



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

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,

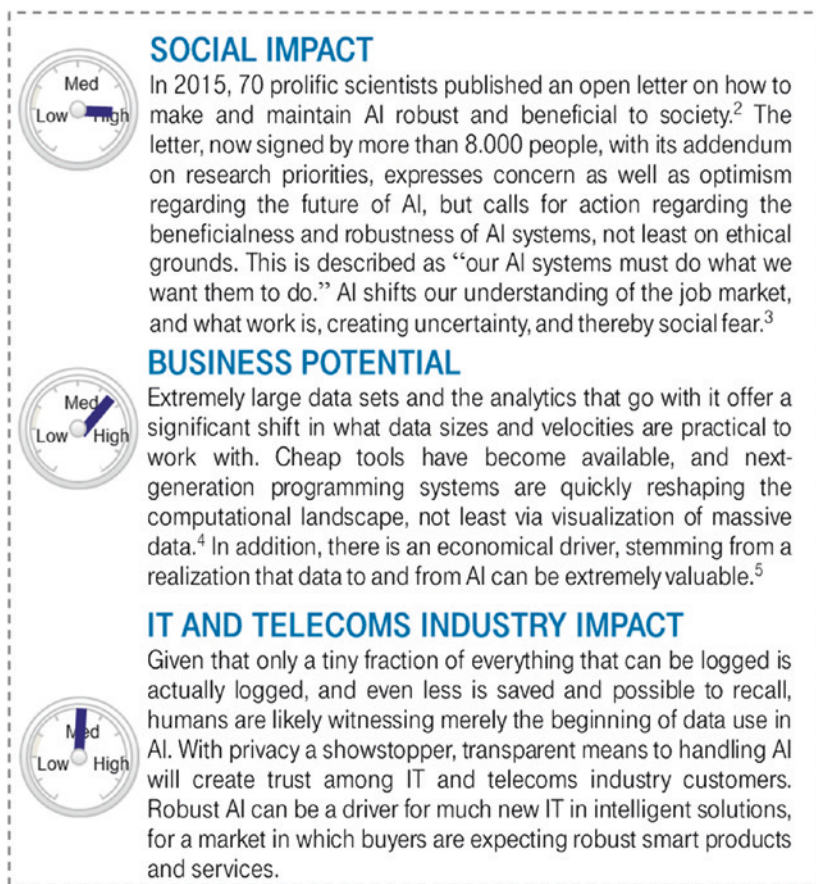


Fig. 9.3 Analysis of trends with respect to social impact, business potential, and relevant industry impact

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.

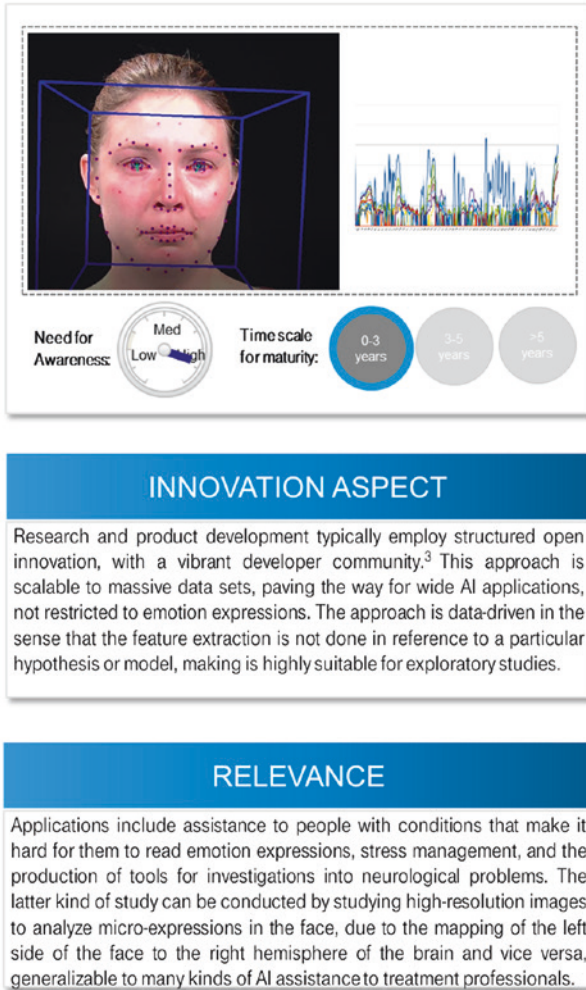


Fig. 9.4 Innovation aspect and general relevance for Robust AI. (The technical description has been omitted here. The illustration comes from automated recognition of emotional expressions in the human face.)

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.

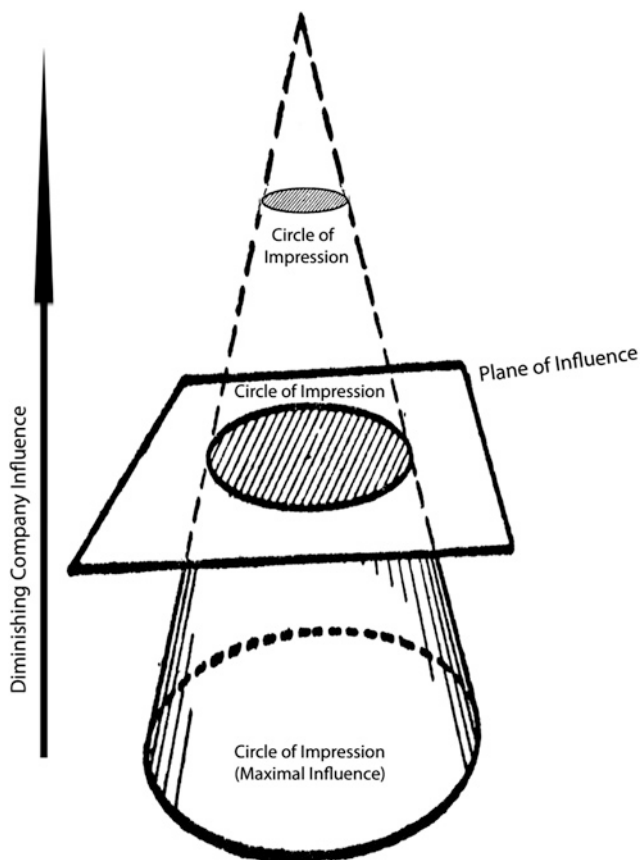


Fig. 9.5 The influence cone of corporate foresight and the circles of impression that are formed by intersecting at various distances from the base of the cone

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.

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.

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