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Foresight and Design: New Support for Strategic Decision Making

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Abstract
Decision makers who plan, decide, and act to influence change need to rely on a new, emerging approach to the future in the increasingly turbulent environments they face today. After reviewing the evidence that the world has in fact changed, we introduce two emerging disciplines that have grown in response to those changes: strategic foresight as a complement to traditional, extrapolative forecasting, and strategic design as the systemic version of the more tactical product-service design. Neither replaces the traditional disciplines, but practitioners of each are able to contend with the fast moving, disruptive changes more common in this century than in the last. Both are valuable in themselves, but integrating them into design with foresight allows practitioners to handle both the changes to an organization coming from the world aka *inbound change*, and changes which an enterprise creates itself to influence the world, aka *outbound change* or strategy. Finally, we compare the results of a traditional study from the financial services industry with one using the integrated approach.

1   Oliver Kohnke, "It's Not Just about Technology: The People Side of Digitization," in *Shaping the Digital Enterprise*, ed. Gerhard Oswald and Michael Kleinemeier (Cham: Springer, 2017), 69–91, DOI: https://doi.org/10.1007/978-3-319-40967-2_3.

2   Ziauddin Sardar, "Welcome to Post-normal Times," *Futures* 42, no. 5 (2010): 437, DOI: https://doi.org/10.1016/j.futures.2009.11.028.

3   Ziauddin Sardar and John A. Sweeney, "The Three Tomorrows of Postnormal Times," *Futures* 75 (January, 2016): 1–13, DOI: https://doi.org/10.1016/j.futures.2015.10.004.

4   Richard Slaughter, *The Foresight Principle: Cultural Recovery in the 21st Century* (Westport: Praeger Publishers, 1995).

5   Gary Hamel and Liisa Valikangas, "The Quest for Resilience," *Harvard Business Review* 81, no. 9 (2003): 52–63, available at https://hbr.org/2003/09/the-quest-for-resilience; Riccardo Vecchiato, "Strategic Foresight: Matching Environmental Uncertainty," *Technology Analysis & Strategic Management* 24, no. 8 (2012): 783–96, DOI: https://doi.org/10.1080/09537325.2012.715487.

6   Ziauddin Sardar, "The Namesake: Futures; Futures Studies; Futurology; Futuristic; Foresight — What's in a Name?," *Futures* 42, no. 3 (2010): 177–84, DOI: https://doi.org/10.1016/j.futures.2009.11.001.

7   Driek Desmet et al., "Six Building Blocks for Creating a High-Performing Digital Enterprise," McKinsey.com (online), September 1, 2015, https://www.mckinsey.com/business-functions/organization/our-insights/six-building-blocks-for-creating-a-high-performing-digital-enterprise; Kohnke, "It's Not Just About Technology," 71.

8   Riel Miller, *Transforming the Future: Anticipation in the 21st Century* (Abingdon: Routledge, 2018), 46.

9   Bob Johansen and James Euchner, "Navigating the VUCA World," *Research-Technology Management* 56, no. 1 (2013): 10, DOI: https://doi.org/10.5437/08956308X5601003.

10   Sardar, "Welcome to Postnormal Times," 444.

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11   Kürşad Zorlu, "Strategic Thinking and Dimensions of Effective Leadership," in *Strategic Design and Innovative Thinking in Business Operations*, ed. Hasan Dincer, Ümit Hacioglu, and Serhat Yüksel (Cham: Springer, 2018), 176, DOI: https://doi.org/10.1007/978-3-319-77622-4_9.

Introduction

Reports are teeming with statements that we are living in an age of intense turbulence and uncertainty, an era shaped by a profound transformation in the rapidly advancing information environment. Digitization is accelerating the pace of change on a global scale, and the resulting market dynamics are triggering unprecedented challenges to organizations, and rising levels of anxiety for the people within.[1] Additionally, changes today are no longer happening in isolation[2] — they are connected, interconnected, and occurring simultaneously,[3] just as the forces of globalization, politicization, consumption, and commoditization are captivating the attention of business leaders across all sectors of the economy. Every period in history contains its own uncertainties, but thinking about the future takes on added urgency in times of rapid change.[4] Hence, despite the overwhelming obsession by organizations with the present, every business leader ought to be thinking about the future.[5]

People, organizations, institutions, and nations, and the trends, events, and issues they deal with are more numerous and more tightly coupled than they used to be; in post-normal times, these disruptions are more common, and consequences harder to predict.[6] With all this talk about an uncertain future, how then do business leaders and innovation decision makers prepare for what lies ahead? Traditionally, business leaders are C-suite executives — the people in a company who develop and execute organizational strategy with long-term consequences, and who share the responsibility of preparing the organization for change and influencing that change in order to fulfil the organization's mission and reach its goals. But long term is now shorter than it was. Indeed, the pace of digital change has quickened, and the survival of the organization hinges on higher level strategic considerations, and a broader range of capabilities in support of dealing with change in the external environment.[7] Riel Miller, Head of Futures Literacy with UNESCO, calls this "a change in the conditions of change."[8] Not only is the world changing, but so is the nature of change itself. One analogy might be with acceleration, which is a change in velocity, itself a second-order change in position and direction. The U.S. Army War College has called this a VUCA world — volatile, uncertain, complex, and ambiguous.[9] The result is that we must change how we anticipate and influence change itself to be successful in this new post-normal era, and that conventional and reactive approaches need to be replaced with creative, ethical imagination — proactive capabilities in recognition of the sheer contingency of the times in which we find ourselves.[10] Consequently, adopting better ways of dealing with change must engage all our mental capabilities, including imagination and holistic perspectives, rather than relying exclusively on logical and linear processing.

This article puts forth the argument that a fast changing environment requires a change in how decision makers do their work, most importantly in their assumptions about change and the future, along with the methods and tools they use to process information at the strategic level to make and support their decisions. For the purposes of this article, the concept of strategy is based on the idea of establishing a direction through strategic thinking,

12 Jeanne M. Liedtka, "Strategic Thinking: Can It Be Taught?," *Long Range Planning* 31, no. 1 (1998): 121, DOI: https://doi.org/10.1016/S0024-6301(97)00098-8.

13 Vecchiato, "Strategic Foresight," 785.

14 Ray Holland and Busayawan Lam, *Managing Strategic Design* (London: Macmillan International Higher Education, 2014), 3.

15 Cristiano Cagnin, "Developing a Transformative Business Strategy through the Combination of Design Thinking and Futures Literacy," *Technology Analysis & Strategic Management* 30, no. 5 (2018): 524–39, DOI: https://doi.org/10.1080/09537325.2017.1340638; Gary Hamel, *Leading the Revolution: How to Thrive in Turbulent Times by Making Innovation a Way of Life* (Cambridge, MA: Harvard Business School Press, 2002); John Heskett, "Creating Economic Value by Design," *International Journal of Design* 3, no. 1 (2009): 71–84, http://www.ijdesign.org/index.php/IJDesign/article/view/477/243; Christian Horn and Alexander Brem, "Strategic Directions on Innovation Management — A Conceptual Framework," *Management Research Review* 36, no. 10 (2013): 939–54, DOI: https://doi.org/10.1108/MRR-06-2012-0142; Alfonso Montuori, "Beyond Postnormal Times: The Future of Creativity and the Creativity of the Future," *Futures* 43, no. 2 (2011): 221–27, DOI: https://doi.org/10.1016/j.futures.2010.10.013; René Rohrbeck, Cinzia Battistella, and Eelko Huizingh, "Corporate Foresight: An Emerging Field with a Rich Tradition," *Technological Forecasting and Social Change* 101 (December, 2015): 1–9, DOI: https://doi.org/10.1016/j.techfore.2015.11.002; Sardar and Sweeney, "The Three Tomorrows"; Richard A. Slaughter, *New Thinking for a New Millennium: The Knowledge Base of Futures Studies* (Abingdon: Routledge, 2002).

16 Peter C. Bishop and Andy Hines, *Teaching about the Future* (Basingstoke, UK: Palgrave Macmillan, 2012); Joern Henning Buehring and Jeanne M. Liedtka, "Embracing Systematic Futures Thinking at the Intersection Of Strategic Planning, Foresight, and Design," *Journal of Innovation Management* 6, no. 3 (2018): 134–52, DOI: https://doi.org/10.24840/2183-0606_006-003_0006.

which Kürşad Zorul[11] describes as a process of thinking about non-linear dreams and designs; and, as Jeanne Liedtka[12] points out, must be seen as a way of thinking that encapsulates systems, hypotheses, and opportunistic intelligence.

Indeed, the strategic foresight and design disciplines are deeply connected to these issues, in both theory and practice. Strategic foresight is about scanning the environment for new events and drivers of change, and then applying appropriate techniques to anticipate the evolution of change, their consequences on the organization, and the responses, or decisions, most suitable in dealing with uncertainty.[13] Strategic design is the application of future-oriented design principles to create visions in collaboration across disciplines to drive and implement an organization's strategic goals.[14] Scholars in each discipline are devoting attention to exploring what constitutes the most effective organizational processes for crafting successful long-term directions.[15]

In this article, we illuminate how foresight and design can complement each other to improve longer-term forecasting and inform strategic decision making. We will argue that integrating foresight and design as critical processes for anticipating inbound change from the external environment and identifying opportunities to influence the future through outbound action is important.[16] Foresight provides the future context for design and design embodies ideas and concepts by visualizing alternative and desirable futures for foresight, thus complimenting each other to envision, inspire, experiment and communicate the direction of where to go. We explore these approaches in two areas of application: the foresight and design perspectives relevant to strategic decision making. We will put forward the rationale for futures thinking and highlight the importance of design and foresight as a systematic and strategic organizational capability to do so, and also consider the different contributions that foresight and design make to strategic decision making.

In the next section, we draw attention to traditional approaches of how we have come to deal with the future today, and examine the 20th century model and tools for decision making which might now be obsolete if used by themselves. After that, we compare traditional assumptions about the future with complimentary assumptions more appropriate to current conditions; similarly, the evolving role of design and its application of future-oriented design principles are reviewed for their strategic intentions. We then introduce a new approach consisting of foresight and design disciplines as a set of tools and approaches in support of strategic decision making. Finally, we will contrast use cases, demonstrating what decision makers in the financial service industry would typically receive from the traditional approach and what they might expect from the complimentary disciplines of foresight and design.

17 Nick Marsh, Mike McAllum, and Dominique Purcell, *Strategic Foresight: The Power of Standing in the Future* (Melbourne: Crown Content, 2002); C. Chet Miller and Laura B. Cardinal, "Strategic Planning and Firm Performance: A Synthesis of More than Two Decades of Research," *Academy of Management Journal* 37, no. 6 (1994): 1649–65, DOI: https://doi.org/10.5465/256804.

18 Joseph P. Martino, *Technological Forecasting for Decision Making* (New York: American Elsevier Publishing Co., 1972).

19 Dan Gardner, *Future Babble: Why Expert Predictions Fail — and Why We Believe Them Anyway* (Toronto: McClelland & Stewart Limited, 2010).

20 Richard E. Nisbett and Lee Ross, *Human Inference: Strategies and Shortcomings of Social Judgment* (Upper Saddle River: Prentice-Hall, 1980); Shelley E. Taylor and Suzanne C. Thompson, "Stalking the Elusive 'Vividness' Effect," *Psychological Review* 89, no. 2 (1982): 155–81, DOI: https://doi.org/10.1037/0033-295X.89.2.155.

21 Martino, *Technological Forecasting for Decision Making*.

22 J. Scott Armstrong, ed., *Principles of Forecasting: A Handbook for Researchers and Practitioners* (Berlin: Springer Science & Business Media, 2001).

23 Pierre Wack, "Scenarios: Uncharted Waters Ahead," *Harvard Business Review* 63, no. 5 (1985): 72–89, available at https://hbr.org/1985/09/scenarios-uncharted-waters-ahead; Angela Wilkinson and Roland Kupers, "Living in the Futures," *Harvard Business Review* 91, no. 5 (2013): 118–27, available at https://hbr.org/2013/05/living-in-the-futures.

24 James Gleick, *Chaos: Making a New Science* (New York: Viking Penguin Inc., 1987).

25 Per Bak, *How Nature Works: The Science of Self-Organized Criticality* (New York: Copernicus, 1996).

26 John Henry Holland, *Hidden Order: How Adaptation Builds Complexity* (New York: Basic Books, 1995).

Facing the Future — Traditional Approaches, and New Ones

Traditional Planning and Forecasting Approaches

Traditional forecasting and strategic planning both deal with the future, but critics have pointed out weaknesses in their planning processes, which do not sufficiently handle the complexity, discontinuities, and rapid changes in today's disruptive business environment.[17]

One of the earliest comprehensive treatments of forecasting is Joseph Martino's "Technological Forecasting for Decision Making," originally published in 1972.[18] The purpose of the book was to forecast the state of a technology. The first two chapters of the methods section of the book deal with methods of judgment — Delphi, a process for combining judgments from different experts; and analogy, arguing from similar conditions in the past. Both rely on judgments by experts, who rely largely on data and on their experience. In the digital age, however, Dan Gardner questions well-established forecasting and expert prediction methods, which he considers problematic as they tend to ignore complexity and uncertainty.[19] Similarly, a common approach to decision making in business is that decisions are favored if they are based on an analytical process grounded on empirical data.[20] Indeed, most of the techniques in Martino's book, which was a standard textbook in business and engineering schools for 25 years, are quantitative — growth curves, extrapolation, correlation, causal models (including econometrics), and probabilistic methods[21] — while environmental monitoring, scenarios, and normative methods are introduced to focus on only one story about the future as likely to develop.

A somewhat more recent treatment of forecasting was J. Scott Armstrong's *Principles of Forecasting*, published in 2001. Armstrong was forecasting for marketing, not technology, but he had a similar list of forecasting methods including quantitative, which he subdivided by judgmental techniques according to whether the large changes were expected, relying on expert opinion when they were not and other techniques when they were.[22] These two taxonomies of forecasting techniques cover what could be called *traditional forecasting*. The major difference between these two approaches and the more contemporary techniques of strategic foresight is that their purpose was to arrive at a single point of forecast — a prediction of the future at some point in time. Foresight professionals, however, claim that such predictions are not useful[23] or perhaps not even possible, because of the increasing uncertainty and probability of disruption in the medium and long term.

Even as an ideal, the traditional model requires assumptions that are becoming less valid as the rate of change and frequency of disruption increase. One such assumption is that the decision maker has enough information about the current situation and the consequences of different decisions to make adequate judgments. In addition to bias and inherently stochastic processes, system scientists have identified deterministic systems that are nevertheless inherently unpredictable, such as chaos,[24] criticality,[25] and complexity.[26] Most of the systems studied are physical, but it is reasonable to assume that these system conditions are also valid in social systems as the

27   Eero Vaara and Richard Whittington, "Strategy-as-Practice: Taking Social Practices Seriously," *Academy of Management Annals* 6, no. 1 (2012): 285–336, DOI: https://doi.org/10.5465/19416520.2012.672039.

28   Hugh Courtney, *20/20 Foresight: Crafting Strategy in an Uncertain World* (Cambridge, MA: Harvard Business Press, 2001); Ronald A. Heifetz, Alexander Grashow, and Marty Linsky, *The Practice of Adaptive Leadership: Tools and Tactics for Changing Your Organization and the World* (Cambridge, MA: Harvard Business Press, 2009).

world becomes increasingly connected. As a result, the proportion of what is unknown or unknowable in any situation increases to the point that uncertainty dominates. The traditional model of decision making breaks down in such environments. Indeed, scholars Eero Vaara and Richard Whittington[27] highlight several important emerging areas in need of the development of better theory and practice: (1) strategy as emergent rather than planned a priori, and (2) the involvement of broader groups of stakeholders in planning processes.

On balance, therefore, we need to support decision makers with a different set of assumptions and tools to imagine creativity in the midst of complexity, thus resulting in better strategic decisions about the future.

New Approaches to Anticipating Change

Traditional and Complimentary Assumptions about the Future

So how does one solve the forecaster's problem of anticipating the future when uncertainty is dominant and disruptions are common? Most of all, we must abandon many long-held assumptions about the future and substitute new ones that work better in this era compared to the ones from the last era. Table 1 compares traditional assumptions about the future to the complimentary assumptions more appropriate to current conditions.[28] The traditional assumptions are not wrong—they are just becoming less useful in our post-normal era.

Table 1   Assumptions about the future—traditional and complimentary.

Traditional assumptions	Complimentary assumptions
The future is singular, like the end of the road.	The future is plural, like the branches of a river delta.
Linear, continuous, straight-line change is common.	Exponential, discontinuous, disruptive change is common.
Focusing on the most likely future is sufficient for anticipating and influencing change.	The most likely future is only one future in a set of plausible futures, and it is not that probable by itself.
Since we do not know what disruptions will occur in the future, we cannot discuss them in an evidence-based culture.	Since we do not know which disruptions will occur, we must insert plausible hypothetical disruptions into our image of the future in order to be prepared for those that do occur.
Industry experts have the knowledge to make sound decisions about the future.	A broader set of voices and stakeholder insights are needed in rapidly evolving ecosystems.
Conversing in text-based formats is the norm.	The adage that a picture speaks a thousand words is valid even in its most literal interpretation (i.e., story-telling, visualization, demonstration, prototyping).

29 Chris Meyer and Stan Davis, *It's Alive: The Coming Convergence of Information, Biology, and Business* (New York: Crown Business, 2003).

Either set of assumptions is useful depending on the degree of turbulence and uncertainty in the environment. Together they form a new approach for anticipating and influencing the future. The complimentary assumptions are more complex, but they are uniquely suited to the more complex world we live in.

So what is a decision maker to do? One approach is to accept both sets of assumptions differently, weighing each depending on the circumstances, from relatively well-known and therefore predictable to almost completely uncertain. One must ask questions about circumstances rather than always and unwittingly relying on traditional assumptions. The decision context may demonstrate that uncertainty is great enough not to be ignored. When the following is true, complimentary principles need to be applied in making decisions:

- What we do not know is more than what we do know.
- Contrary perspectives and assumptions may be valid to some degree at the same time. There is no "right answer."
- Likewise, alternative outcomes to any decision may also be valid to some degree.
- The best description of the future is in the form of scenarios describing alternative futures. Decisions must be made in the face of these plausible alternatives.

On the action side of implementing decisions:

- Straight-line, end-to-end plans are frequently disrupted by events.
- Plans should be based an agreement on the destination or outcome—in other words, a vision of set of goals—and the understanding and commitment to head that way, rather than as a blueprint or recipe of step-by-step procedures to achieve a goal.
- Short-term, tentative, experimental actions with careful and continuous monitoring may be better in an uncertain environment than inflexible commitments over the long run.
- Teams with an understanding of the destination and a commitment to each one's part may be more effective at adapting to rapidly changing conditions than command-and-control hierarchies are.

These perspectives are ably described by Chris Meyer and Stan Davis in *It's Alive: The Coming Convergence of Information, Biology, and Business.*[29] They replace the mechanical approach of traditional decision making with an organic approach in which the metaphor of growing a garden or raising a child is more apt than building a building or developing a machine. Foresight proceeds with humility about what we can know and what we can do. Hubris about our great power is the source of many decision failures. Foresight here treats the world more as it is, full of paradox and uncertainty, not as we wish it to be, simple enough to capture in our quantitative models. In other words, the strategic use of foresight in business is often more about navigating through a dynamic environment, on the way to a destination, rather than laying out a straight or at least continuous course that we follow throughout.

30 Sarah Kaplan and Eric D. Beinhocker, "The Real Value of Strategic Planning," *MIT Sloan Management Review* 44, no. 2 (2003): 71–79, available at http://sloan-review.mit.edu/wp-content/uploads/saleable-pdfs/4429.pdf.

31 Jim Dator, "Alternative Futures at the Manoa School," in *Jim Dator: A Noticer in Time* (Cham: Springer, 2019), 37–54, DOI: https://doi.org/10.1007/978-3-030-17387-6_5; Slaughter, *New Thinking for a New Millennium*.

32 Muhammad Amer, Tugrul U. Daim, and Antonie Jetter, "A Review of Scenario Planning," *Futures* 46 (February, 2013): 23–40, DOI: https://doi.org/10.1016/j.futures.2012.10.003; Frans Berkhout and Julia Hertin, "Foresight Futures Scenarios: Developing and Applying a Participative Strategic Planning Tool," *Greener Management International* (Spring 2002): 37–53, available at https://go.gale.com/ps/i.do?id=GALE%7CA99430030&sid=googleScholar&v=2.1&it=r&link-access=abs&issn=09669671&p=A-ONE&sw=w; Gill Ringland, "Innovation: Scenarios of Alternative Futures Can Discover New Opportunities for Creativity," *Strategy & Leadership* 36, no. 5 (2008): 22–27, DOI: https://doi.org/10.1108/10878570810902086; Joseph Voros, "A Primer on Futures Studies, Foresight, and the Use of Scenarios," *Prospect: The Foresight Bulletin* 6, no. 1 (2001): 1–8, available at https://foresightinternational.com.au/wp-content/uploads/2020/03/Voros-Primer-on-FS-2001-Final.pdf.

33 Ron Bradfield et al., "The Origins and Evolution of Scenario Techniques in Long Range Business Planning," *Futures* 37, no. 8 (2005): 795–812, DOI: https://doi.org/10.1016/j.futures.2005.01.003.

34 Philip W.F. van Notten et al., "An Updated Scenario Typology," *Futures* 35, no. 5 (2003): 423–43, DOI: https://doi.org/10.1016/S0016-3287(02)00090-3.

35 Peter Bishop, Andy Hines, and Terry Collins, "The Current State of Scenario Development: An Overview of Techniques," *Foresight* 9, no. 1 (2007): 5–25, DOI: https://doi.org/10.1108/14636680710727516.

36 Oliver W. Markley, "Mental Time Travel: A Practical Business and Personal Research Tool for Looking Ahead," *Futures* 40, no. 1 (2008): 17–24, DOI: https://doi.org/10.1016/j.futures.2007.06.006.

37 Elizabeth B.-N. Sanders, "From User-Centered to Participatory Design Approaches," in *Design and the Social Sciences: Making Connections*, ed. Jorge Frascara (Boca Raton, FL: CRC Press, 2002), 1–8.

Some argue that the traditional strategic planning process assumes that adequate and measurable information are on hand to inform the objectives, strategies, and decisions against a set of goals in the present environment,[30] while strategic foresight is about seeing the future in different ways—alternative futures—in which the external business environment may evolve.[31] Thinking about different possibilities through futures scenario building—based on trends and uncertainties—especially allows strategic decision makers to imagine different future possibilities and outcomes.[32] Thus, the foresight component stays away from prediction, providing descriptions of the future which are multiple and hypothetical.

As such, foresight fits into the subset of forecasting techniques collectively termed *scenario development*. Scenarios are stories of the future, plausible paths that the future may take, each one ending in a different future state. A number of typologies of scenario techniques were published in the 2000s. Ron Bradfield and his colleagues[33] would have classified the foresight and design perspectives as an exploratory *vs*. a predictive or normative technique. Plillip Van Notten and his colleagues[34] would have classified the goal of foresight as exploration rather than decision support, its process as intuitive rather than formal, and its content as complex rather than simple. Finally, Andy Hines, and Terry Collins[35] reviewed almost two dozen approaches to scenario development. In their eight-category typology, they would have classified it as a judgmental technique related to guided visualization as pioneered by Oliver Markley.[36]

Applying Future Oriented and Strategic Design Principles —the Evolving Role of Design

The role of design in the first half of the 20th century was tightly linked to aesthetic ideas and to style, craft, and mass production. The second half of the century witnessed a shift toward intentionality and human-centered practices. Responding to market forces, the focus was on designing things that people would find *useful, usable, and desirable*.[37] Early adopter organizations devoted considerable exploration to systematically leveraging human-centered design with the practices and tools of innovation to create new value.[38] Now the emphasis is shifting again, and with it the understanding of design's potential to support change; it has expanded beyond creating tangible artifacts into constructing complex systems, turning designers into facilitators and co-creators of new systems, services, and even policies.[39] Design research has indeed drawn attention to complex socio-technical systems[40] where the use of traditional design principles and practices alone no longer suffice to address big picture systemic challenges.

The incorporation of design as part of an organization's strategic trajectory has led to design complexity,[41] which, Ray Holland and Busayawan Lam[42] emphasize, remains a key challenge when it comes to the critical interrelationships of what they call "Big-D" design and "small-d" design, where the harmonizing of interdependencies among design management thinkers and strategists with those of hands-on designers is crucial to developing a sense of vision and direction with desirable and practical outcomes (Table 2).

Table 2   **Relationships between Big-D and small-d design (adapted from Holland and Lam, *Managing Strategic Design*, 14; 47).**

	Big-D	**Small-d**
Function	Brain	Body
Outcomes	Strategic plan	Embodiment of the plan(s)
Purposes	Guide design actions	Fulfil design goals
Nature	Relatively static, stable, predictable	Relatively complex, dynamic, potentially surprising
Characteristics	Visionary and meaningful	Desirable and practical
Impacts	Organizational level	Project execution
Aesthetics	Adding economic value	Project execution
Decision making	Creative organizational development, vision, and confidence	Product performance, effectiveness, efficiency, customer satisfaction

38   Carmenza Gallego, G. Mauricio Mejía, and Gregorio Calderón, "Strategic Design: Origins and Contributions to Intellectual Capital in Organizations," *Journal of Intellectual Capital*, forthcoming (2020), DOI: https://doi.org/10.1108/JIC-10-2019-0234.

39   Richard Buchanan, "Worlds in the Making: Design, Management, and the Reform of Organizational Culture," *She Ji: The Journal of Design, Economics, and Innovation* 1, no. 1 (2015): 5–21, DOI: https://doi.org/10.1016/j.sheji.2015.09.003; Cagnin, "Developing a Transformative Business Strategy"; Jeanne Liedtka, "Learning to Use Design Thinking Tools for Successful Innovation," *Strategy & Leadership* 39, no. 5 (2011): 13–19, DOI: https://doi.org/10.1108/10878571111161480; Gabriella Lojacono and Gianfranco Zaccai, "The Evolution of the Design-Inspired Enterprise," *MIT Sloan Management Review* 45, no. 3 (2004): 75–79, available at https://sloanreview.mit.edu/article/the-evolution-of-the-designinspired-enterprise/; Anna Meroni, "Strategic Design: Where Are We Now? Reflection around the Foundations of a Recent Discipline," *Strategic Design Research Journal* 1, no. 1 (2008): 31–38, DOI: https://doi.org/10.4013/sdrj.20081.05; Venkat Ramaswamy and Kerimcan Ozcan, "Strategy and Co-creation Thinking," *Strategy & Leadership* 41, no. 6 (2013): 5–10, DOI: https://doi.org/10.1108/SL-07-2013-0053.

Organizations that treat design as a corporate resource and a core competency now apply it to organizational activities—including management, strategy, and leadership—to engender sustained innovation and competitiveness.[43] Design has been utilized in many professions and contexts:[44] design-led companies such as Philips, Apple, Sony, IBM, and Hewlett-Packard were among the first to adopt design as part of company strategy and design thinking as a creative problem solving methodology leading to successful innovations.[45] Exploring the nexus of design and business, Brigitte Borja de Mozota[46] found parallels among the activities of designers and those of business managers, especially those dealing with what lies ahead. While designers make new connections to cultural possibilities as they discover new trends in technology and culture, managers and innovation decision makers develop new strategic possibilities based on their understanding of emerging challenges and opportunities in the global context of change.[47]

If design is to be used for strategic purposes, Holland and Lam[48] argue that its process and outcomes must be purposeful and effective. They also say that design's potential is best realized when organizations create an integrated design approach, or policy, that supports positive impact on organizational performance. As progressive leaders come to accept the importance of innovation and creativity for their long-term survival, Richard Lester, Michael Piore, and Kamal Malek[49] have noted that designers and design managers have become less reliant on functional briefs and resource divisions. Instead, they work closely with customers, engineers, and subject matter experts to adjust tasks as they emerge, without specific goals, and in accordance with rapidly changing market conditions.

Thus, the value of design has advanced from the operational to the tactical and now to the strategic level—which, Anna Meroni[50] states, is about conferring a system of rules, beliefs, values, and tools that will help leaders

40 Donald A. Norman and Pieter Jan Stappers, "DesignX: Complex Sociotechnical Systems," *She Ji: The Journal of Design, Economics, and Innovation* 1, no. 2 (2015): 83–106, DOI: https://doi.org/10.1016/j.sheji.2016.01.002.

41 Fabiane Wolff and Fernando Gonçalves Amaral, "Design Management Competencies, Process and Strategy: A Multidimensional Approach to a Conceptual Model," *Strategic Design Research Journal* 9, no. 3 (2016): 145–54, DOI: https://doi.org/10.4013/sdrj.2016.93.02.

42 Holland and Lam, *Managing Strategic Design*, 15.
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43 Suzan Boztepe, "Design Expanding into Strategy: Evidence from Design Consulting Firms," in *Proceedings of DRS06: Future Focused Thinking*, June 27–30, 2016, Brighton, UK, ed. Peter Lloyd and Erik Bohemia, 1–13, DOI: https://doi.org/10.21606/drs.2016.430; Buehring and Liedtka, "Embracing Systematic Futures Thinking"; Ken Friedman, "Three Thousand Years of Designing Business And Organizations," in *Designing Business and Management*, ed. Sabine Junginger and Jürgen Faust (London: Bloomsbury Academic, 2016), 67–80.

44 Ezio Manzini, *Design, When Everybody Designs: An Introduction to Design for Social Innovation* (Cambridge, MA: The MIT Press, 2015).

45 Marty Neumeier, *The Designful Company: How to Build a Culture of Nonstop Innovation* (Berkeley: Peachpit Press, 2009).

46 Brigitte Borja de Mozota, "Design Management as Core Competency: From 'Design You Can See' to 'Design You Can't See,'" *The Journal of Design Strategies* 4, no. 1 (2010): 91–98, available at http://www.ut-ie.com/articles/darwin-journal.pdf.

47 Ibid., 92.

48 Holland and Lam, *Managing Strategic Design*, 5.

49 Richard K. Lester, Michael J. Piore, and Kamal M. Malek, "Interpretive Management: What General Managers Can Learn from Design," *Harvard Business Review* 76, no. 2 (1998): 86–97, available at https://hbr.org/1998/03/interpretive-management-what-general-managers-can-learn-from-design.

50 Meroni, "Strategic Design," 31.
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51 Cagnin, "Developing a Transformative Business Strategy."

52 Venkatesh Rao, "Welcome to the Future Nauseous," *Ribbonfarm* (blog), June 18, 2012, https://www.ribbonfarm.com/?s=Welcome+to+the+future.

deal with the external environment, rather than social and market entities. This is especially needed by those required to deal with strategic decisions in uncertain and turbulent times.[51] That is, strategic design can be seen as an activity focused on change and uncertainty. Taking into account collective interests and values, it defines strategic orientations through scenarios, and offers opportunities for lessons about the external environment. It is here where a specific and applied connection to the foresight discipline comes to the foreground, as both fields (design and foresight) concern systemic efforts to make sense of an uncertain future, utilizing scenarios as common tools to envision, inspire, and communicate desirable directions.

Prospecting about the future—applying futures thinking—may make it seem as if the life we live is a static, ongoing present. However, if we look ten or twenty years back in time, we see ample evidence to suggest that our lives have been transformed at both the micro and macro level.[52] Venkatesh Rao proposed an explanation for this phenomenon as a "psychological predisposition to believe in an unchanging, normal present"[53] which he attributes to a manufactured normalcy whereby a mixture of natural, emergent, and designed factors are at work to prevent us from realizing the future as it happens. Lubomír Doležel wrote in *Heterocosmica*[54] that "the universe of possible worlds is constantly expanding … literary fiction is properly the most active experimental laboratory of the world-constructing enterprise." Anthony Dunne and Fiona Raby[55] call this practice speculative design, which is the ability to remove the constraints from the commercial sector to imagine and conceive alternative products, systems, or worlds, using models and prototypes to think of futures and their outcomes.[56]

However, to avoid visions becoming paleofutures—futures that might not come to pass—Carlo Ratti and Matthew Claudel[57] say that a symbiosis between design and people, and a participatory approach to what-if scenarios, leads to collective imagination, experimentation, and creation of the most desirable future. This collaboration between design and social science, which Elizabeth Sanders[58] describes as a participatory experience involving designers and users, requires a new mindset and attitude about designing a better future with the people who will experience it.

Scholars in both design and foresight have acknowledged the potential inherent in deploying futures thinking techniques, concepts, and methodologies in parallel.[59] Consequently, the design perspective has gradually expanded to explore intelligent strategic planning and decision making processes, applying futures thinking as a semi-structured approach to considering potential futures.[60]

Supporting Decision Making: A New Approach

The Disciplines of the New Approach

Up to this point, we have described this new approach as a set of assumptions and approaches unique to each of two disciplines—strategic foresight and strategic design—each with its own relationship to change. The world changes and impacts us (foresight), and we create change through our decisions and actions in order to influence (design) the world. The first is

Table 3   **The different contributions of strategic foresight and design to decision making.**

	Strategic Foresight	Strategic Design
Focus	Inbound change (from the world)	Outbound change (by the organization)
Metaphor	Navigation	Creation, invention
Environment	Largely constrained	Largely open
Related discipline	Social science	Management, foresight, systems thinking
Typical thinking	Critical	Creative, imaginative
Tools, methods	Research, analysis, storytelling	Visualization, prototyping
Output	Alternative futures, Scenarios	Preferred futures, solutions, images
Typical form	Text, statistics	Narratives, visuals

53 Ibid., para. 8.

54 Lubomír Doležel, *Heterocosmica: Fiction and Possible Worlds* (Baltimore: JHU Press, 1998), ix.

55 Anthony Dunne and Fiona Raby, *Speculative Everything: Design, Fiction, and Social Dreaming* (Cambridge, MA: The MIT Press, 2013).

56 James Auger, "Speculative Design: Crafting the Speculation," *Digital Creativity* 24, no. 1 (2013): 11–35, DOI: https://doi.org/10.1080/14626268.2013.767276.

57 Carlo Ratti and Matthew Claudel, *The City of Tomorrow: Sensors, Networks, Hackers, and the Future of Urban Life* (New Haven: Yale University Press, 2016).

58 Sanders, "From User-Centered to Participatory Design Approaches," 18–25.

59 Stuart Candy and Cher Potter, "Introduction to the Special Issue: Design and Futures (Vol. II)," *Journal of Futures Studies* 23, no. 4 (2019): 1–2, DOI: https://doi.org/10.6531/JFS.201906_23(4).0001; Adam Gordon, René Rohrbeck, and Jan Oliver Schwarz, "Escaping the 'Faster Horses' Trap: Bridging Strategic Foresight and Design-Based Innovation," *Technology Innovation Management Review* 9, no. 8 (2019): 30–42, DOI: http://doi.org/10.22215/timreview/1259; Ulla Johansson-Sköldberg, Jill Woodilla, and Mehves Çetinkaya, "Design Thinking: Past, Present and Possible Futures," *Creativity and Innovation Management* 22, no. 2 (2013): 121–46, DOI: https://doi.org/10.1111/caim.12023.

60 Martyn Evans and Simon Sommerville, "A Design for Life: Futures Thinking in the Design Curriculum," *Futures Research Quarterly* 23, no. 3 (2007): 5–21.

inbound change, and the second *outbound change*. We have summarized the main characteristics of each discipline in Table 3. We will explain the contribution each can make toward dealing with inbound and outbound change in this section, and then further expand on the integration of this new approach in the section that follows.

The typical approach to inbound change is anticipation and preparation; we are lookouts and scouts, and the professional activity is forecasting. For outbound, the approach is planning and acting; we are actors and change agents, and the professional activity is planning and decision making. As we have stated, the traditional approaches and tools for inbound change are largely mathematical extrapolations and models; for outbound change, we find largely step-by-step planning and change management. The future actually divides these tools and methods into two newly emerging disciplines. For inbound change, the new approach is strategic foresight, and for outbound change, strategic design. Both show decision makers their assumptions about the future to the point of mastering uncertainty as a resource.

Each of these new disciplines makes a unique contribution to strategic decisions. Using strategic foresight to guide inbound change allows decision makers to see ahead, or see around corners, into a dynamic and changing landscape. It is based on social science research and analysis, and like social science, it is critical of accepted wisdom and obvious solutions. Strategic foresight describes the future as a set of alternative scenarios rather than as a single predicted point in time.

Strategic design guiding outbound change is creative and open-ended. It relies on visualization and prototyping to provide a vivid image of the preferred future and a partial vision of how to achieve it. In combination, these two approaches provide the decision maker with an image of potential new future worlds and the actions that might influence those worlds.

Table 4   **Comparison of traditional forecasting/planning vs. foresight/design in support of decision making.**

	Traditional approach	**New approach**
Purpose	Working *in* the existing system	Working *on* the existing system
Outcomes	Incremental improvement	Transformational change
Time horizon	Short-term; 1–3 years	Medium-term; 5–10 years
Environment	Relatively static, stable, predictable	Relatively complex, dynamic, potentially surprising
Typical thinking	Mechanical, cause-effect	Organic, emergent
Related discipline	Systems engineering	Complexity science
Assumptions	No discontinuities, disruptions; Future largely knowable	Discontinuities, disruptions likely; Future dominated by uncertainty
Approach	Following through on plans as blueprints	Being flexible, adaptable, exploratory, experimental
Tools, methods	Mostly quantitative, extrapolation, modeling	Mostly qualitative, story-telling, visualization, prototyping

Together, strategic foresight and strategic design represent a new overall approach to dealing with change and the future. Table 4 describes the characteristics of the traditional approaches to anticipating and influencing the future compared to the new approach, which is more consistent with the complimentary assumptions listed previously in Table 1.

The traditional approach emphasizes incremental over transformational change. It captures the prevailing mindset of improvement over reinvention. It assumes that an environment will remain largely the same, even in the long run, rather than preparing actors for disruption, even in the short run. Improvements can be accomplished in a relatively short time; transformational change takes much longer.

The mental model of the traditional approach is engineering, even social engineering, where intentional change only occurs under the direct influence of the change agent, like manufacturing or construction. The new approach sees the world not as a machine, but as an organism. Influencing change is like growing a garden or even raising a child—setting the right conditions, guiding the process over time, but fundamentally allowing the natural development of the organism to take over. Flexibility and adaptability are more important in such dynamic and turbulent environments than detailed planning and consistency.

A few comments on the comparison.

- *Purpose, Outcomes, Environment, Assumptions*

  Given the relatively static nature of the world in the traditional paradigm, the purpose and outcomes of the traditional approach were intended to improve the existing system—in other words, to work *in* the system—leaving the system itself relatively untouched. That purpose, however, is not adequate in a turbulent, uncertain environment. Disruptions in the environment create new rules and formulas for success,

61 Buehring and Liedtka, "Embracing Systematic Futures Thinking"; Jorn Buhring and Ilpo Koskinen, "Beyond Forecasting: A Design-Inspired Foresight Approach for Preferable Futures," in *Proceedings of the 2017 IASDR Congress* (Cincinnati: University of Cincinnati, 2017), 1–21, DOI: https://doi.org/10.7945/C2X964.

requiring an organization to transform itself—in other words, work *on* the system—as a result.

- *Typical thinking, Related Disciplines, Approach, Tools*
  The traditional forecaster and planner sees the world as a machine whose parts are relatively stable and whose behavior is relatively predictable. The benchmark discipline is engineering, where mathematical models and formulas, such as econometrics, describe the behavior of the system to a given degree of precision. The new forecaster and planner sees the world as an organism with its own, often unstable and unpredictable behaviors. The benchmark discipline for this paradigm is complexity science, where creative and unpredictable patterns sometimes emerge from the interactions of countless agents.

On balance, the approach more relevant to our current times requires an organic mindset, more like a gardener than a mechanic. Being successful in the new environment is like raising a child, not programming a computer. Plans and actions need to be flexible and adaptable to changing conditions as the world changes, rather than powering through to the destination in spite the turbulence buffeting the ship.

The Integration of Strategic Foresight and Design

The final step in introducing this new approach to supporting strategic decision making is to discuss the complimentary roles of strategic foresight and design in forecasting and planning. We introduce the main characteristics of this hybridization in Tables 3 and 4. More pointedly, because foresight is becoming an accepted component of strategic decision making, we will argue that design and foresight should be an integral part of strategic decision making, whereby every strategic foresight project should involve design and every strategic design project should involve foresight at all levels of strategic decision making. Foresight that feeds into a design process is beneficial because it provides decision makers with a shared understanding of change, and of possible future scenarios and their implications, all of which improves the organization's strategic decision making capabilities.

To this end, the strategic use of design with foresight in business merges the benefits offered by each discipline, and enables diverse stakeholder groups within traditional sectors of industry to creatively identify common goals and areas for fruitful collaboration. Integrating strategic foresight and strategic design creates a common language for stakeholders, fostering their use of design thinking methodologies and foresight techniques to inform strategic opportunities for innovation that build on shared visions of preferable or desirable futures.[61] The main goal is to create a portfolio of desirable futures, and to engage ecosystem partners in conceptualizing, prototyping, experimentation, and implementation that is meaningful strategically, using design and foresight tools and approaches to achieve deeper insights and alignment around current reality. Collectively created scenarios render the process of developing alternative futures inherently heterogeneous, and make social groups and perspectives transparent to stakeholders during the decision making process. Merging design and foresight improves on textual

62 Bishop and Hines, *Teaching about the Future.*

63 Dunne and Raby, *Speculative Everything*; Wouter Eggink and Adri A. Albert de la Bruheze, "Design Storytelling with Future Scenario Development; Envisioning 'the Museum,'" in *Proceedings of Summer Cumulus Conference 2015: The Virtuous Circle: Design Culture and Experimentation*, ed. Luisa Collina, Laura Galluzzo, and Anna Meroni (Milan: McGraw-Hill Education Italy, 2015), 245–56, available at https://www.cumulusassociation.org/the-virtuous-circle-publication/.

64 Nicole A. Vaughn et al., "Digital Animation as a Method to Disseminate Research Findings to the Community Using a Community-Based Participatory Approach," *American Journal of Community Psychology* 51, no. 1–2 (2013): 30–42, DOI: https://doi.org/10.1007/s10464-012-9498-6.

65 Haridimos Tsoukas and Jill Shepherd, *Managing the Future: Foresight in the Knowledge Economy* (Hoboken: John Wiley & Sons, 2009), 134.

66 Matthew I. Fraidin, "Decision-Making in Dependency Court: Heuristics, Cognitive Biases, and Accountability," *Cleveland State Law Review* 60 (2012): 913–73, available at https://ssrn.com/abstract=2358602.

description by adding a strong visual component that increases the forecast's reality ("This is a real future!") and its urgency ("This is a future we need to pay attention to!")

At the strategic level, these disciplines are complimentary: foresight is geared toward inbound change, and design is geared toward outbound change.[62] Foresight navigates, or at least imagines navigating, a dynamic, changing landscape. Design creates, or at least influences, aspects of that landscape. The proportion of each is determined by the amount of freedom that the organization enjoys. Some organizations are tightly bound by the constraints present in the environment, or by law, contract, or custom. In that case, navigating that environment is paramount since there is little opportunity for influence, and the proportion of foresight to design is high. Other organizations are relatively free to influence their environments, so they will pursue more design options.

Foresight depends on critical thinking: long-term developments are examined and explored for possible trend breaks and other divergences that may lead to alternative futures. In design, on the other hand, the approach is one of creative thinking: numerous different alternatives are explored before arriving at a final solution. Design takes possibilities as its starting point, laying out a portfolio of concepts based on the question, "What if anything were possible?"

The development of futures scenarios is equally central to both strategic foresight and strategic design. While foresight generates plausible scenarios based on trends and uncertainties, design futures thinking is likely to generate preferred scenarios (in the eyes of users), alongside the ability to visualize and communicate phenomena that do not yet exist.[63]

Foresight and design research outputs—which contain insights derived from trend analysis, expert consensus (such as the Delphi method), simulation, causal modelling, or other forecasting techniques—may take the form of written text or visualization, depending on the audience. For example, designers use data visualization techniques as a communication medium for storytelling; effective storytelling is important when research team members are not the stakeholders that will have to make decisions and act based on the reported data findings.[64]

Foresight activities play an important role in the strategic decisions that will shape desired futures. To that end, scholars Haradimos Tsoukas and Jill Shepherd[65] suggest that leaders adopt language and a mindset that favors invention in response to a continually emerging future, rather than prediction based on statistical projection. Decisions are rarely that neat and tidy, however. Cognitive psychologists and behavioral economists have pointed out that decisions are subject to dozens of biases that skew the process away from this ideal model.[66] The model remains, nevertheless, as the ideal gold standard for corporate decision making.

Most organizations have yet to fully recognize the potential value to be gained from using strategic foresight and design to stay abreast of today's fast-changing business environment and the evolutionary transformation in contemporary society. In the next section, we compare a typical, traditional financial services industry trend report with an applied design with foresight

67 **Ernst & Young Global Limited,** *Rethinking Private Banking in Asia-Pacific: An EY Discussion Paper for Bank Executives* **(Hong Kong: EYGM Ltd., 2014), 1–24, available at** https://www.ey.com/Publication/vwLUAssets/Rethinking_private_banking_in_Asia-Pacific/$File/Rethinking%20private%20banking%20in%20Asia-Pacific%20%20Web%20Version%20.pdf.

68 **The name of the financial institution supporting this project has been withheld for reasons of business confidentially. Similarly, details about the data generated and key findings are not the focus of this paper.**

69 **Ernst & Young Global Limited,** *Rethinking Private Banking in Asia-Pacific*, **3.**

depiction of preferable futures, which was introduced to industry leaders, actors and players in the innovation system to enrich their organizational learning and strategic decision making capabilities.

Contrasting the Traditional with the New Approach: Two Financial Services Use Cases

This section of the paper contrasts what decision makers in the financial services industry would typically receive from the traditional forecasting approach with what they might receive from the complimentary disciplines of foresight and design. The traditional approach is illustrated by a major report by Ernest and Young,[67] entitled *Rethinking Private Banking in Asia-Pacific: An EY Discussion Paper for Bank Executives*. Given that it exists in the public domain, that report does not have the detail or customization that a report purchased by a specific financial institution would have. Nevertheless, we assume that the primary conclusions in a proprietary report would not differ significantly from this public one.

The new forecasting approach is illustrated by a design foresight study on wealth management and private banking carried out from within a school of design, titled *Wealth Management and Private Banking Futures 2030: A Design Foresight Study Directed at Senior Decision Makers within the Financial Service Sector*.[68] The private report emerged from a wider 2016 design foresight study intended to create a deeper understanding of factors that could impact the future of wealth management and private banking. The study sought to reveal broader trends and perspectives on issues that might arise over a 10–15 year time horizon; it was informed by insights from a diverse group of experts from the financial services industry and from other, non-financial sectors. While the primary conclusions from that study are proprietary, comparative excerpts serve to illustrate the contributions to strategic decisions both disciplines — strategic foresight and strategic design can make (see Table 3).

What follows is a summary of (1) the purpose, (2) the output format, and (3) the outcomes of these reports, to illustrate the main differences between the traditional and the new approach (see Table 4).

Purpose: The Traditional vs. the New Approach

The traditional approach: working *in* the existing system. The table of contents of the report illustrates its approach (Figure 1).

The report presents current conditions and trends; the future described appears as a single point in time, and the recommendations are made in the interest of improving the current private banking system in line with that future. For example

> "Making necessary investments in technology and talent to meet the regulatory demands for compliance and changing client needs requires scale and long-term investor appetite that many private banks don't have today.... As this discussion paper reveals, to survive and thrive in this extraordinary time of challenge and opportunity, the region's private banks need to rethink...."[69]

Figure 1

Table of contents for a traditional industry trend report. Source: Ernst & Young Global Limited, *Rethinking Private Banking in Asia-Pacific*, **2. © 2014 by Ernst & Young.**

70   Proprietary report, 11.

The new approach: working *on* the existing system. The table of contents of the design school report illustrates its purpose and the new approach (Figure 2).

This report presents industry decision makers with a deeper understanding of factors that could impact the future of wealth management and private banking, by introducing broader trends and perspectives on issues arising over the longer-term, and by providing perspective informed by the expertise of a heterogeneous group of actors. For example

"The technological and cultural changes that we experience as highly disruptive today form the foundational assumptions for the next consumer generation's worldviews. Their identities are extended through social media and civil upheaval, and their problem solving skills are forged in online forums with millions of global participants. Moreover, the next consumer generation's economic priorities are framed by a fragmented global economy, mass automation of existing industries, and the existential threats of, for example, climate change and an unsustainable economy. In this transformational environment, how will this generation of consumers make their investment decisions, and, specifically, how will privacy and security be valued by millennials?"[70]

Figure 2
Table of contents for a design foresight industry futures study report. © 2016 by Joern Buehring.

Output Format: The Traditional vs. the New Approach

The traditional approach presents its documentation in the form of a discussion paper. It is a short report, mainly textual, containing statistical graphs, and written the simple active voice. The explanations are brief and to the point, supported with bullet points, constructing a reality informed by current managerial practices that is characteristic of the consulting style.[71]

The Ernest and Young report is a good example of what executives would receive from a global consulting firm, albeit with less detail, to support their strategic decision making. It also illustrates the traditional assumptions and approach to the future previously defined above in Tables 1 and 4. Ultimately, the information provided only deals with current conditions and trends, the future described is a single point in time, and the recommendations will only improve the current private banking system—in no way do they challenge, much less transform it.

The new approach embodied by the design foresight report places great emphasis on data and research visualization. Decision makers typically rely on insights and research presented in text-based formats, which can be lengthy and time consuming to absorb. The new approach seeks to improve audience reach and impact. For instance, a data visualization map (Figure 3) was designed to make the findings accessible to a larger group of decision makers and relevant stakeholders.

71 Brian P. Bloomfield and Theo Vurdubakis, "Re-presenting Technology: It Consultancy Reports as Textual Reality Constructions," *Sociology* 28, no. 2 (1994): 455–77, DOI: https://doi.org/10.1177/0038038594028002006.

Figure 3
An extract of a data visualization map intended to improve audience reach and impact. © 2016 by Joern Buehring.

Outcomes: The Traditional vs. the New Approach

The traditional approach format consists of four sections, presented here with extracts emblematic of their content.

1   *An assessment of private banking in the Asia-Pacific region*
    "Asia-Pacific is the highest growth region for private banks and is soon expected to overtake North America as the largest market for High Net Worth Individuals (HNWIs)...."[72]

2   *Trends impacting banking in the region*
    Compliance: "Across the world, the evolution of increasingly stringent standards for know your customer (KYC), anti-money laundering (AML) and Tax transparency is creating spiraling costs and complexity for private banks. This is particularly true in Asia-Pacific, where multiple jurisdictions come into play, requiring private banks to obtain more data and more documentation from their clients, on a more frequent basis, to comply with regulatory demands."[73]

3   *Recommendations for leveraging these trends*
    • "Transform service models for customer needs and compliance"
    • "Leverage digital transformation"
    • "Change operating models for efficiency and scale"[74]

4   *An image of the future of banking in the region*
    "To adapt to the growing trends outlined in the previous section, we expect all private banks to undergo major transformation in the next

72   Ernst & Young Global Limited, *Rethinking Private Banking in Asia-Pacific*, 5.
73   Ibid., 9.
74   Ibid., 2.

few years. The top tier will become digital private banks, with RMs used strategically, where they can demonstrably add client value. The middle layers will consolidate. Several boutiques keep going via personal relationships and a clearly differentiated offering…."[75]

The new approach format comprises five sections.

1 *"The Human Factor": persona scenarios of private banking futures*
   Persona-scenarios: a character-based story plot introduces private banking scenarios in the year 2030 from the employee, colleague, and client perspectives. Figure 4 depicts the way personas are introduced to connect the reader on both analytical and emotional levels, while adding additional realism through generational and stakeholder scenarios.

   Artist drawings and story plot panel strips (Figure 5) use design and visualization to captivate the reader's attention in immersive storytelling.

2 *Mega trends illuminating significant impact on business and society in 2030*
   This section identifies key trends beyond those specifically directed at the financial services industry using a richer pool of information about social, technological, economic, environmental, and political issues. For example,

   "Asia's growing middle class, wide-spread aging, and levels of urbanization may increase the importance sustainable principles, which may in turn lead to an established sustainable society—in terms of social, economic, and ecological sustainability—and divergent views on wealth, health, lifestyle, and mobility."

3 *Research findings derived from multiple perspectives (industry, market, organization, consumer)*
   Using the Delphi method as a basis for foresight, a heterogeneous group of experts reached census on opinions and visions of the future—not only from the industry stance, but also from market, the organization, and consumer perspectives. Across two time horizons (2020, 2030) the following is a futures scenario excerpted from the report.

   "In 2030, the private banking market in [region] is driven by global (standardized) financial deregulation, market-oriented reforms, while the internationalization of the RMB (Chinese Yuan) is inching steps closer to becoming the global reserve currency. This presents new opportunities, such as empowering successful private banks to expand globally, offering best-in-class solution platforms and lifestyle-related services with omni-channel capabilities. Consequently, increased competition from new private banking players entering the market, and data-rich e-commerce juggernauts (e.g. Alibaba, Amazon, Facebook,
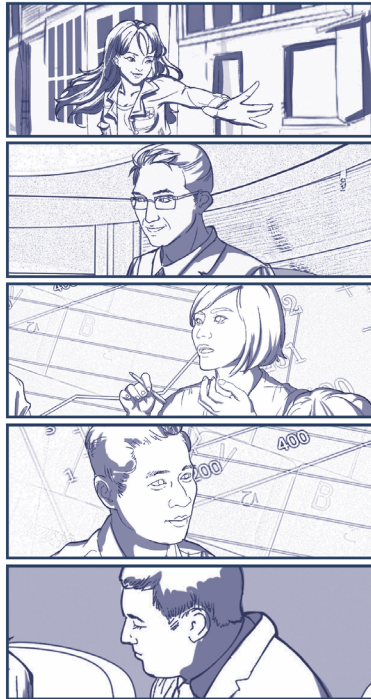
ELENI ZHAO LAL

She IS the zeitgeist, which makes her their best chance of seeing the future

FRANK CASTOR

Node chief Frank is a plugged-in bank boss like no other

PAMELA XI CHEN

Pamela has her finger on the pulse of the world's biggest economy
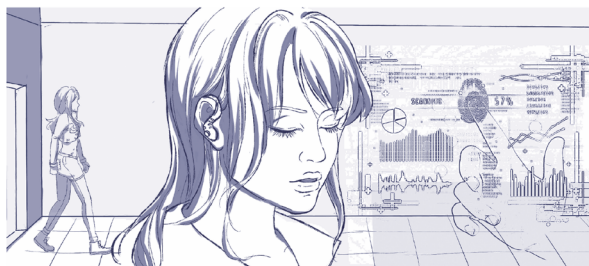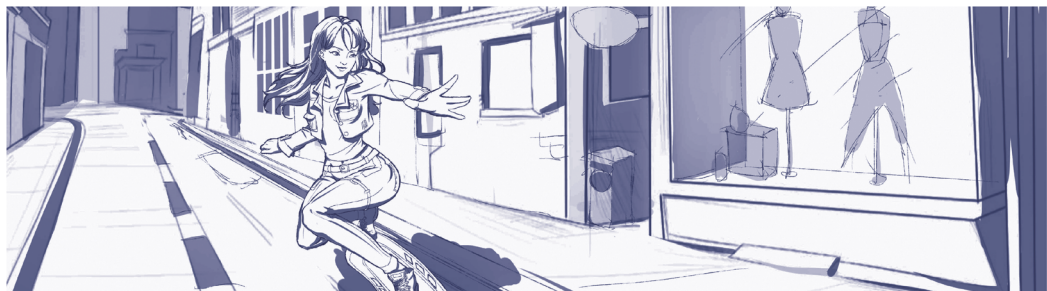
AH-LUM LO

Tech-chief Ah-Lum switches seamlessly between humans and AI

ADITI DAS

The data miner knows whom to sign up in partnership deals

PRIVATE BANK 2030 : THE HUMAN FACTOR

A top young media star takes a job in a next-generation private bank, and is intrigued to see how banking has evolved...

THE SUN DOESN'T SHINE in Shanghai. It attacks.

Eleni Zhao Lal, 16, flies down the sweltering street on her hoverboard, leaning steeply into the breeze to maximize acceleration, lower her body temperature, and—let's be honest here—because it looks cool.

She closes her eyes to fully appreciate the wind on her cheeks, the glow of the sun through her eyelids, and to hear the humming, blood-rushing music of the super-city.

Seconds later, a change in the quality of the sound tells her that she has entered a more open area and a thought in her head, not her own, whispers three words: "You have arrived." She twists her legs like a skier, and brings the hoverboard to a halt.

What she sees when she opens her eyes puzzles her.

Figure 4
Top, character-based story plot based on persona scenarios. © 2016 by Joern Buehring.

Figure 5
Bottom, example of character-based story-telling and visualizations. © 2016 by Joern Buehring.

Google) extending financial services management value propositions make it difficult for traditional private banks to compete and remain viable."

4   *Recommendations to leverage trends and emerging opportunities*
11 scenarios across multi-perspectives and time horizons provide images of preferable/desirable futures informing potential opportunities for strategic innovation initiatives. Recommendations are in direct response to key issues. For example,

"In 2030, the traditional private bank has ceased to exist. Preferable futures suggest that the private bank 2030 will operate through client-facing identities that are backed by powerful global systems and platforms, which give access to specialist teams and services curated effectively and purposely across a network of strategic partnerships."

5   *Data visualization, story-telling, and alternative future scenarios —a key contribution of the design foresight study*
This report is an example of what executives would receive from the integration of foresight and design. It proffers an introduction to many plausible futures from which a preferable destination can be chosen, anticipates disruptive changes from outside the industry, includes a broader set of voices and stakeholder insights, and embraces imaginative and creative characteristics in design work and visualization to extend the reach and impact of its findings to non-expert audiences.

Conclusion

Globalization, digitization, and an advancing information environment are transformative factors contributing to an unprecedented VUCA world. Those changes are affecting organizations, who have to deal with events and issues more tightly coupled than ever, and the disruptions that are the cause for anticipating and influencing change through strategic decision making. Responding to these challenges requires leaders responsible for the long-term future of their organizations to gain as much understanding as possible about what is going on and what the consequences could be, and to envision a preferable destination and the means to move toward it. The integration of strategic foresight and design as twin disciplines offers a new approach to understanding change, the future, and the means of influencing it in preferable ways. The traditional approach to forecasting breaks down when the rate of change and the frequency of disruption increases to a point where uncertainty dominates; such is our current environment.

As we have outlined here, a new approach to anticipating and influencing the future is needed. Using a futures study integrating foresight and design, in contrast to a traditional financial services report, we have demonstrated the power of design to shape the data needed for wider audiences of actors

to make effective future-oriented decisions. An integrated foresight and design approach has the potential to become the default support system for strategic decisions.

Declaration of Interests

There are no conflicts of interest involved in this article.

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