030

	Futures Type 1 Includes GATS Mode 4 (staff mobility), 4F Framework (Franchise and Validation)	Futures Type 2 Includes GATS Mode 3 (institutional mobility), 4F Framework (Franchise, Validation and International branch campus)	Futures Type 3 Includes GATS Mode 1 (programme mobility), 4F Framework (Distance learning)
Type 3	X	X	X
Type 4		X	X

China's five year planning system. To anticipate policy changes within their daily operations, the practitioners reviewed the main TNE typologies and compared them against the envisioned scenarios. The outcome was a practitioner proposal of a typology that merges the findings of this study to the 4F Framework and the GATS modes (see Table 10.1). By studying policy shifts, as represented by the entrance of Sino-American University programs, the following Futures typology was proposed.

In the Futures typology, an X denotes comparable elements between the current GATS, 4F Framework, and the findings of either future Type 3 or Type 4 partnerships in 2030 from the envisioned scenarios. The amalgamation of the three typologies and the findings in the Delphi study's consensus, as displayed in the envisioned scenarios, was left to the practitioner's interpretation, as suggested by the literature (Bond and Bond 1982; Gabbay and Francis 1988; Gibson 1998; Hartley 1995; Lindeman 1975). The exercise of interpreting the findings engaged the practitioners and embedded futures thinking in their strategic planning. The interpretations ultimately formed the Futures typology that represents the overarching policies and typologies of the past, present, and future of Sino-Foreign Universities, in light of the envisioned scenarios. The practitioners pragmatically named them Futures Type 1, 2, and 3, which represents, in chronological order, the main typological traits that are envisioned for 2030.

Futures Type 1 merges the Delphi study's findings with the Franchise and Validation categories from the 4F Framework and Mode 4 (staff mobility) of the GATS. As a result, Futures Type 1 is a partnership that caters to flying faculty as described by Seah and Edwards (2006) and resists significant technological integrations associated with the internet and social media programs. Futures Type 1 preserves previous higher education policies from the Ministry of Education that were prevalent when flying faculty were popular and independent brick and mortar campuses were not yet established.

Futures Type 2 merges the Delphi study's findings with the Franchise, Validation, and International branch campus categories from the 4F framework and Mode 3 (institutional mobility) from the GATS modes. Futures Type 2 highlights the current conflict of balancing quality assurance, finances, and overall independence in a partnership that is based on the concept of being a brick and mortar institute.

Futures Type 3 merges the Delphi study's findings with the Distance Learning category from the 4F Framework and Mode 1 (program mobility) from the GATS modes. Futures Type 3 embraces internet platforms into all academic and administrative aspects and suggests higher education policy reform will, in the future, allow the endorsement of foreign online degrees. The practitioners concluded that a potential change in degrees from foreign online education providers, to be validated by the Ministry of Education, would allow a significant change in academic operations for Sino-Foreign Universities. The practitioners then began to integrate the Futures typology into their various daily operational decisions related to internet and social media resources. In addition to experimentation, an organizational culture of accountability was found to sustain futures thinking.

Accountability

Evidence to support the practitioner's suggestion of a culture of accountability was found in the envisioned scenarios that suggested a societal development strategy coupled with a longstanding partnership support and commitment in the industry. (This partnership support

is currently absent.) Specifically, the envisioned scenarios suggest a welcome change for Sino-Foreign Universities and increased support from government development programs in 2030, which represents a change from the support, or lack thereof, which Sino-Foreign Universities received a decade ago. The practitioners viewed the potential for government support to enable Sino-Foreign universities to drive the development of state universities via the standards they set for academic quality developments, as mentioned by Mu (2011). The foreign managers, encouraged by the notion of government support, alternatively considered the rising global ranks of universities from Mainland China and whether any bias of a superior Western higher education system would exist in 2030. The increasingly competitive field of higher education prompted the practitioners to action to secure a greater amount of commitment.

With a newly instilled culture of accountability, the practitioners of Type 3 partnerships took a sobering look at Mainland China's rapid higher education development and reviewed the necessity of a societal involvement strategy in light of the primary strategy from the scenarios. This included an internet and social media strategy, as well. The review forced the practitioners to address the lack of preferential differences between, and the resulting consequences for, Willis's (2001a) Type 3 and Type 4 partnerships in 2030. For example, first, the inclusion of online learning and social media applications raises questions regarding the continuation of perceived superiority and preference for a Type 4 partnership that prides itself on having an independent brick and mortar campus (Willis 2001a). Second, the findings in the scenarios could also change the financial commitment that has intimidated prospective foreign partners (Willis 2001a) by facilitating the ability to access resources from the home campuses of both partner institutes via online and social media platforms. The theme of finances suggests Type 3 partnerships as a preferred model for prospective foreign partnerships, whose participants have been intimidated in the past by the potential costs of a Type 4 partnership (Willis 2001a). Whether Type 3 partnerships could gain further preference compared to Type 4 partnerships, which historically have

been the Ministry of Education's preferred model, is yet to be proven, and would be a radical change for prospective partnerships (Willis 2001a). Third, which is linked to the second point, a balance between finances and quality assurance for Type 3 and Type 4 partnerships, which has been the opportunity cost for prospective partnerships, may now be possible (Healey and Michael 2015). From the three points, the internet and social media strategy, as a primary strategy that may narrow the difference between Type 3 and Type 4, suggests the need for a societal involvement strategy. As a result of the review, the practitioners, particularly those of Type 3 partnerships, utilized a strategy of societal involvement, underpinned by greater accountability to produce more commitment from the foreign partner. The goal of achieving a level playing field, in terms of institutional preference, with Type 4 partnerships was particularly motivating for the practitioners of Type 3 partnerships. The practitioners' actions sustained futures thinking and yielded the foresight to proactively prepare for the competitive higher education environment of 2030.

Conclusion

The practical contribution of this Delphi study is the advice, garnered from the findings in the envisioned scenarios, to Sino-Foreign universities to develop social involvement strategies, and internet and social media strategies, to ensure success in 2030. The literature has previously suggested three different strategies: a cost-competitive strategy, a research-based strategy, and a global awareness strategy (Lewin 2008; Naidoo 2007; Wilkins and Huisman 2011). The strategies as found in this Delphi study are by themselves unique, in addition to being strategies that are recommended to sustain futures thinking. Practitioners are encouraged to integrate the strategies, as appropriate, into their institutional planning. A result of the strategies implemented by the practitioners includes evolving roles for the personnel and organizational structure.

Internet and Social Media Strategy

The importance of an internet and social media strategy challenges the current lack of recognition of foreign online degrees in Mainland China (Healey and Michael 2015; Robinson et al. 2009). Considering this study's findings, and Mainland China's tech savvy integration of social media into its citizen's daily lives, Sino-Foreign Universities are encouraged to carefully integrate their online and social media strategies into educational programs. Chen et al. (2008) found online learning for Mainland Chinese students, in the absence of integration of online and social media, a less beneficial experience when compared to studying overseas in a traditional Western classroom. Whether an increasing strategic internet and social media effort on the part of Sino-Foreign Universities would lead to changes in the recognition of a foreign online degree by the Ministry of Education, and increased accomplishment by students, is still open to question. A culture of experimentation that engaged practitioners to apply an internet and social media strategy to their daily operations does appear to ultimately sustain futures thinking.

Societal Involvement Strategy

Separately, the suggestion of social involvement strategies by this study reflects the historic (Willis 2006a) and recent (Healey and Michael 2015) recommendations of the literature in terms of the need for more commitment, as mentioned by the foreign partners. The findings suggest Type 3 partnerships to be as complex as Type 4 partnerships, so that prospective partners should not consider Type 3 partnerships as an easier and simpler option than Type 4. A societal involvement strategy underpinned by a culture of accountability sustained futures thinking when reconsidering Type 3 partnerships at parity with Type 4. A new level of commitment that focuses on a re-investment in the partnership is imperative for Type 3 partnerships to succeed in 2030. This commitment however must include evolving new roles for personnel within each institute.

Evolving Roles for Personnel

Sino-Foreign Universities, it appears, will increase research initiatives in 2030, and this change will undoubtedly have significant impact on the staffing and operations of Type 3 partnerships. Sufficient resources should be planned for Sino-Foreign Universities' human resource departments for staff recruitment, staff support, executive management searches, as well as, personnel for planning succession models. The lack of experienced, strong, and committed leadership within Sino-Foreign Universities is a constraint that needs careful consideration in the institute's succession planning. Another human resource constraint is the development of high-quality and culturally-sensitive staff with long-term interests in supporting the Sino-Foreign University. Sufficient resources are also needed for IT departments to support online and social media strategies and the academic staff. An efficient allocation of resources by practitioners will also allow a greater sustaining change in organizational structure.

Evolving Organizational Structure

The findings of this Delphi study are also useful for the planning by foreign institutions that are considering a presence in mainland China. Prospective practitioners should prepare for a more complex Type 3 partnership that includes a research agenda and programs that closely align with Type 4 partnerships. Prospective practitioners should not consider the commitment associated with Type 3 partnerships to be necessarily less stringent in organizational structure and function than that of Type 4 partnerships in 2030. The evolving role for personnel with greater accountability suggests a flatter organizational hierarchy. Type 3 partnerships, as suggested by the envisioned scenarios, may actually achieve a competitive advantage from the Sino partner's resources, over Type 4 partnerships. The findings of this Delphi study suggest Type 3 partners to potentially be the preferred typology by the Ministry of Education in 2030.

Role of Organizational Policy

The recommended organizational policy to help universities institutionalize both the changing organizational culture within Sino-Foreign University partnerships, and the evolving roles of personnel and structure of the organization, include Human Resource strategies. These policies may redefine staff recruitment and development, as well as, identify and induct new protocols for communication, financial support, and grievance resolution. Strong Human Resource policies can underpin the Futures Typology, and the needed culture of experimentation and accountability, by hiring and empowering appropriate staff. It is imperative that both current and prospective practitioners consider the importance of the recommended policy in order to capture a portion of Mainland China's higher education market, which is becoming increasingly important in global higher education. Alternate policy recommendations may appear more attractive due to their proposed complexity and trendiness but will most likely fall short of realizing the importance of supporting and managing human behavior in a dynamic organizational environment as found in TNE partnerships.

Closing Remarks

With current efforts, Mainland China strives to continue leading global TNE activities in terms of high quality research, teaching, and overall academic developments. The integration of online education, social media, and societal involvement is suggested in this paper to play a role in their continued success. The envisioned scenarios presented in this study give practitioners the insight and guidance to work through the vagueness of Mainland China's Higher Education current policies, as well as, handle the national context that is complex. The practitioners, in a centrally planned economy, can sustain futures thinking by their engagement with the envisioned scenarios, underpinned by an organizational culture of experimentation and accountability. It is hoped that prospective practitioners will integrate aspects of the findings of this study into their strategic planning and futures thinking.

Appendix A: Legend of Colors and Symbols Used in the Envisioned Scenarios

See Fig.10.5 and Fig. 10.6 below.

Future Scenario	Symbol
Continuing Qualities of Success	
Continuing Constraints	
Changing Qualities of Success	
Strategies	
Context	
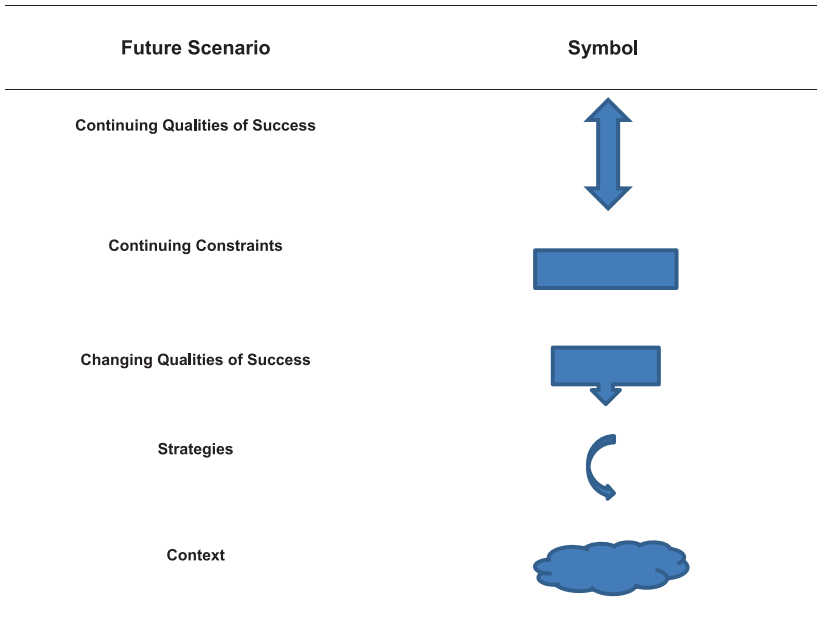
Fig. 10.5 Legend of symbols within envisioned scenarios

Color	Importance
Blue	Important
Red	Most Important
Orange	Not Confirmed

Fig. 10.6 Legend of colors for images within envisioned scenarios

References

Amara, R., & Lipinski, A. J. (1983). *Business planning for an uncertain future: Scenarios and strategies* (Vol. 228). New York: Pergamon Press.

Blass, E., & Woods, P. (2012). Futures of university learning. *Futures, 44,* 117–118.

Bond, S., & Bond, J. (1982). A Delphi study of clinical nursing research priorities. *Journal of Advanced Nursing, 7,* 565–575.

Brew, F. P., & Cairns, D. R. (2004). Styles of managing interpersonal workplace conflict in relation to status and face concern: A study with Anglos and Chinese. *The International Journal of Conflict Management, 15*(1), 27–56.

Buck, T., Filatotchev, I., Nolan, P., & Wright, P. (2000). Different paths to economic reform in Russia and China: Causes and consequences. *Journal of World Business, 35*(4), 379–400.

Chen, R. T. H., Bennett, S., & Maton, K. (2008). The adaptation of Chinese international students to online flexible learning: Two case studies. *Distance Education, 29*(3), 307–323.

Chermack, J. (2006). Assessing the quality of scenarios in scenario planning. *Futures Research Quarterly, 22*(4), 23–35.

Damast, A. (2008, May 15). Why are Western B-schools leaving? *Businessweek.* Retrieved December 10, 2008, from: https://www.buffalo.edu/content/dam/www/news/imported/pdf/May08/BusWeekThomasBSchoolsLeaveChina.pdf.

Ennew, C. T., & Yang, F. (2009). Foreign universities in China: A case study. *European Journal of Education, 44*(1), 21–36.

Gabbay, J., & Francis, L. (1988). How much day surgery? Delphic predictions. *British Medical Journal, 297,* 1249–1252.

Gibson, J. M. (1998). Using the Delphi technique to identify the content and context of nurses' continuing professional development needs. *Journal of Clinical Nursing, 7*(5), 451–459.

Guba, E. G., & Lincoln, Y. S. (1981). *Effective evaluation: Improving the usefulness of evaluation results through responsive and naturalistic approaches*. San Francisco, CA: Jossey-Bass.

Halachmi, A., & Ngok, K. (2009). Of sustainability and excellence: Chinese academia at a crossroads. *Public Administration Review, 69*(1), 13–20.

Hartley, M. E. (1995). The development of module evaluation: A Delphi approach. *Nurse Education Today, 15*(4), 267–273.

Hasson, F., & Keeney, S. (2011). Enhancing rigour in the Delphi technique research. *Technological Forecasting and Social Change, 78*(9), 1695–1704.

Healey, N. M. (2008). Is higher education really 'internationalizing'? *Higher Education, 55*(3), 333–355.

Healey, N., & Michael, L. (2015). Towards a new framework for analysing transnational education. *Higher Education Policy, 28,* 369–391.

Ho, D. Y. F. (1976). On the concept of face. *American Journal of Sociology, 81,* 867–884.

Hsu, C. S. (1996). *"Face": An ethnographic study of Chinese social behavior*. Ann Arbor: UMI.

Hu, H. C. (1944). The Chinese concept of face. *American Anthropology, 46,* 45–64.

Hui, C. H., & Triandis, H. C. (1986). Individualism-collectivism: A study of cross cultural researchers. *Journal of Cross Cultural Psychology, 17*(2), 225–248.

Janesick, V. J. (2001). Intuition and creativity: A pas de deux for qualitative researchers. *Qualitative Inquiry, 7*(5), 531–540.

Janesick, V. J. (2003). The choreography of qualitative research design: Minuets, improvisations, and crystallization. In N. K. Denzin & Y. S. Lincoln (Eds.), *Strategies of qualitative inquiry* (2nd ed., pp. 46–79). Thousand Oaks, CA: Sage.

Lewin, T. (2008, February 10). US universities rush to setup outposts abroad. *The New York Times*. Retrieved April 11, 2008, from: http://www.nytimes.com/2008/02/10/education/10global.html?_r=1&pagewanted=3.

Li, F. L., & Morgan, W. J. (2008). Private higher education in China: Access to quality higher education and the acquisition of labour market qualifications by low-income students. *Education, Knowledge & Economy, 2*(1), 27–37.

Lindeman, C. (1975). Delphi survey of priorities in clinical nursing research. *Nursing Research, 24*(6), 434–441.

Ministry of Education. (2012). Ministry of Education announces enforcement of Sino-Foreign programmes [in Chinese]. Retrieved August 29, 2012, from: http://www.moe.gov.cn/publicfiles/business/htmlfiles/moe/s5987/201204/133501.html.

Mu, X. (2011, March 29). Shanghai begins construction of China's first Sino-American University. Xinhua News. Retrieved from: http://news.xinhuanet.com/english2010/china/2011-03/29/c_13802159.htm.

Naidoo, V. (2007). Declining foreign enrolment at higher education institutions in the United States: A research note. *Journal of Studies in International Education, 11,* 215–226.

Ngok, K. (2008). Massification, bureaucratization and questing for "world-class" status: Higher education in China since the mid-1990s. *International Journal of Educational Management, 22*(6), 547–564.

Okoli, C., & Pawlowski, S. D. (2004). The Delphi method as a research tool: An example, design considerations and applications. *Information & Management, 42,* 15–29.

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.

Piantanida, M., & Garman, N. B. (1999). *The qualitative dissertation: A guide for students and faculty*. London: Sage.

Ratcliffe, J. (2002). Scenario planning: Strategic interviews and conversations. *Foresight, 4*(1), 19–30.

Robinson, N. S., Wei, J., Gong, Y., & Schwalb, M. (2009). Higher education and foreign schools in China. *Journal of College and University Law, 36*(2), 363–398. Retrieved from: http://irc.nacubo.org/Documents/JCUL%20 Robinson%20et%20al%20Higher%20Ed%20in%20China.pdf.

Schmidt, R. C. (1997). Managing Delphi surveys using non-parametric statistical techniques. *Decision Sciences, 28*(3), 763–774.

Seah, W., & Edwards, J. (2006). Flying in, flying out: Offshore teaching in higher education. *Australian Journal of Education, 50*(3), 297–311.

Shindler, J. V., & Case, R. E. (1996). *Apperception and meaning making in the world of qualitative inquiry: An examination of novice qualitative researchers, Annual AERA Meeting*. New York: AERA.

Wilkins, B., & Huisman, J. (2011). Student recruitment at international branch campuses: Can they compete in the global market? *Journal of Studies in International Education, 15,* 299–316.

Willis, M. (2001a). The identification, application and use of four distinct levels of Sino-Foreign cooperation in the state higher education sector. *Journal of Marketing for Higher Education, 11*(1), 73–95.

Willis, M. (2001b). Strategic alliances between Chinese and foreign universities: Was a staggered form of entry used? *Journal of Marketing for Higher Education, 11*(3), 65–84.

Willis, M. (2006a). An investigation into the meaning of the term commitment in Sino-Foreign higher educational alliances: An adventure into the heart and soul of successful alliances. *Journal of Teaching International Business, 17*(1), 5–31.

Willis, M. (2006b). Why do Chinese universities seek foreign university partners: An investigation of the motivating factors behind a significant area of alliance activity. *Journal of Marketing for Higher Education, 16*(1), 115–141.

Willis, M. (2008). Aspects of educational delivery within Sino-Foreign educational alliances: Is this the real key to success? *Journal of Marketing for Higher Education, 18*(2), 186–215.

11

Institutionalizing Futures Thinking in the Canadian Army

Michael A. Rostek

Introduction

The future cannot be predicted to any useful degree as uncertainty rules. Indeed, uncertainty is a predominate characteristic of the twenty-first century global security environment and armed forces around the world continue to strive to understand and define how their national security policies fit within this paradigm. In this age of complexity, military planners, for all their good intentions, often get caught in the trap of attempting to diminish uncertainty rather than learning how to function within it. Indeed, Colin Grey points to the peril when military planners misunderstand this issue:

> The challenge is to cope with uncertainty, not try and diminish it. That cannot be achieved readily. Such ill-fated attempts will place us on the road to ruin through the creation of unsound expectations. (Grey 2008, p. 15)

M. A. Rostek (✉)
University of Ontario Institute of Technology,
Oshawa, ON, Canada
e-mail: michael.rostek@uoit.ca

225

One might then sensibly ask that if the future cannot be predicted, and uncertainty rules, how do military planners prepare for the future? A great deal of information exists that can yield guidance for understanding about the future; however, making sense of that information can be very difficult. For example, while politicians heralded the benefits of a peace dividend resultant of the end of the Cold War, few, if any, foresaw the dramatic increase in intrastate conflict and the coincident increased demand for armed forces during the 1990s. The proclamation of a "new world order" did not materialize in the way many had anticipated. While it is wrong to proclaim, the future will look like today only more so, it is equally wrong to predict a future that bears few hallmarks of conflict as we have known it. As such, a balanced yet proactive method of future analysis is required to stave off reactionary defence planning which can be costly in both blood and treasure.

The main purpose of armed forces is to fight and win state wars. In an environment where a state has a clearly defined enemy, there is often little difficulty in securing social and political support aimed at defeating that enemy, indeed, here again, the Cold War is instructive. During the Cold War, military plans were abundant and equipment acquisitions were designed to defeat a familiar enemy—the Warsaw Pact. Today, however, the enemy is often not clearly defined and military planners are faced with a conundrum about how to plan for their future. Indeed, armed forces around the world continue to debate between structuring their forces for conventional warfighting, counter insurgency, stability, and reconstruction or peace support operations to fit the current and future operating environment. So, the question remains, in the face of such a complex and uncertain international (global) security environment, where do military planners start?

If military planners are to be proactive, thereby hedging costs in blood and treasure, a futures methodology can provide some capacity as noted below:

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

of these policies and actions. Futures research can be directed to large or small-scale issues, in the near or distant future; it can project possible or desired conditions. It is not a science; the outcome of studies depends on the methods used and the skills of the practitioners. Its methods can be highly quantitative or qualitative. It helps to provide a framework to better understand the present and expand mental horizons. (Glenn 2003, p. 3)

This chapter outlines the genesis of the "Army 2040" project and the institutionalization of a futures methodology within the Canadian Army. This discussion begins with a brief overview of the capability development process through which the Canadian Army employs futures thinking and analysis. A description of a futures methodology, a key initiating component of the capability development process, will follow thereby describing the framework used to develop the "Army 2040" project. This framework commenced with a description of the contextual environment[1] based on a modified STEEP analysis: security, science and technology, demographics, the economy, international law, the physical environment, and the social and political environment.

While several futures research methods exist, greater rigour is obtained when one or more methods are employed. As such, the "Army 2040" project team employed Trend Analysis and Futures Wheel analysis. The former included the extrapolation of historical and contemporary trends into the future while the latter, through structured brainstorming, aimed to derive second and third order effects of interaction between those same trends. This was then followed by an Uncertainty-Impact Analysis leading to the writing of Scenarios built around critical uncertainties using a "double variable" or "matrix" approach. From here, key challenges were developed for each of the scenarios to better understand the hurdles the Canadian Army might face in achieving that particular future depicted by the scenarios. While this study did not claim to be prophetic, using the methods described above highlighted areas that could inform policy decisions today in order to meet expectations in the future. As Colin Grey explains, "We do not just discover the truth about future warfare as time passes. In addition, we construct the truth through the decisions we make" (Grey 2005, p. 39).

Discussion

Capability-Based Development

In dealing with the future, the Army utilizes a capability-based development process (CBD). For Canadian Army purposes, the condition of being capable is derived through fulfillment of specific human, scientific, doctrinal, infrastructural, environment, material, and institutional conditions necessary for successful service; in effect, the ability to achieve an effect. In developing capabilities, a three-step process is used (see Fig. 11.1):

- Conceive—concepts are conceived and translated into capability requirements;
- Design—selected capability requirements are translated into validated designs for future use;
- Build—validated designs for force capabilities are refined for use in the field; and
- Manage—the capability is managed in daily operations.
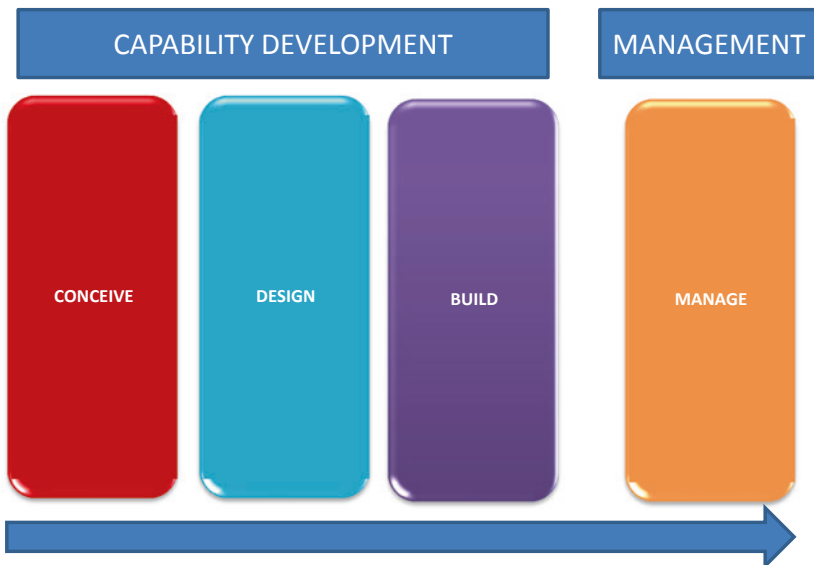
Fig. 11.1 Capability development process

The objective of the process is to meet defence requirements allowing the Canadian Army to remain relevant and effective in the current and future operating environments. While each step in the process is considered a distinct activity, considerable overlap occurs as a capability is first conceived, then designed, and finally built over a number of years. In its final stage within the continuum, the capability is managed for the duration of its useful life.

The capability development process is aligned with three separate time horizons:

- Today, which encompasses a 0–5 year horizon and is roughly correlated with the Build stage of the process,
- Tomorrow, which encompasses a 5–15 year horizon and is roughly correlated with the Design stage of the process, and
- Future, which encompasses a 15–30 year horizon and is roughly associated with the Conceive stage of the process.

While each time horizon represents its own set of challenges and outcomes, it is the 15–30 years into the future, embodied within the Conceive stage of the CBD which requires the greatest degree of abstract thinking. Indeed, the individuals working in this realm can be considered futurists[2] engaging in what is commonly referred to as strategic foresight. This team within the Canadian Army examines the future security environment and identifies areas requiring more focussed research which in turn will lead to capabilities required to operate in the future. In turn, the team will propose alternative concepts and technologies to achieve desired capabilities. It should be noted that this process is overseen by a rigorous governance structure made up of senior Army Officers and Defence Scientists.

Developing the deep futures capability in the Canadian Army was a new undertaking in 2006. The Canadian Army as an institution had traditionally executed the 0–15 year research horizon well. However, in realizing the rate of change, particularly the exponential rise in technology, among others, there was realization that focussing excessively on the 0–15 year time horizon was insufficient, particularly when considering capability development for an armed force. Within the Canadian Army, it can take between 9–15 years to complete a major capital

acquisition project (expensive military equipment such as a tank, ship or fighter aircraft) and upon completion of the acquisition, the capability may remain within the Canadian Army for 30 years. As such, when the rate of change in technology and other trends was paired with the retention period of major capabilities, it became obvious to the military planners that in order to remain proactive, there was a need to rigorously investigate the deeper future, a 15–30 year research horizon. This analysis would allow defence planners to better understand the nature of the environment that was changing exponentially. As such, a new futures methodology was developed and embedded within the capability development process in the Canadian Army in an attempt to hedge against an increasingly complex and uncertain environment.

Futuring, Foresight, and Forecasting[3]

The Army 2040 team developed a structured approach (Fig. 11.2) to study the deep future relevant to armed forces. This comprised of a number of futuring methods (e.g., Environmental Scanning, Trend Analysis, Futures Wheel, and Scenarios) to better understand the possible outcomes for the Canadian Army in the 2040 timeframe. While there is a rich and extensive mix of methods in this field of research, the methods mentioned above are characterized by their relative simplicity and are well suited to an interdisciplinary approach by analysts with varying backgrounds, skill sets, time constraints, and limited resources. Their "user–friendliness" expedited the capacity to focus on the analytical phase of the project. Beyond this, and most important, these methods were well-suited to the Army 2040's chief purposes; that is, the investigation and determination of long term trends and drivers, the investigation of the possible causal interactions that could occur between them, and then conveying these findings in the form of scenarios to be used for identifying new capability requirements and gaps within the existing capability suite.

The process below demonstrates a step by step cyclical process; however, it should be clearly understood that at any time, any one of the steps can be re-evaluated bringing to light changes that may affect the

Fig. 11.2 Army 2040 futures methodology

outcome of the next step. As such, this entire process is underpinned by dynamic research and communication with team members and stakeholders. Naturally, this dynamism must be balanced against the project objectives so that continuous improvement enhances rather than detracts from the project itself; it is a carefully calculated balance where team members are required to function within complexity and uncertainty rather than seek absolute clarity. With this in mind, the following paragraphs briefly describe how our team proceeded.

Step 1: Identify the Timeframe and Focal Issue

A scenario is most useful when a focal issue and a timeframe are identified. In our case, the timeframe used was 30 years into the future, 2040, as it allowed for orientation toward the "long view." As argued by acclaimed futurist Sohail Inayattulah, "…30 years into the future is the best time span, since it is 'far enough that the present is not in control, but close enough not to become pure speculation'" (Sayers 2010, p. 9).

Critical to this step was to know the organization and derive the focal issue which will guide the scenarios process. This is often determined by first acknowledging and understanding the organization's value proposition; simply stated, a statement that summarized why a state armed force is required. Our team comprised military officers, defence scientists, and academics naturally allowing for a robust understanding of the organization. However, there was significant concern for our objectivity and as a result, we employed a red teaming capability, "… an effective method to mitigate, or prevent, biased-thinking and mental stagnation…" (Lauder et al. 2012, p. 45), to ensure a degree of objectivity within our work. The focal issue developed for Army 2040 was articulated as follows: how should the Canadian Army evolve in order to remain a key instrument of national power in 2040?

Step 2: Explore the External World

This step was characterized by an in-depth, outside-in evaluation of the environment within which armed forces exit. A key aspect of the step is to look beyond the factors that specifically relate to the Canadian Army within what is referred to as the "contextual" environment, "… that part of the environment which has important repercussions for the organization but in which has little or no influence" (van der Heijden 2010, p. 115). This is quite different from the nearer term transactional environment defined as "…that part of the environment in which the organization is a significant player, influencing outcomes as much as being influenced by them" (van der Heijden 2010, p. 115). The transactional environment is the "playing field" where the Canadian Army develops its strategy in order to succeed in the shorter term. Scenarios lie on the boundary of the transactional-contextual environment emphasizing the requirement for plausibility and a link to higher strategy and policy.

While there are several strategic foresight tools that can be employed to assist in researching the contextual environment, the two methods that were employed for "Army 2040" were Environmental Scanning and Futures Wheel.

Environmental Scanning: This process involved the acquisition and use of information about events, trends, and relationships that may have a strategic bearing on how the Canadian Army conducted business. The knowledge and insights gained from scanning serve to assist in more effectively planning the Canadian Army's future. The process focused on a large number of areas—in effect covering every major sector of the environment that can assist military planners in planning for the future. Commonly used methods for this step include STEEP (Social, Technological, Economic, Environmental, and Political categories) or PESTE (Political, Economic, Social, Technical, and Environmental). See Pestle Analysis at http://pestleanalysis.com/ for further discussion of the two methods. These processes involve the use of four basic techniques (i.e., undirected viewing, conditioned viewing, and both informal and formal search of both primary and/or secondary sources of information). All four techniques are essential to the method's effective use. Indeed, as explained by Chun Wee Choo:

> Undirected viewing helps the organization to scan broadly and develop peripheral vision so that it can see and think outside the box. Conditioned viewing tracks trends and gives the organization early warning about emerging issues. Informal search draws a profile of an issue or development, allowing the organization to identify its main features and assess its potential impact….[and] formal search gathers all relevant information about an issue to enable intelligent decision making. (Choo 1999, p. 22)

Throughout the environmental scanning process, investigation of trends (discernible patterns of change), drivers (factors that directly influence or cause change), shocks (high impact low probability events), and key uncertainties (unknowns and controversies to be clarified in the future) was undertaken allowing for an analysis of what is constant, what changes and what constantly changes, in the areas under research. Further, this method allows for the identification of "weak signals"[4] which help "see" signs of change in the present. This research provided team members with general, wide-ranging insight as to the direction that the future may take.

Futures wheel: While the examination of trends, drivers, uncertainties, and shocks offers a relatively robust perspective on the future environment, in order to provide useful information to military planners, a more robust approach was required. It is well acknowledged in futures research that "[no] single method should be trusted; hence, cross referencing methods improves foresight" (Glenn 2009, p. 4). As such, the initial analysis based on Environmental Scanning was subjected to an additional futures methodology—Futures Wheel—designed to investigate the potential second and third order effects of interacting trends.

The Futures Wheel is one of the most common methods employed by futurists. It is a simple way of organizing thoughts and exploring the future. It can be compared to structured brainstorming and is aligned closely with mind mapping, a similar futures methodology. It is a simple graphic organizer that allows for a representation of complex interrelationships among trends (Fig. 11.3) and can be described as follows: the futures wheel is a simple futures research method designed
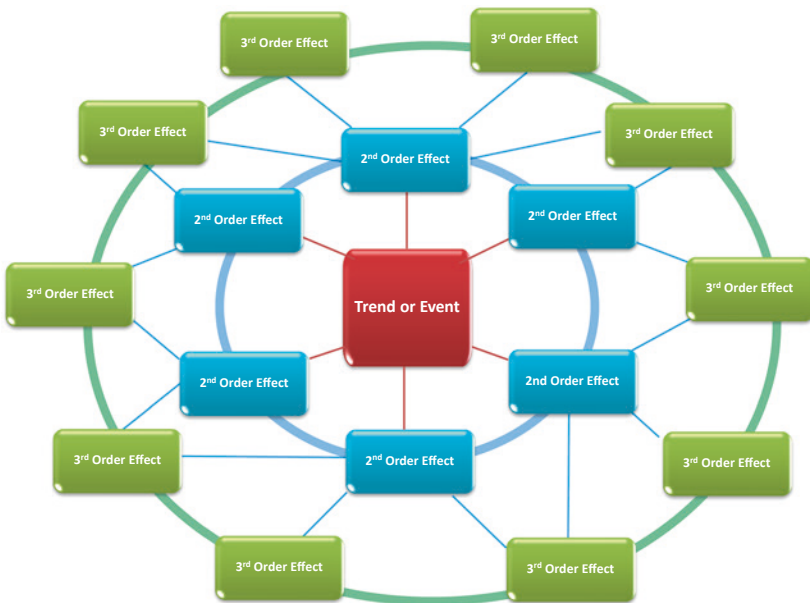
Fig. 11.3   Futures wheel

to systematically capture qualitative expert knowledge. "The Futures Wheel is a method for identifying and packaging primary, secondary, and tertiary consequences of trends, events, emerging issues, and future possible decisions"(Glenn 2009, p. 3) (Fig. 11.3).

While the Futures Wheel method is an easily understood method, an undisciplined approach can result in what is referred to as "intellectual spaghetti" (i.e., the generation of a myriad of interactions that become so complex that they tend to complicate and confuse the implications of the trend) (Glenn 2009, p. 9). This method is limited to the knowledge and research of the participants and while information overload can occur, confining analysis to the primary, secondary, and tertiary rings, allows for the visualization of a vast amount of qualitative information that has both depth and contextual richness (Glenn 2009, pp. 8–9). For example, considering a political focus area, a second and third order effect flowing from an accelerating global interconnectedness trend might include the decline of the state as we know it and the rise of regional super states leading to new international law or supranational law dynamics.

By enabling an examination of the convergence of trends rather than simply the extrapolation of a trend itself, use of Environmental Scanning and the Futures Wheel methods allowed the team to refine their thinking about the future environment in more concrete terms. By tracing the higher order impacts of the numerous trends that were examined within various Futures Wheel sessions, the team strove to identify key drivers of change deemed significant for the Canadian Army in the 2040 time frame.

Step 3: Determine Uncertainties and Their Polarities

Critical uncertainties are the "big questions" that are most critical to the focal issue at hand; that is, for example, how should the Canadian Army evolve in order to remain a key instrument of national power in 2040? A robust scenario framework will ultimately rest on critical uncertainties affecting the Canadian Army and are relevant to the focal issue. The polarities or endpoints of the drivers of change are first established

to further define and understand each driver. For example, a driver of change may be articulated as "global environmental change" with the polarities defined as "crisis reaction" or "proactive action." The key challenge at this step is the ability of the team to select those drivers of change that are most critical to the focal issue.

Step 4: Rank Uncertainties

Upon establishing the polarities for each change driver, the team then followed a process whereby each driver was subjectively assessed to establish its level of "uncertainty" and its "impact" in the future on a low, medium, and high scale thereby indicating a ranking of the change drivers (Fig. 11.4). Uncertainty refers to a subjective assessment of the degree to which the key change drivers and their related trends are
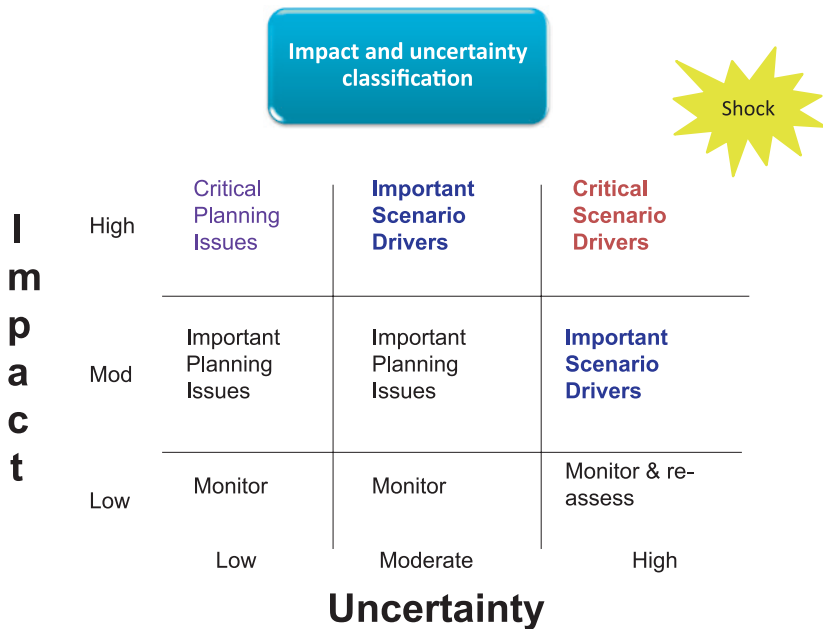
Fig. 11.4   Impact-uncertainty classification (Reproduced with permission[5])

known or well understood. Thus, lower uncertainty suggests a higher degree of confidence that an extrapolation of the trends will closely resemble actual future events. Impact refers to a subjective assessment of the degree to which the key change drivers will influence future events. This subjective assessment will allow the team to collectively understand the position of each change driver with respect to each other on an impact and uncertainty graph. The focus of the scenario framework thus rests with those change drivers that are both high on impact and uncertainty as these will have the greatest impact on the Canadian Army.

Step 5: Develop the Scenario Framework

Scenarios are built around critical uncertainties. At this stage, the axes of the framework to be developed will be based on the two critical uncertainties determined by the team as having a high ranking in impact and uncertainty. This is common approach and is often referred to as the "double variable" or "matrix" approach (Fig. 11.5). Arguably, this method artificially limits the scenarios to revolve around two variables; however, it should be noted that the process can be replicated for any two of the critical uncertainties. Available time, resources, and senior leadership input are factors which must also be considered in the development of one or many orthogonal matrices representing the scenarios. From here, the team then brainstormed four potential scenarios to determine the character of each scenario (Fig. 11.5). The four scenarios are typically given relevant names based on the message or theme to be relayed by each quadrant. Upon completion of the scenarios, the team then developed key challenges for each of the quadrants to better understand the hurdles the Canadian Army might face in achieving that particular future.

Step 6: Write the Scenarios

The scenario framework example above represents 4 scenarios based on two critical uncertainties. For each of the quadrants in the matrix
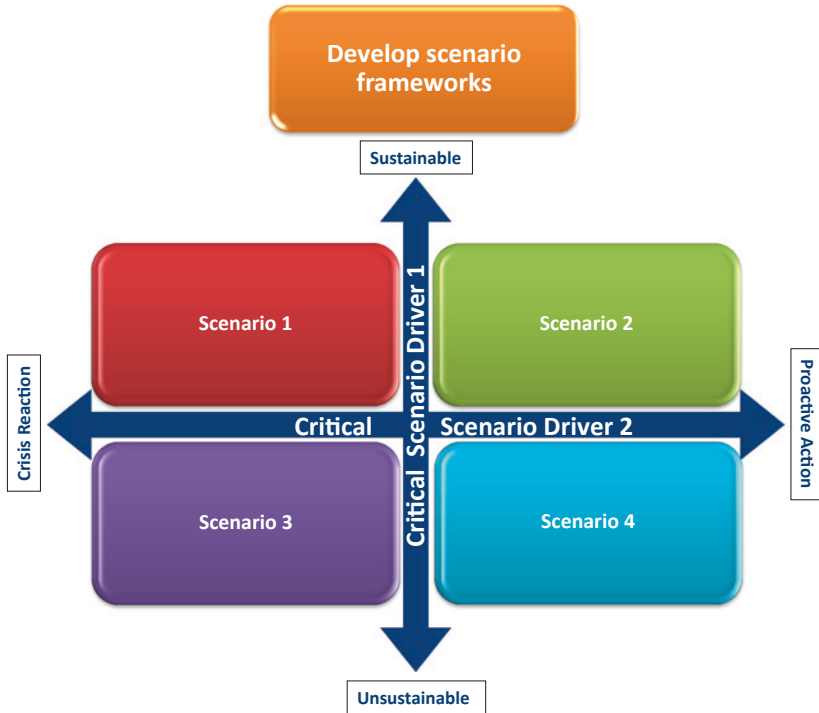
Fig. 11.5 Scenario framework

above, objective statements are developed which describe the respective scenarios.

Scenario 1 would be characterized by a reactive and sustainable approach to Drivers One and Two and Scenario 4 would be characterized by a proactive and unsustainable approach to Drivers One and Two. Scenarios 3 and 4 would represent a mix of these two extremes. Further, in each of the four scenarios, consideration may be given to those change drivers that are considered to be of high impact but of low to medium uncertainty (see Fig. 11.4). It is important here to consider these items within the context of the established scenario space, since each item will be influenced in subtlety different ways by the unique context of each quadrant. As such, each quadrant becomes internally

consistent with the overall framework. This allows for more robust scenarios and assists in the crafting of the scenarios themselves—the next step in the process.

Scenarios are essentially stories about the future which are underpinned by the work done to support the alternative futures. Scenarios will have a plot, a hero, or heroine and essentially tell a story. A process of storyboarding (e.g., the articulation and extrapolation of a series of events from today until the selected point in the future) can be used. Shocks, unexpected events, such as a revolutionary discovery or a natural disaster which can cause a rapid shift in direction, can be used to add substance to the scenario and potentially allow for exploration of contingency plans.

Shocks (see Fig. 11.4) refer to the onset of extraordinary developments and events which have major consequences for individuals, groups, and/or communities. Such phenomena can dramatically alter the trajectory of subsequent events and generally prompt a fundamental reconsideration of outlooks, approaches, and options. In essence, shocks are unforeseen events that change the expected direction of planning and policy.

Consideration of such events and their potential occurrence provides useful means for challenging conventional thinking. A focus on the emergence of shocks demonstrates how radical changes in the world as we know it are not impossible—encouraging greater flexibility of mind in considering potential futures as a result. In fact, engaging in careful consideration of such phenomena can serve as a crucial first step in the construction of additional scenarios to more fully inform sound planning and policy development.

Step 7/8: Evaluate and Identify Implications and Options

Evaluation of scenarios occurred through more formal seminar/workshop for each of the respective scenarios and was aimed at refining results. Given the focal issue, several questions were considered during this step:

1. How does each scenario address the focal issue?
2. What are the implications of each scenario for the Canadian Army, if the Canadian Army remains the same as it is today?
3. What strengths and weaknesses does the Canadian Army have with respect to each scenario?
4. What opportunities and threats might the Canadian Army experience in each scenario?
5. What actions and strategies would help the Canadian Army to be successful in each scenario? and
6. What advice from the future would you give the Canadian Army today to prepare for each scenario?

This stage was undertaken as a series of four table top exercises which explored the implications for the Canadian Army within each of the four scenarios. Each of the exercises followed an identical format which included background presentations, characteristics of the scenario, security implications, discussions on required capabilities, and ranking of significance of capabilities. The information was recorded and collated into a report to for each respective scenario and then analyzed in order to determine commonalities between the scenarios which would then be considered as core capabilities.

Finally, any other capabilities that were discovered and deemed significant for further research and study were the focus of subsequent workshops designed to explore deficiencies (gap analysis) posited to exist between the Canadian Army's current strategy and the view derived from the scenario analysis. The results of this evaluation will, in turn, allow the Canadian Army staff to better cope with and take advantage of future change. Subsequent research or monitoring activities as well as policy change can further help steer the Canadian Army toward a more desirable future. Engagement during this step is intentionally broad in scope.

Step 9: Communicate

Progress throughout the process was widely communicated by a variety of means (workshops, presentations, web platform, etc.) to educate and

inform the Canadian Army staff, students, and other public and private stakeholders on the progress of the project. Core team members were proactive in presenting and publishing their research findings throughout and the project recently culminated in a three-volume set entitled "Canada's Future Army":

- Volume 1: Methodology, Perspectives, and Approaches (Canadian Army Land Warfare Centre 2015)
- Volume 2: Force Employment Implications (Canadian Army Land Warfare 2017a)
- Volume 3: Alternate Worlds and Implications (Canadian Army Land Warfare 2017b).

These volumes constitute the depth and rigor to which futures thinking is now embedded within the Canadian Army.

Step 10: Renew

The scenario process is not a static undertaking. Research and monitoring activities must continue throughout. At a predetermined time in the near future, this process will recommence. The first step in a new cycle must be a critical review of previous futures work which aims to gauge its accuracy and relevance. Completion of the full lifecycle of the process will permit the Canadian Army to keep pace with the ever-changing global environment.

Conclusion

The "Army 2040" project team fully expected that much of their analysis may be wrong. But it did not matter that it may be wrong, as it is the process that became important, not necessarily the product. Indeed, Dwight D. Eisenhower highlighted this issue when he proclaimed, "In preparing for battle I have always found that plans are useless, but planning is indispensable." Further, the "Army 2040" project

team fully expected that surprises (shocks) would occur. Military planners win when the effects of surprise do not inflict lethal damage. As surprise comes from known trends interacting in an unexpected way resulting in unanticipated consequences, the "Army 2040" project team provided analysis to military decision makers that would allow them to make more informed decisions quickly when the time arrived, thereby mitigating surprises. From this perspective, one of the key developments from the Concept Team's work was a new concept known as the Comprehensive Approach.

Through the futures research process, environmental scanning, and scenario development and in particular, the Concepts Team developed a detailed understanding of the increasingly uncertain and complex nature of contemporary and future security challenges. They went on to research and articulate a means to address this increased complexity and uncertainly through "…a framework within which diverse situationally-aware actors resolve complex issues through the purposeful coordination and de-confliction of their information, actions and effects" (Canadian Forces 2010, p. 1) known as the Comprehensive Approach. This approach suggests that an armed force, in tackling contemporary and future security challenges, would be increasingly part of broader, integrated teams. Further, it became clear that many of these emergent challenges require a wider range of personnel skill-sets and resources than ever before. This not only stems from the often-multidimensional nature of the security challenges themselves, but the wide range of players that could well be involved in such challenges as they unfold.

Populations, both state and non-state with varying religion and ethnicity, as well as, a range of government, non-governmental and international organizations and institutions, allied, adversarial and/or neutral, may all come into play during the course of an operation, be it international or domestic in nature. A capacity to effectively navigate through such diversity and ensure that interactions among a wide array of institutions and organizations are effective will be important to successful operations. In particular, the capacity to harness a range of human assets in a coherent, collaborative, and efficient manner will be ever more crucial to achieving lasting solutions to the challenges encountered in the years ahead (Patrick and Brown 2007, p. 58).

The results of this research were initially presented in a separate volume entitled "Security Operations in the 21st Century: Canadian Perspectives on the Comprehensive Approach" (Rostek and Gizewski 2011). Expanded discussion here reflects a clear representation of the value of institutionalizing futures thinking within an organization. Indeed, today the Comprehensive Approach underpins Canadian Army and North Atlantic Treaty Organization operations (NATO Comprehensive Approach, 2017).

A futures methodology has now been institutionalized in the Canadian Army and is employed in support of the Conceive Pillar within the capability development process. The Concepts Team remains a futures-focussed team within the Canadian Army and continues to employ the tools and mechanisms described in this chapter—environmental scanning based on a STEEP model, impact-uncertainty analysis, scenarios, future-oriented table top exercises—incorporated into a simple, replicable process model. The Concepts Team has also become the Canadian Army's leader in future-related issues, and has hired an independent civilian contractor in support of this mission. The process and mechanisms detailed within this chapter are now part of the Canadian Army's futures tool box that can be used as a basis for follow-on futures related work.

Notes

1. Contextual Environment, "…that part of the environment which has important repercussions for the organization but in which has little or no influence" (van der Heijden 2010, p. 115).
2. To study the future is to study potential change—not simply fads, but what is likely to make a systemic or fundamental difference over the next 10–25 years or more. Studying the future is not simply economic projections or sociological analysis or technological forecasting, but a multi–disciplinary examination of change in all major areas of life to find the interacting dynamics that are creating the next age (Glenn 2003, p. 6).
3. Some prefer the term "futures research" and by that mean the use of methods to identify systematically the consequences of policy options

and to identify alternative futures with policy implications for decision makers. Others prefer the term "future studies" and by that mean any exploration of what might happen and what we might want to become. Still others, ostensibly in Europe, and Francophone Africa prefer "prospective studies" and by that mean the study of the future to develop a strategic attitude of the mind with a long-range view of creating a desirable future (Glenn 2003, p. 7).

4. Weak signals are the first important indications of a change. These may be understood as advanced, somewhat noisy and generally socially situated indicators of change in trends and systems that constitute raw informational material for enabling anticipatory action. The benefits of weak signals can be seen when assessing their significance in an organization or a field concerned and analyzing how the phenomena reflected by the weak signals should be reacted on (Saritas and Smith 2011, p. 297).

5. Maree Conway, "Introduction to Scenario Planning", *Thinking Futures,* viewed 5 January 2018, https://thinkinfutures.net. Permission granted for reproduction here.

References

Canadian Army Land Warfare Centre. (2015). *Canada's future Army, volume 1: Methodology, perspectives and approaches*. Kingston: Army Publishing Office.

Canadian Army Land Warfare Centre. (2017a). *Canada's future Army, volume 2: Force employment implications*. Kingston: Army Publishing Office.

Canadian Army Land Warfare Centre. (2017b). *Canada's future Army, volume 3: Alternate worlds and implication*. Kingston: Army Publishing Office.

Canadian Forces (CF). (2010). *The comprehensive approach concept*. Ottawa: Chief of Force Development.

Conway, M. Introduction to scenario planning. *Thinking Futures*. Retrieved from: https://thinkinfutures.net.

Choo, C. W. (1999, February/March). The art of scanning the environment. *Bulletin of the American Society for Information Science, 25*(3), 21–24.

Glenn, J. C. (2003). Introduction to futures research methodology. *Futures research methodology—V2.0.* The Millennium Project. Washington: American Council for the United Nations University.

Glenn, J. C. (2009). *Futures research methodology—V3.0.* The Millennium Project. Washington: American Council for the United Nations University.

Grey, C. (2005). *Another bloody century*. London: Weidenfeld & Nicolson.

Grey, C. (2008–2009). The 21st century security environment and the future of war. *Parameters, 38*, 14–24.

ISS Think Tank. (2016). *STEEP analysis*. Retrieved from: http://issthinktank. wikispaces.com/STEEP+Analysis.

Lauder, M. A., Eles, P., & Banko, K. (2012, Spring). The glaucus1 factor-red teaming as a means to nurture foresight. *The Canadian Army Journal, 14.1*, 45–59. Kingston: Army Publishing Office.

North Atlantic Treaty Organization (NATO). (2017). *NATO comprehensive approach*. Retrieved from: http://www.natolibguides.info/comprehensive approach/documents.

Patrick, S., & Brown, K. (2007). *Greater than the sum of its parts? Assessing "whole of government" approaches to fragile states*. New York: International Peace Academy.

Pestle Analysis 2018. Retrieved from: http://pestleanalysis.com/.

Rostek, M. A., & Gizewski, P. (Eds.). (2011). *Security operations in the 21st century: Canadian perspectives on the comprehensive approach*. Montreal and Kingston: Queen's Policy Studies Series and McGill-Queen's University Press.

Rostek, LCol M. A., Gizewski, P., & Reshke, R. (2010, December). *Conceiving an army for the 21st century* (DRDC CORA TM 2010-264). Ottawa: Defence Research and Development Canada Ottawa (Ontario) Centre for Operational Research and Analysis.

Saritas, O., & Smith, J. E. (2011). The big picture—Trends, drivers, wild cards, discontinuities and weak signals. *Futures, 43*(3), 292–312.

Sayers, N. (2010). *A guide to scenario planning in higher education*. London: Leadership Foundation for Higher Education.

van der Heijden, K. (2010). *Scenarios: The art of strategic conversation*. West Sussex: Wiley.

12

Foresight Renewal: Beginning and Ending with Foresight in the Florida and Ohio Army National Guard Organizations

David M. Stehlik and James P. Foot

Preface

What follows is a premier example of how sibling organizations—the Florida and Ohio Army National Guards—with similar anticipatory mentalities, can utilize foresight methods, policies, and leadership practices in completely different, and yet successful, ways. With the support of, and help from, the state offices and officers behind them, benchmark uses of "beforehand foresight" (applying it to strategy development) and "after-action foresight" (applying it to strategy evaluation) are highlighted and examined.

D. M. Stehlik (✉)
Keith Busse School of Business and Entrepreneurial
Leadership, University of Saint Francis, Fort Wayne, IN, USA

J. P. Foot
Office of Business Transformation, United States Army National Guard,
Arlington County, VA, USA

While strategic environmental analysis and future scenarios are widely used for developing and testing *tactical* strategies within the armed forces, their role in ensuring the forces' long-term success as business enterprises—as tools for the development and implementation of strategic plans—is not so common. As higher level guidance cascades from the Department of Defense to the Service Components (Army, Navy, Air Force and Marines), and major active and reserve component organizations, the need for separate tactical strategies diminishes while the need for business transformation strategies increases, especially in proportion to the organizations' internal and external complexity. In such light, consider that each of The National Guard of the United States' 54 State, Territories (Puerto Rico, Guam, and the Virgin Islands), and the District of Columbia organizations face unique challenges for remaining ready and relevant. It is in addressing these varying and unique challenges that strategic foresight techniques excel in supporting and sustaining force readiness amidst rapidly changing interlocking contexts.

Introduction

National Guard organizations are unique among the US military infrastructure, having statutory mission responsibilities to both (1) their state Governors in response to natural disasters and emergencies when ordered to state active duty and (2) the President of the United States when ordered to federal service as a part of the National Defense Strategy. Moreover, these state and federal missions create unique challenges for National Guard organizations. Senior National Guard leaders must embrace these governance challenges and aggressively employ skillful foresight in the development and implementation of their organizations' strategic plans. Emerging threats in the form of (a) budget uncertainty,[1] (b) societal changes,[2] (c) public policy,[3] and (d) global instability[4] make it extremely challenging to manage large organizations efficiently and effectively. To further complicate the development of a long-term strategy, each organization must be able to

respond to the exclusive strategic considerations of their specific state while also integrating their strategy with the other National Guard organizations.

Consider two of these organizations, The Florida Army National Guard (FLARNG) and the Ohio Army National Guard (OHARNG). Each represent all-volunteer, reserve component, military organizations charged with supporting the emergency response needs of their respective states and the national defense needs of the United States Army. The FLARNG is currently designated as a medium-sized National Guard organization, with roughly 9000 commissioned and enlisted personnel. In contrast, the OHARNG is currently designated as a large-sized organization, with nearly 12,000 total personnel. Each is structured to provide ready and relevant forces to meet the needs of their respective state Governors and United States Army Combatant Commanders. These state National Guard organizations are composed primarily of part-time soldiers. Both, however, employ approximately 15% of their assigned force as full-time personnel to provide continuous training, manning, and equipping guidance and support for their organizations.

While similar in many ways, each of these organizations employs separate and unique foresight techniques to meet specific strategic needs. The first, demonstrated by the FLARNG, is a scanning technique. Specifically, it conducts a broad-based assessment of the operational environment during which it collects data on and ranks organization-impacting forces by the degree to which each may affect FLARNG's strategic initiatives. The second method, demonstrated by the OHARNG, is the use of future scenarios to continuously refine a strategy against a spectrum of probable futures. These two techniques are providing tremendous value to each organization by helping clarify an ambiguous and ever-evolving strategic environment, informing and safeguarding the relevance of their long-term strategic plans.

Prior to implementation of foresight methodologies, however, the Florida and Ohio Army National Guard organizations struggled to identify, clarify, and understand fully the ever-changing challenges, and ultimate impact on, their strategic capability. Below is a discussion of the history of how each organization recognized the need for change.

Need for Change

Florida Army National Guard

In 2014, the Florida Army National Guard (FLARNG) developed and published its most recent strategic plan. Its intended purpose: to focus the organization's efforts for managing change over the next ten years. Like most organizations' strategic documents, it was developed by senior leadership. Including the executive leadership team and most Directorate level leaders, the senior level group was tasked with and accomplished the work leading to the plan during an off-site workshop in October of 2013. During this workshop, they developed a vision for the future based primarily upon historical, current, and near-term anticipated requirements. However, little analysis of external forces and trends was conducted, making it difficult to develop a strategy that could remain relevant to current and future, internal and external conditions. By the time the off-site meeting concluded, the leaders had identified and crafted seven strategic goals (broad statements about a future condition) to support the FLARNG's future needs. After a thorough discussion, the senior leaders decided to focus on three goals as being core to their strategy.

The next month, November 2013, this working group re-convened to begin developing strategic objectives (specific statements of conditions necessary to achieve strategic goals) in support of their previously selected goals. This work proved to be a significant challenge for the team. Primarily, they lacked a clear approach for measuring the organization's success in achieving the necessary objectives. Thus, the strong and clear goals (general) originally developed lacked equally clear objectives (specific) which, when accomplished, could prove the goals' progress. This eroded trust and support for the strategic objectives and a commitment to achieving them. In the end, The Adjutant General (the organization's senior executive) elected to publish the strategic plan with only its strategic goals and no approaches for achieving them—understanding that good goals can sometimes be accomplished by intelligent organizations without the hindrance of poor objectives (and more

likely productive than bad objectives efficiently carried out). However, this was not the case. Soon after, there was a change in the organization's senior leadership which is common among National Guard organizations. The inevitable result of the strategic effort was that the plan atrophied for lack of focus and ongoing guidance.

Ohio Army National Guard

The Ohio National Guard approached strategic planning like many industry organizations before implementing foresight techniques into its process. Utilizing a typical three to five-year cycle, the organization selected a season to review, assess, and update its strategic plan. During this formalized cycle, which has become common among National Guard organizations, the organization's leadership team (plus selected individuals) would conduct an off-site, multiday meeting to focus on the organization's strategy for the next cycle.

During this off-site meeting, senior leaders from across the organization would research, create, and share briefings on critical issues from their particular areas of responsibility such as personnel, training, logistics, and facilities. Next, they organized the research according to a formal framework following the SWOT structure (internal strengths and weaknesses and external opportunities and threats). A prioritization activity followed, which forced key issues to emerge. These key issues then became the framework for the next strategic planning cycle. Additionally, they developed supporting goals, objectives, and action plans (with related performance metrics), by which they could monitor and measure the achievement of their strategy against the backdrop of these priority issues.

Over time, a tendency for SWOT analysis techniques to become mired in current issues and overlook long-term strategic opportunities or challenges became apparent. Again, this is not uncommon within the industry. The resulting strategic plans, however, amounted to be little more than re-statements of improving readiness by doing the same things—only better. This approach eventually became unacceptable to the organization's senior leaders who chose to seek a new approach.

Similarities from the Start

Given those histories, both organizations set out to identify and implement refined strategy development processes. Their goal was to focus their organizations' change management practices more accurately and efficiently to meet current and future challenges. The common element in both organizations was the recognized need to become more adept at foresight methods. Specifically, they aimed to improve their future-framing competencies in terms meaningful to their long-term success amid a myriad of constantly changing, operational environmental forces.

Transition to Foresight

Florida Army National Guard

In 2016, the Florida Army National Guard's senior leadership again focused on the development and deployment of a long-term strategy for success. The task of developing a strategic framework fell to the organization's Strategic Plans and Programs Division. The Division's first task involved conducting a critical analysis of the organization's strategic narrative, revealing conflicted and mixed priorities. They unearthed these misaligned priorities through the review of several key documents and discussions with senior and mid-level leaders who gave their perspectives on organizational priorities and interpretations of the organization's mission and vision. The Directorate's findings then revealed that managers at most levels of the organization understood its mission and were taking actions and committing resources to accomplish that mission. Though confirming the existence of a shared operating paradigm among leaders in addressing the organization's day to day challenges, it also revealed that these same leaders did not share a unified paradigm for considering and preparing for challenges beyond the near term (two-to-three years).

The next task involved assessing the then current state of their strategy, by reviewing the higher level strategic plans of the National Guard Bureau (NGB) and the Department of the Army. Consequently,

they discovered a fundamental shift in the umbrella organization's strategic direction. In its attempt to respond concurrently to regular Department of Defense policy changes, the organization wound up reacting to external forces rather than anticipating and preparing to meet them with equal or greater leverage. Further analysis indicated that their shift resulted from changes in the operational environment. Too much had changed outside the organization since the previous plan and their strategy was out of sync with the long-term needs of national defense policy.

Finally, the Strategic Plans and Programs Division reviewed the metrics associated with the FLARNG's strategic plan and briefed them to the senior leaders. In so doing, leaders discovered that these metrics had little correlation with the organization's strategic initiatives, or, for that matter, any of its priority issues. A different approach to strategy development was necessary.

Recognizing this persistent influence of a myopic view of the future, FLARNG leaders set out to develop a more informed approach to identifying and assessing organization-impacting, external forces. They were unwilling to allow the organization's internal desires to be favored over external realities and requirements when driving the organization's strategy development. Thus, they tasked the Operations and Plans Directorate with developing a framework to accomplish this.

Ohio Army National Guard

The Ohio National Guard's initial implementation of strategic foresight techniques began in 2015, shortly after the appointment of Major General Mark Bartman as The Adjutant General of the Ohio National Guard. Maj Gen Bartman brought with him a desire for the Ohio National Guard to become strategically significant to both its state and federal customers, as well as, innovative in its strategic development approaches. Committed to that end, he instructed his staff to develop a fresh approach to the organization's strategic planning process, providing them with a list of things *not* to do rather than a list of things to do.

One of the first tasks was to investigate the US Coast Guard's use of *Evergreen* to understand better the strategic forces and trends shaping the future. Evergreen is the Coast Guard's primary environmental scanning process, whereby future trends and external change elements affecting its strategic outlook are identified, analyzed, and accounted for (About Evergreen, n.d.). At the direction of Maj Gen Bartman, representatives from the OHARNG's Office of Performance Excellence (J52) contacted the US Coast Guard to gain an understanding of how it was using future scenarios to test, stress, and analyze its long-term strategies. With the insights gained from these meetings, the J52 began re-designing the OHARNG strategic planning process by incorporating a more robust analysis of the strategic environment and introducing future scenarios as a tool for refining its strategic focus.

Organizational Policy to Sustain Foresight

Florida Army National Guard

To begin its strategic planning re-design effort, the Plans and Operations Directorate of the FLARNG first reviewed the strategic plans and processes of several successful National Guard organizations. Additionally, they sought guidance and assistance from the Business Transformation Office at the NGB headquarters in Arlington, VA. They quickly realized what was preventing them from developing a consistent and effective long-term strategy: a lack of information, data, and analysis of strategic forces' impact upon the organization. To address this major gap in its strategic planning process, FLARNG conducted an environmental analysis of forces and trends in the areas of Politics, Military, Economic, Social, Information, Infrastructure, the Physical Environment, and Time (PMESII-PT, cf. TC 7-102 Operational 2013). Functioning like a traditional environmental scan, but with strategic intent, the practice helped outline the organization's operational environment, the forces at work within this environment, and the strength and trends of these forces to project potential future conditions.

A specific group of leaders, known as the Florida Army National Guard Strategic Planning Working Group (FLARNG SPP), incorporated the scanning activity into its regular strategic planning process. Their purpose was to ensure the Directorate's effort to develop an accurate routine for understanding the dynamics of the FLARNG's environment would not be lost over time. This group, consisting of senior staff and representatives from each major business unit of the organization, then became the primary drivers of the organization's strategic planning effort. Each member of the group was responsible for documenting short- and long-term trends impacting the day-to-day operation and future sustainability of their business sectors and the FLARNG as a whole.

To complement the analysis of the organization's external environment, the FLARNG also implemented an annual assessment of its internal business practices and processes using the Baldrige Framework for Excellence©. According to policy, this effort included an annual assessment of the organization's internal strengths and weaknesses by a chosen assessment team. These two outputs, now codified, serve as the foundation for organization's annual SWOT (strength, weakness, opportunity, and threats) analysis, guiding the development of its strategy.

Ohio Army National Guard

The OHARNG's use of future scenarios remains fairly new within its strategy development portfolio. Still, leaders have perceived enough value in such foresight techniques to begin entrenching its use within the organization's culture. In particular, they have established policies ensuring the techniques' roles last well into the next strategic planning cycle.

First, the organization's executive leadership team designated a specific staff element on the Joint Staff to conduct the work of scenario-based strategic planning. Additionally, they codified the technique as the "right way" of completing a subset of the strategy development work. Moreover, that staff element, J52, became responsible and accountable for completing that work. In military organizations, it is the role of the J52 to propose strategies, plans and policy recommendations to the Chief of the Joint Staff. By specifically designating an office

with the responsibility of conducting this process, the organization ensures that the process survives any personnel changes within the Joint Staff or senior leaders. In that sense, J52's existence *is* risk and uncertainty management.

Second, senior leaders ensured sustainability of this effort by establishing three staff level positions to conduct the work: one officer, one noncommissioned officer, and one Title 5 National Guard Civilian employee. They also mandated a stabilized assignment period of three years for the military staff level positions and made the Title 5 National Guard Civilian assignment permanent. The stabilized dwell times[5] and the permanence of the positions help mitigate turbulence caused by personnel turnover within the office and ensure the continuity of corporate knowledge and process expertise. Furthermore, the dwell times—longer compared to many other positions—allow the assigned personnel to complete additional training and certifications in strategic planning, execution, process improvement, facilitation, and other acutely relevant areas.

Third, the J52 office is responsible for managing the process—not developing the strategic plan itself. This setup promotes the integration and deployment of the strategic planning process and the foresight techniques being used with its partners and stakeholders throughout the organization, seeding it within the organization's culture.

Organizational Transformation to Intelligent Foresight Design

Florida Army National Guard

Introducing formal techniques into creative processes like strategic planning often provides an additional benefit: structured thinking and process innovation. Such was the result when FLARNG included foresight techniques when framing their organization's strategic planning process. The structured techniques provided the model and motivation from which FLARNG staff could establish a systematic process

for developing the strategic plan. This act, in effect, established policy for sustaining strategic planning with foresight as a part of their management system. Additionally, the organization incorporated elements from the Baldrige Framework for Excellence©, specifically Category 2—Strategic Planning, to confirm that its process fully integrated with its other key business practices.

As reflected in Fig. 12.1 below, the process begins with a detailed analysis of the operational and strategic environment.

This strategic environment includes eight critical areas of operation: Political, Military, Economic, Social, Information, Infrastructure, Physical Environment, and Time. For each of these strategic areas, specific senior staff officers have responsibility for the following jobs:

1. Researching information from articles, papers, databases, and other professional sources, identifying constant themes (forces/strategic drivers),
2. Forming assumptions based on trends with that information, and
3. Assessing the strength of the trend/force on the organization—currently and in the future.
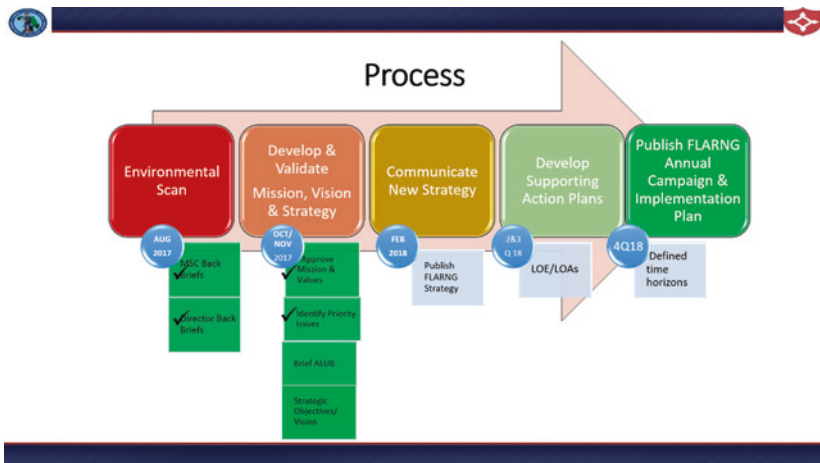
Fig. 12.1   The FLARNG's strategic planning process[6]

The officers brief the findings independently to the Plans Directorate (G5), which subsequently groups the emerging issues and factors according to major themes. Then, the organization's senior leaders receive briefings on those theme groupings, and the groupings are developed into "critical issues" soon after. These critical issues are ultimately prioritized and used as the basis for the development of its strategic plan.

With the foundation and backdrop of prioritized issues, a small strategic leadership team forms to develop open-ended strategic objectives addressing the most critical of the issues that had emerged from the environmental assessment. In practice, this became the general framework for the development of the FLARNG Vision. A select group of individuals from its Integrated Management System (IMS)[7] team drafted several candidate vision statements around the recommended strategic direction. Then, the team members, each having training in strategic planning, narrowed the several vision statements to two and the accompanying 22 Strategic Objectives into a group of 11, briefing the organization's senior leaders afterward. They made minor adjustments to the vision statement and the recommended strategic objectives before the next phase.

Finally, the organization's Adjutant General accepted the input and crafted his vision statement. Moreover, he accepted six of the 11 priority issues as critical to the organization, and he selected three of them as the basis for the organization's strategic plan. This information is codified into a formal strategic planning document and presented at the Florida National Guard annual Senior Leader Summit in January. Simultaneously, a separate team works to develop a strategic communications plan to make sure the plan is fully integrated throughout the entire organization and among its customers and key stakeholders.

Ohio Army National Guard

The OHARNG's codification of the use of "scenario-based" strategic planning ensures the organization develops and implements a systematic and effective process. This 5-Key-Step process entails the following:

1. Selecting a strategic future upon which to focus,
2. Conducting detailed research into the future operating environment and developing four scenarios to address those future possibilities,
3. Conducting a two-day offsite workshop to identify critical capabilities the OHARNG must possess to be successful in all four scenarios,
4. Developing a comprehensive Strategic Plan to focus the resulting change efforts of the organization, and
5. Developing long-term Lines of Effort (LOE) and near-term Action Plans to achieve those capabilities.

Each step of the OHARNG planning process contributes to, and benefits from, futures thinking. The first three steps of the model are described below in more detail.

Step 1—Delphi process. The annual iteration of the OHARNG process (see Fig. 12.2) begins with the selection of a strategic theme. The organization currently use a "Delphi Process" to solicit strategic threat and opportunity input from senior leaders throughout, including Army and Air Guard, National Guard Bureau (NGB), governor's staff, academia, and various long-time partners and stakeholders.
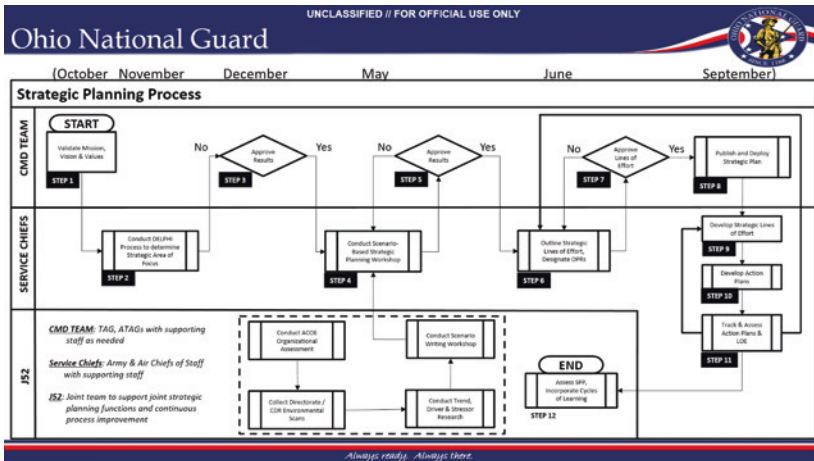
Fig. 12.2 The OHARNG's strategic planning process[8]

The systematic forecasting method reflected in Step 1 involves structured interaction among a group of subject matter experts. The Delphi Technique typically includes at least two rounds of experts answering questions and providing justification for their responses while providing the opportunity between rounds for changes and revisions. The multiple rounds, which end after reaching a pre-defined criterion, allow the group of experts to arrive at a consensus forecast of the subject under review. Involving various ranks and external participants reinforces an understanding of and "buy-in" to the process throughout the organization and its partners.

Step 2—Research and scenario development. Each annual iteration employs roughly 20 internal participants, drawn from junior and mid-career personnel, who conduct focused research to define the future operating environment. They use the theme determined in the Delphi Process to focus the research, organizing it according to Army's Joint Operations Planning Process framework for defining an operating environment. This process for defining the future operating environment ensures the planning scenarios are fact-based, developed from quantifiable, sourced research. Moreover, these junior and mid-career NCOs and Officers become familiar with the diverse inputs to the process, the process itself, and the resulting future-focused product. Such enculturation of junior and mid-career service members in future-oriented strategic thinking prepares them and the next generation of strategic planners to continue—and ultimately improve upon—the OHARNG's process for forecasting and anticipating change.

Step 3—Workshop. The culminating event of the annual strategic planning cycle is the strategic planning workshop. Participants stem from multiple levels of the organization, and also include key external partners, collaborators, stakeholders, and customers. Depending on the theme, subject matter experts who play a role in the relevant functions are additionally consulted from each level within the organization. Similarly, the OHARNG incorporates the perspective of those external agencies that may be involved in the scenarios.

This setup accomplishes two tasks. First, by including various levels of OHARNG personnel, it clarifies and reinforces the significance of the process: the intent, the rationale, and the ramifications.

Second, by including external agencies, it ensures a unified understanding of the future operating environment and the roles relevant parties play therein. Such internal decentralization alongside an inclusion of external agencies eliminates potential "blind spots" in the resulting plan, facilitates organization-wide understanding of the process itself, and prepares future leaders to continue and improve upon the process.[9]

Future-Oriented Leadership

Florida Army National Guard

The FLARNG has a strong management philosophy and sound policies and processes for inculcating foresight initiatives into strategy development. Since 2015, the Baldrige Framework for Excellence© has guided its development, improvement, and integration of key business processes. Annually, the FLARNG tests its key systems and processes against the proven Baldrige criteria, where the end goal of the analysis is an ever-continuous improvement. In fact, implementing foresight activities into its strategic planning process was a direct response to reviewing *Category 2: Strategy* of the Baldrige Framework.[10]

Effective strategic planning for organizations as large as the FLARNG requires a significant amount of time. The organization must organize its workforce, train key personnel in the art of strategy development, and execute the plan. Such being the case, the FLARNG leadership committed to an unrushed, methodical management approach in developing its strategic planning system. Figure 12.1 provided the timeline for how FLARNG manages its strategic planning process. Presently, the organization has completed the design, training, and development phases of its strategic planning process, with the implementation phase beginning Q1 2018. The FLARNG is beginning to develop strategic goals and action plans which address the Priority Issues and Strategic Objectives developed in Phase Two of its strategic planning process.

Moving forward, senior level officers (with the rank of Colonel) will be responsible for each Strategic Objective and tasked developing short-, mid-, and long-term goals in support of their assigned Objective. Such a

requirement aligns its strategic foresight efforts with the implementation of its strategy while also helping democratize the accomplishment of FLARNG's strategy among personnel. Likewise, each Strategic Goal will have an individual owner accountable for the development and implementation of associated action plans. This requirement further strengthens the bond between the identified Priority Issue(s)[11] and subsequent actions (action plans).

This approach aligns the execution of FLARNG's strategy with the Baldrige principles of an IMS. Two primary activities lead to this alignment:

1. The development of a set of performance metrics that measure and monitor execution.
2. The implementation of a formalized performance review process to monitor the achievement of the strategic plan.

Ohio Army National Guard

As with the FLARNG's development of new management strategies, the OHARNG has taken a similarly fresh step forward. The impact of its newfound approach to utilizing strategic foresight techniques upon its management practices has been nothing short of significant. Most notable has been the re-focusing of the organization's strategy: shifting from a conventional, short-term approach, and making a to change to a true, long-term model. Moreover, this shift has affected not only how senior leaders think, but it has also impacted mid-level managers as they have become more engaged with strategic planning.

Truly, such mindsets and attendant skills support an organization's innovative management processes, as well as, promote an environment for success. These efforts produce natural opportunities for intra- and cross-organizational mentorship and contribute greatly to the development of future organizational leaders who will support and strengthen their key communities (in OHARNG's case, this includes its employees, educators and academic institutions, military families, communities surrounding its armories, and readiness centers). Foresight skills also

help the organization anticipate its customers' and stakeholders' needs better, improving external engagement with the organization. Finally, these skills directly and indirectly (through structures and processes) aid organizational leaders in evaluating and preparing the workforce for changing capability and capacity needs. In summary, these key areas are critical to the long-term success of the OHARNG and are benefitting from evolving management practices influenced by the use of strategic foresight techniques.

The OHARNG, similar to the FLARNG, makes continuous improvement of key business processes the focus of its long-term success strategy. The use of strategic foresight tools as a part of that work requires the organization to remain focused on how it must manage change today to be effective and relevant in the future. The continuous improvement of the organization's management practices fuels the process improvement model built into the Baldrige Framework for Excellence©. Evidence of the OHARNG's success in this area is its selection as the winner of the 2015 Army Communities of Excellence Award for the Army National Guard. The basis for the competition is an outside examination of each state National Guard's assessment of their key business processes and the performance results of those processes (as framed in the Baldrige Framework for Excellence©).

Conclusion

Each of these sibling organization's executive leadership teams has expended tireless effort and visionary leadership to establish regular utilization of strategic foresight tools. In doing so, they have demonstrably bridged the chasm between effective operational management and visionary leadership. The ability to move from managing "what is" to managing "what may be" is a hallmark success of these two organizations. Each manifests a desire to gain clarity about the future and bring order out of chaos by applying foresight techniques in support of its future-focused strategies. Additionally, these foresight processes are becoming embedded—by policy and management approach— in each organization's culture. As a result, both the FLARNG and the

OHARNG are recognized trailblazers in the area of strategic planning and future-oriented leadership within their national community. Assuredly, for the citizenry under their protection, such forward-thinking intentions and execution are especially comforting.

Finally, foresight and futures thinking, as iterative processes, support renewal and rapid response to ongoing change and impact of new challenges. The result is organizational capability that is characterized by flexibility, agility, and adaptability.

Florida Army National Guard

Organizational agility has long been a hallmark of organizational success (National Institute 2017, pp. 7–41). Today's rapid pace of change challenges all organizations (Blazey and Grizzell 2017, p. 24), especially governmental institutions that are, by nature, often encumbered with bureaucratic policies and regulatory requirements (Power, 2013). In the case of National Guard organizations, they must also be able to integrate with the larger National Defense Policy—all while maintaining that ability to respond rapidly to state emergencies. For the FLARNG, the use of strategic foresight tools in its strategic planning process supports the generation of a plan, objectives, and goals. These become boundaries within which the organization can focus on change, specifically which changes to address with their planning efforts. The addition of new information, knowledge, and processes to the organization is measurable against FLARNG's ability to achieve its strategic objectives and vision. Because the new information, knowledge, and processes can be measured, attempts at improvement can be made, possibly creating efficiencies and higher levels of effectiveness. For example, a workforce study within a department can determine if fulltime employees are accomplishing tasks that support the strategic plan. If they are not, then those individuals' tasks can be changed, or they can be reassigned to areas where their service will be better utilized.

Also, the FLARNG has integrated the use of its environmental assessment tool into its annual business plan. A continual update to the Operational Environment assessments—along with annual

environmental scans—alerts the organization to necessary changes before any major occurrence. Moreover, instead of delaying all adjustments until the next cycle, it executes smaller course corrections equally well. The intent is to be flexible and adaptive rather than to face a forced future, where the re-creation of less-optimal policies and processes would be required.

Ohio Army National Guard

In the case of the OHARNG, the annual strategic planning cycle engages the organization in frequent and deliberate examinations of the trends and variables redefining its future operating environment. This continual focus on, and refinement of, probable futures enables the organization to detect challenges earlier. Thus, the practice enables the OHARNG to anticipate rather than react to pertinent changes. Furthermore, this ability protects the organization from the high costs of reaction and the associated expense of bureaucratic delay, allowing it to utilize the more balanced and cost-effective approach of intentional design, test, and implementation.

The process used to assess future operating environments draws on insights not only from senior military members, but also from the perspectives of its partners, collaborators, stakeholders, and customers. The diverse insights, coupled with the detailed research conducted to define that future operating environment, helps mitigate potential blind spots as well as ensures multiple unique perspectives. Such broadly shared environmental awareness in strategic thinking significantly affects organizational response time.

The annual validation/re-prioritization of action plans and LOEs[12] safeguards the OHARNG from becoming so fixed on a past year's goal that it overlooks changes to (a) the goal's fluctuating operational context or (b) organizational capacity to achieve that goal. Each year, the strategic planning workshop produces a number of proposed strategic LOEs. Prior to their implementation, however, they are assessed according to potential impact and execution difficulty alongside the currently employed LOEs. The addition is not always feasible. By assessing the

relative impact and difficulty, leaders can more intelligently determine where to apply limited resources for the greatest benefit. It is in this process step that the organization can determine the relevance and value of sustaining ongoing LOEs to the current strategy. For instance, leaders might decide to pause a previously established line of effort, because a newly identified line of effort warrants a shift in applied resources. This annual assessment and prioritization of resources especially enables the OHARNG to rapidly adjust to long-term action plans, while changes to near-term action plans and execution of daily operations remain addressed within the traditional work systems.

Notes

1. Budget uncertainty: Developing trained and ready forces (manning, equipping and training) is an extremely costly endeavor and takes multiple budget cycles to accomplish and maintain (Krause 2017).
2. Societal changes: The changing attitudes of Gen X, Y & Z are making it difficult for National Guard organizations to fully man its units to deployable standards (Calvert 2017).
3. Political influence on public policy: Often, the armed forces are the first implementers of major public policy changes such as LBGTQ, Sexual Harassment and Rape Prevention, etc. (Cronk 2017). These often come with relatively little notice and have major impact on internal policies and processes.
4. Global Instability: The military capabilities required to support the nation's defense plans vary across the global spectrum making the production of readiness for changing mission requirements in fluid environments a massively complex endeavor (Quinn et al. 2017).
5. This is the period of time during which the personnel remain in the position without interference from exigent factors.
6. Note. *From strategic planning process timeline—Florida Army National Guard* [powerpoint slides]. Retrieved from FLARNG contact Lieutenant Colonel Jerry B. Glass, Florida National Guard. Reprinted with permission.

7. This is a team of officers, warrant officers and non-commissioned officers that coordinate and recommend policy for the four major pillars of the organization's IMS: organizational assessment, strategic planning, performance management and process improvement.

8. Note. *From strategic planning process timeline—Ohio Army National Guard* [powerpoint slides]. Retrieved from FLARNG contact Major Danielle A. Reese, Ohio National Guard. Reprinted with permission.

9. The reason for omitting Steps 4 and 5 from the discussion is that the foresight work is complete by Step 3, after which more general strategic planning work takes over.

10. In assessing its organizational processes, the organization's senior leaders (management) realized that they had no adequate response to the Baldrige Framework's questions about how the organization addressed transformational change, the prioritization of change initiatives, organizational agility, innovation, and projecting its strategic performance (Baldrige 2015).

11. This is developed through the analysis of the strategic environment.

12. In the context of joint operations planning, using the purpose (cause and effect) to focus efforts toward establishing operational and strategic conditions by linking multiple tasks and missions.

References

About Evergreen. (n.d.). *U.S. Department of Homeland Security: United States Coast Guard*. Retrieved from: https://www.uscg.mil/Strategy/Evergreen.aspx.

Baldrige Performance Excellence Program. (2015). *2015–2016 Baldrige excellence framework: A systems approach to improving your organization's performance*. Gaithersburg, MD: U.S. Department of Commerce, National Institute of Standards and Technology. http://www.nist.gov/baldrige.

Blazey, M. L., & Grizzell, P. L. (2017). *Insights to performance excellence 2017–2018: Using the Baldrige framework and other integrated management systems* (p. 24). Milwaukee, WI: Quality Press.

Calvert, D. (2017, May 5). How the U.S. Army recruits and retains millennials: Lessons from the military on making the most of your ambitious millennial workforce. *Kellogg Insight*. Retrieved from: https://insight.kellogg.northwestern.edu/article/how-the-us-army-recruits-and-retains-millennials.

Cronk, T. M. (2017, September 18). Secretary Mattis issues interim guidance on transgender personnel service. *Department of Defense*. Retrieved from: https://www.defense.gov/News/Article/Article/1315306/secretary-mattis-issues-interim-guidance-on-transgender-personnel-service/.

Krause, H. (2017, September 20). Budget issues: Budget uncertainty and disruptions affect timing of agency spending. *U.S. Government Accountability Office*. Retrieved from: https://www.gao.gov/products/GAO-17-807T.

National Institute of Standards and Technology. (2017). *2017–2018 Baldrige excellence framework: A systems approach to improving your organization's performance* (pp. 7–41). Gaithersburg, MD: NIST. Retrieved from: https://www.nist.gov/baldrige.

Quinn, R., Modly, T., Lehman, C., & Weber, T. (2017, November). Global defense perspectives 2017: Updating the map of defense prioritization and posture in a challenging world. *Pwc Global*. Retrieved from: https://www.pwc.com/gx/en/government-public-sector-research/pdf/global-defense-perspectives-2017.pdf.

TC 7-102 Operational Environment Considerations for Training and Education Development. (2013, May). *Maneuver leader's self study program*. Retrieved from: http://www.benning.army.mil/mssp/security%20topics/Potential%20Adversaries/content/pdf/tc7-102.pdf.

13

Futures Thinking: Strategy Used by Trust Bank to Survive Global Economic Collapse During the Great Recession of 2008

Steven M. Walker

Introduction

On September 29, 2008, the Dow Jones Industrial Average dropped 774 points. This was the record for a single day point drop of the stock market in United States history at that time. Unfortunately, this was only the beginning. The months that followed created an economic collapse the United States hadn't seen since the Great Depression. With the economy in a tailspin, organizations around the country were required to face rapidly changing environments or be forced to dissipate and dissolve. Hundreds of organizations would fail. This case will examine one organization that survived. Specifically, this case examines a small financial institution in Salem OR, and the use of the foresight methodology of systems thinking by the CEO, to enable the development and implementation of organizational policies that would sustain the organization through the rapid changes brought on by the Great Recession of 2008.

S. M. Walker (✉)
National University, San Diego, CA, USA
e-mail: swalker@nu.edu

Nathanael Mains (pseudonym)[1] is the President and CEO of a community bank in the Pacific Northwest, which currently holds approximately $320 million in assets. Nathanael's bank, Pioneer Trust (pseudonym), was started in 1924 as a trust company. In 1939, the bank was sold to Nathanael's grandfather, and Nathanael is now the third-generation Mains to lead the bank. Nathanael's twin brother and two nephews also work at Pioneer Trust.

Pioneer Trust was one of the only banks in its geographic area to make it out of the Depression in the early 1940's, and is one of the few banks to experience growth throughout the Recession of 2008. This case will discuss how this happened, as well as, the lessons organizational leaders can learn from Nathanael's experience. Information for discussion comes from several semi-structured interviews with the CEO and other members of the Pioneer Trust community.

Internal Interpretation of the Crisis

When asked about the days of September 15 and 29 (2008), when Lehman Brothers stock fell dramatically and the Dow Jones stock exchange plunged 774 points, respectively, the CEO of Pioneer Trust responded by first giving me a brief history of what he saw as the systematic buildup that led to those two days. Nathanael mentioned how, from his perspective, the United States had been on an unstable financial trajectory ever since World War II. "We went through a period of saying home ownership is the American Dream in the United States, and we built this on consumption." Nathanael added that he had been witnessing a growing belief system in society where consumption and materialism were the things people desired most. From Nathanael's point of view, this worldview and the behavior that flowed out of it was unsustainable. Nathanael believed that, due to his analysis of the current economic environment, it was only a matter of time before a major market collapse occurred.

Nathanael's internal interpretation of the economic meltdown was based on the foresight methodology of systems thinking. Nathanael had been scanning the environment and paying attention to the consumer

behavior patterns, such as high volumes of personal debt and low personal savings rates, and how those patterns were affecting the overall economic system. "What we were seeing leading up to those days was a change in consumer behavior," he said. Nathanael said he believed that this trend in consumer behavior patterns sparked "rampant greed by the large banks" and a change in overall corporate structure and corporate lending policies. These changes in the structure eventually led to banks relaxing lending standards for mortgages and other consumer loans, such as allowing individuals to purchase homes with negative equity, and allowing customers to take on loans with very low credit scores.

> We were seeing banks whose assets were stressed due to the type of loan instruments that were used. We saw rampant greed by the other banks. There was an irrational exuberance. So, keeping this in perspective, we were extremely aware of [oncoming economic collapse]. I was running statistics on banks back in early 2008 and what I was coming up with that banks were running 1000% capital surplus. We were prepared for [this breaking point]. What bothered us was that we saw the tsunami coming but all the other banks were playing on the beach.

On the day Lehman Brothers collapsed, Nathanael was not surprised or shocked. Nathanael recalled the tension in his bank on the day Lehman fell as being high, and even described it as "like 9/11," but he admitted he had seen it coming. "The feelings were… It was like 9/11, you know, you want to smack somebody who smacked us. So, it was no different than that from our perspective. People were coming up to me and saying, 'What's going to happen?'"

Nathanael recalled that the images his employees held in their mind on the day Lehman Brothers went bankrupt were the pictures of the runs on IndyMac Bank located in Los Angeles, California:

> IndyMac was on the west coast in Los Angeles, in our district, in our territory. What was etched in their minds on [the day Lehman fell] was the scene of IndyMac Bank with people lined up outside their bank taking their money out. The lines were out the door! They were down the street!

Nathanael's foresight through his systems thinking approach to the economy had allowed him to prepare for the breakdown and, therefore, allowed him to respond to the crisis with clarity and calmness. "I was extremely aware that something like this was going to happen," Nathanael said. "And I was prepared for it."

CEO Response: Collaborative Leadership

Nathanael's response to the breaking point was calm. While Nathanael acknowledged that the economic collapse was going to be severe, he was confident that his organization was in the right position to make it through and he portrayed this in his leadership behavior (as illustrated below in Nathanael's comments):

> What you have to do in a position [of leadership] is sit down with people and say, "This is what we have been talking about, but this is why we were prepared for this. This is why we have a strong capital position." The tension was everywhere. Everyone was feeling it. But as a leader, do you run out and say, "The sky is falling!" or do you come back and say, "We were prepared for this. We are in good shape. There is nothing to be worried about."

Pioneer Trust's CEO exhibited leadership which evolved from years of economic banking experience, and was relational and collaborative. Nathanael spoke of his leadership as "team leadership." Nathanael did not see himself as the leader, but rather saw his leadership as a collaborative effort among numerous individuals within the organization, as illustrated below:

> I look at leadership like building a house. You have the architect, the engineer, you have craftsmen, you have people that build the foundation. What I have spent my career doing is working closely with every single one of these people that are in a leadership role and developing people that I felt had a lot of potential behind them.

In addition to exhibiting a collaborative leadership style, Pioneer Trust's CEO said he believed that there were also three organizational policies currently in place that helped the bank successfully make it through the recession: strong long-term relationships with customers, honest and open communication and dialogue with both employees and customers, and ethical business practices. These policies were developed as part of Nathanael's environmental scanning during the time leading up to the 2008 Recession. When Nathanael looked around the country at the other banks over-extending themselves and taking on bad debt, Nathanael decided to do the opposite. Nathanael's lending policies were conservative to most people and even laughed at by other bankers. Nathanael refused to follow the trend and overextend his assets, however, and he used organizational policies to support his decisions.

The relationship with the customer was Nathanael's first priority. By having a healthy and trusting relationship with customers, Nathanael believed this would make retaining customers easier once the economic collapse hit. The relationship with the customer was so important to Nathanael's business philosophy that he did not have an office. His desk was out front with all the other employees. Nathanael said that he did this because of his desire to have a greater relationship with both the customer and the other employees:

> I sit out front for a reason. I respect what everyone does down here. From the tellers on through to new accounts. I am right in front of the tellers and new accounts. The loan team is back in this back area. I am up front because I want to see what's going on. I want to see and experience what they experience.

Nathanael also saw his organization's direct and open communication as key to the overall success of the organization:

> That the first thing that I say to my staff is, there is one thing that separates us from the rest, and that is communication… We communicate with people. And that has been the key to [this organization's]

success. Leadership is communication. We know our customers. People come in and open up an account –I greet them, I talk to them. People come into borrow – I greet them, I talk to them, I sit down with them. We all do.

A primary philosophy of Pioneer Trust is that open communication is central, both with everyone within his organization and with every one of his customers. While tension was high in his organization during those days in September of 2008, as a leader, the CEO tried to stay calm and provide as much communication as possible at every level. Nathanael did this by sitting down one-on-one with all of his managers once a week and creating a space to dialogue regarding the economic crisis and brainstorming on how they planned to handle it. Nathanael noted that, from his point of view, one of the reasons that the bigger banks failed during the economic crisis was because of their lack of communication, both internally and externally, and the poor relationships the bigger banks had with their customers.

Finally, Pioneer Trust's CEO also believed that the ethical business practices of his organization were responsible for the sustainability of his organization. Nathanael saw "rampant greed" by Wall Street brokers and major banks and believed this to reflect unethical corporate behavior. Inconsequently, this is viewed as significant contributor to the economic breakdown.

From Nathanael's point of view, his organization did the right thing and conducted ethical business and lending practices. The recession only magnified this fact to Nathanael.

Nathanael stated that his goals and values, both personally and professionally, had not changed since the recession. If anything, Nathanael felt the recession only strengthened and solidified his goals and values. For Nathanael and his organization, business was about ethical relationships with the customer and fellow employees. It was about creating a long-lasting relationship with your customers and fellow employees through listening and communicating. For Nathanael, this was what leadership was all about, and it was what created a sustainable organization model that survived the economic collapse.

Sustaining the Organization During Challenging Times

Several months following the economic collapse, the CEO of Pioneer Trust was asked to testify before the U.S. Congress. Nathanael's organization was one of three banks that was asked to appear at the congressional hearing. The legislators wanted to understand better what caused the collapse, who was to blame, and how to fix the problem. The other two banks did not show up to the hearing.

"When the other bankers did not show up, I thought they were cowards," Nathanael said. Although their banks survived, they were not in good shape, and they took HARP funds (federal program funds that helped homeowners refinance their negative equity homes) to get by." Nathanael felt that the reason the other two banks refused to show up was because they were on the brink of bankruptcy and were getting financial help from the government, vis. a vis., the American taxpayer.

Nathanael recalled that the Occupy Wall Street Movement was outside the State Capitol. The Occupy Movement was a protest movement that stood against economic inequality. The movement started shortly after the stock market collapse, and was originally aimed at the financial industry, and specifically big banks. The movement had heard certain banks were going to testify and wanted to protest them. Nathanael remembered the crowd being rowdy and vocal, and several of them got up to the stand and expressed "anger and frustration" toward the banking industry. "I was ready to talk and tell our side," Nathanael said. Nathanael said he believed that his organization was not the typical banking story that was being portrayed in the media. Nathanael's organization was not only surviving, but was also thriving through the crisis. "What I wanted to do was tell the story that not all the banks were bad folks but normal folks like those there at the meeting," Nathanael recalled.

> It was one person after the next bashing the banks. It did not bother me as some of the banks deserved it and many Oregon banks were not well run or managed but most were well run and managed. They needed to hear the story. I was ready to tell it.

Nathanael was given a written statement to read when he approached the podium. Before he arrived at the podium to speak, he threw the statement in the garbage. When Nathanael addressed the audience, he told them his story—his bank's story. He told them how his organization had not taken one penny from the government or the taxpayer. He told them about how his organization was thriving. Nathanael said he "spoke the truth from the head and heart" with regard to his organization and how they had survived through strong relationships with customers and ethical business practices. The crowd cheered.

Discussion

Systems Thinking as a Foresight Methodology

Some authors contend that organizations, similar to biological entities, are naturally inclined to look to the future for hidden threats and use the information to prepare for safety (Pech and Oakley 2005). In leadership, this characteristic is known as foresight. Foresight has been defined as "the systematic consideration of, and action on, the future" (Kaivo-oja and Stenvall 2013, p. 29). The goal of foresight by leaders is to plan and prepare for the future, and use every opportunity available to shape the future to the organization's advantage (Kaivo-oja and Stenvall 2013).

In the story Nathanael shared, he interpreted the breaking points as highly interconnected and complex phenomena. While the collapse of Lehman and the decline in the stock market could be considered by some to reside solely in the financial markets, Nathanael saw the crisis as a series of interconnected events. In fact, for Nathanael, the breaking points were expected due to his foresight and awareness of the interrelated sets of problems leading up to the crisis. This awareness led to understanding that an impact would be felt throughout the economy, regardless of whether or not the collapse had begun in the financial sector.

Several breaking points were mentioned by Nathanael during his interview. While the examples of the Lehman Brothers collapse on September 15, 2008, and the Dow Jones plunge on September 29, 2008, were both provided as examples for Nathanael, several other days were mentioned as well. For example, Nathanael mentioned the bankruptcy of IndyMac Bank as being a key breaking point for him.

These interpretations of the breaking points as having consequences and impacts throughout the economy are characteristic of systems thinking. Someone who holds a systems thinking viewpoint understands the relationships in and between systems, and how, when those relationships change, the entire structure of the system will change with them (Laszlo 1996; Meadows 1999; 2008, p. 16; Weinber 2001). Nathanael foresaw, through a systems thinking approach, that the economic collapse would translate into a "new landscape" or new environment. As early as five years prior to the Lehman Brothers bankruptcy, Nathanael began to ask how the unethical lending policies used by some of the big banks would eventually reach and impact his organization.

Meadows (2008) used the economic system as an example of a complex open system consisting of multiple feedback loops and time lags residing within the loops and between other connected systems (p. 58). The system thinking paradigm understands how changes in elements or relationships within a system can impact the entire structure of a system (p. 16). Meadows (2008) argued that this was a foundational paradigm necessary for sustainability within the context of organizations.

Nathanael was keenly aware of oncoming chaos with regard to the recession. There was an understanding that, while the initial collapse was concentrated in the financial sector, the entanglement of relationships in the economic system would eventually create impact within various other sectors and fields across the economy. Nathanael's internal construction and interpretation of the breaking points within the foresight methodology of systems thinking resulted in three behavioral themes, which are discussed in the following section.

Institutionalizing Behavior Through Organizational Policy

While Prigogine and Stengers (1984) wrote about the consequences of bifurcation points in natural systems, Kirk (1999) adapted the idea into the context of social systems, specifically organizations. Wilber (1996) saw breaking points as moments where the consciousness and psychology of individuals could be shifted and self-transcended into a new and more sustainable state of awareness (p. 45). From this analysis, three behavioral themes emerged from the collected data. The systems thinking interpretation of the recession by Nathanael led to (a) an immediate increase in communication and dialogue, (b) an increase in collaboration and relationship awareness, and (c) a greater appreciation for organizational policies centered around ethics, values, and truth. Each of these themes is more fully articulated in the following subsections.

Dialogue and Communication. Nathanael mentioned a significant increase in dialogue and communication that followed the bifurcation points and continued throughout the recession. This trait of dialogue and communication was one that echoed repeatedly in the review of scholarship. During times of rapid organizational change, "the use of dialogue, discourse, or conversation is a prominent theme" and "dialogical communication is a process through which change can occur" (Hickman 2010, p. 517).

One of the disciplines needed for a sustainable learning organization, according to Senge (1990), is the art of dialogue. Senge (1990) contended that dialogue was an essential element to team functioning during times of change, in that it allowed the group to think insightfully about the complex situation and helped to innovate and coordinate action (p. 219). The art of dialogue as a form of communication allowed organizations to see the problem from multiple vantage points (p. 226).

Harper and Stein (2006) suggested that one of the best ways to handle rapidly changing complex and chaotic problems was through dialogue (p. 7). However, Harper and Stein (2006) and Putman (1993) stated that the practice of dialogue required a form of leadership that differed from the traditional definition. It was a form of leadership that focused on the "autonomous individual person" (Harper and Stein 2006, p. 7) and practiced

civility, engagement, and community (Putman 1993, p. 4). The theme of dialogue goes hand in hand with an organizational style that is collaborative and relational (Hickman 2010, p. 529). Senge (as cited in Hickman 2010) called for "leadership networks" (p. 534) that function "like communities" (p. 534). These leadership networks are highly communicative and require a version of leadership that is both collaborative and relational (p. 535).

Relationships and Collaboration. The collapse of both Lehman Brothers and the Dow Jones Industrial Average during the month of September in 2008 was a damaging blow to the financial institutions and the stock market. Nathanael mentioned concern over his retirement and savings plans that were connected to the stock market at the time. However, the moments that stuck out the most in Nathanael's memories of their experiences were not necessarily ones of great financial loss, but the straining of relationships that took place during the crisis.

For Nathanael's organization, relationships were everything, both with the employees and the customers. Nathanael placed his desk in the front of the building at the front door. From Nathanael's perspective, this enabled him to create more meaningful relationships with customers and employees alike.

Nathanael recalled that the most positive experiences during the recession were the deeper bonds forged between him and other employees. During the crisis, the relationships with his co-workers were strengthened. The importance of relationships and the imprint relationships had on Nathanael's psyche was consistent with the definitions of leadership provided by both Foster (1989) and Rost (1993). Foster contended that leadership "does not reside in an individual but in the relationship between individuals" (p. 45). Rost (1993) argued that a new form of leadership was needed for the twenty-first century that was an "influence relationship among leaders and followers" (p. 102).

Elements of transformational leadership were also seen throughout Nathanael's story. According to Northouse (2010), transformational leadership requires leaders to be strong role models for the beliefs and actions they wish their followers to adapt (p. 174). Throughout the crisis, Nathanael said that he portrayed confidence in his organization because of how prepared they were for the collapse. For Nathanael, it was important to "be visible."

During times of chaos, Hazy (2008) argued for a style of leadership that was more collaborative in nature and used less direct authority. From this collaborative perspective, leadership would be more focused on the entangled relationships among all parties involved than it would be about one specific person (Hazy 2008). Parks (2005) stated that leadership during chaos should enable people in order to create together something that works in the situation (p. 4).

Creating together and collaborating rather than directing and dictating requires a different kind of leadership similar to what Burns (1978), Northouse (2010), and Rost (1993) called for. It requires a relational style of leadership. This relational and transformative style of leadership "fits the needs of today's work groups, who want to be inspired and empowered to succeed in times of uncertainty" (Northouse 2010, p. 171).

Throughout the participants' stories of the recession experience was the mention of the importance of relationships and collaboration to their organizations' survival. From Nathanael's point of view, his organization's success was due to the strong relationships he held with both his customers and employees. For Nathanael, "long-term major commitments" and relationships with clients were responsible for their organizational success. Nathanael touched on the significant increase in his organization's partnerships that came out of the recession phenomenon.

The partnerships, relationships, and collaboration that emerged out of the economic crisis were consistent with what Waddock (as cited in Hickman 2010) called for: "competition and collaboration, with sustainability, are necessary and important to societal—and business—health and success" (p. 611).

As mentioned above, the theme of relational and collaborative leadership goes together with the dialogical organizational element, and is also connected to the theme of systems thinking. In making sense of complex issues, and during times of change, "when effective collaboration is the aim, developing a shared conceptual 'systems sense' is even more important" (Senge, as cited in Hickman 2010, p. 526). Senge went on to state that creating a "relational space (to dialogue) can be systematic and purposeful" (p. 531).

Ethics, Values, and Truth. For Nathanael whose organization survived the collapse, the elements that emerged out of his stories as important were ethics, truth, and values. In the context of this study, the bifurcation point was the experience of the recession, but more specifically, Nathanael revealed specific transformational points in time or energy points that had a deep impact on them internally.

Nathanael commented several times on the importance of "telling the truth" and how "ethics really did matter" during the crisis. Nathanael's interpretation of the crisis and the events leading up to it were heavily infused with ethics, or lack thereof. For Nathanael, the collapse was caused by "rampant greed by the banks." Nathanael considered his organization more stable and with a greater capacity to handle the crisis because of his organization's more ethical business practices and policies.

In a sense, the theme of value sharing and ethics goes hand in hand with the other two themes of communication and relational leadership. Due to the relational nature of the organizational leaders in this study, the leaders felt the need to communicate the truth about the crisis and its implications to those around them.

> Leaders who are perceived as being able to create and support an ethical culture in their organizations are those who represent, communicate, and role model high ethical standards, emphasize attention to goals other than economic, engage in "ethics talks," and maintain a long-term view of relationships both within and outside the organization. (Ardichvili, as cited in Hickman 2010, p. 356)

Hay (2010) addressed this concept when he spoke about the need for sustainability programs to give attention to ethics. What Hay (2010) called for was a more eco-centric ethical approach that considered all stakeholders involved rather than individual stakeholders. These leaders, according to Hay (2010), "need to personally embody such morality, while wanting to transform those around them for the betterment of society and the environment as a whole" (p. 168).

Freeman and Auster (2011) studied the effects of the financial crisis on leadership and concluded that there was an increase in the importance of values and ethics among leadership. Freeman and Auster (2011) connected the relational nature of leaders with the increased desire for values and ethics within their organization. Freeman and Auster argued that responsible leaders should hold to a version of values and ethics similar to that given by Maak and Pless (2006), which was,

> A specific frame of mind promoting a shift from a purely economistic, positivist and self-interested mindset to a frame of thinking that has all constituents and the common good in mind. (p. 1)

Waddock (as cited in Hickman 2010) noted that leadership in the new corporate era will require "aware leaders that have thought deeply about their own values and vision and, as a result, are prepared for the complex world they must face" (p. 612). Waddock went on to suggest that this awareness will not lessen the complexity and difficulty of the decisions leaders will be faced with, but it will help them make the right decisions if and when the chaos is high.

Conclusion

Moral of Nathanael's Story

Following the economic fallout of 2008, many institutions and organizations searched for answers (Erceg and Levin 2014). How could something like this happen in an advanced economy? Why didn't more leaders see this crisis coming and prepare for it? Answers to these questions and the policies that came about following the Great Recession were in line with what Nathanael's organization had been doing all along. Regulations were put in place to control rampant greed by big banks. Policies were put in place to keep banks operating at higher capital-to-asset ratios (Congdon 2014).

Nathanael survived the economic meltdown due to several reasons, but the one Nathanael mentioned as being the most important was that of ethical business policies that were put in place prior to the economic crisis.

The economic disaster, in Nathanael's opinion, was the result of a long-term buildup of unethical business performance and greed. Nathanael had the foresight and discernment to systematically interpret these causes and interconnections and chose the way of ethical, sustainable, and relational business policies over short-term profit. These are the reasons Nathanael's organization thrived during the worst economic recession since the Great Depression.

Note

1. While the leader whose story is presented here is an actual leader at a financial institution in the Pacific Northwest, his name and the name of his organization has been changed to protect his privacy. A pseudonym was chosen for the organizational leader and is used throughout this paper.

References

Burns, J. (1978). *Leadership*. New York, NY: Harper & Row.

Congdon, T. (2014). What were the causes of the great recession? *World Economics, 15,* 2.

Erceg, C., & Levin, A. (2014). Labor force participation and monetary policy in the wake of the great recession. *Journal of Money, Credit & Banking, 46,* 3–49.

Foster, W. F. (1989). Toward a critical practice of leadership. *Critical perspectives on educational leadership* (pp. 39–62). London: Falmer.

Freeman, R., & Auster, E. (2011). Values, authenticity, and responsible leadership. *Journal of Business Ethics, 98,* 15–23.

Harper, S., & Stein, S. (2006). *Dialogical planning in a fragmented society: Critically liberal, pragmatic, and incremental*. New Brunswick, NJ: Rutgers University.

Hay, R. (2010). The relevance of ecocentrism, personal development and transformational leadership to sustainability and identity. *Sustainability Development Journal, 18,* 163–171.

Hazy, J. (2008). Toward a theory of leadership in complex systems: Computational modeling explorations. *Nonlinear Dynamics, Psychology, and Life Sciences, 12*(3), 281–310.

Hickman, G. (2010). *Leading organizations: Perspectives for a new era* (2nd ed.). Thousand Oaks, CA: Sage.

Kaivo-oja, J., & Stenvall, J. (2013). Foresight, governance and complexity of systems: On the way towards a pragmatic governance paradigm. *European Integration Studies Journal, 7*, 28–34.

Kirk, P. (1999). Corporate evolution and the chaos advantage. *The Systems Thinker, 10*(10), 1–12.

Laszlo, E. (1996). *A systems view of the world: A holistic vision for our time*. New Jersey: Hampton Press.

Maak, T., & Pless, N. (2006). *Responsible leadership*. New York, NY: Routledge publishing.

Meadows, D. (1999). *Leverage points: Places to intervene in a system*. Hartland, VT: The Sustainability Institute.

Meadows, D. (2008). *Thinking in systems*. Hartland, VT: The Sustainability Institute.

Northouse, P. (2010). *Leadership: Theory and practice*. New York, NY: Sage.

Parks, S. (2005). *Leadership can be taught: A bold approach to a complex world*. Boston, MA: Harvard Business School Press.

Pech, R., & Oakley, K. (2005). Hormesis: An evolutionary 'predict and prepare' survival mechanism. *Leadership and Organization Development Journal, 26*(8).

Prigogine, I., & Stengers, I. (1984). *Order out of chaos: Man's new dialogue with nature*. New York, NY: Bantam.

Putman, R. (1993). *Making democracy work: Civic traditions in modern Italy*. Princeton, NJ: Princeton University Press.

Rost, J. (1993). *Leadership for the 21st century*. Westport, CT: Praeger.

Senge, P. (1990). *The fifth discipline: The art of practice of the learning organization*. New York, NY: Doubleday.

Weinberg, G. (2001). *An introduction to general systems thinking*. New York, NY: Dorset House.

Wilber, K. (1996). *A brief history of everything*. Boulder, CO: Shambhala publications.

Part IV

Workforce Diversity and Wellbeing

14

Pledge Towards Workforce Diversity and Organisational Wellbeing: A Case Study of Aviva Plc

Bentil Oduro, Sunny Akpabot, Alfred Akakpo and Evans Akwasi Gyasi

Introduction

The rapid change in the competitive landscape within the business and consumer insurance services industry has contributed to the continuous reassessment and development of successful management strategies by the key industry players. According to a publication by the Organization of Economic Cooperation Development (OECD) in 2017, the worldwide insurance market indicates convincing and divergence in premiums collected. The statistics collated identifies increasing premium collection across various key players in countries that were not traditionally included in previous surveys. For example, the report indicates the increasing importance of players in countries such as Lithuania. The 21.5% direct gross premiums increase in Lithuania was higher than Canada (2.9%) and Spain (12.1%).

B. Oduro · S. Akpabot (✉) · A. Akakpo · E. A. Gyasi
Coventry University, Coventry, UK
e-mail: ab1919@coventry.ac.uk

A. Akakpo
e-mail: ab5563@coventry.ac.uk

287

This trend has significant implications for the key industry players and leaders such as Aviva operating in the multinational market. Within the local and global insurance markets, the increasing need for consumers to go for 'value for money deals' regarding required services, less reliance on so called 'middlemen' or brokers and the increase availability of insurers offering tailored services (mostly online) are some of the factors squeezing industry margins. It is, therefore, incumbent on multinational firms such as Aviva to constantly reassess and develop new strategies to compete successfully in both the short and long term.

With regards to both the short—and long-term management strategies—in developing and sustaining competitiveness, Aviva ranks very well within the industry sector. The company was ranked as one of the world's biggest 25 insurance companies in 2017 (Forbes 2017). Aviva competes with global insurance giants such as Zurich, Prudential and AXA. Some of the broader competitive strategies adopted by Aviva revolve around differentiation as well as focus leadership. Porter (1980) argues that in both short and long term, the ability for firms to develop sustainable competitive advantage requires a focus on setting themselves apart by adopting viable differentiation strategies. Such strategies range from simply offering a reputable brand name to offering of service value to the market. Through the adoption of foresight methods, the company has been able to carve a very reputable brand name and experience with which the target market identifies.

Similarly, extensive fragmentation of insurance markets requires companies to tailor insurance products to the needs of the market. This has also been successfully offered by Aviva through a range of services in its portfolio. Overall, Aviva responds positively to the changing marketing place of savvy consumers within the local and global markets. Some of the management strategies adopted by the company to deal with such market dynamism and competitiveness are going to be reviewed and discussed later in the case study.

The primary purpose of this case study is to discuss Aviva's embrace of workforce diversity and pledge which emphasized organisational wellbeing as a needed strategy for addressing future challenges. This chapter focuses on the role of related foresight methods adopted, the critical success factors and business practices developed to ensure company flexibility and capability to compete, and last but not the least, the adoption of a range of strategies to achieve and maintained the organisation pledge towards these efforts.

Headquartered in London, in the United Kingdom, and with a 300-year heritage, Aviva Plc is a British multinational firm offering a broad range of financial services in life, general insurance and pensions. The financial services provided specifically include workplace pensions, savings, healthcare and personal investments. On its global scale of operations, the company has subsidiaries in countries such as Canada, France, India, Italy and China. Aviva Plc employ over 28,000 people with a current customer base around 31 million globally. With over 16 million customers worldwide, the company is poise to provide personal and commercial insurance products to meet customers demand.

The company takes pride in its captivating mission statement "We are committed to serving our customers well in order to build a stronger, sustainable business, which makes a positive contribution to society, and for which our people are proud to work."

Discussion

Role of Foresight in Futures Thinking at Aviva

Organisational foresight has played a key role in Aviva Plc's growth and development of its sustainable competitive advantage in the long-term. From a strategic perspective, the organisational foresight embraced by Aviva Plc means understanding the importance of preserving its human resources as an asset for future growth and development of a sustainable competitive advantage. This approach has been fundamental to the company's success. Various human capital theories emphasise the importance of leveraging the skills sets and competencies of staff within organisations. Existing literature on leveraging human capital resource in the service industry, specifically, by Aryee et al. (2016), draws on the link between human capital resource and high organisational performance.

Some implications of such linkages between human capital resource and high organisational performance in the service sector are underpinned by organisational focus on developing the wellbeing of employees. This is pivotal in sustaining competitive advantage in the long-term.

As noted by the Managing Director of Commercial General Insurance UK, Angus Eaton (Aviva 2017), "the health and wellbeing of our employees is a priority for Aviva because we recognise that mental health is as important as an individual's physical health but often it is either overlooked or hidden" (para. 3). Aviva wants to help break down the barriers to mental health, and ensure that employees feel they are supported and listened to when they raise issues around how they are feeling. "Making a commitment to the mental wellbeing of our employees is good for everyone [including] business, because it is essential that everyone comes to work feeling they can be open about where they are in life and that if help is needed, their colleagues will be understanding and supportive" (Aviva 2017, para. 4).

Foresight Methods at Aviva

Johnson et al. (2017) identify that long-term organisational survival is incumbent on continuous scanning of the business environment. Hindsight and experience from operating in the insurance industry have both been critical for Aviva in appreciating the ever-changing and dynamic nature of the sector. The two most important foresight methods adopted by Aviva to address future issues are environmental scanning and strategic planning.

The continuous scanning of the business environment by Aviva highlights the impact of critical environmental forces such as competition and sector regulation. Competition coupled with the increasing risk involved in payments of huge insurance claims to individuals and businesses means that there is constantly a squeeze on sector margins. Some of the strategic responses adopted by Aviva to deal with the competitive nature of the environment are the offering of a variety of insurance services to cater for the needs of increasingly fragmented markets and diversification into unrelated core product offering such as asset management. Additionally, heavy regulation of the sector by the Financial Conduct Authority (FCA) in the UK regarding adherence to policies and industry codes of conduct requires that the company operates within the appropriate standards of behaviour.

Strategic planning as a foresight method addresses how the corporate mission of Aviva may be achieved. Kotler and Armstrong (2015) contend that the importance of having a realistic strategic plan is that, it sets out the blue print needed to achieve long-term organisational goals. Similarly, De Wit and Meyer (2014) concur that successful strategic planning process should always consider 'how' and 'where' an organisation should compete in the industry to survive in the long-term. The critical implication of this perspective on strategic planning for Aviva requires iterative assessment of its corporate—and business-level strategies. As pointed out by De Wit and Meyer (2014), corporate- and business-level strategies focus on organisational responsiveness and use of resources in the business, respectively.

The business model of Aviva is carefully crafted to focus on differentiation of the organisation and its offerings to serve customer needs through the creation of sustainable values, strengths, skills and customer-centric strategies (Aviva 2018). Through organisational foresight initiatives, the company has identified best strategies to ensure being a prime supporter and champion of diversity at the workplace. Aviva follows the requirements of the EU Gender Directive and the Sex Discrimination Regulations regarding the equal treatment between men and women in insurance and financial services. A recent policy and pledge within the organisation is focused on widening the diversity capabilities to include mental health and wellbeing of its employees. In May 2017, the company signed an employer pledge titled Time to Change, which is a growing social movement run by charities Mind and Rethink Mental Illness which supports people to open to mental health problems.

Aviva's Flexibility, Capability and Competitiveness

Flexibility in contemporary organisations reflects the ability to respond to environmental trends. There are different types of flexibility in organisations. There are numerical, functional and financial flexibility. Numerical flexibility is the extent to which employees can be increased or decreased in an organisation due to labour requirements. Numerical

flexibility can be carefully crafted to deal with supply and demand of the labour market in response to the level of organisational growth. The constant shift towards online sales of insurance services requires that Aviva focus resources in training or developing the skills of its staff to deal with online queries. Similarly, Aviva may also resort to employing more staff with skills required to serve customers online for the range of online and off-line services. Recent service added on the website such as 'Aviva Advisers' may require having more staff to deal with adviser queries. Conversely, numerical flexibility may warrant downsizing and terminating contracts with third party organisations due to decreasing demand of services.

Functional flexibility focuses on how smoothly employees can be redeployed between tasks and activities within an organisation. Aviva offers a range of financial and investment products. These products range from pensions, investments, annuities to personal and business protection. Functional flexibility is critical when the company needs leverage high performance and productivity of the workforce. The capacity to be functionally flexible impacts an organisation's competitiveness. Multi-skilled staff are able to be deployed across a range of tasks.

Another benefit of functional flexibility within an organisation is the possible increase in motivation and performance of multi-skilled staff. As noted by researchers such as Vroom, the outcome of effort expended on a task in the workplace by an employee is partly dependent on skills. These skills trigger employees to put an effort into tasks which would then lead to performance and valuable outcomes. This is how functional flexibility plays a key role in organisational performance. Multi-skilled staff are highly likely to perform due to the high strong motivations. This in turn increases productivity and competitiveness for organisations in the long-term.

Last but not the least, financial flexibility relates to how remuneration is adapted to reflect performance, supply and demand in the external labour market. Financial flexibility is critical to overall competitiveness of Aviva. As a public limited entity, the company is able to source funds from investors to increase the size of operations. The company continues to expand its operations by acquiring other related and unrelated

businesses across the globe. In late 2017, the company acquired majority shareholding in Wealthify Group Limited, a holding company of the Wealthify brand—a low cost 'robo' investment service helping to make investments affordable and accessible to the UK mass market. Such investments and acquisitions have been made possible due to Aviva's financial flexibility.

Some researchers on organisational flexibility suggest that the importance of the growing flexibilities in organisations is to enable quick-change within the business environment (Atkinson 1984). A dominant flexible approach common within Aviva is functional flexibility. As discussed in the earlier sections of this case study and evidenced in the company's business model on the corporate website (http://www.aviva.co.uk/) Aviva has capacity to invest in the skills of its people to make them functionally flexible. This is a classic view of sustainable competitive advantage on the basis of developing human resource capabilities.

Aviva has achieved flexibility, capability and competitiveness by having diverse people within the organisation who have the right set of skills and mental wellbeing. Through adopting an integrated approach of top management support and holistic feedback from different parts of the organisation, the company pledges to work towards the promotion of workforce diversity emphasising on organisational wellbeing. Recently, Aviva has been leading its industry sector in finding innovative approaches to develop its human capital to increase productivity in the long-term. Aviva Plc mission statement resonates with its quest to become one of the global brands offering a range of personal and business financial products to serve its customers worldwide, making a healthy and positive working environment for its people to contribute to society.

Aviva's Successful Business Partnerships

Aviva's success stems from various directions, including innovative factory set-up to help Small Medium Enterprise (SME) operators re-energise their businesses and ideas, through various interagency events and workshops all year round. Aviva and Founders Factory (2017) delivers various programmes to entrepreneurs in different stages of business

development, providing face to face, collaborative peer sessions and *pitch nights* for new business starters and organisations and individuals looking to innovate. Aviva also has a healthy network of mentors extended across a range of business sectors who provide advice for businesses to avoid severe or costly mistakes by matching them with mentors for directions and advice in different stages.

Another successful partnership occurred in November 2008 when Aviva teamed with Daihatsu and SsangYong car manufacturers to generate opportunities to increase their sales, with a drive towards innovative free seven-day insurance products for HPI group of companies. These initiatives brought growth, removed obstacles with the dealers by securing customers satisfaction through quick sales dealership packages. The dealership deals between Aviva with car manufacturers brought about competitive insurance packages and helped lower average insurance premiums in recent years.

Aviva's engagement with strategic partnerships to help inform their future-oriented visioning is not new to the company. Back in May 2016, Aviva formed with an earlier relationship with Founder's Factory—a prominent multi-sector digital accelerator and incubator to build and develop over 200 innovative technologies to support Aviva broader digital strategy in the next five years (Enterprise Tech News 2016). This provided Aviva opportunities to recreate and design new ideas tailored at making insurance and financial services easily accessible to Aviva customers. These initiatives enabled Founders Factory to provide in-house training and hands on support to help Aviva launch their new products.

Aviva Venture capital, in summary, supports a series of digital and new technology businesses by providing early stage capital investment for entrepreneurs with viable business initiatives. So far, Aviva ventures have committed over £20m yearly for five years targeting key four business areas: internet connecting homes, cars and health, data and analytics, and innovative customer experiences and distribution. Other Aviva recent investments include affordable Cocoon home security system, general insurance, life insurance, and health and asset management insurance for over 33 million customers across 16 markets globally, leading insurers in every four households in the UK and selected

markets in Europe, Asia and Canada. Finally, Aviva is involved in assess management, whereby Aviva offers assess management to Aviva personnel and clients, currently managing over £289 billion in properties.

Management Strategies at Aviva to Sustain Success

Strategic management helps organisation identify the values of examining environments in order to formulate strategies allied to environmental conditions and increase dependence on strategic management in order to cope with environmental changes and mounting competitions (Smith et al. 1991). Liabotis (2007) also identifies three processes for sustainable growth for organisations primary for business which often include service, customers, the products and geographic areas and channels of distributions. Similarly, evaluation of organisation's overall performance of its core business involves assessing rate of growth and revenue generation, reputation essential customers and benchmarking effectiveness. Indeed, these key elements can easily be identified with Aviva organisations.

Aviva's strategy to sustain success is driven by customers' needs. Aviva strengthens this process by simplifying their business operations through international focus under the leadership headed by CEOs both in UK and in other geographical branches (Aviva 2018). The CEOs are responsible for heading Aviva's Insurance and other business operations in each country. Such an approach helps Aviva with their international strategic focus, policies, and ability to separate insurance business from digital business operations, and strengthen investor confidence. Aviva is also the first Canadian insurers to established online customer panels, committing to listening and responding to customers' needs, offering them second to none insurance experience, as part of the strategy to sustain growth. Aviva's online panel attracts over 6000 customers, providing an opportunity to interact and provide feedbacks on customer-related issues and on business performance (Aviva 2018).

In recent years, a number of management strategies, including employee and client wellbeing, have enabled Aviva to successfully focus on transformation that will bring growth to the organisation with robust financial standings in the sector. Aviva is now in a vibrant

position with its strategy directing at offering customers inclusive series of insurance products through their digital capabilities known as "True Customer Composite and Digital First" and tightened the group geographic focus with integration of Friends Life acquisition to further enhance the business operating performance.

Moreover, Aviva strategy is to continue to maintain their effort in transformation to enhance operating performance, continue to deepen its business position within the UK market and grow core international markets by strengthening and diversifying Aviva businesses.

Aviva's Organisational Policies to Ensure Sustainability

Contemporary organisations are bombarded both internally and externally today with temptations testing value and integrity of operations. Rapid change in technology, globalisation, and workforce diversity exerts pressure on organisational business and financial competitiveness. Crises such as Enron and a worldwide banking collapse create scandals that result from shortcuts taken in production and oversight (Ballinger 2011). A loss of trust and confidences may result. Increased scrutiny begins to occur by all stakeholders (i.e. investors, government, employees, and executive management).

Research by the Charter Institute of Personnel Development (CIPD) illustrates the significance of organisational culture in developing and sustaining strategies with meaningful values that can then be used to facilitate strategic decision-making that supports desirable behaviour (2012). Similarly, Eccles et al. (2011) show that organisations which evolve to developing and implementing sustainability strategies do so with sustainability policies both internal to the organisation and in a broader social context. These sustainability policies are embraced by Aviva, not for the sake of public relations, but for the benefit from enhanced social and economic (fiscal) performance (Eccles et al. 2011). Strategies of sustainability, supported through internal organisational policy and broader social policy, are built upon the beliefs and values that underpin the organisation's business objectives.

Aviva has taken a critical approach to building a culture of sustainability through development of broad social policies and internal organisational policies. Aviva considers this approach beneficial to business. As research illustrates, such strategies considerably enhance relationships with all stakeholder, including their intra- and inter-agency partners, as well as, the government (Kielstra 2008).

With particular reference to the organization's personnel, Aviva's significant commitments to sustainability was recognised in 2009 with its *employee promise.* The employee promise was created by Aviva in re-organisation of individual participation in organisational growth, identifying the value placed on each employee's contribution. This recognition constitutes six key components, including making most of work, leadership, culture building, development enhancement, team building and reward (Aviva 2010).

Finally, sustainable policies, as a general strategy, are now aligned to Aviva's business goals and sanctioned by all board of directors and available to all stakeholders. Aviva has several policies and standards now in place which reflect their commitment and responsibility to both employees internal to the organisation and to society at large. Aviva embraces these policies as a way to ensure long-term business sustainability into the future.

Following is a summary of some of Aviva's social policies and internal organizational policies to enhance future sustainability:

Investors' stewardship and responsible investment policy. This was initiated in 1990 through management of equities, assets and stretches across Aviva's client assets. Remarkably, in 2014 Aviva was the first to assimilate environmental, social and governance concerns into decision making in all categories of assets across the business. This approach helps Aviva to actively promote good business practice with investors and minimise risk in their portfolio (Aviva 2017).

Human rights and business ethics policy. Aviva's human rights policy is steered by the UN Global Compact principles on Human Rights and Labour Standards, the Universal Declaration of Human Rights, United Nations, the International Labour Organisation's Core Labour Standards and its Tripartite Declaration of Principles, the Women's Empowerment Principles and the UN Guiding Principles on Business and Human Rights (Aviva Human Rights Policy 2017).

Aviva is persistent in fostering organisational culture that respects human rights, dignity and individual recognitions within Aviva's operations and external business relations. These are facilitated through Aviva's codes, business practices, HR procedures and protocols, as a founding signatory to the UN Principles of Sustainable Insurance.

Aviva strongly forbids all kinds of discrimination in relation to family status, marital status, gender, gender identity, sexual orientation, religion, age, ethnic origin, union status or disability, faith, colour, race and Nationality (Wilson 2017). Also, Aviva upholds corporate ethics, integrity and honesty to the highest standard and conduct all business dealings as outlined by laws and regulations applicable to the sector in which they operate in accordance with the business values and standards.

Cluster munitions policy. In 2008, the Aviva board acknowledged that the production of cluster munitions and anti-personnel mines destabilised essential human rights. Hence, Aviva decided to evade holding assets that are linked to those organisations involved in production of cluster munitions or antipersonnel mines. In 2011, Aviva further strengthen its decisions with more exclusion of policyholder and funds from insurance written by Aviva that are linked with these types of organisations.

Aviva updates this information regularly and made them available for their shareholders and clients. Aviva also employs the services of third party on the process to help identify those organisations engaging in the production of the cluster munitions and anti-personnel mines. Aviva often communicates with those organisations requesting assurance that they are not in any way involved in cluster munitions or anti-personnel mine production or face being placed on Aviva's STOP LIST (Aviva 2012). Aviva frequently engages with the producers in scope by asking them to ease the production of cluster munitions and reviewed the list organisations annually. Any organisation identified, Aviva seek to divest in any assets within 90 days.

Customer experience business standard. Customers experience help through Aviva's defined standard requirements and maintained mutually beneficially relationships with their clients, and achieve long-term sustainability. Aviva strives to treat customers fairly and with integrity.

This helps them in maintaining good reputation and growth and has resulted in clients recommending others to Aviva organisation, buying more and staying longer. This approach steered Aviva to high expectations and outcomes; they also provide their customers with business standard that outlines simple, easy and fair services while fostering sustainable business relationship. It also installs confidence that the products that customers buy meet their needs. Aviva takes customer complaints seriously and investigates them thoroughly. Aviva also control their process through monitoring and with the use of matric for consistency and coordination of activities externally and internally.

Health and safety business standard. Aviva's health and safety business standard lays out the requirements for the successful management and control of health and safety (H&S) risk across Aviva. It guides Aviva to ensure that they provide a safe and healthy environment for all personnel on Aviva sites. This policy also ensures control and management of any extenuating risk arising from Aviva's business conduct. Aviva conducts sustainable health & safety framework implementation with the standard through compliance reporting and audit with successful outcomes. The outcomes enable Aviva to develop and implement well-defined roles and responsibilities in consultation with their employees and with collaboration with local H&S policy and by ensuring that adequate resources are available with experienced H&S advice, which must be considered before any procurement.

Internal control business standard. Aviva has established a standard within the organisation that enables them to control internal operations and share best practices across teams. At times, this effort relies on multiple principles to ensure its effectiveness from top to the bottom of the organisation. This policy addresses issues of exposures, malpractice (and reporting incidents), provisions for suitable resources and open communication. This code of practice and standard is accompanied annually by Aviva employees' sign-up as commitment to integrity, acceptable behaviour and compliance facilitated by internal system, structure, model and proportional segregation of duties designed for efficiency. Aviva also has effective system with delegated authorities, as defined by clearly outlined roles and responsibilities in meeting set-out objectives and reviewing of performance.

Conclusion

The success of businesses today in both the short and long term is underpinned by careful crafting of management strategies to compete within the ever-changing industry. Although the global (insurance) service industry has recorded significant growth in the last couple of years post-recession, it continues to face challenges. These challenges range in complexity from developing sustainable strategies to continually and successfully manage service demands, being flexible and adaptable enough to respond real-time, to the hyper-competition of the digitally connected global marketplace.

Aviva operates in the services sector across the globe. In most of the markets of operation however, the company continually faces threat from both local and global competition. Notwithstanding the low entry barriers to the service sector which facilitate ease of entry and eventually increased numbers of industry players, resulting rivalry also forces service industry businesses to reassess their competitive standing in both the short and long term. As posited by Porter (1980), developing sustainable competitive strategy is critical for organisational long-term survival.

From the perspective of Aviva, one of the key long-term sustainable strategies being championed is the focus on organisational wellbeing. Aviva embraces an approach focused on workforce diversity, with the view that providing a diverse workforce specific initiatives to support organisational wellbeing, would go a long way to improve employee motivation, productivity and organisational competitiveness. This is grounded in human resource capital theory (Buta 2015).

Organisational foresight is critical for developing sustainable competitive advantage in the short and long term. Foresight methods such as environmental scanning and strategic planning are used by organisations to clearly detect, understand and plan in the global marketplace. It is evident that the changing political, economic, socio-cultural, technological, legal and ecological landscape will continue to impact on how businesses operate.

Aviva continues to adapt very well to changing landscape using a range of foresight methods to respond to such changes. For example, the current emphasis on work force diversity through the adoption of

well-being initiatives is a direct response to the changing socio-cultural and politico-legal environment. Socio-cultural pressures such as diminishing disposable income and work-life balance are impacting on the quality of work and performance in the workplace. Increasing regulations by governments on the need to provide equal opportunities and support mental wellbeing have been common in emerging and developed markets. Overall, the development of well-being initiatives by Aviva using organisational foresight has been a step in the right direction—creating employee and broader stakeholder value in the long term.

This case study addressed the importance of the link between organisational flexibility, capability and competitiveness. In the case Aviva, a range of flexibility and capability dimensions have been explored. Although an organisation may evidence a dominant flexible approach in a bid to stay competitive, it is not unusual to observe other dimensions of flexibility in terms of its ability to have multi-skilled staff to be deployed for a range of tasks if need be or to be able to be flexible financially.

Aviva's successful business efforts have also been attributed the development of initiatives to support the growth of other businesses. This is consistent with findings from Caroll (2015), as related to the framework for corporate responsibility. Some of the initiatives such as the Aviva Factory and development of successful partnerships have been fundamental to the company's success. Sustainable partnerships like these create value and help in the development of reputable brand image across organisations (Kotler and Armstrong 2015).

Sustainability and futures thinking have become buzzwords in contemporary organisations and some critics doubt the validity of reports published by companies. Although such reports always receive mixed reviews, it is acknowledged by industry experts that sustainable initiatives have significant impacts on organisational futures thinking and ultimate competitiveness. In recent publications by the World Economic Forum (https://www.weforum.org/), sustainability and futures thinking at the firm level impacts corporate bottom line. Aviva's sustainable initiatives, such as policies on human rights, health and safety of employees, and investors stewardship, have paved the way for it to be a model company with convincing track record on actualising competitive future outcomes.

References

Aryee, S., Walumbwa, F. O., Seidu, E. Y. M., & Otaye, L. E. (2016). Developing and leveraging human capital resource to promote service quality. *Journal of Management, 42*(2), 480–499. https://doi.org/10.1177/0149206312471394.

Atkinson, J. (1984). Manpower strategies for the flexible organization. *Journal of Personnel Management* (August), 28–31.

Aviva. (2010). *Corporate responsibility report*. Retrieved from: https://www.aviva.com/content/dam/aviva-corporate/documents/investors/pdfs/reports/2010/CR_report_2010.pdf.

Aviva. (2012, April 5). *Our position on cluster admissions*. Retrieved from: https://www.aviva.com/newsroom/news-releases/2011/09/our-position-on-cluster-munitions-12843/.

Aviva. (2018, March 27). *Who we are and what we do* (Online). Retrieved from: https://www.aviva.com/about-us/who-weare-and-what-we-do/.

Aviva and Founders Factory. (2017, July 24). *Aviva and Founders Factory to support five fintech start-ups*. Retrieved from: https://www.aviva.com/newsroom/news-releases/2017/07/aviva-founders-factory-announce-support-for-the-first-five-fintech-start-ups-and-launch-tech-business-to-revolutionise-social-care-17799/.

Aviva Human Rights Policy. (2017, October). *Aviva human rights policy report*. Retrieved from: https://www.aviva.com/content/dam/aviva-corporate/documents/socialpurpose/pdfs/policies-responses/20171025-Human-Rights-Policy-Final.pdf.

Aviva. (2017, May 22). *UK: Aviva signs pledge to help break the stigma on mental health in the workplace.* Retrieved from: https://www.aviva.com/newsroom/news-releases/2017/05/uk-aviva-signs-pledge-to-help-break-the-stigma-on-mental-health-in-the-workplace-17772/.

Ballinger, C. (2011). HR's role in embedding a responsible approach to business. *CIPD Impact Magazine*, 37. Retrieved from: https://www.cipd.co.uk/Images/the-role-of-hr-in-corporate-responsibility_2013-sop_tcm18–9315.pdf.

Buta, S. (2015). Human capital theory and human resource management: Implications in development of knowledge management strategies. *EcoForm, 4*(1). Retrieved from: http://www.ecoforumjournal.ro/index.php/eco/article/view/140/102.

Carroll, A. B. (2015). Corporate social responsibility: The centerpiece of competing and complimentary frameworks. *Organizational Dynamics, 44,* 87–96.

Chartered Institute of Personnel Development (CIPD). (2012). *Responsible and sustainable business: HR leading the way*. London: CIPD. Retrieved from:

https://www.cipd.co.uk/Images/responsible-and-sustainable-business_2012-hr-leading-the-way-sop_tcm18-9318.pdf.

De Wit, B., & Meyer, R. (2014) *Strategy: An international perspective* (5th ed.). Andover: Cengage Learning.

Eccles, R., Ioannou, I., & Serafeim, G. (2011, November 14). The impact of a corporate culture of sustainability on corporate behaviour and performance. *Harvard Business School Working Paper*. Retrieved from: http://www.nber.org/papers/w17950.pdf.

Enterprise Tech News. (2016, May 18). *Aviva's putting millions into fintech startups with Brent Hoberman's edgy Founders Factory accelerator*. Retrieved from: https://tech.newstatesman.com/enterprise-it/aviva-putting-100m-fintech-five-years-brent-hobermans-founders-factory.

Forbes. (2017, December). *World's 25 biggest insurance companies in 2017*. Retrieved from: https://www.forbes.com/pictures/591c672fa7ea434078d41824/axa-group/#7e60a9d84aea.

Johnson, G., Whittington, R., Scholes, K., Angwin, D., & Regner, P. (2017). *Exploring strategy: Text and cases* (11th ed.). UK: Harlow, Pearson.

Kielstra, P. (2008). Doing good: Business and the sustainability challenge. *The Economist.* Intelligence Unit Report. Retrieved from: www.eiu.com.

Kotler, P., & Armstrong, G. (2015). *Principles of marketing* (16th ed.). UK: Harlow, Pearson.

Liabotis, B. (2007). *Three strategies for achieving and sustaining growth*. Retrieved from: https://iveybusinessjournal.com/publication/three-strategies-for-achieving-and-sustaining-growth.

Organization for Economic Cooperation and Development (OECD). (2017, December 30). *Insurance sector shows diverging trends in premiums worldwide*. Retrieved from: https://www.oecd.org/finance/Insurance-Markets-in-Figures-2017.pdf.

Porter, M. E. (1980). *Competitive strategy*. New York, NY: Free Press.

Porter, M., & Kramer, M. (2011). Creating shared value. *Harvard Business Review, 89*(2), 62–77.

Smith, G. D., Arnold, R. D., & Bizzell, G. B. (1991). *Business strategy and policy* (3rd ed.). Boston: Houghton.

Wilson, M. (2017, October). *Aviva human rights policy*. Retrieved from: https://www.aviva.com/content/.../aviva.../20171025-Human-Rights-Policy-Final.pdf.

15

Diverse Alternative Learning Visions 2026–2066: Transforming and Reframing the University as a Lifelong Social Design Lab

Ian Pollock and Lonny J. Avi Brooks

Introduction

California State University, East Bay (CSUEB) is one of the top five most diverse campuses in the United States and has started a number of programs in long term and futures thinking to enhance diverse and alternative visions of the future. Beginning in the summer of 2016, for five weeks, multiple University stakeholders, including the university president, deans, faculty, staff (specifically staff who deal with student engagement and diversity), and the university advancement team, engaged in futures design thinking processes to envision a new twenty first century commons space on campus. The ultimate goal was to transform and expand the university's central library to this space within the next ten years (2026), with re-envisioning for the next fifty years as well

I. Pollock · L. J. Avi Brooks (✉)
California State University, Hayward, CA, USA

(2066). The central question addressed here in the case study relates to this central goal by the University: How did design thinking and future thinking shape the design of the new library on the CSUEB campus?

This question and its implementation reflect how faculty, staff, students, and the University administration envision the next ten to fifty years of education as the following issues increasingly impact higher education: workforce diversity, the development of Science, Technology, Engineering, Art and Math (STEAM) programs, and the future of media. This case study discusses how CSUEB launched one of its first forecasting and design exercises on its campus with a variety of stakeholders, including faculty, staff, and university administration. This exercise effectively marked one of the first times that the campus intentionally used a forecasting methodology to generate an integrated vision.

Discussion

Launching a University Forecasting Exercise

During the summer of 2016, five teams of the stakeholders underwent a forecasting and IDEO-based[1] human-centered design process. The goal was to capture diverse perspectives, needs, and visions of alternative futures for higher education, and determine how these views may be incorporated to shape how a twenty first century commons space might encompass, offer, and connect the campus and surrounding communities for our students. These five teams were labeled as follows: 21st Century Common Spaces, Collaborative Impact, Collaborative Space/Practice, Industry: Integrated Health, and Communities of Practice. For the sake of brevity and focus of the case study here, this chapter presents highlights from various groups' activities, rather than comprehensive independent review of each individual group.

The forecasting processes overall included storyboarding student, faculty, and community journeys in connecting to various forms of collaborative learning and common spaces, from downtown university makerspaces to a central learning hub on campus. Other and end-result forecasting phases culminated in paper prototypes of these journeys,

and headlines for the future. These processes included both a strong focus on human-centered design along with important steps critical for developing a robust forecasting process. A brief description of design thinking and its historical development follows, with further discussion of forecasting as an integral element of human-centered design, in order to produce what this study calls *social design forecasting*. A strength of forecast exercises, especially for the future of education, is its consideration of human-centered and socially relevant characteristics and their impact on current participants and future users.

Integrating Design Thinking into Social Forecasting

Design thinking includes systematic creative strategies. When searching for the origin of design thinking, many starting points come to mind. One such starting point can be found in the writings of Louis H. Sullivan (1896) and his essay the *Tall Office Building Artistically Considered*. Sullivan, credit with the phrase "form follows function" in opposition to form follows precedent, wedded the outward appearance of things to the function it serves. Thus, design may be thought to begin its journey of creativity in the service of solving problems, defining needs, and providing function.

Jumping from the syllabi of the Weimar Bauhaus of 1923, to the Human-Centered Design Toolkit of 2015 (IDEO 2015), there is a consistent thread connecting the development and articulation of strategy and design. Whereas designers of the Bauhaus proposed to understand the problem of function while also considering its materiality, the human-centered design toolkit focuses more exclusively on the empathetic response to human need. IDEO describes design thinking by breaking it down into three phases: inspiration, ideation, and implementation (2015). This is similar to the radical approach by Belgian architect Lucien Kroll, with his intentional and human-centered participatory design process for the Medical Faculty Housing at Louvain 1970–1976 (Evans 2016).

In the case of Cal State East Bay, the design challenge was how the University might best serve its present and future students, faculty, staff, and surrounding community while at the same time attract donors to invest into possibly a new vision of the University. In this, the University echoed

concerns laid out by Hines and Bishop (2006), who advocated for a holistic, long-term perspective combined with actionable business solutions which helps companies mitigate risk, make the most of opportunities, and enrich decision-making. In helping to lead design and forecasting research on campus, we (the authors of this paper) see the need to foreground both aspects of human-centered design thinking alongside its forecasting implications.

As Peter Nagy and Gina Neff (2015) outline in discussing *imagined affordances* (2015), the gap of imagination is the elephant in the room and often neglected in our research between how a citizen embraces and deploys a technological artifact and what its designer intended. As Stuart Candy reminds us, we require a more sophisticated culture of the imagination (2010), of intentional imagined insights not just from the designers, content strategists, and programmers. Therefore, social design forecasting calls on human-centered design thinking to delve into the imagined affordances of stakeholders who will confront and work through the challenges related to the near and long-term consequences of the new library/information commons spaces at CSUEB.

The forecasting approach used in this study is defined by Hines and Bishop (2006) as a process composed of six phases, including: framing, scanning, forecasting, visioning, planning, and acting. Each of these phases is described: below

1. Framing: identifying the problems clearly and understanding their impact and cost.
2. Scanning: understanding what's going on out there; the relevant information and trends.
3. Forecasting: considering a range of future possibilities; plugging into a meaningful view (pictures) of the future.
4. Visioning: deciding what the organization wants to be in the future and determining if the organization is working forward or avoiding it.
5. Planning: creating a pathway to the future.
6. Acting: translating foresight into real action on an ongoing basis.

Each of these phases, discussed in detail below, was embraced as part of the human-centered design approach to forecasting which occurred at CSUEB.

Framing and frameworks. Design thinking is a specific approach to collaborating, solution finding, and ultimately learning. Oftentimes, it is articulated as a structured framework to identify challenges (citations/references), gather information, brainstorm solutions, prototype, refine ideas, and ultimately test solutions iteratively.

In this case, the process started with identifying the most appropriate individuals to be involved in each working group. Drawing from a wide variety of people at the University, including staff, students and faculty, we convened a working group to explore opportunities in the design of academic spaces for the future. The participants included library faculty (librarians), faculty in Art, Communication, Biology, Physics, Education, and Health Sciences. This exercise involved receiving input from staff and administrators from Academic Affairs, University Facilities and Operations, University Diversity and Advancement (donor and gift development for the University). Staff and administrators from the Hayward Promise Neighborhood, which is a partnership of local educators, government agencies, businesses and nonprofits, collaborated fully with residents within the Jackson Triangle community of Hayward and students that attend six schools within the Hayward Unified School District. The goal was to support all efforts working toward a comprehensive, high-quality educational and social support structure. This engagement ensured the long-term health, safety, and economic well-being of the entire community. CSUEB is a major partner of this initiative and the staff who led forecasting efforts on campus played a significant role in providing development of a vision intended to support individuals from cradle through lifelong adult learning.

Correctly framing a design challenge is difficult, but ultimately helps to organize how to think about the solution and clarify where design needs to be pushed. While design thinking embraces research and science, design thinking also understands that framing the challenge is more of an art than a science (IDEO 2015, p. 31). Design thinking is fundamentally a process of learning to understand a particular problem, while accounting for assumptions and biases that designers might have about what the problem is and how it might be solved. This framing, or what Hines and Bishop call "bonding and scoping" (2006, p.33), is an

important starting point to any solution finding. Interestingly enough, the concept of reframing also appeared later in the process while creating physical representations of the solutions envisaged.

The initial and somewhat ambiguous prompt to people was a call for *collaborative impact*. Therefore, the first sessions were dedicated to understanding how people understand collaboration and the types of impact they may wish to see. (These initial conversations were very fruitful, resulting in many interesting topic discussions continuing past this project). After several rounds of sharing initial ideas about collaboration, both as freeform conversations and structured sessions using post-it's notes, the group developed a series of research questions, which in the parlance of design thinking, begin with the phrase "How might we..." The three questions ultimately settled on were, "How might we create a center of excellence for social innovation and design thinking?" "How might CSU, in the partnership with local change agents, to make Hayward a better place for all people to thrive?" And "How might we create structures to support communities of design for greater collaboration of students, faculty and staff?".

All three research questions identified students, faculty, and staff, as well as, the surrounding community stakeholders, and defined collaboration along the lines of collective research, social innovation, and social benefit, echoing the composition of the stakeholders and members at early meetings. Noticeably absent from these research questions, however, were explicit input from health and business organizations, implicating an absence of a significant number of stakeholders from these disciplines.

The second insight front this phase of activity was the recognition of the need for structure, not tools, to hold these collaborations. This may reflect the composition of the group, and its institutional base, rather than the process phase itself. Identifying the beginnings of a direction for a solution to the problem, which may need institutional support, were desired but difficult to implement.

In summary, the purpose of this framing phase of the process was to pull together the collective knowledge of the formal group and augment it with information gathered by any additional sources which surfaced during the process. Particularly helpful here was the embrace from, and inclusion of, members residing in other communities. (These individuals were instrumental in facilitating additional needed interviews).

Scanning across academic and community networks. This phase was anchored to a weeklong discovery process in which interviews of campus administrators, faculty, and staff took place. Interviews of a wide range of stakeholders allowed for multiple and even contradictory voices. The storyteller Maurice Sendak once said, "In order to work, fantasy must be rooted 10-feet deep in reality" (IFTF 2013), and these interviews offered the reality check of potential user expectations, desires, and emotions related to innovative visions for the new century learning hub.

The participants in each social design forecasting group conducted informal interviews internally, but also outside of their design group with other stakeholders across campus, focused on student perspectives from the leaders of the Associated Students, Incorporated—an organization representing student's interests. Members of the design forecasting groups also reached out to the faculty on campus, with the Academic Senate representing the various colleges on campus. From these interviews and discussions, the process entered a discovery and inspiration phase about what individuals collectively wanted to see happen in the near and long-term future for the campus.

Interviews conducted during this phase garnered input from the following individuals (many of which were primary stakeholders): University President, Larry Morishita; the Dean of Education and then Interim Provost, Carolyn Nelson; Michelle Xiong, Academic Advisor; Student Services Coordinator, Carla Faini; Jim Zavangno, Associate Vice President, Facilities Development & Operations; and Smallify, an innovation capacity-building firm that advised early stages of this visioning process. Finally, an interview was also included with the primary facilitator of the study's design process, Jerry Chang, an MBA graduate of CSUEB (who helped to represent undergraduate and graduate perspectives, as well). The integration of Jim Zavangno was an important step also, as his role was considered integral to any launch and full implementation of a new innovative vision for the learning center.

The Collaborative Impact group began to recognize the necessity to break down academic silos and encouraged more cross-departmental collaboration, especially student collaboration across departments and colleges. It was rare, before this process, for communication students to engage with computer science and biology students (although some incidences of

communicating, collaboration and study across disciplines were beginning to occur in areas of climate change, for example. The staff of the Hayward Promise Neighborhood began to acknowledge also the evolving vision of a University life that begins in the cradle, and builds to a reflective life based on continuous learning. As a group, members also embraced this evolving vision whereby education happens everywhere. Additional ideas surfaced from brainstorming, including one that resources may need to be leveraged and expanded beyond the University and immediate community, and supported through a broader collaborative socioeconomic network.

These insights led study participants to rethink the mission of University as a collaborative, civic, and information-driven effort, bringing students, staff, faculty, university administrators, and the community together to address systemic issues through our unique departmental, disciplinary lenses. The University, in this vision, becomes a social design lab, periodically, but regularly engaging in cross-collaborative experiments, game jams, hackathons, and community gatherings to envision what might work better, and to cultivate imaginations rather than smother them in siloed lecture halls.

Forecasting: Imagining educational networks in the future. The next stage for the Collaborative Impact group was help to translate these epiphanies into imagined journeys for future students, as they might experience the university more as a social design lab than simply a career mill. Group members from the Collaborative Impact group, as well as, members from across other groups, created storyboards to explore the needs of typical students, community members, and faculty, in the near term future. One storyboard from the 21st Century Learning Commons team imagined Jane, a 19-year-old first generation potential college freshman, touring the campus: "As part of the formal orientation Jane is shown many of the buildings, including classrooms, computer labs, etc.; also, some of the outdoor features on the campus are pointed out to her, though the tour is moving quickly. Intrigued by what she saw on the walking tour, Jane decides to take a closer look at some of the outdoor features. She not only sees, but chooses to follow, the designated 'Learning Trail', which includes community gardens (i.e., edibles, native plants), a giant playground, a maze, fire pits, outdoor pianos, picnic tables and other seating, artwork and food carts, and augmented reality spaces. Jane is in awe of these features; she had

never really known a university (which she always thought was such a serious, formal place of study) could offer such 'cool', fun things."

The vision of the learning commons by a number of faculty included this aspect of future play, as integral to, and radiating from, social, collaborative learning experiences also included in this scenario were ideas for a number of games and activities, ranging from hackathons to game jams, and augmented reality learning trails. The storyboards culminated in a paper prototype that highlighted what a central campus learning hub and commons space might encompass.

Visioning: Prototyping and future-typing new educational communities for 2026–2066. Design thinking sessions are often characterized by an abundance of the use of Post-it notes for rapid sorting and resorting of ideas and insights. Drawings also play a great role in illustrating ideas with specificity, and clarifying ambiguity when present. Words and drawings are keys to unlocking creativity and finding solutions. Visuals serve as valuable tools of engagement, as well, when sharing ideas with people who are not party to the initial process.

Within this phase of the process, visual artifacts were used at several stages. The first included a large map of the University in its surrounding community Participants began to discuss solutions based on the geography illustrated by the map. While the map represented physical locations such as an abandoned bank on the University campus and other buildings for providing community resources, the map also illustrated conceptual locations for certain types of interactions. The University shuttle which connects all of these locations in the real world, became a conceptual thread or connector that helped to merge the various ideas with one another.

The hill on which the University sits then became a representation for the transactional distance of the University to its community. The University shuttle was now being envisioned as a resource for taking people to a place where individuals could get together in a transitional space, perhaps even disconnected from defined spaces either on campus or in the city of Hayward. Conversations expanded into more innovative thinking. A large window in an abandoned downtown bank building became a frame through which collaborations could occur, perhaps as a new joint community and campus third space. A foyer or meeting room in the front annex of a building was now envisioned as a point of access for the community; and a former corporate headquarters was

identified as potential housing for students and/or co-working space for faculty and staff. In this manner, the creativity and ongoing conversations around the map became more visible, and able to be shared with the larger public. sharing these collaborations in the physical space visible to the outside, one could also then attach a foyer or meeting room in the front which would offer an access point for community to participate in future collaborations. Other infrastructures such as a former corporate headquarters were identified as locations to create housing and co-working spaces for faculty students and staff, thereby affording creating affordable housing within the community of the University affordable and desirable housing which could be used for future collaborations.

As one of the many outcomes of the various teams' efforts, the Collaborative Impact team created a holistic vision that aspired to generate social design and long-term thinking across generations in a unique alliance with the City of Hayward and CSUEB. This team invented another form of the Learning Trail from the 21st Century Learning Commons team. In this second vision, a Campus Innovation Spring was a key focal point, closely anchored in a landscape complete with a natural spring that would house maker and hacker spaces, and creative rooms for semester game jams. An shuttle would connect the campus to the University-City maker spaces that would house co-working spaces, a Kids' zone, and an artistic storefront window. The goal is to showcase students, and welcome community members from the street. One storyboard imagined Maria, a parent with her child, taking a tour of this makerspace and becoming interested in having her children participate in the kid's zone. After the tour, Maria comes up with an idea for contributing to her own community, as well as to the University. Maria represents a new hybrid community student participant at the University-City Makerspace.

Another active participant in this exercise, Ian Pollock, a professor of practice and critical making at the University (and co-author of this chapter), envisioned a proposal called the *Design Lab for Social Innovation.* This design envisions utilizing existing resources of the university, while avoiding the limitations of a traditional college structure (i.e., rigid departmental boundaries). The current CSUEB campus is well-positioned to launch a laboratory that can generate new solutions

Fig. 15.1 Prototype of CSUEB's future as a University-Community Hub in 2026

because of its broad in community reach and deep in its pool of talent. The *Design Lab* may provide a space that is equipped for faculty, students, staff, and community members to meet and develop strategic initiatives collaboratively. CSU East Bay has an open, cooperative environment that provides fertile soil for generation of new ideas, social

innovation, and transformation, with multiple stakeholders and constituents contributing to the effort. Initiatives such as the Hayward Promise Neighborhood, the Solar Suitcase (a fully mobile and light suitcase-sized solar generator), the community archeological dig, the CSUEB Game Jam, and collaborations between the Art, Computer Science, and Biology departments and the Institute for STEM education, all demonstrate how effective these collaborations are (Fig. 15.1).

New collaborative developments have also included the formation recently of the *Speculative Futures Artifacts* by Professor Brooks and Professor Pollock of the research group. This group will build on the cross-collaborative networks created by the summer 2016 social design forecasting exercise, in order to build and imagine new futures within the *Design Lab.* Lisa Nakamura (2013) coined the term "cybertype," describing "the distinctive ways that the Internet propagates, disseminates, and commodifies images of race and racism" (p. i). Social futuretypes extend her work to include community futurist visions of new imagined community and political actors/subjects to evoke more empowered visions.

Social futuretypes act as a basis for critiquing current images and extrapolate to future popular culture. Social futuretypes allow us to interrogate and reimagine images with greater nuance and with the mindful agency of marginalized groups, in mind in order to build more engaging types of work, play and services responsive to their communities. Creating a dedicated space on campus for a *Design Lab for Social Innovation [and Futuretyping]* may allows these efforts to continue to flourish, as well as, engender new positive outcomes.

In a final concluding session, visions of the various working groups were shared among the groups while at the same time serving as a rallying call. In this session, its participants were asked to help create stories and headlines for imaginary communication pieces, which would be used in the capital fundraising campaign which ultimately would be needed to finance any of these ideas.

Planning: From vision to acting. As the first intentional human-centered design forecasting exercise began on campus, tensions between stakeholders inevitably occurred. The faculty and staff, as on-the-ground stakeholders with their own teaching and research visions, expanded and

collaborated to create a complex future of lifelong learning. The administration of the university, which oversees the daily and year-long budget needs of the University, had a different picture of the future. This view was one generally defined by a yearly budget and directly tied to an already contentious legislative body determined by the California legislature and Governor. The ideals and aspirations for transforming the university into a social design lab envisioned by the faculty and staff left some of the administration unsure of how the process may unfold, and what faculty and staff may produce.

In the aftermath of the forecasting process described above, the administration did not fully understand this vision. Perhaps with extenuating issues considered, the administration developed another vision—one considered a more marketable concept, with a more common understanding, an easier package to manage, and an idea to brand and promote alongside facilities planning and building needs already greenlighted by the California State University system and it's Chancellor. The university's Associate Provost and others at this level desired a new reinvention of the information commons. Reinventing the library as an information commons was viewed as bridging the aspirations of the university as social design lab, in alignment with the budget line item for a new library at CSUEB, which the CSU system had promised to partially match and fund. Hence this compromise, with a focus on transforming the library as a nascent hub of innovation, required merging these distinct visions of an information commons and the university as a social design lab.

The library redefined as an information commons, then served as a *boundary object* that university stakeholders could understand and that some faculty could reluctantly accept. As described by Starr and Griesemer (1989), boundary objects represent ideas or concepts that are both "plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites [and]… they may be abstract or concrete" (p.393). Boundary objects have different meanings in different social contexts, but their structure is common enough to more than one environment to make them recognizable, and a means of translation. The creation and management of boundary objects is "key in developing and

Fig. 15.2 All teams participated in final social design session

maintaining coherence across intersecting social worlds'" (Starr and Griesemer 1989, p. 393).

The library as an information commons became one sort of prototype. Prototypes such as this, developed by the teams to served as rough boundary objects, could then be acknowledged by many, and excluded by few, participating individuals. Boundary object prototypes are useful when stakeholders with diverse, nonaligned perspectives desire further dialog. The purpose of this kind of prototype is to make continuing discussions about innovation safer, less confrontational, and easier to manage. This is not to say, however, that the prototype of an information commons addressed all needs of all participants. The library staff, for example, expressed regret that the new commons was no longer going to be called a library, especially by the stakeholders who were responsible for institutioning and sustaining it and caretake it.

Acting: CSUEB campaign for new information commons. The next challenge facing administrative stakeholders was how to translate the visions created through forecasting, and weave them into a story understandable to potential donors. The IDEO process embraces the approach to design that begins with *framing* the design challenge. This begins with empathetic and authentic interviews, in an attempt to identify inspirations, opportunities and insights. The administrative

stakeholders must work to align donor perspectives to available pro-totypes, remembering to use boundary objects to facilitate these con-versations. (Rather than shying away from mistakes, this method uses failure, dead ends, and ambiguities as inspiration). Finally, empowered stakeholders implement agreed-upon prototype(s). This is the exper-imentation phase. The best strategy is take prototype(s) into the field as small models and pilot projects which can be reassessed and further developed.

In summary, the processes of design thinking and forecasting unfolded in two stages at CSUEB. Small working groups first partic-ipated in a multi-week human-centered design workshop exploring themes and questions which resulted in additional ideas for further exploration. The second round of activities enabled these ideas to be analyzed and synthesized, with all teams convening in a central location for one extended session, in sight and earshot of each other. A visual of this session can be seen in Fig. 15.2.

Continuing the extended session, participants were reorganized into six teams and led through a series of similar exercises based on three topic areas. These topic areas were framed by the three questions listed below Fig. 15.3 illustrates the collaboration among teams.
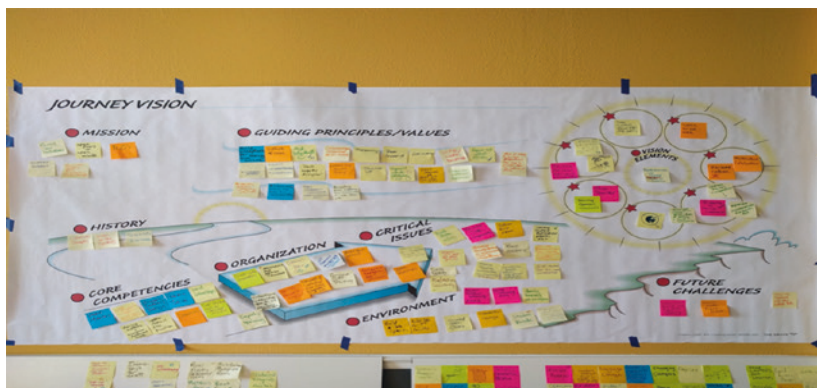
Fig. 15.3 All teams joined to create a shared journey vision

1. How might we institutionalize and support project-based, collaborative learning and social innovation so all students can participate? (Project-Based Learning Teams)
2. How might we build a nationally recognized model that prepares students to succeed in school, work and life? (Student Success Teams)
3. How might we benefit from disruptive innovation in the regions' high growth sectors and what new partnerships can we create? (STEM Teams)

Finally, the six teams, in their new configuration, generated headlines for the future. Each headline reflected innovation through 2026. These innovative ideas evolved from participant experiences during the social design space program. Some examples of the headlines include the following: Black Speculative Arts Movement - Make - Hack - Build; "Small Risks Turn into Big Windfall for East Bay Mom at CSUEB-Hayward Makerspace; Our Community is Healthier because of our Student Learning Labs; Brain Food Cafe Feeds Intellect and Interaction!; Event-based Learning Reigns!; and 1000-year University Visions Project Launches (see Fig. 15.4).

Cover Vision Story

Fig. 15.4 Cover story vision: All design and forecasting teams shared in creating how a future newspaper headline might describe CSUEB

Faculty that participated in this process reported it as useful, with recommendations for improving its effectiveness. The forecasting design methodology tested the organization's structural and functional flexibility. This process coincided with University development and transition to new curriculum based a system of quarter semesters.

Upon the conclusion of the design and forecasting process, the University Advancement team announced the simultaneous launch of CSUEB's branding and donor campaign to raise additional funds that would be matched by the CSU's Chancellor's office to build a new information commons/library on the CSUEB campus. The participants in this exercise were invited to join the formal launch of this campaign at a Gala just prior to the beginning of new academic year in September 2016. The University held the Gala to raise about half of the $60 million dollars needed for the new building and associated scholarships. This event also represented the 60th anniversary of CSUEB as a university campus. The summer social design forecasting venture essentially culminated with the Gala—a symbolic linchpin in campus forecasting and futures thinking efforts.

Institutionalizing Collaborative Foresight and Social Innovation Efforts

The serendipitous timing of the CSUEB Gala provided welcomed exposure and appreciation for the social design forecasting program that took place during the summer of 2016. Such acknowledgement is a first step to building accountability for forecasting and futures thinking at the campus. However, to bring accountability to bear, organizations must establish policies and procedures to help institutionalize efforts (Schreiber and Berge 1998). The primary organizational policy recommended to sustain the success of this university change effort is, most notably, to designate an academic and administrative function to create innovative curriculum and multiple diverse learning spaces, that is implemented on campus and across the community. This policy promotes, supports, and helps to sustain the innovation vision of continuous learning throughout one's life.

As with all intended transformational practices, avid support is often forthcoming at the beginning of the process, and yet equally often abandoned once the crisis has passed. As such, while the practices described in this paper have not been institutionalized or funded into the future, efforts continue to be underway to develop a durable model of forecasting and futures thinking on the CSUEB campus.

CSU East Bay has an open, cooperative environment that provides fertile soil for idea generation, social innovation, and transformation support by multiple stakeholders and constituents (as is evident by this case study). Additional initiatives such as the Hayward Promise Neighborhood, the solar suitcase, the community archeological dig, the CSUEB Game Jam and collaborations between the Art, Computer Science, and Biology departments, and the Institute for STEM education, all demonstrate how effective collaborations may be between CSUEB and other community entities (see University website at www.csueb.edu).

Many universities are not equipped to build small, agile, interdisciplinary teams of professors, students, and community members, because of siloed structure and minimal collaborative functions. However, universities are rich with the most precious of all resources: human capital. CSU East Bay is no exception. With hundreds of faculty as subject matter experts, the ample, diverse and highly motivated groups of students, and the evidence of collaborative capabilities presented here in the chapter's case study, CSUEB possesses enormous potential to make a significant impact locally, regionally and nationally, through creating a dedicated space on campus for a futures thinking Design Lab. Available experts on campus and in the community appear to be positioned to work through forecasting exercises to address significant challenges, develop innovative responses, and yet implement real-world (i.e., doable) solutions.

A proposal for a *Design Lab for Social Innovation* by Professor Pollock would utilize the existing resources of the university while avoiding the limitations of a traditional college structure (i.e., rigid departmental boundaries). Evidence from this case study suggests that the CSUEB campus may be well-positioned to launch a laboratory that can generate new solutions because of its broad and deep pool of talent. The

Design Lab is a concept that once implement, provides a space that is equipped for faculty, students, staff, and community members to meet and develop strategic initiatives collaboratively to address rapid change in the world today.

> Just as we have scientific and technical labs for solving our most difficult scientific and technical challenges, we need social labs to solve our most pressing social challenges. For almost 20 years, people around the world have been developing and participating in social labs focused on issues ranging from eliminating poverty to combating climate change to transforming the media. (Hassan 2014, p. 1)

Conclusion

Common Vision Across Design Groups and with the University

Social design forecasting workshops, similar to those at CSUEB, can lead to new social forecasting networks fashioned and strengthened by current communication and collaboration strategies on campus for the purpose of creating vision and implementing solutions. The 2016 University Gala, whose schedule aligned to completion of that summer's design forecasting workshops to envision an innovative social information commons on campus, served as a morale booster for the participants of the workshops, even as the process continued to review the design forecasting outcomes to further improve its next iteration.

Professionals in the neighboring and relatively affluent hills of Hayward were invited to attend as potential donors to see the vision of East Bay on the Rise, the title of CSUEB's formal branding campaign to position the university as an innovative hub and center, as well as, thought leader for diversity in the region.

City of Hayward city council representatives attended the 2016 University Gala. Alumnus J. R. Havlan, an eight-time award-winning Emmy writer for the Daily Show with Jon Stewart, served as the emcee. Peter Guber, co-owner of the Warriors, entertainment executive and

NY Times best-selling author, spoke as the keynote presenter. Keynote issues include topics such as the power of compelling stories to move and persuade people, which served as a proper segue for current students to speak later on stage about their successes and challenges in learning.

Broadening communication among CSUEB Gala-attending celebrities, executive administrators at the University, and participants of the social design forecasting workshops, is the first step in building support for policies and budgets to institutionalize foresight, planning, and ultimately, action to reach innovative goals. Increasing communication increases flow of information, collaboration, and shared decision-making.

What Were the Successes? What Challenges Are Left?

Further steps in moving from design forecasting workshops to action, and then from action to institutionalizing efforts, include, first, understanding current successes, and second, identifying the challenges left to overcome. Jerry Chang, the design and forecasting facilitator for the teams in this case study, noted both the successes and shortfalls of the design forecasting process, especially as a first time venture for most of the participants, which "[e]xposed individuals to many opportunities, to improve outcomes for students, and to strengthen professional and leadership development for staff and faculty" (personal communication). Chang directed some of the criticism of this venture towards himself as he notes his "lack of experience as facilitator" and confronting his "objectivity as a neutral facilitator [and] …managing interpersonal communications." His biggest takeaway included considering how "[t]eams need to take ownership of team development (i.e., be self-led). Team members may benefit from reading assignments prior to each session (i.e., accountability partner). In addition, the "…facilitator needs to have process champions/assistants in the final sessions."

The stakeholder process still remains relatively exclusive. Librarians did not appear to like the new term *learning commons*. Faculties who were not part of the decision- and vision-making teams felt like they were not heard. CSUEB accomplished a historical task given its usually slow, bureaucratic machinery, in order to raise futures vision-making to a broader, more expansive, and more accessible process for the campus. At the same time, CSUEB's umbrella for futures making must allow for wider participation among faculty, students, and community members to have their stories of the future heard. To paraphrase Vladmir Mayakovsky (Burliuk et al. 1912), creative imagination, futures thinking, and science fiction are not just mirrors held up to society, but a set of tools with which to shape it.

Note

1. IDEO is a global design firm located in the state of California.

References

Burliuk, D., Kruchenykh, A., Mayakovsky, V., & Khlebnikov, V. (1912). Slap in the face of public taste. In A. Lawton & H. Eagle (Trans. and Ed.), *Russian Futurism through its manifestoes, 1928* (pp. 51–52). Washington, DC: New Academia Publishing.

Candy, S. (2010). *The futures of everyday life: Politics and the design of experiential scenarios* (Doctoral dissertation). Department of Political Science, University of Hawaii at Manoa.

Evans, B. (2016, July 26). Lucien Kroll and the dilemma of participation. *The Architectural Review*. Retrieved from https://www.architectural-review.com/essays/lucien-kroll-and-the-dilemma-of-participation/10008258.article.

Hassan, Z. (2014). *The social labs revolution: A new approach to solving our most complex challenges*. Berrett-Koehler Publishers.

Hines, A., & Bishop, P. J. (Eds.). (2006). *Thinking about the future: Guidelines for strategic foresight*. Washington, DC: Social Technologies.

IDEO. (2015). *The field guide to human-centered design*.

Institute for The Future. (2013, April 26). *Framework: Public Imagination.* Reconstitutional Convention Palo Alto, CA. Retrieved from: http://recon-con.govfutures.org/?recent_works=frameworks8.

Nagy, P., & Neff, G. (2015). Imagined affordance: Reconstructing a keyword for communication theory. *Social Media + Society*, *1*(2). New York: Sage. https://doi.org/10.1177/2056305115603385.

Nakamura, L. (2013). *Cybertypes: Race, ethnicity, and identity on the internet.* New York: Routledge.

Schreiber, D., & Berge, Z. L. (1998). Editors. *Distance training: How innovative organizations are using technology to maximize learning and meet business objectives*. San Francisco, CA: Jossey-Bass Publishers.

Starr, S., & Griesemer, J. (1989). Institutional ecology, 'translations' and boundary objects: Amateurs and professionals in Berkeley's Museum of Vertebrate Zoology, 1907–39. *Social Studies of Science, 19*(3), 387–420. https://doi.org/10.1177/030631289019003001.

Sullivan, L. H. (2004). The tall office building artistically considered. *Lippincotts Magazine*, March 1896.

16

Accelerating Diverse Leader Readiness Through Foresight and Futures Thinking

Priscilla Gill and Tami France

Introduction

Mayo Clinic is a premier nonprofit academic medical center. The organization's rich history began over 150 years ago as the first integrated medical practice with a focus on providing the best care to every patient every day. Today, Mayo Clinic has over 68,000 physicians, scientists, nurses, allied health staff, and students from various cultural backgrounds in multiple states (including Arizona, Florida, Wisconsin, and Minnesota where the headquarters is located). In addition to the primary sites listed above, Mayo Clinic partners and collaborates with care networks nationally and internationally. With more than one million patient visits from across the globe each year, Mayo Clinic has maintained its mission to inspire hope and contribute to health and well-being by providing the best care to every patient. Over the years, Mayo Clinic has continued to make value-based business decisions with recent

P. Gill · T. France (✉)
HR Workforce Learning, Mayo Clinic, Rochester, MN, USA
e-mail: france.tami@mayo.edu

reports of $11B in revenue, and a future orientation resulting in multiple industry top ratings and rankings (Winslow 2017). Although the organization has experienced growth in notable clinical and financial strengths over the years, there is one visible gap in diversity leadership, resulting from rapid changing demographics and globalization. There is now a clear business opportunity and health care need to invest in the diversity leadership pipeline.

Foresight Methodology

Progressive organizations maintain a focused, futuristic approach toward workforce diversity. This includes specific and targeted diversity initiatives such as leadership development programs to enhance future leader capabilities (Bolman and Deal 2013). Recognizing the rapid demographic changes and health care disparities nationally, Mayo Clinic needed to move swiftly to ensure future preparedness of diversity leadership. Lindgren and Bandhold (2009) suggest business activities that drive performance are closely linked to the OODA Loop: Observation, Orientation, Decision, and Action. Many well-known scenario and strategic planning methodologies exist; however, for the purposes of this discussion, the OODA Loop is used to detail the foresight and futures thinking that led to Mayo Clinic's Leadership and Organization Development Division (within the Department of Human Resources) in the process of accelerating diverse leader readiness through specific leadership development programming.

Observe

Research by LeanIn.org and McKinsey & Company (2017) recently reviewed 222 companies and showed that approximately 1 in 5 C-suite executives is a woman, and fewer than 1 in 30 is a woman of color. In addition to this compelling data, Mayo Clinic considered other external and societal factors that may have future implications for diversity in the workplace and its impace on the talent pipeline—namely, an aging and more multigenerational population, a decrease in the number of new physician

and nursing students, and disruptive technology and innovation. With millions of baby boomers becoming retirement eligible, the organization recognized the impact workforce retirement may have on knowledge management and information transfer needed for ongoing success (Belasen and Belasen 2016). As a leading academic medical center, the organization was acutely aware that the U.S. population includes nearly 40% ethnic minorities with a projected increase of 10% by 2045 (Colby and Ortman 2015). This data, combined with the number of women and men in leadership roles within the organization, served as a driver to focus on leadership development of women and ethnic minorities. As Voros (2003) indicates, organizational foresight requires strategic thinking to move from implicit to explicit, from individual to collective, and from unconscious to conscious.

Over the past 10 years, notable strides have been made in developing talent as part of succession planning at Mayo Clinic. However, the organization continued to report gaps in diversity, specifically in senior leadership roles. While modeling the future state of leadership at Mayo Clinic, less than ideal representation of gender and ethnic minorities were shown to be a reality of leadership in the future. These data and observations as shown in Fig. 16.1 were confirmed during department succession talent reviews where deeper discussions occurred regarding possible successors and their potential and readiness—a process suggested in research by Swensen et al. (2016).

Horizon scanning through organization climate assessments, workforce analytics, succession planning, and talent reviews pointed to perceptions of gender differences in career growth opportunities and a gap in the leadership diversity pipeline. The findings from assessments and focus groups indicated a need to be more communicative and transparent regarding development programs and advancement processes and methodologies. This input resulted in a closer look at workforce analytics. The workforce data collection and initial analysis highlighted a disparity in leadership diversity. A deeper dive into the workforce analytics and academic rank provided even more insight. While in previous years, there were notable academic advancements for men and women, this was not the case in 2015 (when there were fewer promotions for women from associate professor to full professor). Being an academic medical center focused on education and teaching, these data allowed space for additional questions and dialogue.
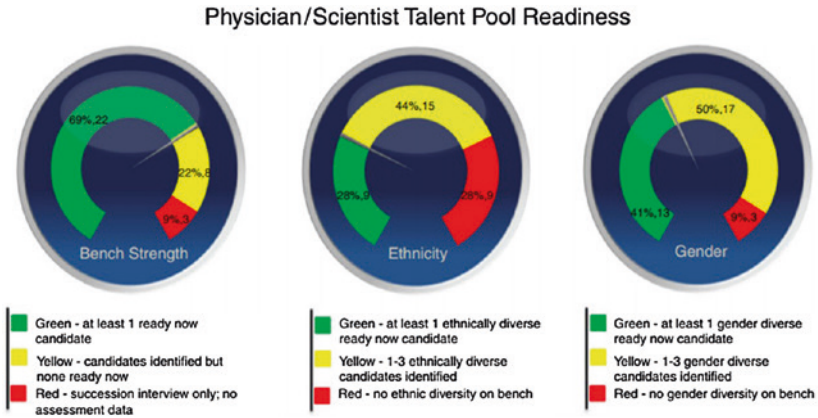
Fig. 16.1 Scorecard snapshot of 232 physician/scientist succession pools [Reprinted with permission (From "Leadership by design: intentional organization development of physician leaders," by S. Swensen, G. Gorringe, J. Caviness, and D. Peters, 2016, *Journal of Management Development, 35*(4), 560. Copyright 2016 by Emerald Group Publishing Limited. Reprinted with permission)]

Orient

When approaching a challenge using foresight and futures thinking, having access to data is not enough. General information does not tell the whole story. Understanding associations between available data, trends, forecasts, and predictions is necessary to determine what might be done to create the best possible future. Data collected during environmental scans must be interpreted and translated for meaningful use (Lindgren and Bandhold 2009). This activity is less than straightforward in the health care industry given competing demands and continuous change. The shifting political landscape, including health care reform, health care disparity, and multiple regulations bring forth added nuances, complexities, and the need for constant vigilance around the strategic response (Morgan 1998). Synthesized data along with strategic thinking may yield multiple themes and options for consideration. As an example, in response to the diverse talent pipeline challenge, the organization could consider external recruitment or targeted leadership development for high-potentials in preparation for internal promotions while strengthening and sustaining a culture of inclusion.

Mayo Clinic is not exempt from the industry challenges. However, the organization's strong culture and unique people capabilities are the primary differentiators for Mayo Clinic. After synthesizing the data, the organization remained mindful to preserve and multiply these key assets through strategic talent management, leveraging both external hiring and internal promotions of value-based leaders and development of high-potentials. The experience factor shows internal promotions result in more expedient leadership onboarding and assimilation, leadership loyalty, and employee confidence in opportunities for career progression. Succession plans based on reality (critical roles, capabilities, and candidate potential, readiness, and interest in higher leadership roles) play a key role in internal promotions. Thus, the organizational leaders looked more closely at ways to transform the compelling succession data into actionable next steps that would then lead to building a more diverse leadership pipeline.

Through organizational succession planning efforts and a focus on diversity, 22 key top-of-house leadership roles were tracked on an ongoing basis. Of those leadership roles, 21 of 22 (95%) roles had diversity represented within the succession pools. Within the succession process, the organization used a succession scorecard with one metric on readiness (number of candidates ready to succeed the leader), and one metric on diversity (ethnicity and/or gender) in the succession pool as shown in Fig. 16.1. Data suggested the diversity representation in these pools had improved since tracking and building awareness. Diversity within available pools of prospective hires, however, did not always translate to actual new-hires in top leadership positions; and the ultimate goal was to have higher representation of diverse talent in top key leadership roles.

Decide

The focus on leadership diversity has been unwavering as leaders at Mayo Clinic used the explicit, collective, and conscious data to make strategic decisions about leadership development and the future of the organization. Based on the process of visioning the future state of leadership and understanding data, a leadership development program structured to accelerate women and ethnic minorities into future leadership roles was determined to be one solution. Since the organization is highly consensus

driven, this decision (as with all major decisions) was vetted with multiple stakeholders. Stakeholders included leaders across the entire organization, from human resources, diversity and inclusion, and the clinical practice, research, and education. Additionally, the business areas were represented on an advisory group called Leadership and Organization Development.

Various items were considered in this decision making process, including: (1) perceived fairness or unfairness of a program designed for a specific group, (2) to disclose or not disclose high potential designations, and (3) measures of future success. The equitableness of a program for women and ethnic minorities was raised in spite of the visual reality that some women and ethnic minorities currently hold leadership roles. These numbers are limited, however, and national conversations linking health care equity to diverse leadership and inclusion prompted further efforts in this area. This diversity dialogue was enlightening for all stakeholders and an important precursor to the prospective action plan. Communication of high potential status was separate and less contentious, and supported the sense of transparency from which the organization operates. The consensus was to disclose high-potential status. Given the visibility of this opportunity, leadership agreed it would be critical to determine what success would look like in the future: accelerate readiness of diverse leaders within two to three years.

The unusual challenges and looming health care economics serve as a burning platform to develop individuals who are flexible, adaptable, and capable of leading in an unpredictable environment (Winslow 2017). Current scholarly research on the topics of leadership and diversity is plentiful (Chen and Velsor 1996); however, this research continues to suggest a dearth of preparation for leadership that mirrors the nation's diverse society (Petri 2017). Through prospective methods and scenario planning, Mayo Clinic began to awaken to the current and anticipated gaps, and engaged through strategic planning, to determine ways to navigate the challenge of closing the gaps.

Action

Mayo Clinic's inaugural leadership development program, specifically designed for a diverse audience, was launched in 2016. The leadership development program aptly titled "Accelerate!" offers a structure for women

and ethnic minorities to strengthen leadership capability and accelerate readiness for future leadership roles (i.e. two to three years after program completion). This program is a 12-month process that includes several development components such as assessments, coaching, workshops, stretch assignments, sponsors, and other education and exposure opportunities.

The process of identifying the right audience for this new program began with a robust talent assessment using our human capital management software to capture talent pools, and create talent profiles that are accessible to respective line leaders. The talent profiles were also augmented by succession scorecard reports that capture specific data regarding leadership readiness, with a focus on gender and ethnic minority talent pools. Further, regular talent reviews and calibrations were conducted to develop and execute appropriate departmental strategic plans and individual development plans including external and internal resources.

Individuals nominated and endorsed to participate in Accelerate! were invited to attend an informational session prior to confirming and committing to fully participate in the 12-month initiative. Participants completed a Hogan® Assessment Systems Leadership Forecast Series (2016) which is a tool widely used across industries to select and develop talent. Seminal and recent research demonstrates the instrument's reliability and validity of personality and job performance (Gill 2017). The insight and foresight gleaned from the Hogan® Assessment Systems Leadership Forecast Series has been used to help create individual action plans to further accelerate the program participant's leadership capability and effectiveness. A program graduate of Cohort 1 commented on the experience, "coaching, preparing for coaching sessions, and the Hogan assessment gave me an opportunity to deeply reflect on my leadership capabilities." Another noted, "the Hogan assessment really helped focus improvement and development in areas that were considered both strengths and weaknesses. My coach was able to help me focus on very concrete action items in my development."

As shown in Fig. 16.2, leaders of Accelerate! Cohort 1 graduates noted increased leadership capability of staff as a result of completing the Accelerate! program.

This evidence-based leadership development program, designed to provide a structure for women and ethnic minorities to grow, develop, and accelerate readiness for future leadership roles, has already begun to pay dividends. The return on investment has come to fruition much sooner
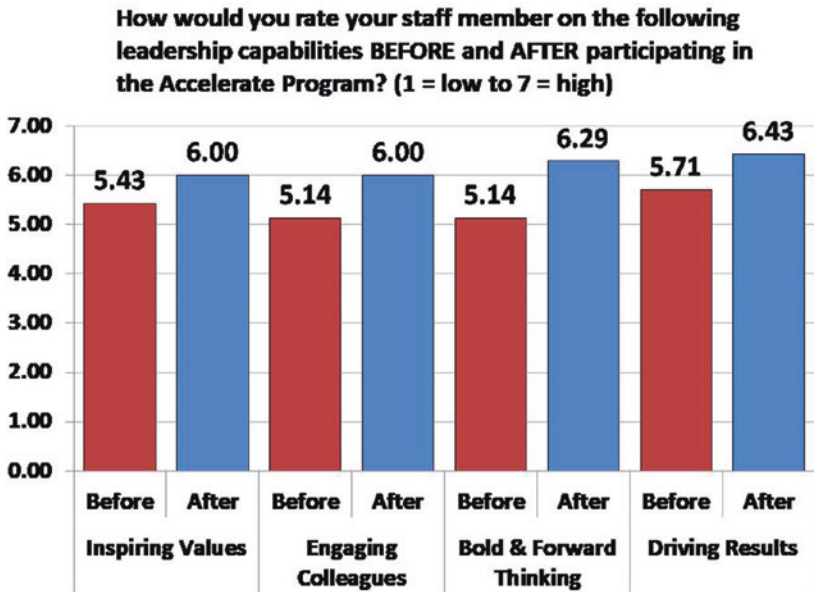
Fig. 16.2   Leaders' pre/post-assessment of accelerate! participants' leadership capabilities

than expected and exponential dividends of increased psychological safety, well-being and resiliency are also anticipated. A graduate expressed, "the greatest impact the program had on my leadership [is my ability to] recognize my own potential. I have always had confidence in what I believed I was capable of... I now believe I am capable of more than I was before."

The Accelerate! program resulted in several outcomes. First, Cohort 1 participant data indicate 31% leadership promotions and 19% academic promotions occurred during or within six months after completing the program. In addition to career and academic advancement, participants have reported significant impact from a personal, organizational, and diversity and inclusion standpoint. A program graduate also noted, "The program helped me think analytically about leadership styles, and helped me appreciate differences between leaders at Mayo; [the program] also helped me refine what I can contribute."

The tangible and most visible outcome of this work is the promotions of women and minorities into leadership roles that may not have come to fruition without this focused leadership development program. Based on

positive outcomes from Cohort I, Cohort II was launched in early 2017 and Cohort III in 2018. This program continues to be evaluated and enhanced using an iterative feedback loop.

Organizational Policies

Roadmap for Change

In an effort to continuously deliver high quality service resulting in industry recognition and exceeding patient expectations, Mayo Clinic takes a collaborative and principled approach in scenario planning. In anticipation of ongoing volatility, uncertainty, complexity, and ambiguity in the health care industry, Mayo Clinic recently refreshed its strategic plan. The strategic plan is rooted in the organization's mission, vision, and values, with a complimentary operational plan-balanced scorecard that serves as a roadmap for change required to achieve future success. The operational plan reflects new organizational policy with a perspective that includes three focus areas: people, processes, and outcomes. The enterprise goal concerning people is to position each member of the staff for excellence and success. This is aligned with the founding Mayo Brothers' belief that "one of the conditions essential to the future success of Mayo Clinic is continuing interest by every member of the staff in the professional progress of every other member", as cited by MacNeice and Bowen in their book *Powerhouse* (2016, p. 212). Investing in talent and technology is a key people-focus operational area for Mayo Clinic.

The board and executive leadership team at the Mayo Clinic recognize continuous development as a critical component to meeting the needs of patients, and to providing innovative and creative solutions for the future of health care. Thus, the goal supporting investment in talent and technology is widely communicated across the enterprise and the performance is measured through culture index, staff engagement index, and leadership succession and transition. Index scores are updated annually and the succession/transition measure is provided semi-annually. The impact of succession activities is determined by the percentage of department chairs and administrative executive roles filled by individuals in succession pools.

Role of Human Resources

Mayo Clinic's Department of Human Resources helps drive the talent management process and related organizational business results, such as talent and succession management. Using best practice succession planning approaches, as described in the literature by Linden (2010), the Clinic's Department of Human Resources collaborated with institutional leaders to develop a process for department chairs to use to identify, develop and retain future women and ethnic minority leaders in an effort to strengthen the culture within the organization, while addressing the myriad of changes driven by technology, globalization, health care economics, and employee and patient diversity. Acting as an internal business consultant, staff within Human Resources meet regularly with other organizational leaders regarding departmental succession plans, with a keen focus on building a diverse leadership pipeline as an organizational priority. At a minimum, Human Resources professionals meet with leaders annually for talent calibration sessions. Leaders are expected to maintain up-to-date succession pools and create development plans for individuals in respective succession pools, including consistent contributors and high potential individuals who are designated as ready now, emerging talent, and/or future watch. These development plans include informal and formal learning approaches to support individual needs and overall workforce diversity development strategies.

Strategic Management and Drivers to Sustain Strategic Change

Mayo Clinic, as described by MacNeice and Bowen (2016), possesses a combination of planning, process design, and collective leadership strengths that are fundamental to the capability of sustaining a long-term competitive advantage. An example of this is the role Mayo Clinic played when it exercised forward-thinking and a sense of urgency to build a diverse leadership pipeline for strategic development, implementation, sustainability, and ongoing success. Bringing a historic perspective to the strategic planning process fosters respect for organizational culture also, and helps cultivate the best possible future.

In 2011, the organization recognized a need to transform its leadership and organization development practice. This transformational process was both exciting and challenging as it required strategic thinking, acting, and learning, as described in research by Bryson (2004), of nearly one hundred individuals within the Leadership and Organization Development Division at the Clinic who would be impacted by the implementation of the strategic plan. Following is summary of eight phases of activities related to using foresight and futures thinking to sustain strategic change through the Accelerate! program. (These activities were identified from the literature and field practices at the Mayo Clinic, as described in the earlier discussions above.)

Initiate planning. In continuous environmental scans, the organization's board of trustees and top executives recognized a gap between the current and future state. As a result, these executive leaders determined it was necessary to bring an administrator on board to jointly transform the leadership and organization development practice. This initiated the planning process. With a new administrator on board, the initial agreement process began in earnest with the review of internal documents, e.g., staff satisfaction surveys, culture of safety surveys, and organization charts. Additional data were gathered through various internal key stakeholder meetings. Satisfaction of key stakeholders is vital to change initiatives in public and/or non-profit organizations.

The stakeholder meetings served a dual purpose. First, the meetings provided a foundation for the new administrator to begin building relationships with key stakeholders. Secondly, the stakeholder meetings provided a means to conduct an informal change readiness assessment. As suggested in the literature, this is an opportunity to determine various stakeholders' needs, identify the strategic issues, and ascertain if any initial executive team or board of trustees' mandates needed to be revised (Bryson 2004).

Identify mandates. With the executive team and board of trustees' mandates in place, additional customers across all sites were contacted to identify any additional requirements and/or expectations. Various members of the Human Resources Leadership and Organization Development Division were engaged in this portion of the process to facilitate dialogue with constituents about their needs and concerns. To help ensure consistency, a short questionnaire was created and used by division members during these one-on-one meetings as a guide for the discovery conversations.

The information gathered in the stakeholder conversations was summarized and reviewed for alignment with the initial mandates. These mandates suggested a strong need to build world class leaders, talent, and capabilities to meet the rapidly changing needs in the healthcare industry. An opportunity emerged for the division members to co-create the future of the organization. Subsequently, a full divisional meeting was held and all division members were invited to review the stakeholder mandates.

Clarify mission/values. The institutional mission and values were reviewed in the divisional meeting. Later, the administrator proposed a draft mission and vision for the division. The mission was fully endorsed. However, the vision was not compelling; it did not engage the division members. Therefore, the administrator asked for volunteers to serve on a task force to rewrite the vision: Leadership and Organization Development builds world class talent and leadership to reach patients "here, there, and everywhere" and transform healthcare.

Assess the external and internal environments. Boundaries may shift due to internal and/or external changes. Thus, as research by Watkins (2003) reports, ongoing environmental scans are helpful to determine what the current strengths, weaknesses, opportunities, and threats may be, and whether the changes dictate sustainability, turnaround, or transformation. This type of movement and transformation, Morgan (1998) further suggests, could very well lead to bifurcation points. The space between the current state and new state can present the polarities of complacency and a sense of urgency. Such phenomena reinforce that foresight and futures thinking reflect iterative processes that require vigilance over activities.

Successful performance within a company is further the result of correct interaction of business management with its environment. This environment can be of either an internal or external nature. To operate successfully in this respect, the company must concentrate its future objectives on its strengths, while averting tendencies related to the companies weaknesses. Responding to internal strengths and weaknesses is, therefore, an essential component of the strategic management process. Success can only be achieved in this respect to the extent that one is familiar with the opportunities and threats resulting from the external environment (Houben et al. 1999).

As suggested by Bryson (2004), SWOT analyses may help organizations identify forces and trends, key resource controllers, competitors, general resources, present strategies, and possible longterm performance. SWOT analyses are commonly used in many business organizations. Although the HR leadership and organization development division members were involved in formulating the mission and vision, they did not have an opportunity to have dialogue about the SWOT analysis for the division. A SWOT analysis that thoroughly reviews the political, social, technological, and education landscape and divisional competencies would help the division develop the most effective plan.

Identify strategic issues. The four steps in the strategic change cycle, as described above, often lead to major strategic issues facing the organization. "Strategic issues are fundamental policy questions or critical challenges affecting the organization's mandates, mission and values, product or service level and mix, clients, users or payers, cost financing, structure, processes, and management" (Bryson 2004, p. 42). The three strategic issues faced by Mayo Clinic were,

1. Establish a leadership brand
2. Integrate talent management processes
3. Build an internal coaching practice

A concerted focus on strategic issues help address many of the industry challenges, e.g., competition, globalization, demographic shifts, generational differences, and the increasing use of social media. Overcoming these challenges, within the Mayo Clinic and other organizations, requires strong leadership and strategic thinking.

Formulate strategies to manage issues. In this case study, the Leadership and Organization Development Division was physician-led in partnership with an administrative leader with responsibility for formulating strategies to manage related business issues. In this process, the partners consulted with Human Resources and agreed upon the following:

1. The burning platform for change;
2. Five key strategies to manage the issues;

3. An organizational redesign to lead the change and execute the strategies; and
4. Team norms and core behaviors.

Review and adopt strategies. The process of futures thinking within the Mayo Clinic, and the establishment of internal HR polices to help sustain change, resulted in an organizational redesign that required existing leaders to reapply for leadership roles. The selection committee was comprised of division staff, key stakeholders and customers, and fellow Human Resources colleagues. The expectation was that the newly selected leaders would be able to motivate others to carry out the mission of the divisions. As stated by George (2003), "...in mission-driven companies, employee motivation comes from believing in the purpose of the work and being part of creating something worthwhile" (p. 62). The ability to successfully carry out the organization's mission and strategic plan requires discretionary effort that will only be provided by engaged employees who are committed to the organization.

Establish vision. After selection was finalized, the newly formed leadership team was invited to a retreat to review the key strategies and action plan, as now existed within Mayo Clinic. Each leader was then engaged to contribute to the attainment of this vision to its fullest potential. As described by Bryson (2004), this task requires each contributor to be responsible "to develop his or her own picture or scenario of what the organization should look like as it successfully meets is mandates, fulfills its mission, ... and creates public value (p. 167).

Conclusions

The validation and return on investment of leadership development programs remain a topic of conversation among practitioners, executives, and researchers (France 2015, 2017; Gill 2017; Jorm and Parker 2015). Best practices suggest targeted development opportunities are imperative to ensure future leaders can effectively lead with impact in a complex and diverse environment (Gill 2017). By focusing on leadership development within marginalized populations, the perceptions of

the overarching organizational populations begin to shift, as well (Hoyt and Murphy 2016). The organizational assumptions, beliefs, and perceptions of who is meant to be a leader also begin to change.

Preparing Future Leaders

Today's perspective will not be sufficient to meet the challenges of tomorrow and beyond (Proudman 2017). Rapid change requires rapid thinking and heightened agility, which need to be factored into development programs for future-oriented leaders. Future leaders will be responsible for leading cosmic change, creating inclusive and engaging cultures, while living core values that will allow organizations to not only survive but to thrive in a hyper-connected global ecosystem (Charan 2017; Winslow 2017; Wright 2017). Thus, this case study, and the related processes shared in this chapter offer a structure for futures thinking as it relates to diverse perspectives needed to engage and respond to the needs of a global workforce.

This chapter presents an example of one such case. The Mayo Clinic is an organization which understood the value of diverse perspectives within future-oriented leaders, and the role diverse perspectives play in understanding and maximizing contributions by an evolving global workforce. As a consequence, the Mayo Clinic strove to build diverse leadership strengths within its organization through the Accelerate! program. (This program is designed to increase leadership readiness of diverse groups, including women and ethnic minorities.)

The ideas presented in this chapter, as related to the Mayo Clinic, may act as a catalyst for additional thought and intention when accelerating leadership development and readiness for the diverse and ever-changing workforce of the future. For example, future-oriented leaders are indeed those individuals with diverse and cross-cultural perspectives. Yet an organization's understanding of what exactly *diverse and cross-cultural perspective* entails, presents another challenge.

Research by France (2015, 2017), provides insight into this phenomenon with the Cross-Cultural Professional Success Model shown in Fig. 16.3.
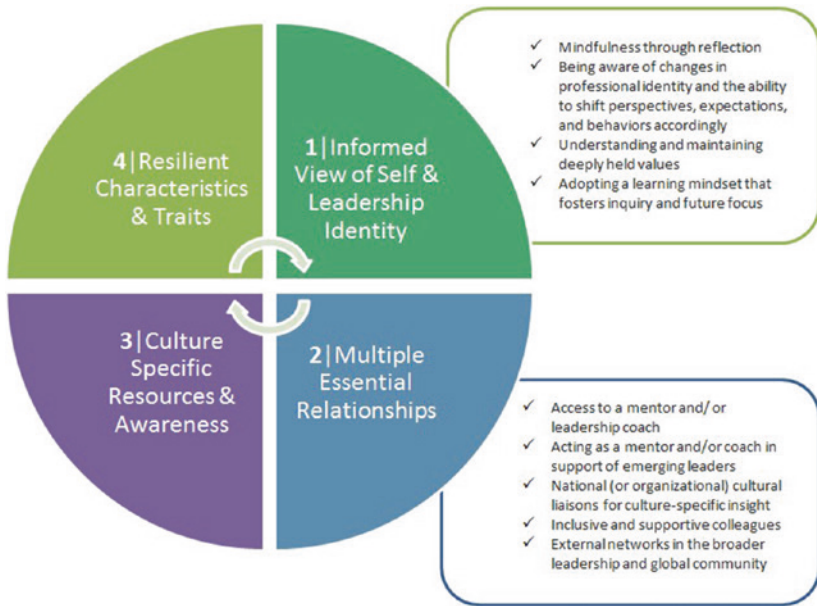
Fig. 16.3 Dimensions of cross-cultural professional success

The Cross-Cultural Professional Success Model illustrates the types of relationships, resources, mindsets, and traits represented by effective culturally-diverse leaders. Consequently, it appears that diversity and cross-cultural proficiency, as well as, the process of futures thinking, begins with a very informed view of self and a strong network of relationships, supported by a variety of contextual resources and continued focus on building resiliency.

Upon final reflection, it is crucial to remember that the society, community, customers, and employees for whom organizations serve, are becoming ever more diverse (Chin et al. 2016). "In a decade, the $72 trillion global economy is on a trajectory to be 50 percent greater than it is today" (Charan 2017). As cited by Feffer (2017), nearly half of the jobs will be automated within the next 15 years. Meeting outcomes from such a change, places more emphasis on human resource development, particularly, future-oriented leadership. Traditional development has taken an incremental approach to make things better. The success

of future leaders will be dependent on an exponential development approach to make things different. Acceleration of diversity leadership capability that supports individual and collective leadership, and innovative strategic thinking to use technology and create new experiences for customers, are essential for future organizational success.

References

Belasen, A., & Belasen, A. (2016). Value in the middle: Cultivating middle managers in healthcare organizations. *Journal of Management Development, 35*(9), 1149–1162.

Bolman, L. G., & Deal, T. E. (2013). *Reframing organizations*. San Francisco, CA: Jossey-Bass.

Bryson, J. M. (2004). *Strategic planning for public and nonprofit organizations*. San Francisco, CA: Jossey-Bass.

Charan, R. (2017). What "high-potential leader" means now. *Leadership Excellence Essentials, 34*(5), 5–6.

Chen, C., & Velsor, E. V. (1996). New directions for research and practice in diversity leadership. *Leadership Quarterly, 7*(2), 285–302.

Chin, J. L., Desormeaux, L., & Sawyer, K. (2016). Making way for paradigms of diversity leadership. *Consulting Psychology Journal: Practice and Research, 68*(1), 49.

Chira, S. (2017, July 21). Why women aren't C.E.O.s, according to women who almost were. *New York Times*. Retrieved from: https://www.nytimes.com/2017/07/21/sunday-review/women-ceos-glass-ceiling.html.

Colby, S. L., & Ortman, J. M. (2015). *Projections of the size and composition of the U.S. population: 2014 to 2060* (No. P25–1143). Washington, DC: U.S. Census Bureau. Retrieved from: http://www.census.gov/content/dam/Census/library/publications/2015/demo/p25-1143.pdf.

Feffer, M. (2017, August). 8 tips for creating a learning culture: How to make learning and growth a part of your organizational DNA. *HR Magazine*, 50–54.

France, T. (2015). *Dimensions of cross-cultural professional success: Experiences of western women living and working in eastern cultures. A mixed-methods study* (Unpublished doctoral dissertation). Antioch University, Yellow Springs, OH.

France, T. (2017). Cross-cultural collaborators: Expatriate and host country national inclusive relationships. In A. Boitano, R. Lagomarsino, & H. E. Schockman (Eds.), *Breaking the zero sum game: Transforming*

societies through inclusive leadership (pp. 437–457). Bingley: Emerald Group Publishing.

George, B. (2003). *Authentic leadership: Rediscovering the secrets to creating lasting value*. San Francisco, CA: Jossey-Bass.

Gill, P. (2017). *Validation of a process for the leadership development of women and ethnic minorities in a health care organization* (Unpublished doctoral dissertation). Nova Southeastern University, Fort Lauderdale, FL.

Hogan Assessment Systems, Inc. (2016). POTENTIAL: Strengths and competencies for leadership. Retrieved from http://www.awair.eu/wp-content/uploads/2017/04/full_LFS_ENG_Sample.pdf.

Houben, G., Lenie, K., & Vanhoof, K. (1999). A knowledge-based SWOT-analysis system as an instrument for strategic planning in small and medium sized enterprises. *Elsevier Science, 26,* 125–135.

Hoyt, C. L., & Murphy, S. E. (2016). Managing to clear the air: Stereotype threat, women, and leadership. *The Leadership Quarterly, 27*(3), 387–399.

Johns, M. L. (2013). Breaking the glass ceiling: Structural, cultural, and organizational barriers preventing women from achieving senior and executive positions. *Perspectives in Health Information Management, 10*(1) (Winter).

Jorm, C., & Parker, M. (2015). Medical leadership is the new black: Or is it? *Australian Health Review, 39*, 217–219.

Kaiser, R. B., & Wallace, W. T. (2016). Gender bias and substantive differences in ratings of leadership behavior: Toward a new narrative. *Consulting Psychology Journal: Practice and Research, 68*(1), 72.

LeanIn.Org and McKinsey & Company. (2017). Women in the workplace. Retrieved from https://womenintheworkplace.com/.

Linden, R. M. (2010). *Leading across boundaries: Creating collaborative agencies in a networked world*. San Francisco, CA: Jossey-Bass.

Lindgren, M., & Bandhold, H. (2009). *Scenario Planning*. New York, NY: Palgrave Macmillan.

MacNeise, B., & Bowen, J. (2016). Mayo Clinic: The three shields of health. Chapter 12 in *Powerhouse: Insider accounts into the world's top high-performance organizations*. London: Kogan Page Limited.

Morgan, G. (1998). *Images of organization: The executive edition*. San Francisco, CA and Thousand Oaks, CA: Berrett-Koehler Publishers Inc. and Sage.

Murrell, A. J., & South-Paul, J. E. (2017). The emerging power of peer mentoring within academic medicine. In A. J. Murrell & S. Blake-Beard (Eds.), *Mentoring diverse leaders* (pp. 85–103). New York, NY: Routledge.

Petri, A. E. (2017, July 7). When potential mentors are mostly white and male. *The Atlantic*. Retrieved from: https://www.theatlantic.com/business/archive/2017/07/mentorship-implicit-bias/532953/.

Proudman, B. (2017). Gender Parity by 2055: American cannot afford to wait that long. *Leadership Excellence Essentials, 34*(5).

Riggio, R. (2008). Leadership development: The current state and future expectations. *Consulting Psychology Journal: Practice and Research, 60*(4), 383.

Swensen, S., Gorringe, G., Caviness, J., & Peters, D. (2016). Leadership by design: Intentional organization development of physician leaders. *Journal of Management Development, 35*(4), 549–570.

Voros, J. (2003). A Generic foresight process framework. *Foresight, 5*(3), 10–21.

Watkins, M. (2003). *The first 90 days*. Boston, MA: Harvard Business School Press.

Winslow, R. (2017, June 2). Mayo Clinic's unusual challenge: Overhaul a business that's working. *The Wall Street Journal*. Retrieved from: https://www.wsj.com/articles/mayo-clinics-unusual-challenge-overhaul-a-business-thats-working-1496415044.

Wright, J. (2017). Your leadership pipeline strategy: 3 keys to successfully incorporating culture and values. *Leadership Excellence Essentials, 34*(6), 36–37.

17

Disney's Workforce of the Future: From HR Initiative to Organizational Culture

Yvette Montero Salvatico and Frank Wilson Spencer IV

Introduction

The Walt Disney Company (TWDC) is known around the world as a steward of magical family entertainment and experiences. However, few people realize that the company's founder, Walter Elias Disney, was once known as the "Optimistic Futurist" due to his embodiment of visionary and aspirational futures thinking (Tucker 2015). It's not surprising that in 2012, when its international division was facing growing pains fueled by increasing complexity, that the organization turned to a field initiative, Strategic Foresight, to become more adaptive, resilient, and transformative.

Andy Bird, Chairman of Walt Disney International (WDI), said the following:

> The actions we make today are going to make an impact 10 to 20 years down the road…To support this, the company has a team of 'Future

Y. M. Salvatico (✉) · F. W. Spencer IV
Kedge, LLC, Kissimmee, FL, USA
e-mail: yvette@kedgefutures.com

Thinkers' that sits down once or twice a week to discuss the best and worse scenarios for its brands over time. (as cited in Kimmorley 2017, para. 16)

Through a multi-year and multi-phased approach, WDI achieved an aggressive and comprehensive roll out of foresight competency, unlike others to date within a multi-national corporation. The organization has trained five percent of its workforce in the Natural Foresight® Framework and engaged the broader organization with a mandate to "think like a futurist." The result has been game-changing innovation, revenue-generating futures intelligence, and a transformative organizational culture that is expressly equipped to harness the company's rapidly changing environment.

TWDC is a global, diversified family entertainment and media company operating in the following business segments: Media Networks, Parks and Resorts, Studio Entertainment, Consumer Products, and Interactive Media (Our Businesses 2018). WDI leads the organization's operations in these segments outside the U.S. (excluding Parks and Resorts). WDI totals 13,500 employees across 45 countries (Bird 2018). Traditionally, country and regional leadership have exercised considerable autonomy over local operations—an acknowledgement from the U.S.-based executive team, advocating that success in each locale requires nuanced approaches due to cultural and regional differences.

Bird (2018) agrees, providing the following statement about WDI's approach:

> I have been traveling across the globe and I still cannot find one place that I can call 'international.' Every market and place has its own perspective and industry leaders in each market have their unique views of the region. There is no one international market, only a vast collection of diverse and dynamic local markets. (as cited in Yang 2016, para. 3)

This "glocal" organizational approach results in the WDI segment boasting a highly entrepreneurial and experimental culture.

TWDC has grown considerably in the last decade and, like many U.S.-based multi-nationals, it sees international expansion as a key part of its future growth strategy. In 2012, WDI's Head of Human Resources (HR) launched Workforce of the Future (WOTF), an initiative created in response to aggressive growth targets and a challenging global labor market.

Through WOTF, WDI leadership realized that achieving its revenue objectives would mean that the organization would need to think differently about workforce planning, development and management. At its inception, WOTF had three stated goals:

- A technologically-proficient workforce that would be equipped to meet the challenges of the coming digital transformation.
- A consistent, global process to allow for long-term workforce planning across all business units and geographic regions.
- A focus on innovative and provocative thinking to continuously spur new ideas and challenge existing paradigms.

WDI HR leadership understood that to achieve these short-term goals and equip the entity for long-term success, traditional organizational development approaches would be ineffective (Spencer and Montero Salvatico 2016).

Foresight Methodology

A Phased Approach

Rather than simply planning for the WOTF, WDI leveraged WOTF to spearhead a foresight effort that would foster its larger visions and goals. What began as a HR initiative quickly transformed into the development of an organization-wide foresight competency that not only helped the company to achieve the stated objectives, but also opened the door to new ideas and opportunities. For support in this work, WDI HR leadership turned to Kedge, a foresight, innovation, and strategic design firm that has a special connection to TWDC.

Leadership at WDI had previously worked with one of Kedge's principals, Montero Salvatico. In fact, Montero Salvatico had recently departed TWDC in 2012, after a 13-year tenure. Her final role was within Walt Disney Parks and Resorts where she led an effort to establish the organization's first-ever foresight division. Having spearheaded a year-long communication outreach across TWDC, including over 100 trend and

futures thinking information sessions, Montero Salvatico established herself as a resource for insights around the future of talent. After an extensive industry analysis of the foresight field, she contracted with Spencer who founded Kedge on the premise of foresight as a competency. The timing of Montero Salvatico' s departure from TWDC two years later and transition to Kedge coincided fortuitously with the kick-off of WOTF. It allowed Montero Salvatico and Spencer, now partners at Kedge, to offer TWDC the unique benefit of external expertise in foresight combined with internal sensitivity to Disney's organizational culture.

The WOTF effort was launched in phases, beginning with the senior HR leadership. This unique talent-centered approach showcased a key difference between TWDC's successful foresight implementation and the failed attempts of other companies. WDI leadership understood from the start that foresight should not be an "app" that is downloaded and exploited in moments of desperation. Instead, foresight should be viewed as the operating system of the twenty-first century organization, running in the background of leadership development, strategic decision making, and innovation efforts.

Simply stated, TWDC understood that foresight must be embedded into the organization's culture. To that end, HR leadership across the globe played a critical role in the change management work needed to pave the way for WOTF. In each region, HR leads identified executive champions and inaugural futurists to be inducted. In addition, HR partnered with country and regional business leaders to establish the cadence of the roll out. By positioning themselves as an indispensable figure in the successful implementation of WOTF, HR also earned themselves a coveted, "seat at the table," as senior leadership across the segment treated the Strategic Foresight effort as a critical business priority.

Selecting Futures Teams Members

Fifteen Futures Teams were established in ten geographic regions, and members were chosen based on several criteria (see Fig. 17.1).

Regions	Teams		Key Achievements
LATAM		Argentina	The consistency and quality of this team's deliverables allowed it to continuously garner support from senior leadership, including the head Disney's operations in LATAM and his direct reports. Also, developed a robust application process to recruit and train additional team members that was modeled globally.
		Brazil	
		Mexico	
EMEA		United Kingdom	Developed a one-day "My Future: Career Development" program utilizing the Natural Foresight® Framework.
		Italy	Raised awareness about the futures work amongst Disney Italy colleagues through the creation of various tools, such as an original video and graphic trend cards.
		Germany	Identified opportunities to present the team's foresight work to the larger Disney Germany organization, receiving positive feedback.
ANZ		Australia	Leveraged the Natural Foresight Framework as an opportunity to not only drive business outcomes, but also to personally develop employees.
		New Zealand	
CIS		Russia	Integrated Strategic Foresight into the traditional five-year plan process to inform multimedia content and market analysis strategies.
SEA		Singapore	Served as a strategic partner to the Japan region, helping to train its team members.
Japan		Japan	Utilized Strategic Foresight to create alignment amongst the region's leadership regarding the future of Japan.
Korea		South Korea	Created and organized ethnographic field trips for management to experience human interaction and then debrief on their observations through brainstorming sessions.
Greater China		China	Launched a quarterly newsletter to increase awareness of the value of Strategic Foresight by highlighting impacts of emerging trends/patterns to Chinese consumers, which raised the profile of the Futures Team across the region.
India		India	Leveraged Natural Foresight content to develop customized, locally relevant templates that would best engage the region.
Global Futures		United States	Fostered a network of Walt Disney Company futurists who shared information and learnings, cross-trained and fueled organization-wide energy around Strategic Foresight

Fig. 17.1   Geographic areas of futures teams

Traits	Description
Thinks in Simultaneous Multiples	We cannot predict the future, and any attempt to do so makes us less able to navigate change. Our traditional strategic planning methods leave us vulnerable by suggesting there is only one official future. By charting several diverse alternatives, we are prepared no matter what future unfolds.
Embraces Uncertainty	Scientific studies have shown that our reaction to uncertainty is physical nausea (Catt 2011). Since our environment will not become more certain in the foreseeable future, we must find ways to lead our organizations through the unknown.
Harnesses Risk	For far too long we have attempted to shield our organizations (and ourselves) from threats, building taller "firewalls" in hopes of thwarting potential attacks. However, focusing solely on risk management leaves us more vulnerable and brittle when change occurs. Instead, we should expose ourselves to possibilities.
Serves as a Change Catalyst	Most change efforts fail because they deal with issues at face value, ignoring the systems, values and unspoken truths that define our reality. To enact long-lasting transformation, catalysts expose these outdated narratives and work to reframe them.
Thinks Outrageously	If an idea seems plausible or probable, it does not represent the future. By thinking provocatively, we can identify weak signals on the horizon and reduce our risk of being surprised by disruptions.
Challenges Assumptions	Educated incapacity is knowing so much about what you know, that you are the last to know that things are changing. The key to avoiding this fate is to continuously question our mental models and include diverse perspectives.
Connects the Dots	Faced with an unlimited supply of information, it can be difficult to identify the signal from the noise. To overcome this deluge of data, we must make sense of the collision of trends rather than become enamored with each in isolation.
Acts Courageously	The future can be a scary place (for some). By touting narratives of change, we will be challenging the status quo and legacy of many in leadership. Rather than performing "executive entertainment," reinforcing organizational sacred cows, we must be ready to present unpopular ideas.

Fig. 17.2   Futures thinking traits of team members

Diversity of each team was an important factor in order to establish cohorts that represented a mix of functional areas, seniority, age, and gender. Curating teams while considering various dimensions of diversity was critical since differing worldviews and experiences is a requirement for robust futures work. Groupthink is a common pitfall of corporate foresight efforts due to the lack of dissenting viewpoints.

Within the Futures Teams, the perspectives of individuals with little company experience were valued equally against those with decades of company tenure.

Team size varied by region but ranged between six and 30 individuals. Initially, teams were selected with high-potential talent. Later phases of the work included a recruitment push complete with an application and interview process. In some regions, demand to participate in the work was so high that it was not uncommon to have hundreds of applicants vying for only 10–20 vacancies. This was particularly impressive since, in most cases, serving as a Futures Team member was a voluntary role, undertaken as an addition to an individual's day-to-day responsibilities. While the organization understood that everyone should think like a futurist, they sought to populate the teams with individuals that embodied certain "futures thinking" traits (Fig. 17.2).

Think Global—Standardized Training

Once formed, the teams received standardized, on-site training in Strategic Foresight. In future phases of the work, Advanced Practitioners (APs) were developed to serve as trainers, change agents, and foresight facilitators as the organization transitioned to sustainment. The APs were chosen from the existing Futures Teams members and participated in an intensive five-day training program. The AP training was unique in that it represented the first opportunity that individuals from across all the WDI regions had to participate in an in-person training with one another. Dubbed the "United Nations of Foresight," the APs were not only provided with detailed instruction in the basic training, but also in advanced foresight tools. Through this approach, they were taught how to "multiply and divide" so that they would have the confidence to teach others how to "add and subtract" when they returned to their regions to train more futurists. The APs were provided techniques to improve their facilitation skills since none were professional trainers. To further strengthen the confidence of these newly minted trainers, the APs were equipped with facilitator guides inclusive of speaker notes for every foresight module (see Fig. 17.3).

Natural Foresight® Phase	Futures Teams Training Module	Module Learning Objectives

Discover Challenge Assumptions and Biases	**Module One:** Introduction to Strategic Foresight	• Explain the benefits of futures thinking.
		 • Explain how Strategic Foresight differs from
		     o Prediction
		     o Forecasting (extrapolating past data)
		     o Consumer or market insights.
		 • Ask introspective questions that help expand their thinking, and energize them when thinking about the future.
		 • Describe where Strategic Foresight fits within an organization.
		 • Understand the phases of the Natural Foresight® Framework
		 • Discuss the concept of "the push and pull of the future."
		 • Demonstrate the ability to effectively communicate and deliver on the core concepts of Strategic Foresight.

	Module Two: Exploring Trends	• Describe the nature of our current environment – volatile, uncertain, complex, and ambiguous (VUCA). • Describe global emerging trends in society, technology, economics, environment, and politics (STEEP). • Demonstrate an ability to think more provocatively about possible futures. • Explain the importance and impact of separate but analogous fields.
	Module Three: Introduction to Unconscious Futures Modeling	• Explain why it is important to challenge our assumptions and biases. • List the three ways to challenge assumptions and biases. • Describe why foresight is a team sport and requires diversity. • Layout the framework of the Argyris' "Ladder of Inference" model. • Utilize Kedge's iSee: Headlines from Today exercise to explore how participants' perceptions impact decisions and actions in the present and future. • Demonstrate how participants' routinely

Fig. 17.3 Training curriculum

		challenge their assumptions and biases.
	Module Four: Causal Layered Analysis	• Lay out the framework of the Inayatullah's Causal Layered Analysis (CLA) tool. • Delineate the difference between the "worldview" level and the "myth & metaphor" levels. • Explain how the CLA tool can be used to launch foresight efforts and assist in scenario development. • Use the CLA tool with a real-world example.
Explore Scan the external environment to uncover hidden opportunities	**Module Five:** Introduction to Environmental Scanning	• Define environmental scanning. • Explain the STEEP framework and its importance. • Explain the concept of "scanning from the outside in." • Define Kedge's three ways of scanning: point of origin, point of manifestation, and point of impact. • Draw the connection between drivers, trends, patterns, and events. • Explain how a focal issue fits into environmental scanning. • Demonstrate the ability to scan in all three horizons.
	Module Six: Creating an Environmental Scanning System	• Explain what makes a good scan hit. • Demonstrate proficiency in finding, scanning, and tagging articles. • Develop examples of scanning from the point of origin, manifestation, and impact. • Describe the lifecycle of a trend. • Participate in an environmental scanning system. • Actively demonstrates the eight characteristics of a proficient environmental scanner.
	Module Seven: From Patterns to Clusters to Themes	• Explain why trends can be our worst enemy. • Outline the connection between trends, patterns, clusters, and themes. • Demonstrate how a pattern is formed.
	Module Eight: Probability/Impact Matrix	• Explain the various applications of the Probability/Impact Matrix. • Graph trends on the Probability/Impact Matrix.

Fig. 17.3   (continued)

		• Understand how the Probability/Impact Matrix helps inform a focal issue. • Define a wildcard in the context of the Probability/Impact Matrix. • Use the Probability/Impact Matrix to identify a focal issue. • Prioritize competing organizational issues to achieve the greatest impact.
Map Develop future narratives and innovations based on today's trends	**Module Nine:** Futures/Drivers Wheels	• Lay out the framework of the Barker's Futures Wheels tool. • Explain why implications and impacts are important. • Explain how the STEEP framework is used within the Futures Wheels tool to create Kedge's Drivers Wheels. • Map out the implications and impacts of an emerging trend, pattern, or developing issue.
	Module Ten: Introduction to Scenario Development	• Understand how scenario development differs from forecasting. • Articulate the importance of scenario development. • Describe the key factors that contribute to an effective scenario. • Explain how scenarios encompass a range of alternative and possible futures across the Cone of Possibilities. • Explain the different scenario development methods. • Demonstrate the capacity to think in simultaneous multiples around a focal issue.
	Module Eleven: Scenario Fields	• Use and understand scenario terminology. • Understand how to create a compelling scenario using storytelling. • Explain how to use Hammond's "Which World?" scenario development method. • Describe the Scenario Fields tool and articulate its use cases and benefits. • Explain how the Scenario Fields tool is informed by scanning, pattern and sensemaking, and Drivers Wheels. • Utilize the plug-and-play template to create multiple scenarios.
Create	**Module Twelve:**	• Articulate the uses and benefits of each

Fig. 17.3   (continued)

Design and execute specific action plans	Strategic Design	scenario planning tool.
		• Describe how the different tools can be used collectively to achieve better results.
		• Test strategy and identify areas of opportunities through the use of cluster maps and scenarios.
		• Deconstruct the future to create specific action plans, outcomes, and opportunities.

Fig. 17.3 (continued)

In addition to the three-day and five-day trainings, Kedge supported the organization with additional site visits, monthly webinars, consulting hours, and pre-recorded training videos.

Act Local—Custom Integration

Detailing WDI's foresight journey in one case study is nearly impossible, as each regional Futures Team channeled its unique character, influenced by local culture, language, and leadership dynamics. As in WDI's normal business practice, each regional team was allowed significant autonomy in determining the best integration approach. Anecdotally, training efforts in Japan were initially hampered as participants struggled to digest some of the more conceptual aspects of foresight. This issue was partially addressed with the use of simultaneous translation and the increase in the number of training days. In most regions, a strong company culture provided some common ground; however, in India, where the TWDC's foothold came from the acquisition of the largest TV outlet UTV, most of the employees were relatively new to TWDC brand (Press Trust of India 2012). As a result, regional culture played an even larger role in WOTF deployment for this team.

In addition to culture, team composition and relative size were also factors in foresight implementation decisions. For example, headquartered in Moscow, TWDC's footprint in the Commonwealth of Independent States (CIS) region is smaller than other global locations. As a result, the CIS Futures Team included many members of the region's steering committee, and was championed by the head of strategic planning. Inducting the highest level of leadership into the WOTF

effort meant that the CIS Futures Team needed very little additional support and guidance to achieve some of the most significant outcomes, completely imbedding the Strategic Foresight process into their existing Five-Year Plan. Even without senior executive representation, other small teams found their own implementation niche. For example, South-East Asia Futures Team, located in Singapore, boasted only a handful of members but created an on-going communication conduit by securing a permanent space on the agenda of quarterly all-hands meetings. In the LATAM region, integration was more ubiquitous as explained by Politi, Senior Manager of Finance, "This futures intelligence then feeds into the business functions in the rest of the company—not just in big strategic decisions, but in how we think of our jobs day-to-day" (Politi, personal communication, July 10, 2017).

Natural Foresight® Tools and Methodology

WDI fueled its foresight culture change utilizing Kedge's Natural Foresight Framework. During the last several decades, the field of Strategic Foresight has struggled to gain traction due largely to overly academic and theoretical approaches that fail to produce results within traditional organizational settings. Further, businesses today deal with a very complex environment, and steps or linear processes have much less impact than ever before. The Natural Foresight Framework counteracts both of those issues by providing a holistic, integral, and organic approach based on adaptive and resilient systems that are reinforced by a robust toolkit of methodologies.

The Futures Teams applied the entire Natural Foresight toolkit to support strategic decision making, innovative thinking, and organizational transformation. The tools in the Natural Foresight Framework include standard foresight methodologies such as environmental scanning, futures wheels, and scenario planning, as well as proprietary methods developed by Kedge to address the unique and complex business environment which requires practical, repeatable processes that produce actionable results. Underpinned by the concept of S-curve mapping and adaptive cycles (Wahl 2016), Natural Foresight is presented in four
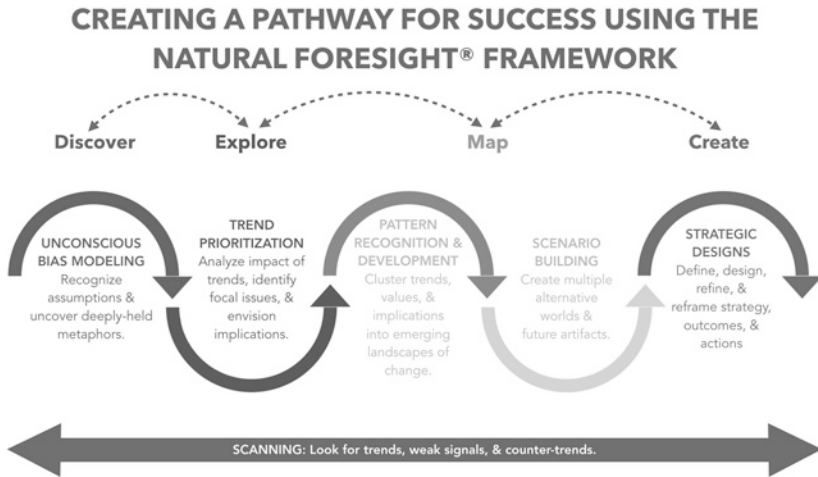
Fig. 17.4 Natural foresight® framework

facets—which can then be leveraged more holistically and iteratively than a process involving linear steps. Depending on the business need, the Futures Teams deployed the Natural Foresight tools either together or independently, as well as in any order. For example, while all Futures Teams have cycled through the entire process to create scenarios and inform decision making, the groups also integrated the use of individual tools for change management, innovation, and strategy development purposes; and further used the framework to migrate to the next order of growth and transformation (see Fig. 17.4).

The four facets of the Natural Foresight Framework include: Discover, Explore, Map, and Create.

Discover: challenge assumptions and old ways of thinking. In this case study, it was tempting for the Futures Teams to skip the Discover phase and move immediately to scanning for trends and opportunities. However, they realized that history is littered with examples of organizations and individuals that failed to see and act on the data that were obvious to others. For example, Kodak invented digital photography, yet it failed to capitalize on the innovation because it was so invested in traditional strategies (Anthony 2016).

Today's environment of accelerating volatility and exponential change is disrupting paradigms in every domain. However, our deeply ingrained biases and assumptions prevent us from recognizing these disruptions and acting to capitalize on them. Foresight helps us to look past our present-day models and ideas, acting as the most effective way to recognize disruptors on the horizon of business and society.

To overcome the tendency to interpret new information based on old beliefs, the Futures Teams employed several tools from the Discover phase of Natural Foresight. For instance, Inayatullah's Causal Layered Analysis (CLA) (Inayatullah 2009) became a staple in the WDI futurist toolkit. Futures Teams members were not only trained to use the tool to uncover assumptions and biases, but also as a technique to drive change management. For example, when the organization wished to explore the global focal issue of the future of work, WDI pulled individuals from all of the regional teams to form the HR Futures Team. The HR Futures Team used CLA to reimagine the concept of flex work in support of an organizational policy change surrounding telecommuting. In addition, several of the WDI regions adopted Kedge's reframed version of the methodology, Narrative Transformation (Spencer and Montero Salvatico 2015), for use in their scenario development efforts. After uncovering the systems, values, and bedrock metaphors surrounding the focal issue, Narrative Transformation allowed them to travel back up the tool multiple times using the Which World? Framework (Hammond 1998) to discover new ways of seeing and operating.

A key success element in TWDC foresight effort was continuously challenging organizational and personal assumptions. In order to make the Discover phase more accessible, WDI utilized an unconscious bias modeling activity developed by Kedge called iSee: A Game of Facts and Perception, a fast-paced exercise using multi-colored wrist bands. iSee helped participants discover how their mental "filters" impact their ability to effectively interpret emerging trends (see Fig. 17.5).

Explore: scan the external environment to uncover hidden opportunities. The Futures Teams also explored and interpreted trends and weak signals in the external environment to ensure that they did not become insulated in their subject-matter expertise. This approach to environmental scanning prevented team members from being blindsided by changes originating from outside their industry and organization. In the

Fig. 17.5 iSee (game of facts and perceptions)

Explore phase, TWDC moved beyond simply cataloging "top ten trend" lists. This strategy enabled recognizing the patterns or emerging landscapes of change that result from the collision and convergence of trends (Spencer 2013). The organization was able to harness this futures intelligence using a multi-layered scanning methodology, and the establishment of a central research repository.

Environmental scanning was conducted by the Futures Teams through Kedge's holistic three-phased approach covering the lifecycle of a trend: Point of Manifestation, Point of Origin, and Point of Impact. Beginning with trend identification across STEEP (social, technological, economic, environmental, and political) drivers, scanning from the Point of Manifestation represents the most common foresight research method. However, pinpointing emerging issues once they manifest in the public sphere has limited usefulness. This is why the Futures Teams then studied their initial findings to uncover the value shifts which undergirded the trends. Scanning from the Point of Origin not only helped differentiate true trends from passing fads, but also highlighted that shifts in societal beliefs transcend industry lines and thus provided early signs of disruptions. Armed with trend and value information, the

teams then analyzed their scanning further to delineate potential Points of Impact. The teams used a framework of exploratory questions to outline these implications which were then fed back into their scanning process. The result was a true horizon scanning process allowing for the identification of weak signals.

The geographically dispersed teams all funneled their scanning insights into one common cloud-based repository. Using a social bookmarking site, the Futures Teams established a common taxonomy for tags and developed an internal software tool that exported the data for additional analysis. The scan hits were also used to populate regional trend card sets which were then consolidated into one global, virtual trend database. The trend cards included an image, description, underlying values, and implications (see Fig. 17.6).

Using the trend cards, the Futures Teams were able to identify patterns resulting from the collision of the individual trends. The teams in India, Italy, and Australia were particularly skilled in creating cluster maps, visuals of multiple overlapping patterns. This pattern and sensemaking ability was a critical part of TWDC futurist skillset, as it served as the foundation for scenario development.

Fig. 17.6 Trend cards

Map: design sets of divergent, provocative maps using creativity, data, and intuition. Most corporate long-term planning processes were created for a previous era. These quantitative forecasts simply extrapolate historical data, apply unattainable growth rates, and produce a linear "official" future. Not only do these traditional strategic planning methods result in inaccurate estimates of future results, they also provide a dangerous, false sense of security. As suggested in earlier discussion here, when uncertainty, volatility, and ambiguity are the norm, relying solely on Excel-driven plans is irrational. WDI understood the need to update its financial and workforce planning processes for success in the twenty-first century, accepting that it could not predict the future but should instead map it. The Futures Teams embraced various foresight methodologies to create more resilient, adaptive, and transformative strategies.

To embed scenario planning in its organizational processes, WDI had to overcome the common hurdle of resource requirements. Traditional scenario development approaches can take months and require significant resource commitments, both in terms of time and external expertise (Wulf et al. 2010). In the Natural Foresight Framework, scenarios are not viewed as the ultimate outcome of foresight. Rather, these narratives are one milestone among many (Fig. 17.7).

Scenarios
Built upon our trends and implications analysis, these immersive future worlds pressure-test existing strategies while illuminating new opportunities.

Fig. 17.7 Scenario-building

The Vice President of HR at WDI, Ramsey, provides insight into scenarios-building and discusses usage of scenarios:

> While foresight does not allow you to predict the future, it does allow you to determine if your strategies will survive in different worlds. We have used scenarios to test our strategies within specific focal areas and are in the process of building foresight into our strategic planning process around the world. (Rose 2014, para. 7)

The Futures Teams leveraged a variety of scenario building approaches, from pattern development to inductive scenario modeling (see Fig. 17.8).

In most cases, teams began this stage with Scenario Fields, Kedge's "plug and play" tool that enables teams to scaffold robust scenarios in a fraction of the time required by traditional approaches. Scenario Fields provide a framework for the work product from the Discover and Explore facets of Natural Foresight to serve as the building blocks for a set of robust scenarios.

The Futures Teams' mapping efforts were not limited to scenario planning. Another popular method employed worldwide was Futures Wheels. However, rather than simply using the standard framework,
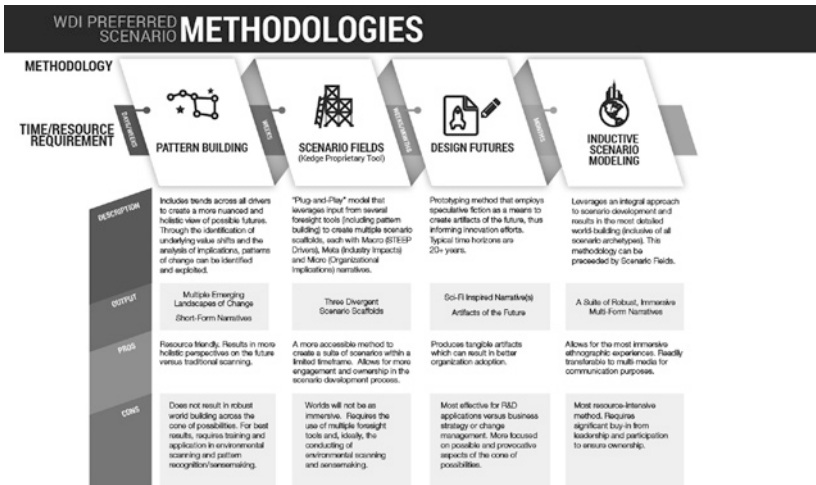
Fig. 17.8   WDI preferred scenario methodologies

WDI leveraged several reimagined versions of the classic tool. One in particular, Kedge's Drivers Wheels, offered TWDC a more holistic method to identify the near, mid and long-term implications of today's trends and patterns (see Fig. 17.9).

This updated technique includes the additional dimension of the STEEP drivers in the development of the near-term impacts. By establishing a foundation representative of a diverse set of macro influences, the tool ensures the mapping of broad and robust implications.

Create: inform long-range planning efforts, inspire innovation and begin creating the future today. WDI understood that it's not enough to envision strategy, imagine innovations, map out organizational development, and/or "look into the future" without successfully acting upon all that hard work. In order for foresight competency efforts to take hold, organizations must build both short- and long-range action plans, delivering upon innovation and preferred future outcomes. A common reason that corporate foresight efforts often fail is that they focus too much on the future. Instead, WDI leadership embraced a "long now" (The Long Now Foundation, n.d.) perspective to ensure that the output from their futures work linked back to action
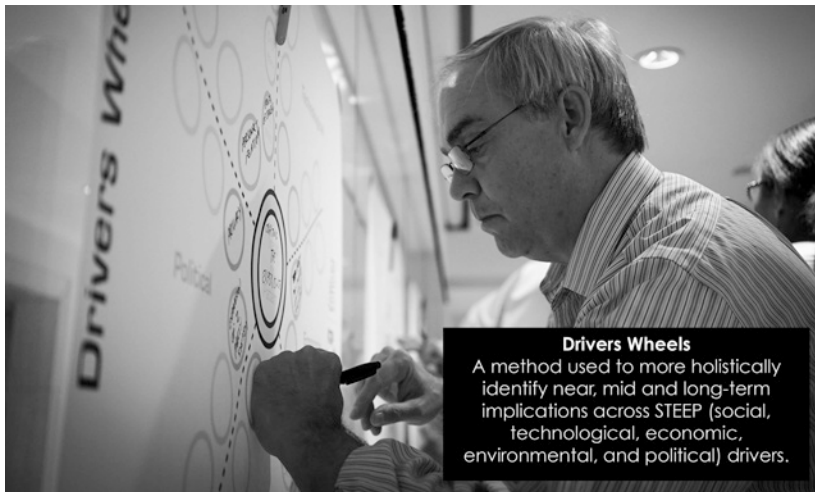
Fig. 17.9   Futures wheels

in the present. For example, once a scenario suite for a focal issue was developed, the Futures Teams then identified commonalities across the Which Worlds? which informed strategic themes and responses across the segments (see Fig. 17.10).

One of the key ways WDI created a long now mindset in its foresight work was through a foundational tenet in the Natural Foresight Framework: the "push and pull" of the future. The future exists across a spectrum. One end of that spectrum represents the Push of the Future, or the trends and emerging issues that are coming at us and are pushing us into the future regardless of what we do. Most organizations focus solely on this end of the spectrum when planning for the future. On the other end of the spectrum is the Pull of the Future, which represents our ability to identify and create our preferred futures. Underlying the concept of the Push and Pull of the Future is the notion that the future is not something that just happens to us but, instead, is something we create everyday with the decisions we make. This revelation is
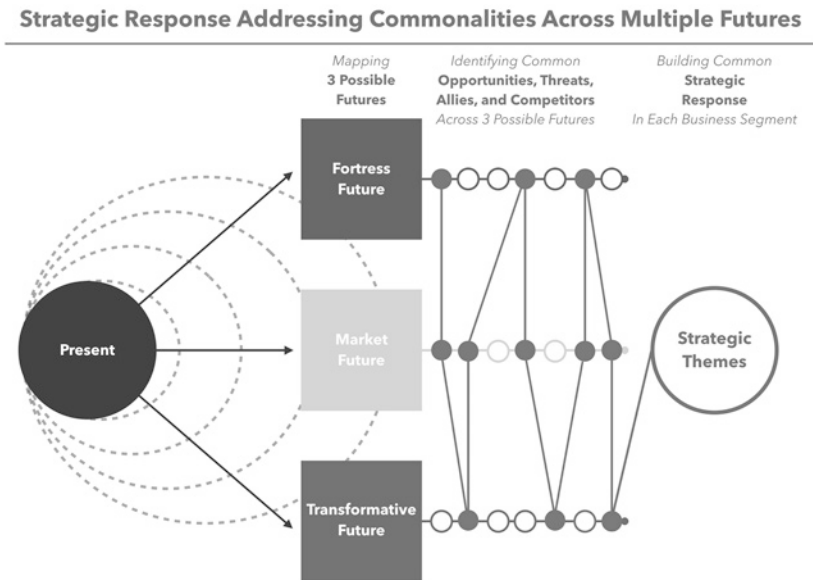
Fig. 17.10 Strategic response addressing commonalities across multiple futures

not just significant within an organizational context. The ability to chart a course to our aspirations, regardless of obstacles, also has strong applicability in career development as well. WDI understood that Strategic Foresight enabled the organization to leverage both ends of the futures spectrum. To align the organization around this philosophy, set expectations and drive business results, specific policies were designed and enforced.

Organizational Policies

The successful implementation of a corporate-wide foresight competency at WDI is a significant achievement, and the cultural change facilitated by the WOTF group to ensure that this competency is sustained, has been made possible through establishment of several internal organizational policies. These policies address several issues, including dedicated resources, central repositories for information, and criteria to ensure accountability. As WDI's Ramsey touted:

> We have systematically built engagement through our senior leadership team and within our general employee population through Futures Teams established in our major markets and regions around the world. (Rose 2014, para. 9)

Following is a discussion of eleven policies, recognized either formally or informally, that help to ensure accountability and institutionalize foresight and futures thinking within the WDI organization.

Senior Leadership Commitment

An effort of this magnitude would not have been launched without the support of WDI's executive leadership. The WDI Chairman and his executive team identified Strategic Foresight as an on-going and integral element of the WDI culture. The Chairman personally recorded videos promoting and reinforcing his commitment to the work which were shown during the three-day and advanced training sessions. Locally, executive champions

were also critical. In the LATAM region, the continued sponsorship from the leadership team was credited to the team's ability to consistently produce and effectively communicate their output.

Common Global Framework

WDI's policy to consistently use the Natural Foresight Framework across the globe created a universal language that supported integration efforts. Within markets like Japan, the creation of a shared view of the future was heralded as a significant success of WOTF. Common tools and foresight processes also allowed for cross pollination of team members through WDI's high potential talent sharing program.

Dedicated Resources

The local Futures Teams varied in their ability to dedicate headcount resources to WOTF. Some assigned professional interns to the work, while others identified administrative assistants to support logistical needs. From its inception, however, personnel policy established that the senior HR executive (located in the U.S.) would oversee WOTF. In 2016, a global project management position was earmarked with the sole responsibility for the coordination of training and direction of the overall effort. In addition to human capital, expenses for training, travel and consulting were covered, through budgetary policy, during the four years of the ramp up and roll out of the competency.

Global Scanning Repository

Environmental scanning is the lifeblood of Strategic Foresight, and for that reason, organizational policy was developed to guide generation and access to information. For example, the Futures Teams conducted research and curated scan hits in a common repository for use by all regions. TWDC futurists were encouraged to continue scanning with a gamified leader board that promoted friendly competition between regions. Once trends were identified from the scanning, trend cards were

developed. The Italy Futures Team represented best in class, leveraging the graphic design expertise of one of their futurists to create visually compelling cards that were then benchmarked by the other regions.

Performance Management Integration

Futures Teams across the globe also sought more formal ways to link talent management policies to futures work. This resulted in a commitment to allow team members to dedicate 20% of their time to foresight related activities. During annual performance reviews, the evaluation of Futures Teams members included input from the local executive sponsor of the foresight work.

Learning and Development Offerings

In addition to the standard three-day training session for Futures Team members that is now taught by the APs, regions have created executive development offerings for senior leadership, introductory "101" sessions for broad consumption, and a career development program leveraging the Natural Foresight method. The Greater China Futures Team inspired more support from the senior leadership team after its executive short course launched. This allowed them to develop and offer a two-part course for all employees. The introductory course included basic foresight terminology, as well as, assumption and bias tools, such as CLA. In the EMEA region, a decision to eliminate the performance management system left a gap in career development conversations. In response, the London-based Futures Team created a one-day foresight course aimed at personal career development.

Reframed Strategic Planning Processes

Organizational policies also enabled Five-Year Plan processes to be updated to include scenario planning and other foresight-related insights. For example, in Russia, futures thinking was a game-changer for their strategic planning approach. Lavrov, CIS Region's Director of Strategy and Business Development reflected,

By mastering Futures Thinking, we are no longer trapped in chasing our own tail by forecasting based on outdated historical data; we begin to unlock the opportunities before they become widely available to other market players. By doing this, our company begins to pioneer the market changes and becomes a true industry innovator. (E. Lavrov, personal communication, September 5, 2015)

Another team engaged the broader CIS organization in the creation of a set of scenarios based on their scanning and pattern making. These narratives then became the centerpiece of the revamped annual Five-Year Plan, and resulted in the identification of completely new market segments.

On-Going Strategic Foresight Process Cycle

All regions established organizational policy to facilitate an on-going process to identify new focal issues, conduct scanning, develop scenarios, and create action plans following the Natural Foresight Framework (reference Figure 2). Scenarios are recognized as not always the end goal; local teams may identify milestones through the process and integrate the output into existing organizational processes. For example, the Australia Futures Team forged connections to the Consumer and Market Research teams, exploiting synergies and improving traditional insights efforts.

Futures Teams Replenishment and Development

Sustainment of the work was imbedded in the WOTF effort from its inception. A key element was establishing policy for training of APs in each region. This policy was realized, and two rounds of advanced training have occurred to date, with those APs responsible for leading foresight workshops and trainings of new team members. Each region implemented recruiting methods to identify new futurists. In the EMEA and LATAM regions, the teams scheduled information sessions to generate interest and assist in communicating expectations to potential members. Futures Teams in Argentina, UK and Italy administered an

application and interview process to select new members. The volunteer status of many of the team charters created issues with attrition and engagement in some markets. These problems were addressed by formalizing the recruiting process and ensuring new futurists understood the time commitments. In Italy, for example, the team boasted zero percent attrition after 18 months of having seeded the team with the formal process. However, some attrition was beneficial with former futurists in all regions continuing to practice and champion foresight outside of a formal team role. In fact, prior members exhibited a sense of pride in the foresight work, touting their involvement by integrating titles, such as "Futurist," into their profiles on public-facing networking platforms.

On-Going Communication Efforts

Engaging with the broader organization, as part of consistent outreach efforts, was a critical success factor in the development of the WDI foresight competency, and resulted from changes in organizational policy that supported new related process. In addition to regularly securing time on senior leadership team meetings, the individual Futures Teams began to implement other communication strategies. In South-East Asia, for example, the team has a standing agenda item on the quarterly all-staff meetings. The Greater China Futures Team created a newsletter that is distributed to the entire organization. This monthly digital communication vehicle includes updates from the Greater China Futures Team, information about upcoming training offerings, and relevant trend insights.

Futures Teams Coordination

Finally, with regional efforts established, country team leaders worked together to chart the course forward for the foresight efforts within the organization. A convening of the local leads was held in London in 2016. During this gathering, the group used foresight tools to identify an aspirational vision for WOTF, and created a detailed action plan to achieve it.

Conclusion

As capsulated by Lavrov's statement, "... [the] ultimate goal is that Strategic Foresight becomes a part of your organization DNA, part of your corporate culture" (E. Lavrov, personal communication, September 5, 2015). Overall, WOTF produced significant results for the organization. In addition to training hundreds of new futurists and dozens of APs to lead the work, WDI identified and pursued new strategic opportunities and avoided potential disruptions in business through the application of Strategic Foresight principles. A sample of the specific outcomes includes the following:

- Identification of specific talent and skills gaps, and the justification to secure the headcount to address those gaps.
- Development of innovative product and service ideas in key market areas.
- Pressure testing of existing strategies, as well as, the creation of new strategic areas of focus.
- Establishment of WDI as a benchmark in corporate foresight competency development with other TWDC segments (e.g., Studios, ESPN, Consumer Products, Parks and Resorts, Disney Theatrical Group, etc.), as well as, other multinational organizations (e.g., Daimler, Whirlpool, Hasbro), seeking WDI's counsel.
- Population of a worldwide database with approximately 15,000 scan hits, including regional and global trends that are used to inform future organizational plans.

Leveraging the global database of futures intelligence (the result of concentrated and dedicated environmental scanning efforts of the Futures Teams) and applying various foresight tools like Scenario Planning, Drivers Wheels and Backcasting, led to the identification of five key focal issues and insights with direct impact on WDI's short- and long-term strategies:

- The Future of Talent: Technological advancements like artificial intelligence, machine learning, and blockchain have the potential to redefine organizational structures in the future. HR functions like Sourcing can ill-afford to ignore these disruptive technologies, and given the lead time required to develop the internal capacity to exploit them, the Futures Teams recommended that the organization must immediately act.

- The Future of the Consumer: Societal value shifts including the increased desire for collaboration and openness among consumers and employees is challenging traditional notions of intellectual property. Based on the Futures Teams' insights, the organization is reimagining the definition of the consumer and embracing opportunities to co-develop products and experiences.

- The Future of Childhood Entertainment: Economic trends pointing to increased income disparity and the continued importance of emerging countries. Futures Teams' research indicated that the period that has traditionally defined childhood appears to be shrinking worldwide while the lines between entertainment and education increasingly blur. The organization will continue to pursue ways to engage with children in emerging markets, targeting localized content delivered in increasingly ubiquitous ways.

- The Future of Wellness: Environmental issues like climate change coupled with innovations in renewable energy will impact migration patterns and lead to further urbanization of worldwide populations. As dense urban landscapes put more strain on our ability to regulate air pollution and maintain clean water sources, individuals are becoming more focused on personal wellness. WOTF has inspired the launch of "Healthy Living" strategic initiatives in several markets.

- The Future of Government: Political turbulence and global instability have taken center stage as our outdated governmental models struggle to keep pace with accelerating change across all domains. The future of governance will undoubtedly be characterized by increased public/private partnerships. As a result of the foresight work, WDI has created new government liaison positions to proactively develop relationships with local policy makers.

At its inception, it was clear that WOTF was unlike any other HR-led change effort. In fact, in one of the initial training sessions, the Chairman of WDI proclaimed that WOTF was not an initiative, but rather a culture change. While WDI leveraged the foresight DNA provided by their "Optimistic Futurist" founder Walter Elias Disney, the organization has shown incredible tenacity in pursuing this new approach to the future of talent. After almost five years, TWDC remains committed to creating a culture of futures thinkers, resulting in the development of this one-of-a-kind corporate foresight competency. All organizations, both large and small, can learn valuable lessons from this case study since the ability to discover the future and create it today is available to anyone with the courage to pursue it.

References

Anthony, S. (2016, July 15). Kodak's downfall wasn't about technology. *Harvard Business Review*. Retrieved from: https://hbr.org/2016/07/kodaks-downfall-wasnt-about-technology.

Bird, A. (2018). *The Walt Disney Company*. Retrieved from: https://thewaltdisneycompany.com/leaders/andy-bird/.

Catt, M. (2011, August 25). People are biased against creative ideas, studies find. *Cornell Chronicle*. Retrieved from: http://news.cornell.edu/stories/2011/08/people-are-biased-against-creative-ideas-studies-find.

Hammond, A. (1998). *Which world? Scenarios for the 21st century*. Washington, DC: Island Press.

Inayatullah, S. (2009). Causal Layered Analysis: An integrative and transformative theory and method. *The Millennium Project: Futures Research Methodology* (Version 3). Retrieved from: http://www.metafuture.org/wp-content/uploads/2016/01/Causal-Layered-Analysis-FRM-version-3-2009.pdf.

Kimmorley, S. (2017, July 13). Disney's top global exec explains why the company had had to change the way it sees the world. *Business Insider Australia*. Retrieved from: https://www.businessinsider.com.au/why-disney-had-to-change-andy-bird-2017-7.

Our Businesses. (2018). *The Walt Disney Company*. Retrieved from: https://thewaltdisneycompany.com/about/#our-businesses.

Press Trust of India. (2012). Walt Disney to acquire controlling stake in UTV. *Business Standard*. Retrieved from: http://www.business-standard.com/article/companies/walt-disney-to-acquire-controlling-stake-in-utv-112020103001_1.html.

Rose, S. (2014, November 5). Future in focus: Richard Ramsey, Walt Disney International. *KNect 365*. Retrieved from: https://knect365.com/innovation/article/669780f8-b6a2-4cf3-8c55-096280e79157/future-in-focus-richard-ramsey-walt-disney-international.

Spencer, F. (2013, November 11). Why predicting trends doesn't help prepare for the future. *Fast Company*. Retrieved from: https://www.fastcompany.com/3021148/why-predicting-trends-doesnt-help-prepare-for-the-future.

Spencer, F., & Montero Salvatico, Y. (2015). Creating stories of change: Reframing causal layered analysis as narrative transformation. In S. Inayatullah & I. Milojevic (Eds.), *CLA 2.0: Transformative research in theory and practice* (pp. 78–89). Taiwan: Tamkang University Press.

Spencer, F., & Montero Salvatico, Y. (2016, Fall). Embracing a transformational mindset. *Rotman Management*, 125–127.

The Long Now Foundation. (n.d.). Retrieved from: http://longnow.org/about/.

Tucker, R. (2015, May 16). How Walt Disney's obsession with futurism inspired 'Tomorrowland.' *New York Post*. Retrieved from: https://nypost.com/2015/05/16/how-walt-disneys-obsession-with-futurism-inspired-tomorrowland/.

Wahl, D. C. (2016). *Designing regenerative cultures*. Axminster: Triarchy Press.

Wulf, T., Meissner, P., & Stubner, S. (2010, March 25). A scenario-based approach to strategic planning: Integrating planning and process perspective of strategy. *Center for Scenario Planning—Roland Berger Research Unit*. Retrieved from: http://www.scenarioplanning.eu/fileadmin/user_upload/_imported/fileadmin/user_upload/Scenario-based_strategic_planning_WP.pdf.

Yang, D. (2016, March 22). Walt Disney International chairman Andy Bird speaks on the importance of localisation in the global market. *Yale NUS College*. Retrieved from: https://www.yale-nus.edu.sg/newsroom/22-march-2016-walt-disney-international-chairman-andy-bird-speaks-importance-localisation-global-market/.

Part V

Conclusion

18

Final Discussions

Deborah A. Schreiber

The primary motivation to write this book stemmed from the desire to delve into the complexities of futures thinking and the relationships among myriad concepts and principles related to the process. As such, the first chapter of this book begins with discussion of the fundamentals of futures thinking, including its evolution from and continued relationship with strategic planning. The roles of foresight (e.g., scenario-building) and organizational policy (i.e., to ensure accountability) are further explored in the second chapter, as each construct contributes significantly to an organization's futures thinking capability. Several case studies presented in the middle of the book describe practical applications in the field. The final chapters summarize findings and provide supplemental materials for further learning.

Final discussions here bring closure to the authors' efforts. Included are the following topics: restatement of the purpose of the book, brief review of the methodology, summary of conclusions and their implications, and recommendations for future research.

D. A. Schreiber (✉)
University of La Verne, La Verne, CA, USA

Restatement of Purpose

The purpose of this book is to provide insight into the practical application of foresight and organizational policy to support futures thinking within corporations and other institutions, with the ultimate outcome being sustained actualization of future success. Fifteen case studies, representing for-profit companies, educational institutions, as well as, nonprofit and government agencies, describe effective use of foresight methodologies to prepare and respond to rapid change in today's marketplace. Each case study then discusses the organizational policies developed to ensure that successful management strategies support and institutionalize futures thinking efforts.

Methodology

This book employed case study methodology to explore application of futures thinking in the field. Case studies enable collection of detailed data describing unique features and practices of the individuals and organizations explored. This information is most often qualitative in nature and is collected primarily through observation and interviews.[1] The desired outcome is identification of recurring patterns and themes that inform practice.

The contributing author(s) of each case chapter may be thought of as participant researchers—individuals embedded in the case as employees or consultants. This role is used to explore patterns of attitudes and behaviors of complex activities in social science, business, and medicine, and it allows data collection *on the front line* of the action. Participant researchers gain access to "gate keepers and key informants" by nature of their personal, professional, and physical position (Kawulich 2005, para. 81).

Following submission of completed case studies, the editors then used thematic analysis to understand findings.[2] Thematic analysis provides a flexible approach to deriving theory from practice through interpretation and refinement of observed data (Braun and Clark 2006; Merriam 1998; Suter 2012). The formulation of resulting theory evolves through categorizing information by properties and hypotheses.

Case study, as a methodological approach, incorporates "no research questions per se, but guiding principles" to facilitate data collection, data analyze, and identification of conclusions (Berge 2001, p. 359). The guiding principles for the case studies in this book, derived from review of the literature and editors' field practice, include examination of rapidly changing trends in technology, globalization, and workforce diversity and the impact on economic and political wellbeing of the organization. Additional parameters were set by discussion of foresight methodologies used to plan and respond to rapid change and the organizational policies developed to ensure that these actions are sustained.

Foresight methodologies described in the case studies were expected to employ one or more of several strategies, including scenario techniques, environmental scanning, Delphi analysis, roadmapping and systems thinking. Organizational policy issues addressed were identified by researchers as related to one or more of the following constructs: employee communication and collaboration, compliance issues, liability, security, growth, innovation and experimentation of product/service development, and workforce contribution.

Guiding principles of this book also provided directives to contributing authors for inclusion of discussion of overall successful management strategies within each case as related to structure and functions of the organization. The concept of *function* was illustrated by the following descriptors: evolving new roles for employees, managers, and the organization, as well as, shifting paradigms in leadership, human resources (HR), management information systems, and information technology (MIS and IT), marketing, and finance. Organizational *structure* was highlighted through discussion of flattened hierarchies and team configurations.

Conclusions

Managing rapid change in technology, globalization, and workforce diversity demands futures thinking within organizations to sustain competitiveness in today's marketplace. Review of the literature and findings from the cases in this book support the idea that futures thinking encompasses both use of foresight methodologies and establishment of

related organizational policies. Foresight generates scenarios of preferred and probably future outcomes and informs planning and management of organizational responses to unexpected change. Internal organizational policies institutionalize efforts and facilitate actualization of most viable option(s) for future success.

Based on review of the literature and the findings from the cases presented in chapters, beginning with Chapter 3 concluding with Chapter 17, this study garnered three primary propositions:

- Organizational policy represents the *formal mechanism* needed to translate data and foresight into action.
- Foresight methods and scenario-building reflect processes enhanced by increased skill in observation and interpretation of *signals* of change (and this skill encompasses understanding the *source* of the signal and *type* of related disruption most likely to impact the organization).
- The greater the alignment of organizational structure and functions to processes and characteristics related to futures thinking, the higher the organizational capability maturity level for futures thinking (e.g., flattened organizational structures facilitate and support shared decision-making for flexible distribution of resource; and, open access to information enhances scenario-building of preferred and probable future outcomes).

Organizational Policy and Futures Thinking

All but three case studies in this book describe organizations that developed and implemented specific organizational policies as formal mechanisms for institutionalizing futures thinking efforts.[3] These policies focus primarily on the following areas of the organization: dedicated resources, access to data, and criteria for accountability. Two case studies are described below that most exemplify these practices—Tesla Corporation (Chapter 3) and the Mayo Clinic (Chapter 16).

Tesla is an automotive corporation that has developed an ambitious plan driven by futures thinking that utilizes advancement in technology of long-range batteries to support production and sale of high volume low coast electric cars with no fumes, noise, or dirt contributed as environmental pollutants. The impact of changing technology and global instability in the market challenged Tesla to devise a strategy that would ensure their future thinking efforts would be not only profitable in the short-term but also sustained in the long-term. The solution included development of an internal organizational policy called the *supplier policy* that elevated corporate capability beyond that of their competitors.

Tesla has reached high levels of flexibility and adaptability through partnering with external organizations. As the case describes, however, the desired outcome of significant engagement with customers hinges on "collaborators and affiliates conducting their operations in a manner that adheres to [the] supplier policy and principles" (pp. 66). Further, the verbiage of this policy is very specific and clearly states parameters for accountability (e.g., termination may occur for those who fail to meet Tesla's Human Rights and Conflict Minerals Policy; and, Tesla will transition away from partner or supplier believed to be engaged in activities not adherent to organizational ethos). Ultimately, Tesla's supplier policy serves as the formal mechanism that helps to institutionalize and sustain its futures thinking efforts.

The Mayo Clinic case study describes another institution utilizing internal organizational policy to facilitate and institutionalize its future thinking efforts. The challenge facing the Mayo Clinic was growing gaps in diverse leadership readiness resulting in disruption of services provided to increasingly diverse client populations. Through use of foresight methodologies, this institution devised a plan of action to increase diverse leadership pools. A plan of action alone, however, did not ensure sustaining such futures thinking efforts, and the Mayo Clinic developed specific HR policies to guide hiring and training of staff and mangers in support of diverse leadership. Currently, the Mayo Clinic journeys along successfully with acceleration of not only diverse leadership readiness but also overall general mental health and well-being through diversity.

Foresight Expertise: Source of Signals and Type of Disruption

All of the case studies in this book described sophisticated foresight methodologies utilized to guide observation and interpretation of signals of change that may impact the organization. Organizations strive to observe signals to accurately identify important triggers—points in time when action must be taken to meet significant challenges. Triggers may result from undercurrents (weak signals) or blatant disruptions (strong signals) in the way people behave and think.

Misinterpreting or ignoring strong signals, and/or missing a weak signal or a signal that is absent can be very detrimental to an organization's business survival. Once an organization begins operating with Stage 2 maturity capability for futures thinking, however, expertise in use of foresight is present and observation and interpretation of signals begin in earnest. At Stage 2 levels of organizational maturity for futures thinking, foresight experts exist in the organization and exhibit in-depth knowledge and skill for identifying the *source* of the change that initiates the signal, and the *type of process* that it is most likely to disrupt. The three primary sources generating signals today include technology, globalization, and workforce diversity. The types of processes which appear most often to be affected include communication, resource allocation, and social/political climate. The process of communication may include both individual and/or organizational behaviors; resource allocation refers to movement of time, money, information, and/or manpower; and the social/political climate relates to personal and/or professional cultures.

The most prevalent approaches to foresight reflected in the case studies of this book include environmental scanning, roadmapping, and the Delphi Method. Although each of these techniques is helpful when beginning futures thinking efforts, organizations are encouraged to use multiple approaches and integrate a diverse array of foresight strategies to increase organizational capability for observing and interpreting signals of change that may impact behaviors and attitudes critical to effective competitiveness.

Two case studies in this book can be held up as significant exemplars in their approach to utilization of foresight methodologies—one describing the university-corporate partnership in the Russian airline business (Chapter 8); and the other, a comparative study of corporate and nonprofit use of a proprietary strategy called *circles of impression* (Chapter 9). The university-Russian airline partnership used multiple techniques for foresight including expert interviews, desk research, patent analysis, bibliometrics, trend analysis, wild card analysis, and road-mapping. In this case, results informed creation of a detailed plan of action for development and implementation of innovative technologies related to airline safety, energy efficiency, and environmental impact.

In addition to integrating multiple methodologies when using foresight to begin futures thinking efforts, an organization may also find a particularly sophisticated approach that serves as a sole source strategy. The case (mentioned above) which described a comparative study of corporate and nonprofit use of a proprietary foresight tool called *circles of impression* illustrates how an organization observed and interpreted signals by employing robust artificial intelligence. The focus of this effort was to collect impressions from individuals across the organization regarding processes and characteristics related to innovation and change. Several *roles* were built into the software to help organize input, including strategist, initiator, opponent, and validator. The ultimate goal was to determine viability of future scenarios and plans of action based on perspectives of these related organizational processes and characteristics; and this sophisticated foresight approach was very successful in accomplishing just that.

The cases described above support the second conclusion of this study that foresight methods and scenario-building reflect processes enhanced by increased skill in observation and interpretation of signals of change. Interesting also, both of these chapter cases characterize the foresight experts as external consultants. In some circumstances, these consultants are embedded within organizational teams tasked with futures thinking efforts; in other situations, the external consultants operate with intermittent communication and engagement. Initial evidence from our book suggests that foresight expertise may be internal or

external to the company or institution, with equal benefits to the organization's futures thinking efforts. Internally, these individuals represent employees, managers, and/or members of the executive leadership team. Externally, these individuals are most likely consultants with private companies or government and academic institutions.

Alignment of Organizational Structure and Function to Processes of Futures Thinking

Integration of sophisticated foresight methodologies within the fabric of a company or institution (discussed above) can only occur when the structure of the organization supports the processes and characteristics related to the effort; and this brings us to the third and final conclusion of this study: the greater the alignment of organizational structure and function to processes and characteristics related to futures thinking, the greater the capability of the organization for actualizing future success.

The theme of alignment of organizational structure and function to facilitate futures thinking surfaced in nearly all case studies presented in this book, with elaboration by the following chapters: Stulz HVAC (Chapter 5), PostFinance (Chapter 6), BEWA and ITe-BIP (Chapter 7), the Canadian Army (Chapter 11), the United States National Guards of Ohio and Florida (Chapter 12), and CSU (Chapter 15). The discussion in these case chapters support the following ideas: (a) flattened organizational structures more effectively facilitate open work spaces, which in turn, increase opportunity for shared communication and cross-functional collaboration; (b) team-centric configurations facilitate open access to information and support shared decision-making for flexible distribution of resources; and (c) development of organizational policies for accountability, aligned to institutionalizing futures thinking efforts, experiences less resistance from personnel when contributors to the process include employees, managers, and executive management engaged in shared dialogue.

The organizational traits described above reflect behaviors and attitudes of companies and institutions that operate with high level of maturity for futures thinking capability. These capabilities are both

facilitated and sustained only when the organizational structure and functions align to meet the challenge of such sophisticated processes. The benefits of such an alignment may be astounding, however, as reflected in the case chapters by Aviva Plc (Chapter 14) and Mayo Clinic (Chapter 16). In each case study, the futures thinking effort that began as a department initiative to respond to increasing need for workforce diversity, evolved into the *workforce of the future*, with employee health and well-being fully recognized and supported (and in turn, delighting executive management with an increased bottom line for the organizations).

The final discussion here focuses on two case studies describing organizations that have reach full capacity for futures thinking through alignment of organizational structure and functions. The first is the Walt Disney Corporation (Chapter 17) and the other is Pioneer Trust Company (Chapter 13). Both organizations had achieved sophisticated levels of shared communication and interdisciplinary collaboration through open work spaces, increased access to data (with Disney creating a central repository for information), and identified criteria for accountability. The CEO at Pioneer Trust believed that leaders should be *visible* and positioned his office space in the grand lobby of the organization. The Walt Disney Corporation developed innovative alignments of structure and functions to support what was referred to as *glocal* design—think globally act locally. Both organizations walked-the-talk and benefitted with revenue-leading outcomes accomplished through actualized and sustained futures thinking.

Recommendations for Future Research

Futures thinking reflects a phenomenon that is iterative in nature and when effectively executed, excels at systems integration. Studying such a complex phenomenon, however, is challenging. The case studies presented in this book provide significant opportunity to explore in situ unique features and practices of organizational futures thinking, with several propositions concluded. Now it is time to begin quantitative analysis to test these hypotheses.

The first area recommended for further research relates to organizational policy to ensure institutionalization of futures thinking efforts. Evidence from the case studies in this book suggests that as an organization transitions into Stage 3, and then upward to Stage 4 (in its capability maturity for futures thinking), barriers exist which constrain development of internal organization policy needed for outlining guidance and accountability of behaviors. Organizational leadership may play a significant role at this pivotal point. Additional research is needed to provide insight into this situation.

Another area of needed research is the role of internal versus external foresight experts. Nearly a third of the case studies in this book describe organizations that engaged external consultants as foresight experts and facilitators of futures thinking within the client company or institution. It is unclear, however, what residual effect (if any) the external consultants may have on institutionalization of futures thinking and ultimate sustaining of successful future efforts within their client organizations. For example, does an organization's capability for futures thinking diminish once the consultant departs upon completion of the contract?

The final recommendation for further study relates to the effects of time on futures thinking. This concept encompasses the idea of *immediacy* of futures thinking and the impact of short-term versus long-term action plans in response to rapid change in the marketplace. Questions remain regarding how best to sustain current competitiveness while preparing for unknown challenges that may require new and innovative capabilities for survival.

Notes

1. Quantitative data may also be examined during case studies. This type of information is collected most often from new and previously-administered surveys and archived management information reports.
2. This concept is sometimes referred to as *constant comparative method* (Suter 2012).
3. The three case studies in this book that described organizations that did not implement internal policies to support futures thinking efforts did speak

to the fact that such policies were perceived as needed and further outlined what each should include to help institutionalize efforts. The organizations represented in these three cases currently operate with Stage 2 maturity capability for futures thinking, with some evidence of additional activities occurring which supports the transition to Stage 3 level capabilities.

References

Berge, Z. L. (2001). *Sustaining distance training* (p. 359). San Francisco, CA: Jossey-Bass and Wiley.

Braun, V., & Clark, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*, 77–101. Retrieved from: file:///C:/Users/Deborah/Downloads/Braun06ThematicAnalysis%20(2).pdf.

Kawulich, B. (2005). Participant observation as a data collection method. *Forum: Qualitative Social Research, 6*(2). [81 paragraphs]. Retrieved from: http://www.qualitative-research.net/index.php/fqs/article/view/466/996.

Merriam, S. B. (1998). *Qualitative research and case study applications in education* (pp. 26–42, 151–195). San Francisco, CA: Jossey-Bass.

Suter, W. N. (2012). Qualitative data, analysis, and design. In *Introduction to educational research: A critical approach* (2nd ed., pp. 342–386). Thousand Oaks, CA: Sage.

19

Supplemental Learning Materials

Deborah A. Schreiber

Described in the following pages are a number of learning experiences designed for professional development. Each experience is intended to help readers increase their knowledge and skill for foresight and organizational policy to facilitate and sustain, respectively, futures thinking in companies and other institutions. Three training activities are presented, including: (1) open-ended discussion questions for each case study, (2) assessment of organizational readiness for futures thinking, and (3) examination of organizational futures orientation (OFO). These activities are designed to be customized to one's own organization, and may be completed in any order (however, each experience builds upon previous learnings).

D. A. Schreiber (✉)
University of La Verne, La Verne, CA, USA

Introduction

The three activities presented in this chapter include (1) open-ended discussion questions for each case study, (2) assessment of organizational readiness for futures thinking, and (3) examination of organizational futures orientation (OFO) which is determined by the alignment of organizational structure and function to processes and characteristics related to futures thinking. The discussion questions are provided to help readers develop critical thinking skills about use of foresight and organizational policy to ensure futures thinking. The remaining two activities enable readers to evaluate their own organization's readiness for futures thinking and profile capability for actualizing successful future outcomes.

Learning activities begin below.

ACTIVITY #1

Discussion Questions for Cases

Responding to the following discussion questions facilitates thinking creatively and critically about each case provided in this book.

Goal: The goal of this learning activity is to increase one's knowledge of the concepts of foresight and futures thinking and the role organizational policy plays in sustaining these efforts.

Directions: This activity may be completed with a dyad partner or small group of colleagues.

Begin by selecting and reading the case chapter of interest; then answer the discussion questions for that case. It is recommended that readers consider three contextual references related to futures thinking when answering these questions. (Context provides a frame-of-reference and acts as a structuring device.)

The first contextual reference to consider to guide discussion of the case study questions is defined by the concepts of *signals, trigger points, as well as, the source of rapid change and primary type of disruption that* may occur within the organization as a result of this change (see explanations in Chapter 1). The second contextual reference relates to the general processes and characteristics associated with futures thinking (see Table 2.1 in Chapter 2). The third and final piece of relevant context is provided by the alignment of organizational structure and function to organizational processes (as illustrated in the Schreiber-Berge model in Fig. 2.1 found in Chapter 2).

Enjoy the insights you garner from discussion and reflection with your colleagues!

Chapter 3: Tesla (Electric Car Company)

- What is the primary source of rapid change triggering a business response by Tesla? What type(s) of disruption to business practice is occurring (or already occurred) within the organization and/or external to the organization as a result of this rapid change?
- How does foresight inform alignment of organizational structure and functions to support new business goals?
- What is the primary organizational policy within Tesla that helps to sustain actualization of futures thinking efforts?

Chapter 4: Dutch Infrastructure Providers

- This chapter describes a sophisticated partnership among multiple organizations. What evidence exists that supports the idea that futures thinking drives this partnership?
- Are foresight methodologies employed within and across these participating organizations? If so, do these methods differ from organization to organization (i.e., how and why)?
- What types of policies exists which help to sustain use of foresight and actualization of successful future outcomes for this partnership? Do these policies relate to internal processes and procedures, and/or as a response for need of compliance with external rules and regulations?

Chapter 5: Stulz (Family Firm in HVAC Industry)

- What role does foresight play in the process of futures thinking for the Stulz organization?
- Do organizational policies currently exist within Stulz that support accountability, institutionalization and/or sustainability for use of foresight and futures thinking? If so, what are they? If not, why are they absent... and/or... are they needed?
- Has this organization reached full maturity for futures thinking? (Justify your answer.)

Chapter 6: PostFinance (Swiss Bank)

- What was the initial foresight framework embraced by PostFinance to facilitate interpretation and response to challenges impacting their business competitiveness?
- How does evolving foresight strengths at PostFinance contribute to growing maturity for overall futures thinking capability? Is there evidence of visionary competence by foresight experts? (Justify your answer.)
- What are the three primary organizational policies established by PostFinance to help institutionalize futures thinking? How are organizational structure and function designed to facilitate accountability for these policies?

Chapter 7: BEWA (Beverage Mfgr) and ITeE-PIB (Public Research Institute)

- The case study presented in Chapter 7 describes correlational analysis of two institutions' efforts in futures thinking. What are the strengths and weaknesses of each organization's foresight methodology?
- What is the role of both internal foresight experts and external foresight consultants in facilitating the process of futures thinking in these two organizations?
- Do organizational policies differ in capacity to support institutionalization of futures thinking when developed by internal personnel versus external consultants? (Justify your answer.)

Chapter 8: University-Russian Airlines Partnership

- What is the primary source of rapid change triggering a business response by RussAir? What foresight method(s) worked best to facilitate observation and interpretation of signals related to this change?
- What role did each organization play (i.e., the university foresight center and the private airline corporation) in facilitating re-alignment of corporate organizational structure and functions to support new business goals?

- What primary organizational policies within RussAir were established to help sustain actualization of futures thinking efforts? Did these policies change level of access to information within organization and/or across the industry? (Explain your answer.)

Chapter 9: Corporate and Non-Government Organizations

- The case presented in Chapter 9 describes a comparative study of two organizations' efforts in futures thinking. What are the strengths and weaknesses of each organization's foresight methodology?
- What new roles were identified for employees and managers in each organization to support use of foresight to facilitate futures thinking?
- What was the *sensitivity* level of information in each organization? Does this phenomenon impact access to data and/or development of policy related to accountability for use of this data in futures planning?

Chapter 10: Sino-Foreign University

- Transnational education, the focus of this case study, depends on sophisticated interdisciplinary teams to facilitate and actualize futures thinking within government-university partnerships. What three primary traits must these teams possess in order to be successful?
- What are the strengths and weakness of the foresight methodology "The Delphi Technique" used in this case study?
- What role does diplomacy and accountability play in actualizing future success of Sino-foreign university partnerships for transnational education? How might organizational policy related to Human Resources help sustain futures thinking efforts within these partnerships?

Chapter 11: Canadian Army

- What are the primary strengths of the scenario-building capability of this organization?

- How is this foresight methodology of scenario-building integrated and supported by the organization's newly emerging structure and functions?
- What is the role of the Concepts Team? Is this team's work an outcome of organizational policy or does it occur informally? (Explain your answer?)

Chapter 12: United States Army National Guard

- What formal steps did the Florida and Ohio Army National Guard organizations take to enhance their foresight capabilities (i.e., the ability to observe and interpret signals related to change likely to impact the organizations)?
- In facilitating futures thinking within the Florida Army National Guard and the Ohio Army National Guard, what shift in mind-set occurred (if any) within each organization? If present, does a new perspective support new innovative roles for senior leaders and middle managers participating in futures thinking efforts?
- What organizational policies evolved within each organization to support accountability for futures thinking and ultimate transformation of the organization?

Chapter 13: Pioneer Trust Banking

- What are the strengths and weaknesses of environmental scanning as a foresight methodology? How does environmental scanning affect near- and long-term planning within the organization?
- What are three primary organizational policies that emerged for this bank that helped to institutionalize its futures thinking efforts and successfully compete during the banking recession of 2008?
- What role does ethics play in organizational futures thinking?

Chapter 14: Aviva Plc

- What concrete practices occur within Aviva Plc that reflect implementation of futures thinking policies supportive of workforce diversity (including mental health and wellbeing)?

- How does this organization sustain flexibility, capability and competitiveness through its human capital?
- How are strategic partnerships developed and utilized as part of Aviva's future-oriented visioning efforts?

Chapter 15: California State University

- As part of an initial effort to meet future needs for a diverse alternative learning center, this institution first engaged in design thinking, futures thinking, and social forecasting. Do these foresight strategies incorporate divergent and convergent thinking, and if so, how? (Explain your answer.)
- What structural and functional characteristics of this institution are available to support initial futures thinking efforts? (Also, what level of shared dialog and/or shared decision-making occurred during this case that may serve as positive impact on the process?)
- What challenges remain for this institution in its effort to institutionalize futures thinking and translate scenario(s) for diverse learning into successful future outcomes?

Chapter 16: Mayo Clinic

- What is the *futuristic approach* taken by the Mayo Clinic to support leadership diversity? What is *horizontal scanning* and how is it utilized to support this future-thinking perspective?
- How do shifting political landscapes related to health care reform, health care disparity, and multiple regulations related to healthcare affect futures thinking about workforce diversity of leaders?
- What organizational policies evolved within the Mayo Clinic to support accountability for futures thinking as related to leadership diversity?

Chapter 17: Walt Disney Corporation

- How did this organization transform an initial HR initiative into an organization-wide foresight competency for workforce diversity enhancement?

- What is definition of the term "glocal" and how does this concept inform futures thinking related to workforce diversity? (When answering, consider foresight methodologies used by this organization, as well as, the type of organizational policy developed and implemented to sustain efforts.)
- How may organizational policies, related to the following three issues, be developed and implemented to support futures thinking related to enhanced workforce capabilities: (1) dedicated resources, (2) central repositories for information, and (3) criteria to ensure accountability?

ACTIVITY #2

Assessment of Organizational Readiness for Futures Thinking

Futures thinking is a concept that helps individuals and organizations better understand the processes of change so that wiser preferred futures can be created. As extenuating influences increase, an organization seeks the flexibility and adaptability to be competitive in a future that is increasingly uncontrolled. Futures thinking begins with use of foresight methods to interpret signals of change and then builds applicable future scenarios for response. Futures thinking is actualized when the most viable option(s) are implemented. Sustaining future success comes through organizational policies that guide and ensure accountability for action.

An organization's *readiness* for futures thinking, however, requires guidance from leadership, as well as, corporate or institutional capability. Both attitude and behavior are needed to promote action. The disposition or willingness to embrace futures thinking is corequisite to implementation of successful efforts.

Goal: The goal of this learning activity is twofold: (1) gain insight into your organization's overall readiness to engage in futures thinking; and (2) distinguish between *organizational* capacity for futures thinking and *leadership* capacity for futures thinking.

Directions: This activity may be completed individually, with a dyad partner, or within a small group of colleagues.

1st Step. Complete the *Checklist for Assessing Organizational Readiness for Futures Thinking* (see Table 19.1). Use as a frame of reference your organization, and remember, these statements relate to an organization's preparation and response to rapid change in the marketplace.

2nd Step. Use change in the marketplace as a contextual focus, and reflect upon your organization's use of foresight and scenario-building, as well as, steps taken to translate scenarios into future successes.

3rd Step. Score results.

The total sum from items #1, #2, #4, #6 and #7 represents leadership capacity for futures thinking (vertical axis).

The total sum from items #3, #5, #8, #9 and #10 represents organizational capacity for futures thinking (horizontal axis).

4th Step. Plot results on grid for organizational readiness (see Fig. 19.1). Review the characteristics for each quadrant located further down the page.

5th Step. Reflect upon your findings individually and/or discuss with colleagues. Think about your organization's management style, communication and decision-making processes, and organizational structure and functions. Identify three characteristics of your organization (as related to this activity) that may be significant in informing next-steps toward increased capability for futures thinking.

Table 19.1 Checklist for assessing organizational readiness for futures thinking[a]

Promoting action through attitude and behavior	Degree of presence Low–Med–High 1 2 3 4 5	Comments
1. Formal meeting(s) are scheduled by CEO or executive management team to identify futures thinking goals	1 2 3 4 5	
2. Futures thinking goals, including related processes and organizational traits, that are most important to CEO or executive management team are clearly identified (e.g., increasing flexibility and adaptability to rapid change in marketplace, increasing workforce diversity, building teams of foresight experts, opening access to data)	1 2 3 4 5	
3. The identified goals related to futures thinking are specific and measurable (i.e., there is accountability for futures thinking)	1 2 3 4 5	
4. The *implications* of futures thinking goals are clearly identified, for example, need to flatten organizational hierarchy; implementation of new twenty-first century roles for staff, managers and the organization; enhancement of team fluidity; increase or decrease in personnel; staff development requirements	1 2 3 4 5	

(continued)

Table 19.1 (continued)

Promoting action through attitude and behavior	Degree of presence Low–Med–High 1 2 3 4 5	Comments
5. Issues associated with organizational readiness for futures thinking are clearly identified as potential barriers (e.g., history of unsuccessful efforts, projects continuing in silos, over-extended workers, lack of engagement of staff)	1 2 3 4 5	
6. If significant issues exist, then a *plan to reduce barriers* is discussed and/or developed by the organization (e.g., increasing communication, building coalitions, sharing decision-making for resource allocation, embracing short term wins)	1 2 3 4 5	
7. Individuals in the company or institution are experiencing an *urgency* to respond to rapid change impacting their organization; they see the organization's competitive edge is waning and wish to understand what is behind it; individuals are open to change and embrace the attitude "we are in this together…"	1 2 3 4 5	
8. There is sufficient time available to participate in and implement activities related to futures thinking	1 2 3 4 5	
9. There are sufficient financial resources available to implement activities supportive of futures thinking	1 2 3 4 5	
10. There are sufficient human resources available to advocate and support futures thinking	1 2 3 4 5	

[a]Developed from literature review in Chapter 1, case studies in Chapters 3 to 17, and work by external researchers Inayatullah (2007) and Helfrich et al. (2009). This instrument is provided for learning purposes only. Further validation of tool is required when used for formal quantitative analysis
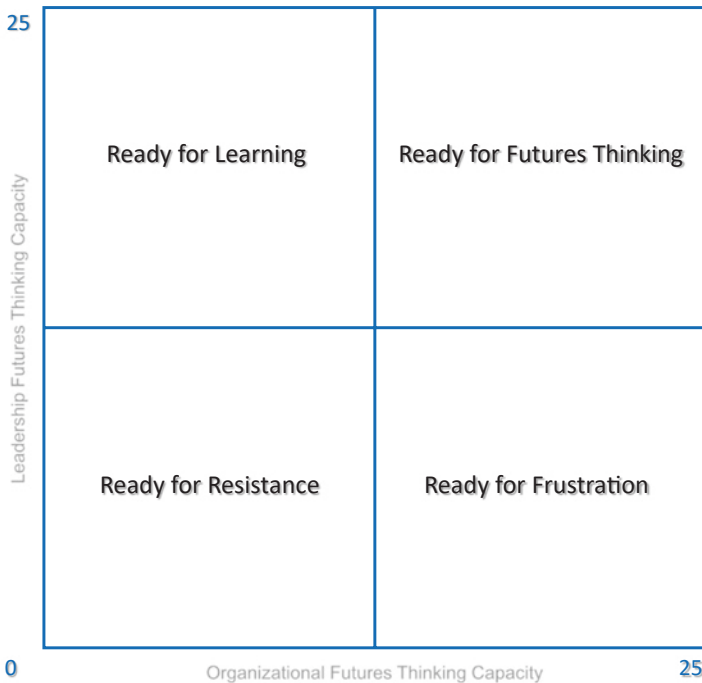
Fig. 19.1 Interpreting results for organizational readiness for futures thinking (This figure is revised version of image originally found in Helfrich et al. (2009). Reprinted with permission)

An organization's readiness for futures thinking can range from resistance to fully engaged and empowered to successfully complete the process. Four quadrants of readiness are described in this activity. Collating research from the contributing authors of this book, and external authors Helfrich et al. (2009) and Inayatullah (2007), results in the descriptions below for each readiness position.

Ready for Learning

Here, the leader demonstrates insight and appreciation for futures thinking, with a strong capacity for using foresight and developing internal policy to ensure accountability and institutionalization of

efforts. The organization can learn from the leader's personal and professional example. Before undertaking a new futures thinking effort, however, the leader must attend to the learning needs of the organization. Specifically, the organization must commit to clear and open access to data and provide support for budgets and human resources to reinforce commitment of every person contributing to the futures thinking effort.

Ready for Resistance

When neither the leader nor the organization has a history of successful futures thinking efforts, then the most likely result of any new futures thinking initiative will be resistance, anger, undermining, or simply ignoring the effort. Without stakeholder support or leadership execution, these organizations will strive to wait-out rapid changes in the marketplace, believing that the changes will not impact them (i.e., denial). Leaders in this type of organization who do attempt to use scenario-building to gain foresight into actionable items, will most likely fail because minimal support is in place to facilitate any aspect of the futures thinking process.

Ready for Frustration

Here is an organization with a strong history of innovation and creativity related to responding to rapid changes in the marketplace, however, it is currently being led by someone who is either reluctant to engage in a systematic process of futures thinking or lacks the personal capacity to do so. The result is strong frustration among individuals in the organization. Each time teams with expertise in use of foresight get ahead of the leader, resulting action plans to reach future scenarios fail to be supported by senior leadership. Future thinking then becomes viewed as less viable strategy for dealing with disruptions in the marketplace.

Ready for Futures Thinking

Scoring in the upper-right quadrant in Fig. 19.1 indicates that both the leader and the organization have exceptional capacity for futures

thinking. The leader embraces use of foresight to interpret signals of disruption and build viable future scenarios, with development of internal organizational policy to institutionalize efforts. This leader works diligently to align organizational structure and function to support increased communication and shared decision making for allocation of resources, open and flexible access to data, and management of time. The organization itself is a model of adaptability and resilience in its ability to respond to rapid change to environmental and cultural shifts, use of innovative services and resources, and create an atmosphere of excitement and engagement.

ACTVITIY #3

Organizational Futures Orientation (OFO) Matrix

   OFO represents organizational capability to identify and interpret changes in the environment and trigger adequate responses to ensure long-term survival and success. An organization's futures orientation is defined by the degree of alignment of organizational structure and function to processes and characteristics supportive of futures thinking (Future Orientation 2010). Increasing an organization's maturity level for futures thinking capability depends on understanding the OFO of that organization.

   Goal: The goal of this learning activity is to explore the alignment of your own organization's structure and functions to the processes and characteristics needed for futures thinking. The desired outcome is to identify organizational strengths and weaknesses related to use of foresight and development of internal policy to ensure institutionalization of futures thinking efforts.

   Directions: This activity may be completed individually, with a dyad partner, or within a small group of colleagues.

   1st Step. Familiarize yourself with the OFO Matrix (see Fig. 19.2). Note that the categories for organizational processes and characteristics that support futures thinking are designated at the top of each column. The components of organizational structure and function are positioned down the left-hand side of the matrix.

   2nd Step. Fill-in the cells of the matrix with information related to your organization. (This information should relate to your organization's structure and function, and the processes and characteristics of futures thinking used to respond to rapid change in the marketplace.)

   To accomplish this task, use the questions listed in Table 2.1 (in Chapter 2) to guide filling-in the cells.

   For example, one of the questions in Table 2.1 asks "Is information shared across disciplines…[and/or] held in functional silos?". Another question asks

"Does shared decision making exist for allocation of resources?". Additional questions include "Is role of trend receiver recognized?" and "Do one or more individuals possess visionary competence" [and] "understand *source* of signal… *type* of disruption…?". (See Fig. 19.3 for example of matrix in-progress.)-
Fig. 19.3   Organizational Futures Orientation (OFO) Matrix in-progress (part 1)

3rd Step. Upon completion of the matrix (i.e., cells are filled-in), look for trends or patterns within your organization related to using foresight and/or development of organizational policy to support futures thinking.

4th Step. Circle organizational strengths and weaknesses related to use of foresight and development of internal policy to ensure institutionalization of futures thinking efforts (see Fig. 19.4).

5th Step. Discuss findings with colleagues and brainstorm next-steps to meet identified challenges.

Organizational Futures Orientation (OFO) Matrix

Alignment of Organizational Structure and Function to Futures Thinking Processes and Characteristics

	Access to Information	Emerging New Roles for 21st Century	Allocation of Resources	Time Effects
Employee				
Manager				
Organization				
CEO				
Exec Team				
HR				
IT				
Marketing				
Finance				

Fig. 19.2   Organizational Futures Orientation (OFO) Matrix: Alignment of organizational structure and function to processes and characteristics related to futures thinking

Organizational Futures Orientation (OFO) Matrix

Alignment of Organizational Structure and Function to Futures Thinking Processes and Characteristics

	Access to Information	Emerging New Roles for 21st Century	Allocation of Resources	Time Effects
Employee	• Limited access to data.	• *Trend receiver* role identified in one individual in R&D department. • Little to no discussion of *source* of change in marketplace or *type of disruption* resulting in organization.		• Limited understanding of effect of time on near- and long-term response to rapid change in marketplace..
Manager			• Department manager allocates resources at project-level.	• Limited understanding of effect of time on near- and long-term response to rapid change in marketplace..
Organization	• Dashboard available but files seldomly update. • Multilevel hierarchy; limited access to data across silos.			
CEO		• Leader is knowledgeable about futures thinking and strives to flatten organizational structure to increase access to resources.		
Exec Team			• Exec team controls overall budget distribution.	
HR		• Limited 21st century perspective; more interested in compliance issues than org policy to support futures thinking.		
IT	• Maintains primary access to data; oversees data vendor relationships.			
Marketing				
Finance				

Fig. 19.3 Organizational Futures Orientation (OFO) Matrix in-progress (part 1)

Organizational Futures Orientation (OFO) Matrix

Alignment of Organizational Structure and Function to Futures Thinking Processes and Characteristics

	Access to Information	Emerging New Roles for 21st Century	Allocation of Resources	Time Effects
		Presence of foresight expert. May be used to train other staff and embed throughout organization.		
		Need to build skills throughout organization for observation and interpretation of signals.		
Employee	• Limited access to data.	• *Trend receiver* role identified in one individual in R&D department. • Little to no discussion of *source* of change in marketplace or *type of disruption* resulting in organization.		• Limited understanding of effect of time on near- and long-term response to rapid change in marketplace..
Manager			• Department manager allocates resources at project-level.	• Limited understanding of effect of time on near- and long-term response to rapid change in marketplace..
Organization	• Dashboard available but files seldomly update. • Multilevel hierarchy; limited access to data across silos.	*Indicator of leadership capacity for futures thinking; contributes to organizational readiness.*		
CEO		• Leader is knowledgeable about futures thinking and strives to flatten organizational structure to increase access to resources.		
Exec Team			• Exec team controls overall budget distribution.	
HR		• Limited 21st century perspective; more interested in compliance issues than org policy to support futures thinking.		
IT	• Maintains primary access to data; oversees data vendor relationships.			
Marketing				
Finance				

Fig. 19.4 Organizational Futures Orientation (OFO) Matrix in-progress (part 2)

Summary

This chapter brings closure to discussions by the editors and contributing case authors. Early chapters in this book present a primer of sorts, providing discussion of fundamental concepts and principles related to the evolution of futures thinking as an iterative process of systems integration. The specific roles of foresight and internal organizational policy in sustaining futures thinking efforts are also described, as is a refined capability maturity model that enables organizations to profile individual capabilities for futures thinking. The case chapters provide practical applications of futures thinking in the field, across a wide range of corporations and institutions located around the world. The final chapters expand discussion of futures thinking to include concepts of organizational readiness and an organization's futures orientation, while also engaging the reader in skill-building activities that focus on self-assessment and profiling of one's own organization's futures thinking capabilities.

References

Future Orientation. (2010, July 29). *What is organizational future orientation* [web bog]. Retrieved from: http://futureorientation.net/2010/07/29/what-is-organizational-future-orientation/.

Helfrich, C. D., Li, Y.-F., Sharp, N. D., & Sales, A. E. (2009). Organizational readiness to change assessment (ORCA): Development of an instrument based on the Promoting Action on Research in Health Services (PARIHS) framework. *Implementation Science, 4,* 38.

Inayatullah, S. (2007). Six pillars: Futures thinking for transforming. *Foresight, 10*(1), 4–21. Retrieved from: http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=1CAAFBE7D7B8E3D5FB733BF67192AA64?doi=10.1.1.510.9662&rep=rep1&type=pdf.

Index