

# Corporate Sustainability as a Foresight Activity

Can Corporate Sustainability help companies  
survive in an increasingly competitive  
environment?

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## Abstract

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In many corporations, sustainability has become an important activity to focus on, with the aim of preparing corporations for the future. Foresight, a newer field, is increasingly becoming an important activity of corporations, with the purpose of surviving long-term. These motives make companies' involvement with corporate sustainability and with corporate foresight fundamental. However, because foresight is a recent field, it implies processes that are less mastered by professionals than sustainability.

Since the motives of corporate sustainability and corporate foresight are similar, the purpose of this thesis is therefore to understand if corporate sustainability can contribute to corporate foresight implementation. Specifically, the purpose of this thesis is to identify which corporate sustainability (CS) activities can be integrated to which corporate foresight (CF) activities, to facilitate and foster foresight. Consequently, the contributions of the research consist in extending the knowledge about sustainability as a foresight activity and in proposing suggestions to incorporate sustainability to foresight activities.

This study reviews several CS frameworks and several CF frameworks, provides a deeper understanding of the underlying processes needed for the implementation of CS and CF, and identifies the similarities. The study specifically builds on the Maturity Model of Corporate Foresight from the book Corporate Foresight – Towards a Maturity Model for the Future Orientation of a Firm from Rohrbeck (2010). Based on the theoretical findings, qualitative interviews of sustainability professionals are carried out. Those interviews are meant to test the theoretical findings.

The research provides knowledge on the management of corporate foresight by providing insights on foresight practices that benefit from incorporating sustainability practices. The conclusion of the paper consists in a model that presents explicit ways in which corporate sustainability contributes to corporate foresight. In fact, it is shown that corporate sustainability fosters strong internal and external networks and creates a corporate culture favourable to change. Internal and external networks facilitate cross-functional collaboration and communication; and employees favourable to change are more open to new ideas; both being key for foresight implementation. Thus, Corporate Sustainability supports Corporate Foresight because it sets up a favourable corporate culture, and because it paves the way for appropriate work processes (internal and external collaboration for instance).

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## Popular Scientific Summary

Today, organizations are facing an increasingly unstable and fast-moving world and have to learn to constantly adapt to their environment and anticipate the changes in society, in order to ensure long-term survival (Jemala 2010 ; Helfat & Peteraf 2003). Corporate Sustainability actually is a forward-thinking activity that aims at preparing corporations for the future (Graves et al. 1994; Wang 2012). Similarly, the purpose of Corporate Foresight is to help companies survive long-term. However, the implementation of Corporate Foresight, because it is so broad and touches upon all areas, can be very challenging. Companies still have today little experience with implementing Corporate Foresight. Therefore, because very little research addresses Corporate Sustainability in relation to Corporate Sustainability, the aim of this research is to embed CS theory within foresight theory.

This study therefore focuses on grasping the most important implementation processes of Corporate Sustainability and Corporate Foresight. Several corporate Sustainability frameworks and Corporate Foresight frameworks are reviewed in the literature review, in order to identify the similarities that exist between the two corporate activities. The paper mainly relies on the Maturity Model of Corporate Foresight (Rohrbeck 2010), which consists in a very detailed and thorough framework to guide corporations with foresight. To get a deeper understanding of the similarities identified theoretically, qualitative interviews with sustainability professionals are carried out. Those interviews allow to identify specifically which work processes of sustainability are likely to be able to bring support to foresight within corporations.

The final purpose is therefore to understand how Corporate Foresight can receive support from Corporate Sustainability, and to provide preliminary inputs to guide the collaboration between Corporate Foresight and Corporate Sustainability. A revised Maturity Model of Corporate Foresight is built, framing explicitly which areas of foresight can receive support from sustainability professionals. In conclusion, Corporate Sustainability supports Corporate Foresight because it sets up a favourable corporate culture, and because it paves the way for appropriate work processes.

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## List of Abbreviations

<b>3Ps</b>	Three practices (of Corporate Foresight).
<b>CEO</b>	Chief Executive Officer.
<b>CF</b>	Corporate Foresight.
<b>CS</b>	Corporate Sustainability.
<b>CSER</b>	Corporate Social and Environmental Responsibility.
<b>CSR</b>	Corporate Social Responsibility.
<b>ESG</b>	Environmental, Social and Corporate Governance.
<b>GRI</b>	Global Reporting Initiative.
<b>MMCF</b>	Maturity Model of Corporate Foresight.
<b>OECD</b>	Organization for Economic Cooperation and Development.
<b>RBV</b>	Resource-based view.
<b>R&amp;D</b>	Research and Development.
<b>SIM</b>	Strategic Issue Management System.
<b>SDGs</b>	United Nations Sustainable Development Goals.
<b>SME</b>	Small and medium-size enterprises.

# Glossary

**Backcasting:** Tool for visualizing obstacles in achieving a goal and the steps needed to overcome those obstacles. (Cook et al. 2014) To determine how to act on identified or anticipated issues.

**Business Unit:** Segment of a company representing a specific business function (such as accounting, production, marketing), and a definite place on the organizational chart, under the domain of a manager. Also called department, division, or functional area. (Business Dictionary)

**Cannibalization:** In marketing strategy, cannibalization refers to a reduction in sales volume, sales revenue, or market share of one product as a result of the introduction of a new product by the same producer (Wikipedia).

**Causal-layered analysis:** Tool to expose hidden assumptions and help create a new narrative that facilitates the desired change (Cook et al. 2014). Helps interpret information and envisage a response to less well understood issues.

**Cognitive inertia:** In managerial and organizational sciences, refers to the phenomenon whereby managers fail to update and revise their understanding of a situation when that situation changes. This phenomenon acts as a psychological barrier to organizational change (Wikipedia).

**Corporate foresight:** Corporate foresight permits an organization to lay the foundation for future competitive advantage. Corporate foresight is identifying, observing, and interpreting factors that induce change, determining possible organization-specific implications, and triggering appropriate organizational responses. Corporate foresight involves multiple stakeholders and creates value through providing access to critical resources ahead of competition, preparing the organization for change, and permitting the organization to steer proactively towards a desired future (Rohrbeck et al. 2015, p.6).

**Corporate foresight systems:** Capability to develop insights into future alternatives and use this to create or renew businesses to be relevant for the future and ensure long term competitive advantage (Corporate Foresight Benchmarking Report, Aarhus University).

**Cross-impact analysis:** Method of strategic foresight in which variables in a scenario are placed in a matrix and expert judgment is used to quantitatively estimate the strength of interaction between each variable (Encyclopedia of Business Analytics and Optimization).

**CSR:** The continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large (World Business Council for Sustainable Development).

**Crowd-sourcing:** The process of canvassing for views and ideas across a broad spectrum of people, drawing upon the idea of cognitive diversity, where a group contains a variety of ways of thinking. This can help to overcome the cognitive biases and blind spots of any particular individual or team. Crowd-sourcing is particularly important for the work of a foresight unit. (Surowiecki, The Wisdom of Crowds).

**Delphi:** Expert elicitation process to increase the accuracy of expert estimates through confidential voting over several rounds where participants can adapt their views based on the views of others (Cook et al. 2014).

**Disruptive innovation:** Innovation that makes products and services more accessible, affordable and available to a larger population (Harvard Professor of Business Administration Clayton Christensen). Disruptive innovation is a process in which new entrants challenge incumbent firms.

**Dynamic Capabilities:** The firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments. (Teece et al. 1997, p.516) Organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die (Eisenhardt & Martin 2000).

**Environmental sustainability:** Institutions, policies and factors that ensure an efficient management of resources to enable prosperity for present and future generations (World Economic Forum).

**Forecasting:** Predicting future conditions based on past trends (Cook et al. 2014).

**Future orientation:** The extent to which members of a society or an organization believe that their current actions will influence their future, focus on investment in their future, believe that they will have a future that matters, believe in planning for developing their future, and look far into the future for assessing the effects of their current actions (Askhanasy et al. 2004).

**Future preparedness:** Indicator constructed by assessing the presence of foresight maturity in fulfillment of need for corporate foresight (triggered by levels of environmental volatility and change). The foresight Maturity is measured through the Maturity Model (Benchmarking report 2018).

**Futures research:** The academic discipline that includes strategic foresight (Cook et al. 2014).

**GRI:** The Global Reporting Initiative is an international independent organisation helping businesses and governments with their sustainability reporting in order to understand and communicate their impact on critical sustainability issue (Global Reporting Initiative).

**Horizon scanning:** Tool for collecting and organizing a wide array of information to identify emerging issues (Cook et al. 2014).

**Issue-centered scanning:** Tool for collecting and organizing a wide array of information to understand and track previously identified issues. Suits to increase the understanding and provide surveillance of identified and emerging issues. Emphasis on assessing the consequences of issues.

**Issues tree:** Tool to establish the logical sequence with which to address a question (Cook et al. 2014).

**Life Cycle Assessment:** A systematic set of procedures for compiling and examining the inputs and outputs of materials and energy and the associated environmental impacts directly attributable to the functioning of a product or service system throughout its life cycle. A life cycle assessment determines the environmental impacts of products, processes or services, through production, usage and disposal (The Global Development Research Center).

**Likert scale:** A widely used format developed by Rensis Likert for asking attitude questions. Respondents are typically asked their degree of agreement with a series of statements that together form a multiple-indicator or -item measure. The scale is deemed then to measure the intensity with which respondents feel about an issue (Bryman & Bell 2011).

**Modeling:** Using mathematical concepts to describe a system, study the effects of different components, and make predictions about system behaviour (Cook et al. 2014).

**Plausible futures:** Futures which could happen according to our current knowledge of how things work. What could happen? (Voros 2005).

**Possible futures:** All the kinds of futures we can possibly imagine. What might happen? (Voros 2005).

**Potential futures:** All of the futures that lie ahead (Voros 2005).

**Preferable futures:** What do we want to happen? These futures are more emotional than cognitive (Voros 2005).

**Radical innovation:** “focuses on long-term impact and involves displacing current products, altering the relationship between customers and suppliers, and creating completely new product categories.” (Harvard Business Review) Radical innovation is the creation of new knowledge and the commercialization of completely novel ideas.

**Roadmapping:** Roadmapping is a flexible and collaborative technique that supports strategic alignment and dialogue between functions. Underpinned by a generic framework defined by six strategic questions: why do we need to act? What should we do? How can we do it? Where are we now? How can we get there? Where do we want to go?

**Scenario analysis:** Used interchangeably with scenario planning or to describe the data analysis phase of a scenario planning exercise (Cook et al. 2014).

**Scenario planning:** Tool encompassing many different approaches to creating alternative visions of the future based on key uncertainties and trends (Cook et al. 2014). To creatively explore the consequences of issues and plan how to respond.

**Scouts:** Dedicated internal or external people hired to gather and disseminate information (Rohrbeck 2010).

**Simulation Gaming:** Role-playing in which an extensive “script” outlines the context of action and the actors involved (Popper 2008).

**Stakeholder analysis:** Process to identify stakeholders with an interest in an issue (Cook et al. 2014).

**Sustainability:** Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland Commission, World Summit on Social Development).

**Sustainable competitiveness:** Set of institutions, policies, and factors that make a nation productive over the longer term while ensuring social and environmental sustainability (World Economic Forum).

**Trend extrapolation:** Forecasting technique which uses statistical methods to project the future pattern of a time series data (Business Dictionary).

**Triple bottom line reporting:** Accounting framework with three parts: social, environmental and financial. Some organizations have adopted the TBL framework to evaluate their performance in a broader perspective to create greater business value.

**Uncertainty:** State of doubt about the future or about what is the right thing to do (Collins Dictionary).

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# CHAPTER 1

## Introduction

*This section introduces the main similarities between Corporate Foresight (CF) and Corporate Sustainability (CS), and clarifies the research goal, the three research questions and the structure of the study.*

### 1.1 Research Goal

In the face of growing worldwide interest in Corporate Sustainability (CS) this thesis explores the contribution of CS to Corporate Foresight (CF) practices. It adopts a dynamic view of organizations, which assumes that organizations need to constantly adapt to their environment to ensure long-term survival and economic success (Helfat & Peteraf 2003).

While several conceptualizations of CS are suggested in the literature -as a social obligation, as a stakeholder obligation, as ethics-driven, as a managerial process (Maignan & Ferrell 2004)- this research focuses on CS as a managerial process, for which research is relatively scarce (Ibid). Indeed, considerable research has been directed to the exploration of the economic benefits of CS (Wang et al. 2012), but little research has addressed the internal processes of CS, often considered as a managerial distraction (Ibid).

CF has recently gained importance as a consequence of increasing uncertainties that bring globalization and technological progress (Jemala 2010). Several examples from past corporations' failures have indeed shown how difficult it can be to adapt to external changes, leading to a high failure of established companies. For instance, Kodak was a globally dominant company that lost competitive advantage due to technology shift, because it was not able to adapt to the new environment. The rigid bureaucratic structure of Kodak hindered a fast response to new image technology: Kodak's middle managers were unable to make a transition to think digitally, and the company experienced in the 1980s a nearly 80% decline in its workforce, loss of market share, a tumbling stock price, and significant internal turmoil (Lucas et al. 2009). Oppositely, Nokia demonstrated its ability to reinvent its business, by shifting from pulp & paper industry to rubber boot and tire production, and to mobile devices. Currently Nokia is undergoing another transition by shifting toward Internet-based services (Arnold et al. 2010) Perhaps showing that Nokia is an example, a study solicited by the CEO of Royal Dutch Shell calculated that the average life expectancy of a Fortune 500<sup>1</sup> company is less than 40 years (De Geus 1997). Thus, what makes that companies have or do not have the ability to succeed in a changing environment? (Arnold et al. 2010). To increase the ability to succeed in a changing environment, conceptualization of future orientation<sup>2</sup> is

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<sup>1</sup> The Fortune 500 is an annual list compiled and published by Fortune magazine that ranks 500 of the largest United States corporations by total revenue for their respective fiscal years. This list includes both publicly held companies and privately held companies for which revenues are publicly available.

<sup>2</sup> Conceptualization of future orientation refers to future-oriented behaviors such as planning, investing in the future and delaying gratification (House et al. 1999).

therefore crucial. It is however, still today, a largely unexplored dimension of organizational behavior (Slawinski et al. 2012, 2015).

Besides, CS requires a long-term vision shared among all relevant stakeholders (Bruyssen et al. 2003) and is therefore an example of a future-oriented behavior (Graves et al. 1994; Wang 2012). Since Corporate Foresight (CF) enables the future orientation of firms, both CF and CS emphasize a long-term strategic focus. However, CS has not yet been studied in relation to future orientation, and thus the aim of this research is to embed CS theory within foresight theory. The Maturity Model of Corporate Foresight (MMCF), a 5-dimensional framework for foresight activities in a firm, is used as a guideline throughout this paper (Rohrbeck 2010). The aim of this thesis is to identify if organizational similarities exist between CF and CS and to understand whether companies should integrate sustainability into their corporate foresight activities in order to improve their ability to detect and anticipate future changes in the environment. If it proves relevant to integrate CS into the corporate foresight processes, modifications of the MMCF might be required in order to emphasize, frame and structure the contribution of CS to CF. The conclusion of the thesis underlines in which aspects does CS contribute the most to the future orientation of firms and draws suggestions for future research.

## 1.2 Research Questions

The research is organized around the following three research questions:

**Research Question 1** *What theories show overlaps between Corporate Sustainability and Corporate Foresight?*

**Research Question 2** *Which Corporate Sustainability practices are more relevant from a Maturity Model of Corporate Foresight perspective (MMCF)?*

**Research Question 3** *How can Corporate Sustainability improve Corporate Foresight processes?*

To address the first research question, a literature review about existing Corporate Sustainability frameworks and Corporate Foresight frameworks is conducted. This literature review outlines the main theoretical CS and CF concepts, and enables the formulation of a table outlining the theories common to CS and CF. To address the second research question, qualitative interviews are conducted with sustainability professionals. The interviewees are asked about the key sustainability success practices, and their answers are compared to the best foresight practices. In other words, the interviews are constructed according to the MMCF and allow the identification of overlaps between foresight processes and sustainability processes in practice. Those overlaps are listed in tables in the interview analysis. Finally, the third research question frames the conclusion of the paper which consists in the identification of the improvements that CS bring to CF. The results are presented in the form of a revised version of the MMCF capturing CS processes. The revised MMCF shows which aspects of CF can benefit from integrating CS.

The study is outlined as follows: literature review, methods (sample and data collection), interview analysis, discussion (revised MMCF), and conclusion (addressing the research questions, theoretical implications, limitations and future research).

## Theoretical Foundation of Corporate Foresight and Corporate Sustainability

*This section reviews the theories in the fields of Corporate Sustainability (CS) and Corporate Foresight (CF) to guide the data collection and to gain a theoretical understanding of the overlaps between CS and CF. The aim of this section is also to build a theoretical framework that will support the collection as well as the analysis of empirical data.*

### 2.1 Corporate foresight

#### 2.1.1 Definition

The term corporate foresight is used to emphasize the application of foresight practices in the private sector, whereas the term strategic foresight also includes the application of foresight practices in the public sphere.

The research and practice of the multidisciplinary field that is corporate foresight has a tradition that reaches back to the late 1940s and was driven in particular by “La Prospective” School<sup>3</sup> of Gaston Berger<sup>4</sup> in France, and the works of Herman Kahn<sup>5</sup> of the Rand Corporation<sup>6</sup> in the US (Rohrbeck & Kum 2017). For many years, no exact translation appointed to refer to the French word prospective, and several terms like forecasting<sup>7</sup>, scenarios, creating futures, forward unit, profutures, were used. It is only in 1996 that Ben R. Martin<sup>8</sup> introduced the term foresight and wrote “[...] the starting point of foresight, as with la prospective in France, is the belief that there are many possible futures.” (Godet 2008). In the 1990s, the limitations of forecasting became apparent, and future research moved away from attempting to predict the future toward identifying possible, probable, plausible and preferable futures<sup>9</sup> (Cuhls 2003, p.93).

Over the past decades, foresight has evolved due to increasing uncertainties that bring globalization and technological progress (Jemala 2010). Questions related to socio-cultural, technological, economic, environmental, and political topics are becoming more interdependent than ever (Kim

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<sup>3</sup> French school of foresight. (Wikipedia)

<sup>4</sup> Gaston Berger (1896-1960) was a French futurist but also an industrialist, philosopher and as senior government official. (Wikipedia)

<sup>5</sup> Herman Kahn (1922-1983) was a one of the preeminent futurists of the latter part of the twentieth century. (Wikipedia)

<sup>6</sup> The RAND Corporation (“Research AND Development”) is an American non-profit global think tank created in 1948 by Douglas Aircraft Company to offer research and analysis to the United States Armed Forces. (Wikipedia)

<sup>7</sup> See glossary

<sup>8</sup> Professor of Science and Technology Policy Studies at University of Sussex

<sup>9</sup> See glossary



2012). Moreover, the speed of innovation is increasing rapidly, as well as the speed of diffusion of these innovations (Lee et al. 2003). As a consequence, organizational routines act as inertial forces impeding to make proper adaptations to the rapidly changing environment: companies can for example fail to perceive external technological advances (Vanhaverbeke et al. 2005) or be scared to cannibalize<sup>10</sup> their own business by pursuing new business fields (Herrmann et al. 2007). As a solution to those new challenges, foresight plays a significant role in environmental decisions, by monitoring existing problems, highlighting emerging threats, identifying promising new opportunities, testing the resilience of policies, defining a research agenda, and implementing quick responses (Cook et al. 2014; Rohrbeck et al. 2011). In other words, strategic foresight is an ability to view the world with explicit attention to the longer-term consequences and to the broader-based implications and to anticipate possible changes that may affect the company's performance, through long-term (more than 25 years) participative strategic planning (Jemal, 2010; Cook et al. 2014; Kim 2012). Strategic foresight is defined as a set of strategic tools and 'new dynamic non-linear models' that support decisions (Calof & Smith 2010; Cariola & Rolfo 2004).

According to Rohrbeck (2011), corporate foresight refers to the ability to detect, interpret and respond to discontinuous change. In this thesis I will therefore adopt the following definitions of corporate foresight: *"Corporate foresight is an ability that includes any structural element that enables the company to detect discontinuous change early, interpret the consequence for the company, and formulate effective responses to ensure the long-term survival and success of the company"* (Rohrbeck 2010, p.12)

Corporate foresight enables the future orientation of a firm, which is defined by House et al. (1999) as "the degree to which individuals in organizations or societies engage in future-oriented behaviors such as planning, investing in the future, and delaying gratification" and as "the extent to which members of a society or an organization believe that their current actions will influence their future, [...] and look far into the future for assessing the effects of their current actions" (Ashkanasy et al. 2004, p. 285). Corporate foresight, in contrast to forecasting which aims at predicting trends based on past data, is directed at studying emerging issues for which no past data is available (Rohrbeck and Gemünden 2008, p.2).

In order to respond to external change, companies need to overcome three barriers: "high rate of change", "ignorance", "inertia" (Rohrbeck 2010).

- The high rate of change: Various investigations have shows that the rate of change is increasing, with shortened product lifecycles, increased technological change, increased innovation speed, increased speed of diffusion of innovations (Rohrbeck 2010).
- The ignorance: Organizations can fail to perceive discontinuous change due to a too short time frame to produce a timely response, signals that are outside the reach of corporate sensors, an overflow of information and the lack of capacity of top management to assess the potential impact of the issue, information that does not reach the appropriate management level, or filtering by middle management that focuses on protecting their own business units and agendas (Rohrbeck 2010).
- The inertia: Sometimes even if companies perceive a change in the environment with a potentially high impact, they face complex internal and external structures, a lack of

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<sup>10</sup> In marketing strategy, cannibalization refers to a reduction in sales volume, sales revenue, or market share of one product as a result of the introduction of a new product by the same producer (Wikipedia).

willingness to cannibalize, a cognitive inertia<sup>11</sup> inhibiting from perceiving external technological breakthroughs or barriers to implementing organizational change; which prevents them from defining and planning appropriate actions (Rohrbeck 2010).

However, not all companies face the same challenges when implementing corporate foresight, because they do not all have the same needs for corporate foresight (Rohrbeck 2010). The needs for CF are assessed according to:

- (1) the size of the company: revenue, number of employees.
- (2) the nature of strategy: differentiation strategy, cost leadership, focus strategy.
- (3) the corporate culture: empowering the individual initiative and reaching the attention of top management quickly.
- (4) the source of competitive advantage: technology leadership, customer and service orientation.
- (5) the complexity of the environment: industry, channel and market structure, enabling technologies, regulations, public visibility of industry, dependence on public funding and political access.
- (6) the industry clockspeed: rate of introduction of new products, new processes, new organizational structures (Rohrbeck 2010).

### **2.1.2 Value Creation and Trends**

#### **Value Creation**

Corporate foresight is one of the most critical sources of sustainable competitive advantage of a company (Kim 2012). Rohrbeck (2011) identified twelve distinct value contributions of corporate foresight, clustered into four dimensions:

- (1) Reduction of uncertainty: early warning, challenge basic assumptions and dominant business logic, trend identification/interpretation/prediction, improve decision making (Rohrbeck 2010).
- (2) Triggering internal action: change product portfolio (marketing or innovation management), trigger R&D projects (innovation management), trigger new business development (corporate development), support strategic decision making (Rohrbeck 2010). Companies are able to achieve first mover advantages, by gaining for instance technological leadership, or early purchase of resources, and therefore be rewarded with high profit margins.
- (3) Influencing others to act: influence other companies, stakeholders, and policy making.
- (4) Secondary benefits (by-products of corporate foresight activities): organizational learning. (Rohrbeck 2010). The foresight process encourages discussion and exchanges of information about the future, refocuses the attention of the top management, and builds knowledge (Amanatidou 2014, p.274). Linking knowledge created from past experiences, to present and future actions influences the decision-making process in dynamic environments (Vecchiato 2014).

Corporate foresight also supports the management of the innovation portfolio by bringing future insights into the decision-making (Von Der Gracht et al. 2010, p.385); and three different roles of CF for innovation capabilities can be identified (Rohrbeck & Gemünden 2011):

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<sup>11</sup> In managerial and organizational sciences, refers to the phenomenon whereby managers fail to update and revise their understanding of a situation when that situation changes. This phenomenon acts as a psychological barrier to organizational change (Wikipedia).

- (1) Opponent Role: Corporate Foresight challenges the current practices, assumptions and strategies, and challenges the status-quo by emphasizing what needs to be adapted to environmental changes and by putting light on disruptions that can create difficulties for the company (Rohrbeck & Gemünden 2011).
- (2) Initiator Role: Corporate Foresight helps at identifying new customer requirements by emphasizing the importance of continuously scanning the environment. The analysis of cultural shifts and the detection of emerging technologies are therefore facilitated (Ibid).
- (3) Strategist Role: Corporate Foresight guides the company's innovation activities by providing strategic guidance to the exploration of new business fields. Moreover, by engaging many different stakeholders, foresight encourages internal communication and creates a common vision (Ibid).

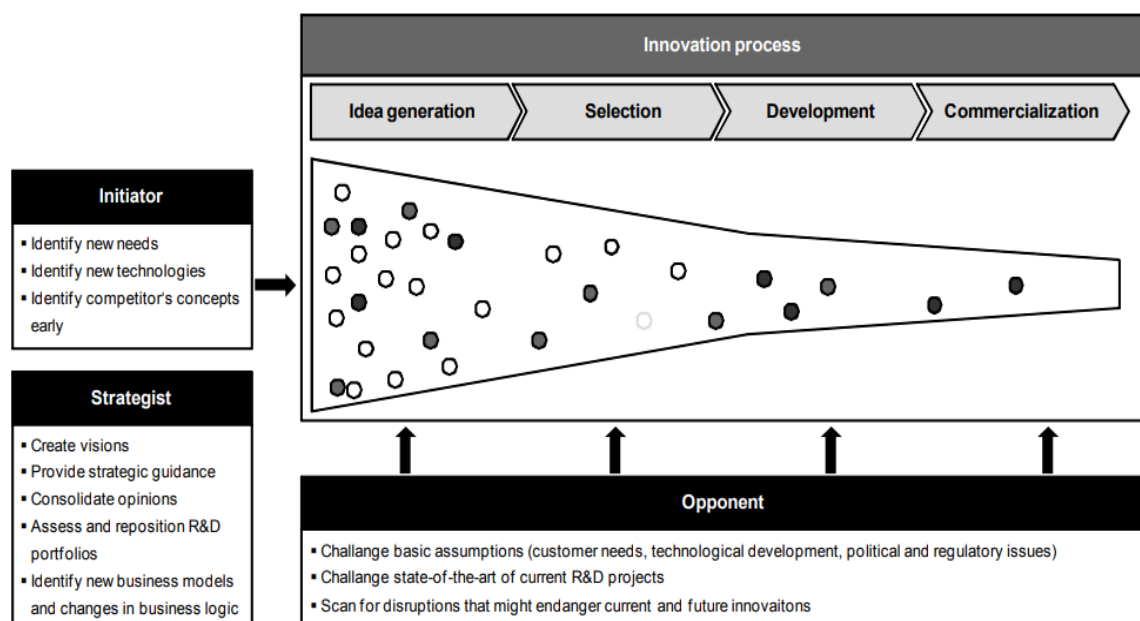


Figure 1: The three roles of corporate foresight alongside the innovation management process. Source: Rohrbeck & Gemünden (2011, p.237)

## Trends

Four trends of corporate foresight provide an overview of future potential developments of corporate foresight (Daheim & Uerz 2008, p. 331-332):

- Model-based foresight: States that we can predict and explore the future changes through computer-based models and mathematical frameworks, with a predominance of quantitative methods.
- Trend-based foresight: States that by using a mix of qualitative and quantitative methods, an early detection of weak signals can help predict the impact of trends on customers and markets.

- Expert-based foresight (also called exclusive foresight): States that experts are responsible for the foresight activity and can use foresight methods such as Delphi analysis<sup>12</sup>, roadmaps, scenario analysis<sup>13</sup>, to explore the future (Cook et al. 2014).
- Open foresight (also called inclusive, collaborative or networked foresight): States that facilitating the interaction and communication between social, technological, and economic forces, and creating a transparent organization can help organization prepare for the future (Ibid).

Corporate foresight is moving towards a collaborative approach, characterized by the integration of multiple perspectives. For instance, using social media is a way to develop open collaborative foresight activities, by giving the possibility to increase the amount of participation, increase the diversity of the participants, and increase volume and speed of data collection and analysis (Raford 2015). Collaborative foresight has proved more successful than individual foresight projects for many companies (Wiener et al. 2018) because it enhances organizational resilience and consensus in long-horizon strategies (Weigand et al. 2012).

### 2.1.3 Approaches on Corporate Foresight

Research on corporate foresight has been conducted from different business science research streams, and corporate foresight can therefore be discussed from four perspectives: the resource-based view, the innovation and technology management, the strategic management, and the future research perspective (Rohrbeck 2010, p.5).

#### Resource-Based View Perspective

The resource-based view (RBV) is a managerial framework used to determine the strategic resources with the potential to deliver comparative advantage to a firm (Barney 1991). A firm gains competitive advantage if it owns rare, inimitable and non-substitutable resources (Barney 1991).

However, the RBV does not explain why and how some firms retain a sustaining competitive advantage in rapidly changing competitive environments, and Teece et al. (1997) therefore introduce the concept of dynamic capabilities, defined as “the firm’s ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments” (Teece et al. 1997, p.516). Dynamic capabilities are strategic processes such as for instance alliancing, product development, and any strategic decision making that creates value. Three managerial activities support this ability to develop dynamic capabilities (Teece 2007):

- (1) Sensing: identifying and assessing opportunities outside of the company. Sensing processes (e.g. crowd-sourcing<sup>14</sup>) aim at clarifying an organization’s understanding of complex situations in order to build situational awareness and shared understanding within the organisation (Snowden, 2014). Sensing new opportunities is very much a scanning, creation, learning and interpretive activity (Teece 2007).

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<sup>12</sup> Expert elicitation process to increase the accuracy of expert estimates through confidential voting over several rounds where participants can adapt their views based on the views of others (Cook et al. 2014).

<sup>13</sup> Used interchangeably with scenario planning or to describe the data analysis phase of a scenario planning exercise (Cook et al. 2014).

<sup>14</sup> The process of canvassing for views and ideas across a broad spectrum of people, drawing upon the idea of cognitive diversity, where a group contains a variety of ways of thinking. This can help to overcome the cognitive biases and blind spots of any particular individual or team. Crowd-sourcing is particularly important for the work of a foresight unit. (Surowiecki, The Wisdom of Crowds).

- (2) Seizing: mobilizing resources to capture value from the opportunities identified and assessed through the sensing process. The seizing step can be carried out with a multidisciplinary team of experts (Ibid).
- (3) Transforming: trying to get the future right and to position today's resources properly for tomorrow. It is about implementing actions to meet and respond to the insights gained with the sensing and seizing steps (Ibid).

Sensing, seizing and transforming enable the firm to gain a competitive advantage in rapidly changing environments, which is also the aim of corporate foresight. Corporate foresight can thus be regarded as a dynamic capability (Rohrbeck 2010).

### **The Technology and Innovation Management Perspective**

Innovation is defined as '*a new or improved product (good or service), process, marketing method or organizational method*' (OECD 2005). The evolution of innovation management created an increase in innovation speed, speed up the technological changes, shortened the product life cycle and enhanced the diffusion of innovations (Rohrbeck 2010). Innovation processes within corporations can follow four paths:

- Market pull: the need for a new product or service is identified by potential customers or market research. Market pull can for instance start with potential customers asking for improvements to existing products.
- Technology push: When research and development in new technology drives the development of new products. Technology push starts usually with a company developing an innovative technology and applying it to a product.
- Parallel processes: While in the first two phases, little attention is given to corporate strategy, this phase consists in the combination of market pull and technology push and is strongly aligned with corporate strategy.
- Innovation in systems or networks: This phase is when "parallel processes" are used to involve several organizations (suppliers, competitors, distributors) which contribute to increase the development speed.

Research about radical and disruptive innovations<sup>15</sup> is important to corporate foresight because it helps understanding better how they can be fostered (Rohrbeck 2010, p.29). Corporate culture - future market orientation, risk tolerance, willingness to cannibalize<sup>16</sup> and incentives to empower employees to identify innovations- is the strongest driver of radical innovation (Tellis et al. 2009).

### **The Strategic Management Perspective**

Strategy is about creating a valuable market position, which requires making trade-offs between pursuing new activities and rejecting new ideas and aligning the company activities in order to support the chosen strategy (Porter 1996). To identify external changes, companies must continuously scan the environment for discontinuities (Rohrbeck 2010, p.1), which is the first input to

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<sup>15</sup> Innovation that makes products and services more accessible, affordable and available to a larger population (Harvard Professor of Business Administration Clayton Christensen). Disruptive innovation is a process in which new entrants challenge incumbent firms.

<sup>16</sup> In marketing strategy, cannibalization refers to a reduction in sales volume, sales revenue, or market share of one product as a result of the introduction of a new product by the same producer (Wikipedia).

the strategy formulation process (Ansoff 1975). Companies in complex, rapidly changing environments where uncertainty is high, need to scan the environment continuously (high frequency) (Day & Schoemaker 2005, p.2; Rohrbeck 2010). Jain (1984) identified four phases of environmental scanning:

- The primitive scanning: Scanning is carried out without special efforts or resources; the collected information is not used by the corporation.
- The ad-hoc scanning: No formal scanning system is in place, but the corporation pays gives importance to the information collected about specific topic.
- The reactive scanning: Although the corporation understands the importance of scanning, the scanning activities are unstructured. Responses are given to discontinuities, but in a reactive way.
- The proactive scanning: The corporation establishes a structured methodology for environmental scanning, and the collected information is incorporated into the strategy formulation.

Weak signals are the first symptoms of discontinuities (Ansoff 1975). They alert about future phenomena and can be defined according to two factors: the probability of occurrence and the degree of impact (Kuosa 2010, p.43). Weak signals have a low probability of coming true but reveal a major impact; trends have a high probability of coming true but reveal a minor impact; and megatrends are phenomena with a high probability of coming true and creating a major impact (Kuosa 2010, p.43). Weak signals must pass three filters to affect the future: the surveillance filter, the mentality filter and the power filter (Ansoff 1984). To pass the surveillance filter, which refers to the detection of the weak signal, the company has to capture the emerging signal in the environment. Often, individuals and companies notice the weak signals but do not give them enough importance because they rely on the past success models. This is called the mentality filter. Thirdly, even if a weak signal is perceived and understood, it is sometimes ignored and not taken advantage of. This behaviour is called the power filter (Ansoff 1984).

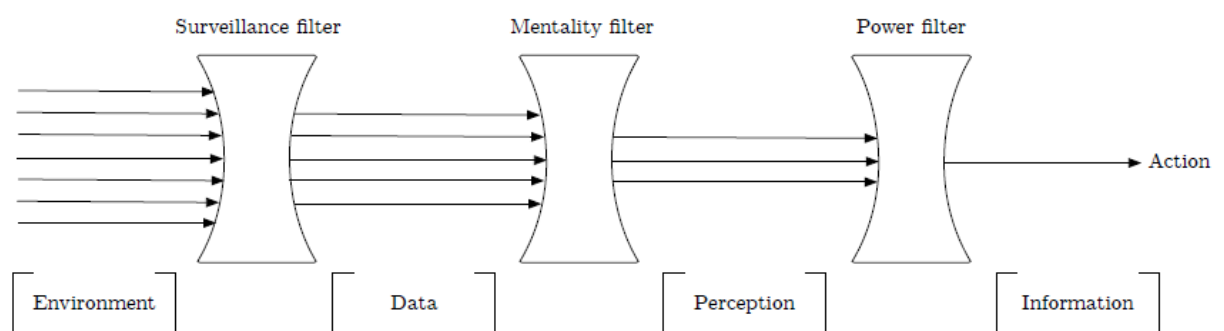


Figure 2: Ansoff's conceptualization of mental models used in the evaluation of weak signals (1984).

### Futures Research Perspective

Futures research aims at gaining a holistic and systemic view based on insights from different disciplines and tries to challenge the assumptions behind dominant views of the future (Rohrbeck 2010). The following table compares future research and innovation processes in companies from a historical perspective and shows that innovation processes and futures research both changed over time and are closely related.

	Innovation processes	Futures research
Generation 1: 1950–1960	Technology push	Technology forecasting
Generation 2: 1960–1970	Market pull	Technology assessment
Generation 3: 1970–1980	Coupled innovation processes	Explorative futures research
Generation 4: 1980–present	Innovation in systems or networks	Networked or systemic futures research

Figure 3: Generations of innovation management and futures research. Source: Van Der Duin 2014, p.64.

Futures research started with quantitative methods such as mathematical modelling, growth models and trend exploration. Delphi analysis<sup>17</sup> was also a wildly used method and is still used today. Then in the 70s, more explorative methods such as scenario analysis appeared, which meant that all dimensions (economic, environmental, socio-cultural) could be taken into consideration (Mietzner & Reger 2005, p.235) and companies were able to handle increased complexities. The focus of futures research switched from a result-based approach toward a process-oriented approach (Van Der Duin 2006, p.31). To implement the methods, multiple stakeholders, experts, and decision makers must be integrated to the foresight process (Daft & Weick 1984; Rohrbeck 2010).

## Conclusion

Corporate Foresight can be considered according to four different ways. It can be seen as a dynamic capability that helps corporations to continuously renew their resources and continuously adapt to their changing environment (Resource-Based View Perspective). Corporate foresight can also be identified as an innovation management process that increases the chances of companies to profit from discontinuous changes (Technology and Innovation Management Perspective). However, to have a positive impact on the company, such ambitions require the commitment of top-management to change the organization's strategy when facing external change (Strategic Management Perspective). Finally, for increased success, corporate foresight processes must also become more qualitative and interactive (Futures Research Perspective).

### 2.1.4 Corporate Foresight Models

As decision makers must overcome fundamental biases in crucial decisions for the company in order to reach sustainable competitive advantage (Kim 2012), several academics developed models to try to frame and structure the efforts of organizations to prepare and understand the future.

Voros developed in 2004 a generic foresight process framework, based upon prior work by Mintzberg (1994), Horton (1999) and Slaughter (1999). Voros' framework can be used for understanding the key steps involved in foresight work, the diagnosis of existing processes, and the design of new processes.

<sup>17</sup> Expert elicitation process to increase the accuracy of expert estimates through confidential voting over several rounds where participants can adapt their views based on the views of others (Cook et al. 2014).

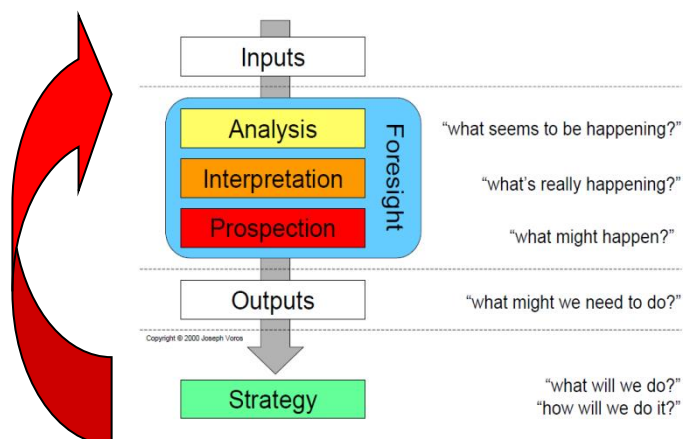


Figure 4: The foresight framework, in 'question' form. Source: Voros 2005.

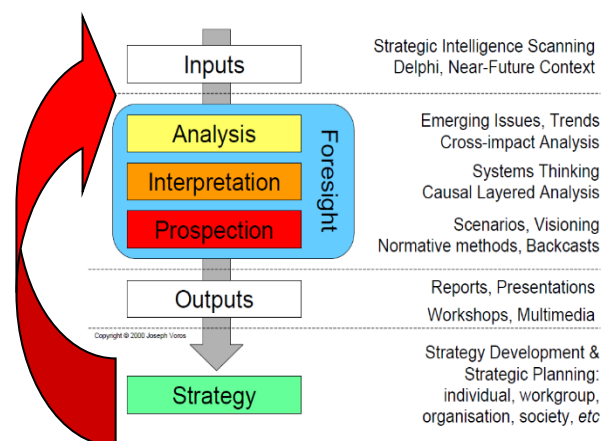


Figure 5: The foresight framework, with some representative methodologies indicated. Source: Voros 2005.

Even if the framework above appears as a linear process, there are in reality many feedback loops from the later phases to the earlier ones. The “Inputs” is about the gathering of information and scanning for strategic intelligence. The “Analysis” is a preliminary stage to the more in-depth work and aims at creating some order out of the variety of data generated by the “Inputs” step. The “Interpretation” seeks to look for deeper structure and insights. The “Prospection” is the step where various views of alternative futures are examined or created. The question asked at this stage depends upon which types of potential futures are under consideration – potential, possible, plausible, probable or preferable<sup>18</sup> (Voros 2005). Finally, “Outputs” can be tangible or intangible. Tangible outputs include the actual range of options generated by the foresight work. Intangible outputs include the changes in thinking engendered by the whole process. The “Output” phase consists in the generation of various available strategic options (Voros 2005).

More recently Cook et al. (2014) created a foresight framework, dividing foresight activities into six steps, very similar to Voros’ framework (2005). The framework can be found in Appendix B. The six steps are:

- (1) Setting the scope: identifying key issues and who should be involved (issues tree<sup>19</sup>, stakeholder analysis<sup>20</sup>)
- (2) Collecting inputs: identifying important signals (horizon scanning<sup>21</sup>, literature reviews).
- (3) Analyzing the signals: identifying and modeling trends, highlighting uncertainties (statistical tools).
- (4) Interpreting information: anticipating future developments (horizon scanning, scenario planning<sup>22</sup>, causal-layered analysis<sup>23</sup>).

<sup>18</sup> See glossary.

<sup>19</sup> Tool to establish the logical sequence with which to address a question (Cook et al. 2014).

<sup>20</sup> Process to identify stakeholders with an interest in an issue (Cook et al. 2014).

<sup>21</sup> Tool for collecting and organizing a wide array of information to identify emerging issues (Cook et al. 2014).

<sup>22</sup> Tool encompassing many different approaches to creating alternative visions of the future based on key uncertainties and trends (Cook et al. 2014). To creatively explore the consequences of issues and plan how to respond.

<sup>23</sup> Tool to expose hidden assumptions and help create a new narrative that facilitates the desired change (Cook et al. 2014). Helps interpret information and envisage a response to less well understood issues.



- (5) Determining how to act: generating strategies to overcome potential obstacles (backcasting<sup>24</sup>).
- (6) Implementing the outcomes: taking action to influence the future.

Finally, Rohrbeck et al. (2018) suggested that building future preparedness rests on three core skills, with a three-step process guiding the design and/or improvement of the corporate foresight system. This three-step process builds on the three-step process of Teece (2007). The three steps are:

- (1) **Perceive** continuously, by building sensors that allow to detect change across a broad scope, and deeply analyse the drivers of change and factors that affect the company's environment. The company should scan broadly (qualitative and quantitative sources), build a continuous scanning process, build scouting networks, involve the entire organisation in the scanning and interpretation (Rohrbeck et al., 2018).
- (2) **Prospect** systematically to anticipate unexpected changes in the industry or sizes of future markets; through practices like analogies, scenario analysis, systems-dynamics mapping, back casting. This step can point to the need for renewal of products, services or business models (Ibid).
- (3) **Probe** into new markets with dedicated budgets and accelerator units to learn and, where possible, shape the rules of the game in future industries (Ibid).

Although all corporate foresight models above aim at framing the corporations' efforts to anticipate the future, we can notice some differences in the structure of the foresight processes. Some models contain more steps than others. The model of Voros (2005) and the model of Cook et al. (2014) are broken down into six steps while Rohrbeck's and Teece's are broken down into three steps. The models with six steps, because they break down further the processes for foresight implementation, are easier to work with.

Finally, we can notice that all the reviewed foresight frameworks above provide guidelines on the steps to take to achieve foresight on a very high level, without specifically answering the following questions:

- How to collect inputs: Where should foresighters look for information? Who should be involved?
- How to analyse the signals: Which methods and tools should foresighters use?
- How to actually implement the outcomes?
- How to assess the results?

However, the Maturity Model of Corporate Foresight (MMCF) is a framework for foresight that provides answers to the above questions. The MMCF details for instance how the data should be collected, which methods should be used to analyse the data and to assess the results, etc. Thus, the MMCF guides thoroughly the foresight implementation (see below for further explanations).

### The Maturity Model of Corporate Foresight

The Maturity Model of Corporate Foresight (MMCF) was developed by René Rohrbeck as the result of extensive research based on empirical evidence from 19 case studies of large multinational enterprises and 107 management interviews. The model, which aims at measuring, benchmarking and enhancing organizational future orientation was presented in his *book Corporate Foresight –*

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<sup>24</sup> Tool for visualizing obstacles in achieving a goal and the steps needed to overcome those obstacles. (Cook et al. 2014) To determine how to act on identified or anticipated issues.

*Towards a Maturity Model for the Future Orientation of a Firm* (2011). This model is a framework to assess the foresight capabilities of a given organization and will be used over the course of this thesis as the main framework guiding the data collection and interpretation.

The Maturity Model shows that the overall ability to respond to change in the technological, economical, societal and political environment can be clustered into five capability dimensions and depends on both **structural** and **cultural** criteria (see figure 7 below). The **five capabilities** are used to assess the corporate foresight system of the company concerning its strength in identifying, interpreting, and responding to discontinuous change. The five capability dimensions are divided into **21 criteria** (see figure 7). More information about the 21 criteria can be found in Appendix A.

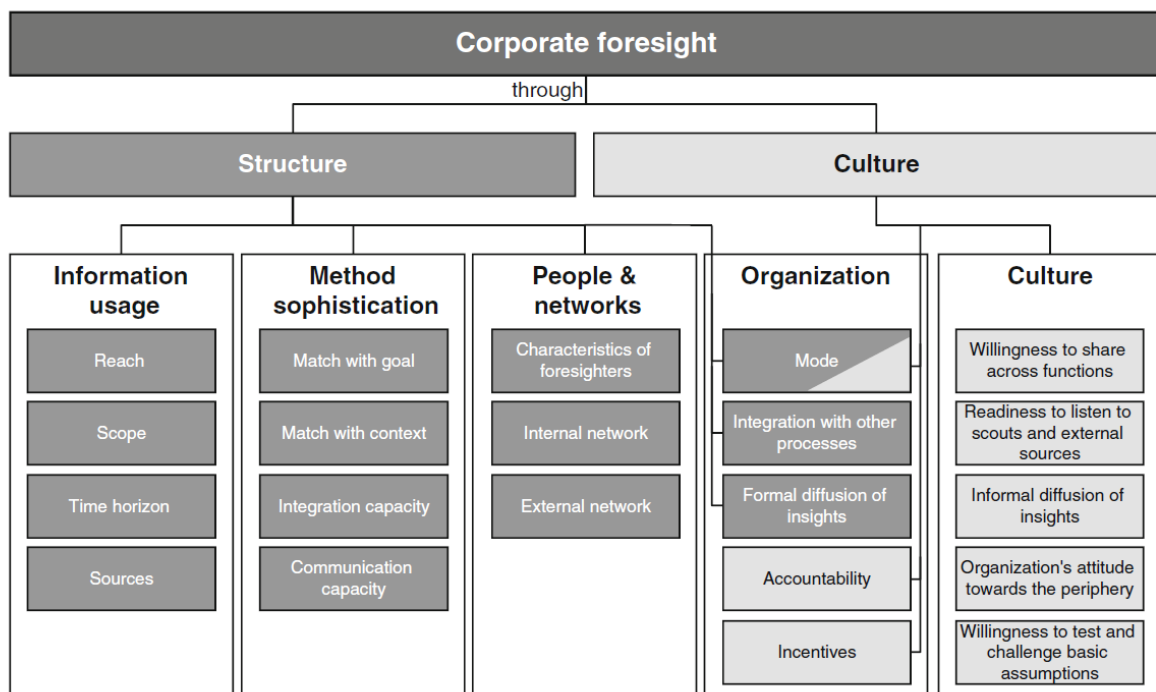


Figure 6: The 21 criteria of the Maturity Model of Corporate Foresight. The description of the 21 criteria can be found in annexe 1. Source: Rohrbeck, 2010. *Corporate Foresight*.

The MMCF is decision oriented, which means that it focuses on the processes needed to make good decisions. It is also exploratory because it explores possible futures without focusing on the value, and it is inclusive because it involves a wide range of stakeholders, and not solely foresight experts (Cook et al. 2014).

- **Dimension 1 - Information Usage:** The capability dimension information usage describes the kind of information that is gathered and enters the corporate foresight process. Companies typically focus on certain types of information and neglect other types in neighbouring areas (Day and Schoemaker 2004b, p. 140). As organizations become more successful, they tend to reinforce the sensing system that made them successful (Winter 2004, p. 165), and the adjacent businesses and white spaces are therefore neglected. White spaces are areas that currently seem to have no relevance to the organization, but which could breed disruptive changes that are difficult to perceive and to prepare for (Rohrbeck 2010). Best-practice companies are expected to carry out

wide and broad environmental scanning<sup>25</sup> activities in order to cover all areas of possible disruptions at different time horizons (long, medium and short-term). Companies are also expected to use many sources (Rohrbeck 2010): information can come from analyst reports, blogs, external experts, internal experts, internet, journalists, statistical databases, conferences and fairs, patents and publications, etc. The best practice would be to assign operational units to explore the short-term, while the mid- and long-term future are explored by staff, strategy and innovation management units (Rohrbeck 2010). The scanning units should directly report to the CEO, because he is ultimately responsible if an issue is completely outside current corporate structures (Rohrbeck 2010).

- **Dimension 2 - Method Sophistication:** The capability dimension method sophistication describes the methods used to interpret the information and the ability of the company to systematically interpret information. Methods are used to process and extract meaning to the data. Those methods are especially important if large amounts of data have been gathered and if interdependencies are expected with information from different sources. The ability to accurately interpret information depends on how the method is chosen according to the context and the problem to solve, on how the method integrates various types of information, and on how the method supports communication insights internally and externally. The scenario technique and roadmapping<sup>26</sup> are two methods that have been identified as being particularly effective for integrating information from different perspectives (Chermack et al. 2001; Möhrle & Isenmann 2005). The methods should be selected to match the business issue, should be consistent with the context of the company, and should help internal and external communications. For instance, methods that use visualisations create the additional benefit of enabling effective communication.
- **Dimension 3 - People & Networks:** The capability dimension People & Networks describes the ability of the firm to capture and channel information through people (either individual employees or networks). This dimensions consists of three elements: external networks capturing external data, internal networks disseminating effectively information and insights into the organization, and characteristics of individual employees used by the organization to acquire and disseminate information on foresight insights (Rohrbeck 2010). Ensuring future insight -the product of interpretation of data- depends on two abilities of an organization: to channel information effectively through the organization to the managers who can make the appropriate decisions and take action, and to inform relevant internal stakeholders, ensuring their support in the process of changing the organization (Rohrbeck 2010). The best foresight practice would be to build and maintain a network of external partners (must be encouraged and perceived as important for every employee), and to build and maintain formal and informal networks to other internal units (must be encouraged and perceived as equally important for every employee)

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<sup>25</sup> Scan current business, adjacent businesses, white spaces, and technological, political, competitor, customer and socio-cultural environments. (Rohrbeck 2010).

<sup>26</sup> Roadmapping is a flexible and collaborative technique that supports strategic alignment and dialogue between functions. Underpinned by a generic framework defined by six strategic questions: why do we need to act? What should we do? How can we do it? Where are we now? How can we get there? Where do we want to go?

(Wolff 1992). More specifically, five characteristics are considered essential for successful foresighters (Wolff 1992; Rohrbeck 2010):

- Deep knowledge in one domain, in order to understand how far a topic needs to be understood to come to conclusions
  - Broad knowledge, to quickly access new information domains and relate them to one another
  - Curiosity and receptiveness, to ensure the eagerness to capture external information
  - Open-mindedness and passion, to ensure that issues outside the dominant world-view of the company are considered and disseminated
  - Strong external networks, for ensuring access to high-quality information
  - Strong internal networks, for ensuring the efficient diffusion of information throughout the company.
- 
- **Dimension 4 - Organization:** The capability dimension “organization” captures the ability of a company to gather, interpret, use, and diffuse information. It is about the ability to translate information into future insights and insights into action in a structured way. This ability depends upon how foresight activities are triggered (top-down or bottom-up), executed (issue-driven or continuous), integrated with other processes, and formally diffused. Furthermore, the ability to translate information into future insights depends also upon how employees are encouraged and rewarded to scan the environment and plan for the future, and upon whether the responsibilities for detecting and acting on weak signals are clearly defined or not. The involvement of top management within the foresight process is also needed to avoid a “not-invented-here” syndrome and to avoid the executive board not supporting the foresight insights. Best practices include also foresight processes triggered both bottom-up and top-down, and foresight activities linked to corporate development, strategic controlling, and innovation management. Finally, future insights should be integrated to decision making processes, giving the responsibility to every employee to detect weak signals, and giving incentives to employees that detect weak signals (Rohrbeck 2010).
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- **Dimension 5 - Culture:** The extent to which the corporate culture supports or hinders the foresight effort (Benchmarking report, 2018). The capability dimension culture enhances the use of identified insights and helps trigger appropriate actions. Regarding culture, best practices of firms involve encouraging the ongoing information sharing on many levels, an open organization with external networks, the diffusion of future insights to reach the relevant decision makers through informal communication, the scanning of the periphery, and the constant questioning and challenging of basic assumptions. It has been identified that the lack of willingness to share across functions is often the most important obstacle blocking the dissemination of foresight insights. As a conclusion, we can say that in order to generate value from foresight activities, there must be an internal demand for it, and decision makers need to be encouraged to make their basic assumptions explicit, track them, and challenge them frequently (Rohrbeck 2010).

## Conclusion

Because the MMCF is a detailed and complete guide for foresight implementation it will be used to support the comparison of Corporate Foresight and Corporate Sustainability practices and will guide the merging of Corporate Foresight and Corporate Sustainability.

## 2.2 Corporate Sustainability

### 2.2.1 Definitions

Sustainability was defined by the Brundtland Commission at the World Summit on Social Development as *a development that meets the need of the present without compromising the ability of future generations to meet their own needs*. All corporate activities have an influence on the natural environment and must therefore contribute to sustainable development (Baumgartner & Rauter 2016). Sustainability can be divided into three dimensions, which were introduced by Ng et al (2017) as the triple bottom line. A successful CS strategy lies in balancing between the three dimensions:

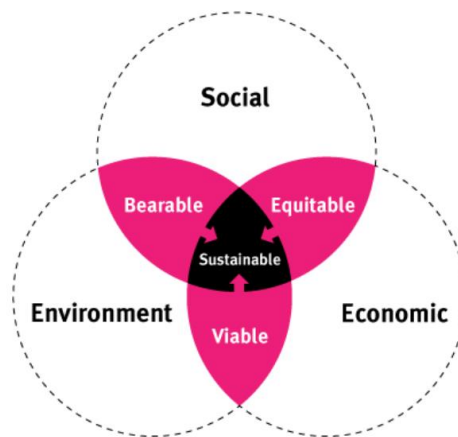


Figure 7: Dimensions of sustainability: Triple Bottom Line. Source: Ng et al. 2017, pp. 11-12

- Economic: moving beyond conventional financial business by according attention to new measures of viable wealth. Example: reducing costs through sustainable operations (Ng et al. 2017).
- Environmental: Studying the implications of resource consumption, energy use and the environmental footprint. Example: environmental policies and environmental management systems (Ibid).
- Social: Maximizing positive social impact. Example: public health, human rights. The Fairtrade movement, in which organizations ask businesses to guarantee that suppliers in impoverished nations receive reasonable payment for their goods and services in order to divide up the world's wealth and resources the most equally possible, is also an example of social sustainability (Ibid).

Sustainable development has been adopted by institutions as Corporate Sustainability (CS) and Corporate Social Responsibility (CSR). Today management literature uses both CS and CSR to refer to social and environmental management issues without making any clear distinction between the two terms. However, while CSR refers more to the responsibility that organizations take towards the impact they create on the environment and society and focuses on the ethical reputation of the firm, CS describes sometimes a more nested system and focuses on how to create a business that is durable and respectful (Bansal & DesJardine 2015).

The original concept of Corporate Social Responsibility (CSR) came from the law professor Merrick Dodd (1932), who defined CSR as a legal responsibility wherein managers are obligated to their beneficiaries (stockholders, employees, customers and the general public) (You 2015). Since then,

the definition has evolved. For Robbins et al. (2001) CSR refers to the obligation of a firm to pursue long-term goals that are good for society. More recently, the World Business Council for Sustainable Development defined CSR as *“the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large”* (2012); and the European Commission defined CSR as *“a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis”* (2008). Corporate Sustainability is a management approach that aims at reducing costs and risks, improving competitiveness, keeping reputation, legitimacy, and creating value by seeking win-win outcomes (Baumgartner & Rauter 2016). The triple-bottom-line reporting, which requires firms to report the financial, social and environmental impact of their operations, helps them get a better sense of their impact on society and their real value or liabilities. Such reporting incentivizes employees to take a longer-term perspective of their activities within the firm (Bansal 2002). To guide corporations towards CS implementation, Epstein (2008) illustrated CS with nine principles, which can be quantified, monetized, and integrated into operational decisions and decision-making processes:

1. Ethics: monitoring ethical standards and practices through the whole organization.
2. Governance: managing the company's resources with a focus on interests of all the stakeholders from the boards.
3. Transparency: visibility and accessibility of information from the company's stakeholders.
4. Business Relationships: engaging in fair-trading practices with the business partners, suppliers and customers.
5. Financial Return: providing positive returns on investments.
6. Community Involvement/Economic Development: taking into consideration the needs of the community in which the company operates.
7. Value of Products and Services: presenting high value products and services with respecting the needs and rights of the customers.
8. Employment Practices: engaging into management practices that promote employee appraisal, commitment and development.
9. Protection of the Environment: involving into environmental conservation and restorage through sustainable business practices and viable products and services. Minimizing natural resources utilization and reducing waste emission.

CS is expected to have an increasing importance in the coming years due to growing environmental and social concerns, growing societal awareness, political reasons, companies' ethical attitudes and self-commitment, employees' and recruits' expectations, pressure from the regulatory framework, and the globalisation and rapid flow of information (Steurer et al. 2012). Moreover, the trade liberalisation and privatisation mean that private businesses are expected to take more responsibility for their impacts on society and the environment (Ibid). A growing number of regulatory measures at international and national levels aim to mobilise corporations to take more responsibility for their environmental and societal impacts (Ibid), and the European Union launched in 2014 a directive on the disclosure of non-financial information regarding environmental matters, social and employee aspects, respect for human rights, anti-corruption and bribery issues, and diversity in boards of directors (Ibid). Some regulatory measures are national initiatives, while some regulatory measures are part of agreements involving several countries.

### **Drivers of Corporate Sustainability**

Epstein (2008) even illustrated four main drivers to including sustainability in the company activities and strategy:

- Regulations: Government regulations require industries to follow several sustainability practices. Under non-compliance, industries might receive penalties and fines, and be submitted to additional inspections and potential closure of operations.
- Community relations: Gaining the general public's and NGO's trust fosters the company's reputation through applying CS practices. Customers can in fact favor buying sustainable products and boycott those that have negative social and environmental impacts, and employees generally foster the company's operations if they feel committed to a sustainable cause.
- Cost and revenue imperatives: Good reputation increases sales and thus revenues and decreases the regulatory costs.
- Societal and moral obligations: Some executives are driven by ethical obligations that require them to include sustainability in their strategies.

### **Benefits of Corporate Sustainability**

CS improves corporate competitiveness, consumer retention (by building responsible brands) legitimacy, and survival (Steenkamp 2017; Cha et al. 2017), and strengthens corporate economic performance in times of crisis (Lins et al. 2017). Epstein (2008) grouped the benefits of CS in four categories:

- Quality and reputation benefits: If the reputation improves thanks to sustainability activities and communication, the sales and the trust from the shareholders will increase.
- Financial benefits: Sustainability leads to lower operating and capital costs, increased revenues and stock market premiums, and increased efficiency.
- Operational benefits: Sustainability stimulates process innovation, reduces cycle times and waste, and improves resource allocation.
- Organizational benefits: The improved company reputation leads to better relationships with the stakeholders and to increased employee satisfaction.

### **Difficulties and Critics of Corporate Sustainability and Corporate Social Responsibility**

Even though CSR is perceived as a strategic concern for many companies, a lot of confusion still exists. While innovation or operations have clear goals of reaching increased profit, sustainability often lacks clear and measurable goals. For sustainability, the goal is often to achieve excellence in social, environmental and financial performance simultaneously (Epstein & Buhovac 2010). Corporate sustainability activities have effects that are often longer-term and more difficult to measure than most of the impacts managers usually confront (Ibid). CSR can be perceived as an unnecessary cost, a distraction for managers, and an extra confusion in the relationships between principals and agents (Margolis et al. 2003). Integrating corporate sustainability into day-to-day management decisions is also complicated by the pressure that managers have to increase short-term earnings, and by the uncertainty about how different stakeholders will respond to sustainability actions (Epstein & Buhovac 2010). CSR requires indeed to build cooperation among different stakeholders (Etzion 2007), who often differ in attitudes and beliefs about what and how social and environmental issues should be solved (Petts et al. 1999). When managing CS with a global scope, problems such as a lack of information and structured management system, different views and interpretations, supply chain complexities, or an overlap with environmental issues, etc. often lead to a hazardous CS management (Panapanaan et al. 2003).

Therefore, organisations must learn to handle these differences to successfully move toward a CS that creates value and benefits (Wang et al. 2012). A successful CS requires commitment, time, resources, managerial skills and effective cooperation (Panapanaan et al. 2003).

Because the concept of CSR is less recent than the concept of CS in the scientific literature, the latter term is used for the rest of the paper.

### **2.2.2 Corporate Sustainability Frameworks**

A CS framework is a guide for corporations to realize their CS objectives. In this section several existing frameworks from academic experts for managing and implementing CS will be reviewed and grouped into one unique framework that I constructed. All the CS frameworks and models developed by the authors mentioned below can be found in the appendices.

- Panapanaan et al. (2003) established an initial framework to serve as a guideline in understanding and managing CS. The management of CS goes through five activities to identify the current position, the problems and the prospects: (a) organization and structure, (b) planning, (c) implementation, (d) monitoring and evaluation, (e) communication and reporting (Appendix C). Those five steps must be done through constant communication and must include various stakeholders (employees, suppliers, customers, external experts, society). (Panapanaan et al. 2013).
- Galotta et al. (2016) developed a framework for implementing CS based on a four phases methodology: analyse, design, implement, monitor and control (Appendix D). Those four phases require methods, strategy, governance, information technology, change management, leadership and culture.
- Azapagic et al. (2003) used a conceptual framework for implementing CS based on a five-step business approach: policy development, planning, implementation, communication, review and corrective actions (Appendix E).
- Maignan et al. (2005)'s framework follows 7 steps: discovering organizational norms and values, identifying stakeholders, identifying stakeholder issues, assessing the meaning of CSR, auditing current practices, implementing CS initiatives, gaining stakeholder feedback, promoting CSR (Appendix F).
- Hermansson et al. (2008) defined a framework based on a four phases methodology: plan, do, check, improve (Appendix G).
- The Oxford consulting group developed a sustainability implementation framework for Walmart, divided into 4 steps (learn, measure & benchmark, plan & implement, monitor share & growth) and five corporate functions (executive/leadership, facilities/operations, procurement/supply chain, sales/marketing, human resources) (Appendix H).
- Larsch et al. (2016) built a model to integrate sustainability aspects in business processes. This model consists of seven steps, guiding the user from the idea generation to the results (see appendix I).

Although the models above slightly differ in terms of number of steps, and in terms of denomination of the steps, they actually detail the same process. Table 1 below points out the similarities and differences between the models.



Table 1: Merging the Corporate Sustainability frameworks - similarities and differences (Aboud, 2019).  
The grey cells correspond to parts lacking in the Sustainability framework.

Corporate Sustainability Steps	Panapanaan et al. (2003)	Galotta et al. (2016)	Azapagic et al. (2003)	Maignan et al. (2005)	Hermansson et al. (2008)	Oxford Consulting Group	Larsch et al. (2016)
<b>Collect Information</b>				Discover organizational norms and values, Identify stakeholder issues		Learn	Brainstorm and gather information
<b>Analyze the information</b>	Organize and Structure	Analyze	Policy development	Audit current practices		Measure, benchmark	Identify ideas and improvement potentials
<b>Formulate and plan a strategy</b>	Planning	Design	Planning		Plan	Plan	Identification of compatible and feasible activities to implement the ideas
<b>Implement the strategy</b>	Implementation	Implement	Implementation	Implementing CSR initiatives	Do	Implement	
<b>Monitor, Assess, Improve</b>	Monitoring and evaluation	Monitor and control	Review and corrective actions	Gaining stakeholder feedback	Check and Improve	Monitor	Modify the process: add, delete, change activities according to the results
<b>Share and Promote</b>	Communication and reporting		Communication	Promoting CSR		Share and Grow	Highlight the changed elements in the business process

The frameworks above lack the emphasis on the importance of data collection for the formulation of successful sustainability strategies. They do not specify what kind of information should be collected. However, Epstein (2008) formulated the Corporate Sustainability Model, which provides an approach to examine, measure and manage the drivers of corporate sustainability. The model puts emphasis on the required inputs (external context, internal context, business context, financial resources) for the implementation of a sustainability strategy.

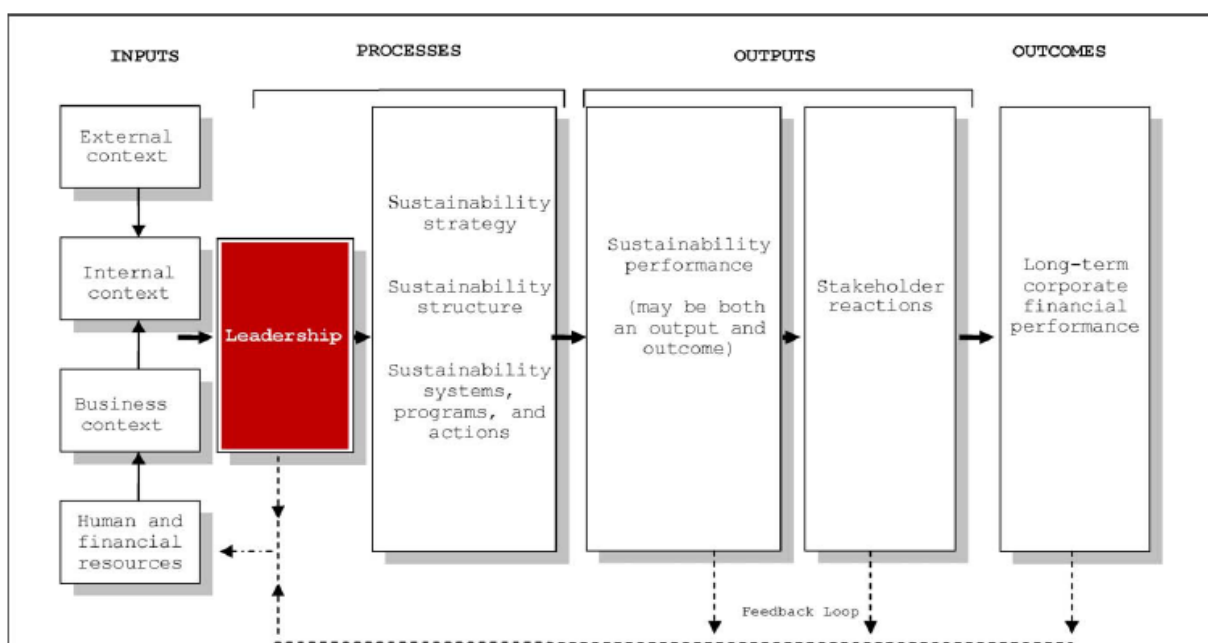


Figure 8 The Epstein Corporate Sustainability Model. Source: Epstein 2008.

Epstein (Figure 8) also emphasises the importance of the Leadership function -management committed to sustainability- which is at the core of the model (Epstein et al. 2010). Moreover, companies need formal and informal systems to effectively implement sustainability strategies (Ibid). The formal systems can be management control, performance measurement and reward systems used to steer employee behavior toward strategic goals. The informal systems supplement the formal systems of the organization and are necessary for a successful sustainability implementation. They include the mission, leadership, culture, and people needed for organizational success (Ibid). Organizational culture that builds on sustainable innovation, creativity, entrepreneurship and volunteerism can be used to offset the pressures and drawbacks of incentive systems that focus on short-term financial performance (Ibid); and a strong mission statement emphasizing the need for sustainability can convey to employees the importance of sustainability as a core corporate value (Ibid). For long-lasting performance and focus on sustainability issues, companies must indeed build an organizational culture that motivates sustainable decision-making and behavior.

Furthermore, the benefit of Epstein's Corporate Sustainability Model lies in that it supports the alignment of organizations (external context), the coordination of activities (business context) and the motivation of employees (internal context) (Epstein et al. 2010). Fava and Swarr (2014) also emphasized the need for all business units to be integrated to achieve sustainable development (see Table 2). Table 2 represents the requirements to achieve stronger management of social and environmental issues. It shows that in order to reach long-term competitiveness thanks to the management of social and environmental issues, a broader integration of more business units is required. In other words, if all business units collaborate towards a common objective, the organization reaches sustainable development and long-term competitiveness and innovation (see the last line of Table 2). We can say that the broader the integration with other functional groups within the organizations and across the value chain is, the better will be the sustainability strategy implementation (Fava & Swarr 2014).

Table 2 Strategic Options for Managing Social and Environmental Issues. Source: Fava & Swarr 2014.

Weakest Management of Social and Environmental Issues		Description	Degree of Integration	Business Benefits
	Compliant	Legal compliance with regulations	EHS department	Compliance and cost
	Informed	Tracks key activities beyond compliance, participate in external groups, e.g. trade associations	EHS, manufacturing, government affairs	Cost avoidance & pollution prevention
	Market driven	Reactive to customer expectation for environmental issues	Marketing & sales Purchasing Product development	License to operate Access to resources
	Competitive advantage	Proactively uses understanding of environmental issues to take advantage of market opportunities	Marketing & sales Purchasing Product development Business management	Increased market share Revenue growth
Strongest Management of Social and Environmental Issues	Sustainable development	Proactively integrates social and environmental concerns to protect long term value of industry sector	Marketing & sales Purchasing Product development Business management Executive leadership Board of Directors	Long term competitiveness, innovation

I merged Table 1, Table 2, and Figure 9 to create a unique sustainability framework (Figure 10) containing all the required steps for a structured and guided implementation of CS.

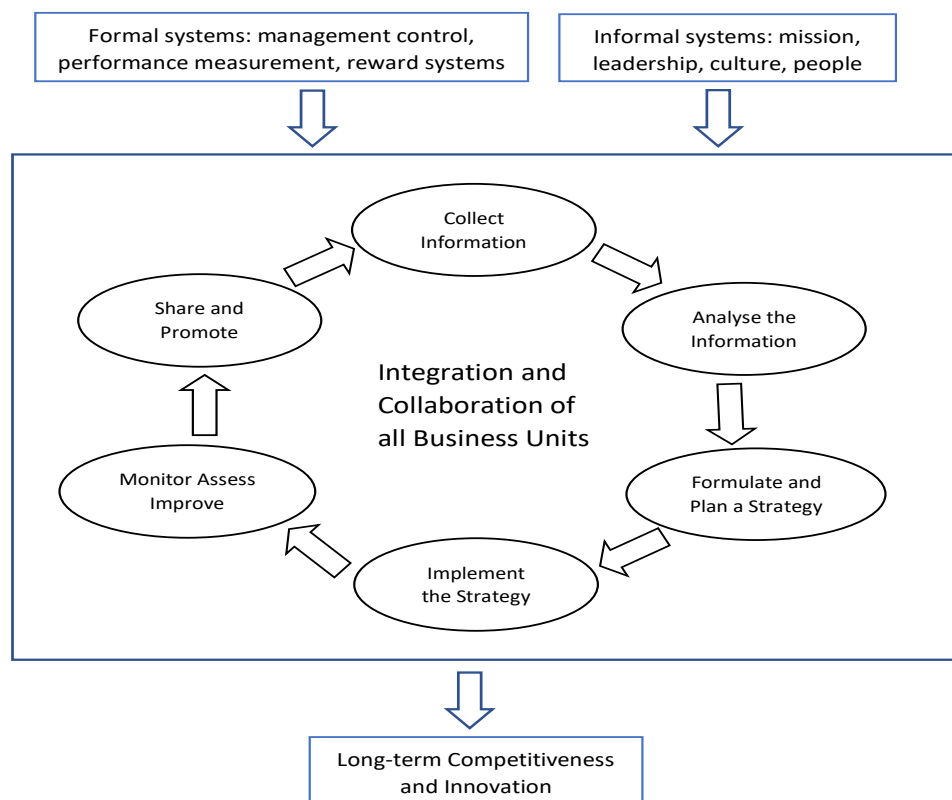


Figure 9: The Sustainability Strategy Implementation Framework (compiled by author).

Explanations for each step of the Sustainability Strategy Implementation Framework are provided below.

### **The Sustainability Strategy Implementation Framework**

- 1) **Collect Information:** gather information from the external environment, internal environment and business context, identify the stakeholders and the issues, frame the problem.
- 2) **Analyse the Information:** Measure and benchmark to make sense of the collected data; and assess the current business scenario, sustainable action plans and decisions.
- 3) **Formulate and Plan a Strategy:** Define solutions and changes to integrate in the business process and outline the execution of the new sustainable processes.
- 4) **Implement the Strategy:** Execute the planned sustainability strategy and sustainable processes. The appropriate organizational culture (leadership, people, mission) is necessary for a successful strategy implementation into the day-to-day business routines.
- 5) **Monitor, Assess, Improve:** Continuously assess and follow-up the sustainability strategy implementation, and make the adjustments necessary to the changing business objective for the execution and delivery.
- 6) **Share and Promote:** Share information about the changes and progress, internally and externally.

## Conclusion

The Sustainability Strategy Implementation Framework (Figure 9) provides a detailed guide of the sustainability processes required for sustainability implementation. The Framework therefore supports the comparison of Corporate Foresight and Corporate Sustainability practices and guides the merging of Corporate Foresight and Corporate Sustainability.

### 2.3 Merging Corporate Foresight and Corporate Sustainability

As previously said, sustainability was defined by the Brundtland Commission at the World Summit on Social Development as *a development that meets the need of the present without compromising the ability of future generations to meet their own needs*. As the definition mentions the future and leads to a company being more prepared for the future, is interesting for the scope of the thesis. It means that a company dedicating strong importance to sustainability is building a business model that takes into account the future generations: future customers, future business environments, future shareholders, etc. In fact, corporate sustainability strategies create business value, develop strategic resources, insure against risks (Margolis et al. 2003; Koh et al. 2014) and increase business/company lifespan (Epstein 2008). Achieving sustainable development within a corporation encourages the adoption of long-term strategies (Ternes 2017) and improves long-term competitiveness and innovation (Fava & Swarr, 2014). The increased long-term competitiveness echoes the main objective of CF, which is a management activity that lays the foundation for future competitive advantage (Rohrbeck 2015) by creating future change for the company.

To reach long-term competitiveness, both CS and CF use similar processes. In order to put into evidence those similar processes, the MMCF (Figure 7) and the Sustainability Strategy Implementation Framework (Figure 9) are summarized in Table 3. The table also shows which dimensions of the MMCF are concerned, and thus provides answers to Research Question 1.

Table 3: Similarities and differences between the Sustainability Strategy Implementation Framework and the MMCF.

Similarity or difference?	The Sustainability Strategy Implementation Framework - Steps	Description (Sustainability Strategy Implementation Framework Steps)	Matching dimensions and criteria of the Maturity Model of Corporate Foresight (Rohrbeck, 2010)	Description (Rohrbeck, 2010)
Similarity	Formal Systems	Alignment of the reward systems with corporate sustainability strategy to help employees make the required trade-offs to provide internal accountability.	Organization – Accountability Organization – Incentives	Rewarding a wider vision and providing an accountability for sensing weak signals are key for a successful foresight.
Similarity	Informal Systems	Leadership, Culture and People: the management and corporate culture must be committed to sustainability.	Culture People & Networks	Corporate culture must support the foresight effort, and employees involved in the foresight activities must have specific characteristics.
Similarity	Integration and Collaboration of all Business Units <sup>27</sup>	All stakeholders must be part of the sustainability strategy.	Method sophistication – Integration capacity People & Networks – Internal network	Corporate foresight will be efficient if the firm is able to integrate various types of information, and if the collaboration between employees from various departments is encouraged.
Similarity	Collect Information	From internal context, external context, business context, human and financial resources. Focus on the current industry.	Information Usage – Reach, Scope, Sources	A wide diversity of information from various industries, contexts, and sources must enter the foresight process.
Similarity	Analyse the Information	Once collected, the data must be interpreted	Method sophistication	The appropriate methods must be applied to make sense of the collected data
Difference	Formulate and Plan a Strategy	Define solutions and changes to integrate in the business process and outline the execution of the new sustainable processes.	Not mentioned in the MMCF	
Difference	Implement the Strategy	Execute the planned sustainability strategy.		
Difference	Monitor, Assess, Improve	Assess and follow-up the sustainability strategy implementation and make the adjustments necessary to the changing business objective.		
Similarity	Share and Promote	Successful sustainability also rests on the sharing of sustainability progress, internally and externally	People & Networks – internal networks, external networks Culture – willingness to share across functions, informal diffusion of insights	Successful foresight rests on the diffusion of foresight strategies and projects across the organization and externally. Communication is key.
Similarity	Outcome: Long-term Competitiveness and Innovation	Sustainability Implementation leads to long-term competitiveness.	Outcome: Long-term survival	Foresight Implementation leads to long-term competitiveness.

<sup>27</sup> Segment of a company representing a specific business function (such as accounting, production, marketing), and a definite place on the organizational chart, under the domain of a manager. Also called department, division, or functional area. (Business Dictionary)

## **Conclusion**

Table 3 is a theoretical contribution that shows that both CS and CF aim at helping the company to survive long-term via similar processes: strong communication, integration of many stakeholders, integration of various information sources, and corporate culture facilitating change. Those findings of similarities are built from a theoretical review. Therefore, the collection of empirical data aims at understanding if those findings are verified in practice. For instance, do CS professionals working for private organizations actually collect information for various internal and external sources? Do they actually establish reward systems and work cross-functionally?

Because Table 3 points out the theoretical similarities between CS and CF, it guided the formulation of the interview questions, which aim at confirming or refuting each one of the theoretical similarities. The interview answers are collected, structured and analysed according to the 5 dimensions of the MMCF.

# CHAPTER 3

## Methodology

*This section presents the chosen research design and the structure of the data collection and ends with some ethical concerns.*

### 3.1 Research design and research purpose

Corporate foresight is a relatively new research stream (Rohrbeck 2012) and the knowledge about the research field is limited. For this study, it is necessary to understand how corporate sustainability professionals work. Therefore, data about the managerial and organizational processes they use must be collected. More specifically, information about their reasons and motivations for using those organizational and managerial processes is required. Thus, a qualitative method approach is selected, as qualitative data gives the possibility to describe the sustainability work, more than measure it (Eisenhardt 1989).

Because Corporate Foresight has not yet been studied in the light of Corporate Sustainability, the purpose of this paper is to explore an emerging area and to generate new theories emerging from the data. In order to do so, the CF and CS theories were explored and analysed in order to find similarities between the CS and CF processes. Those similarities can be considered like theoretical patterns. Secondly, the interview data collection allowed to test those theoretical patterns, and to provide tangible information about the similarities between CF and CS. Finally, based on the theoretical and empirical data collections, a revision of the theory was conducted under the form of a revised MMCF. A deductive approach, which “is concerned with developing a hypothesis based on existing theory, and then designing a research strategy to test the hypothesis” was therefore adopted (Wilson 2010).

The research process was iterative. First, I reviewed the theory to gain an extensive understanding of the existing literature on the topic of corporate foresight and corporate sustainability. This theory review provided me with a first understanding of the overlaps that exist between CS and CF. At this point, I started contacting potential interview participants because I knew it would require time to find enough people that would accept to participate in the study. I then continued the first theory review to identify CS frameworks and CF frameworks that would allow me to put into evidence the overlaps between CS and CF. I thus built a table merging CS and CF, and I was then able to identify which empirical data I needed to collect in order to support the information contained in the table. I constructed an interview guideline accordingly, and I conducted 10 interviews with sustainability professionals that allowed me to collect empirical data on corporate sustainability. I then built upon the theoretical framework merging CS and CF to analyse the empirical data and to point out the contributions of CS to CF. To conclude the thesis and to present clear results, I used the MMCF to put into evidence the contributions of CS to CF.

As the research aims at exploring corporate foresight in the new light of corporate sustainability, an exploratory study approach is adopted. The aim of the paper is to provide a better understanding of

CS and CF together, however, it does not intend to provide the final answers to all research questions. Elements of answers are formulated to pave the way towards future research. Furthermore, the direction of the research changed a little bit throughout the research: as a result of new data and insights the research questions were clarified and refined. The exploratory approach gives indeed the opportunity to adapt as the result of new data and insights appear (Saunders et al. 2009).

### **3.2 Data collection**

The data collection assumes that companies' objective is to create long-term value and to survive long-term. The justification for this assumption can be found in Chapter 2. The data collection builds on the Maturity Model of Corporate Foresight (MMCF), an academic framework published in 2010 by the professor René Rohrbeck as part of his PhD. The MMCF guides the collection of empirical qualitative data in order to provide an understanding of how CS contributes to one or several capabilities of the Maturity Model.

The collected data consists both in secondary and primary data. The secondary data -theoretical models in the literature review- provides knowledge about previous research on CS and CF models and forms the foundation both for the clarification of the aim of the research project and for the collection of the primary data. With this secondary data, a table linking CS to CF is created and guides the primary data collection.

The primary data is collected through semi-structured interviews of sustainability professionals. A list of questions is established, and used as an interview guide, but the interviewee has freedom in how he/she replies, and the questions do not necessarily follow the interview guide. Because the approach of studying CF in the light of CS is new, I did not have a clear idea of what topics would the sustainability professionals relate the most to. Thus, semi-structured interviews allow to build on ideas from the interviewee and allows to ask questions that were not included in the guide (Bryman & Bell 2011). With semi-structured interviews a certain degree of flexibility is possible, which helps not missing out on any supplementary concept or idea mentioned by the interviewee. The interviews aim at providing the study with information about the organizational management of sustainability within corporations.

In order to provide explanations, an analysis of the qualitative data is carried out. I first transcribed the interviews and read the transcripts several times in order to become familiar with the data. It is important to be aware that the findings are a construct produced by the interaction between the interpreter (i.e. the researcher) and the interpreted (Levers 2013). Afterwards, the ideas and the information communicated by the interviewees were grouped into five categories: the five dimensions of the MMCF. This grouping helps to focus the analysis, and to identify which dimensions of the MMCF were most relevant from a CS point of view.

#### **Construction of the interview guide**

The ten interviewed sustainability professionals were asked about their work with corporate sustainability, and about how they implemented CS activities.

The interview was constructed by following the structure of the MMCF, and by seeking support from an online survey conducted by Rohrbeck Heger in order to assess respondent's future preparedness (appendix J). The interview questions were formulated so that they would avoid all potential ambiguities (using words that everyone understands) and not be biased (building objective



questions, not formulating an opinion), and the interviews were conducted within one hour approximately.

All interviewees work with Corporate Sustainability, they therefore all have an extensive understanding of what CS means. All interviews started with two preliminary questions: one question about the background and work responsibilities of the interviewee, and one question and discussion about the meanings of CSR and CS, in order to make sure that the interviewee and the interviewer had the same concepts and definitions in mind.

The third question is about the sources of information, which can be differentiated into internal, external, formal and informal, restricted or easily accessible. Internal information sources can for example be internal experts. External information sources can be statistical databases (OECD, World Bank, etc.), journalists, newspapers and magazines or research reports. External scouts<sup>28</sup> and experts are a restricted information source, not easily accessible, while magazines or statistical databases are easily accessible. Information can also be gathered through personal contacts (informal) or through conferences and fairs (formal). Moreover, information can be gathered from the current business, from adjacent or unrelated businesses, and from various environments (political, economic, socio-cultural); and some information sources can be more suited to a specific environment or business.

The fourth question is about the methods used to analyse and interpret the information collected, and to structure the CS processes. Examples of methods are roadmapping, backcasting, scenario planning, horizon scanning, stakeholder analysis, trend extrapolation<sup>29</sup>, Delphi method, focus-group interviews, cross-impact analysis<sup>30</sup>, GRI guidelines<sup>31</sup>, SDGs, ISO norms, etc; and they can be divided into three categories: market-oriented, technology-oriented or cross-functional. Market-oriented methods are focused on discovering and meeting the needs and desires of the customers, while technology-oriented methods are focused on developing new goods and services based on the firm's technical abilities. For instance, stakeholder analysis or focus-group interviews are market-oriented, ISO norms are technology-oriented, and roadmapping or scenario planning are cross-functional.

The fifth question is about the background and expertise of employees working with CS, and about whether they are only dedicated to the CS unit/department or if their time is split up between several departments. Employees can have a strong external network, or a strong internal network, they might be experts in a specific topic and/or have broad knowledge about the whole organization, etc. If employees work exclusively for the sustainability department, it might mean they have weak connections to the other units, unless they build a strong internal network.

The sixth question aimed at understanding if and how CSR information (CSR projects, events, etc/) is shared within the organization. The information sharing can be seldom or ongoing, formal or informal, it can be done across functions and hierarchical levels, etc. Information can be shared formally through newsletters, intranet or internal conferences or informally through company networking events. Some methods involving various employees, for instance roadmapping, can also promote cross-functional and cross-hierarchical communication. External CS communication

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<sup>28</sup> Dedicated internal or external people hired to gather and disseminate information (Rohrbeck 2010).

<sup>29</sup> Forecasting technique which uses statistical methods to project the future pattern of a time series data (Business Dictionary).

<sup>30</sup> Method of strategic foresight in which variables in a scenario are placed in a matrix and expert judgment is used to quantitatively estimate the strength of interaction between each variable (Encyclopedia of Business Analytics and Optimization).

<sup>31</sup> : The Global Reporting Initiative is an international independent organisation helping businesses and governments with their sustainability reporting in order to understand and communicate their impact on critical sustainability issues (Global Reporting Initiative).

(question seven) can be conducted through annual reports or sustainability reports (most common), or through fairs, events, conferences, etc. It can also be made if CSR employees are part of communities, workshops, etc.

Question eight underlines the fact that CS activities or projects can be triggered bottom-up or top-down. It mainly reflects how much employees (bottom) are involved into the decision-making of the organization, where do CS ideas come from, and how much employees and top-management are committed to CS projects. If information is shared and reaches everyone, then everyone should feel concerned and therefore CS projects would be triggered both bottom-up and top-down.

Questions nine and ten are less centred on the dimensions of the MMCF. They aim at understanding which time-horizon(s) CS employees focus on. The time horizon can be dependent on the clock speed of the industry the organization belongs to. For example, personal computer companies are in a fast-clock speed industry, while the food and beverage industry is a slower-clock speed industry. The last question aimed at discussing with the interviewee about his opinion on the benefits created by sustainability activities within companies.

Below are the 10 interview questions that were asked to the participants.

- 1) Can you briefly present your professional and personal background, and explain do your work responsibilities involve?*
- 2) According to you, what do CS and CSR mean? What is the difference between the two terms?*
- 3) Which information sources do you use and where do you collect information?*
- 4) Do you use specific methods to collect and interpret the data?*
- 5) What characteristics do the employees working with CS have, and are they also working for another department?*
- 6) How are CS insights shared internally?*
- 7) How is external CS communication conducted?*
- 8) How are CS activities triggered in your company (bottom-up or top-down)?*
- 9) Which time horizon do you consider in your CS activities: short-term (1 to 3 years), medium-term (3 to 5 years) or long-term (15 to 25 years)?*
- 10) Do you think sustainability activities help identify future opportunities?*

Although I had an interview guide, I did not always follow it exactly. Three interviewees started explaining everything about their work with CS after I asked the first question. I then had to ask for a few precisions, but the interview guideline was not followed. However, the other interviewees followed the interview guideline. Even though most of the questions were specific enough, the interviewees often asked for precisions about what “methods” referred to in question four. I then explained to them that it referred to methods used to interpret the information and tried to avoid giving them examples in order not to influence them in their answers. If what I meant was still not clear to them, I gave them the examples of scenario planning and stakeholder analysis, which are two very common methods to interpret data.

### **Deepening the People & Networks dimension**

While I was carrying out the interviews, I realised that the participants had a lot to say about the team members and the networks they were involved in and working with. I therefore found it relevant and interesting to deepen the information collected about People & Networks and asked more questions on the topic. Although those supplementary questions were not included in my first

interview guide, below are the questions that I asked about People and Networks when discussing with the interview participants. The questions aimed at investigating the 3 criteria present in the dimension People and Networks of the MMCF (Rohrbeck 2010, p.78). The traits mentioned in question 3 are the traits that were identified as most important for foresighters to have (Rohrbeck 2010, p.78).

Below are the interview questions that were asked in order to deepen the “People and Networks” dimension:

- 1) *How many employees are part of the sustainability team?*
- 2) *Are the employees solely dedicated to the Sustainability department or do they split their time between several departments?*
- 3) *I will now mention several traits. Can you tell me which ones you look for in your sustainability colleagues? Which ones do you believe are less important?*
  - *Deep knowledge in one domain, in order to understand how far a topic needs to be understood to come to conclusions*
  - *Broad knowledge, to quickly access new information domains and relate them to one another*
  - *Curiosity and receptiveness, to ensure the eagerness to capture external information*
  - *Open-mindedness and passion, to ensure that issues outside the dominant world-view of the company are considered and disseminated*
  - *Strong external networks, for ensuring access to high-quality information*
  - *Strong internal networks, for ensuring the efficient diffusion of information throughout the company*
- 4) *Can you think of other traits I have not mentioned?*
- 5) *An external network gives access to external information. Do you see this as important for your work with sustainability? Why?*
- 6) *If an external network is seen as important, what type of external partners are you in contact with for your work with sustainability?*
- 7) *How do you maintain contact with the external partners previously mentioned (which means, tools, events), and how frequently are you in contact with them?*
- 8) *How are the employees working in the sustainability teams encouraged to build and maintain a network of external partners and to be open to external information?*
- 9) *An internal network ensures the diffusion of information throughout the company. Do you see the internal diffusion of sustainability information as important? Why?*
- 10) *If an internal network is seen as important, which internal partners are you in contact with for the diffusion of information related to sustainability?*
- 11) *How do you maintain contact with the internal partners mentioned above (which means, tools, events), and how frequently are you in contact with them?*
- 12) *How are the employees working in the sustainability teams encouraged to build and maintain an internal network?*

Adding all the previous questions really allowed to collect detailed information about the constitution of the sustainability teams, the importance of developing internal and external networks, and the skills sustainability professionals must show. Deepening the empirical data about People and Networks allowed to make significant connections between the People and Networks in Foresight, and the People and Networks in sustainability and to reach a pertinent conclusion.

## Company and interviewee selection

Three different stages of a corporations' commitment to CS can be identified (Öberseder 2013): companies that offer a minimalist CS response, companies that view CS as a departmental concern, and those that make a committed response. The first stage of commitment includes companies that engage in CS initiatives because of external pressure. The second stage of commitment includes companies that have a manager responsible for CS activities but still face internal problems when implementing CS. Firms in the third stage place a strong emphasis on CS activities. They engage in social projects, create awareness for CS, educate their employees on the importance of their contribution to society, and engage in stakeholder dialogs to identify their needs. The selection of the interviewees is based mainly on the noted proactive implication of their company towards CS, which means that the interviewees work for companies that belong either to the second stage or to the third stage of commitment to CS. The interviewees have a job position and a job title that shows that they are dedicated to the sustainability question. They have the knowledge and resources necessary to bring valuable insights to the conversation. The interview participants are identified thanks to information on LinkedIn (their job title and job description), and thanks to recommendations (several interviewees put me in touch with people they worked with).

Although a special attention was brought to the establishment of contact with the companies and potential interviewees, obtaining interviews proved to be laborious. The establishment of contact was prepared and followed three steps:

- Initial short message on LinkedIn, of maximum 5 lines, introducing briefly myself and the study, and telling the person that I would like to discuss and present further the research.
- Second longer message, either via email or via LinkedIn, of about 20 lines, explaining the purpose of the study and asking if we can set up a 30 minutes phone call. The message included a sample of questions in order to give the person an idea of what I would like to talk about. I also attached a one-page document explaining the aim of the research.
- If I did not receive an answer, I sent a follow-up message two weeks later. I always gave my contact information and insisted on the fact that they could contact me if they had any question.

I first thought it would be possible to only interview European-based Corporate Sustainability Managers from the food and beverage industry but the persons I interviewed came from a broader background than first expected. The thesis is therefore not especially focused on the food and beverage industry. However, the range of persons I was able to talk to, given the scope of the master thesis, provided me with valuable information and inputs for the research.

Among the 83 contacted persons, 7 agreed to be interviewed and 4 replied and said that they were not interested. 72 persons did not reply. 2 persons that agreed to be interviewed referred three other sustainability professionals (1 in a corporation and 2 academics) that I interviewed. Therefore, 10 interviews were conducted: 4 with professionals from the public sector (academic research and politics), and 6 with professionals from the private sector. The 4 participants working for the public sector had a previous sustainability work experience for the private sector. Thus, all participants experienced working with sustainability for a private organization and could bring tangible information to the interviews. The participants currently working for the public sector mentioned also interesting theoretical concepts, some of which are included in the theory review. 9 interviews were conducted over phone or Skype, and one interview was conducted face-to-face.

All interview participants are listed and briefly introduced in Table 4.

Table 4: Interviewees and their job positions

Interviewee	Company	Country	Position	Public/Private Sector	Years of employment	Initials	Participation in phase 2?
Jeffrey Yorzyk	HelloFresh	USA	Associate Director of Sustainability	Private sector	1 year	P1 (Person 1)	No
Tom Swarr	Yale University	USA	Lecturer – Life Cycle Assessment	Public sector (academic)	7 years	P2	No
Jim Fava	Anthesis Group	USA	Chief Strategist	Public sector	3 years	P3	No
Ophélie Poder	Triballat Noyal	France	CSR Project Manager	Private sector	6 months	P4	No
Lucas Le Provost	Triballat Noyal	France	CSR Coordinator	Private sector	8 years	P5	No
Anonymous man	Swedish company	Sweden	Senior Specialist Sustainability	Private sector	4 years	P6	Yes
Oscar Alberto Vargas Moreno	Mayor's Office, Bogota	Colombia	Advisor for the Management of Environmental Issues in Organizations	Public sector (academic)	17 years	P7	No
Rita Senise	WSP Natliken	Sweden	Innovation Management and Sustainability Advisor	Private sector	2 years	P8	No
Philip Strothmann	Forum for Sustainability through Life Cycle Innovation e.V.(FLSCI)	Germany	Co-Founder and CFOO	Public sector	5 years	P9	No
Anne Enger	The Absolut Company	Sweden	Eco-design and Sustainability Manager	Private sector	2 years	P10	Yes

Below, the interview participants are further introduced.

Jeffrey Yorzyk: Jeffrey has promoted for years the “fusing sustainability with business” with a focus on risk and opportunity management. He works on the integration of environmental and social stewardship into business through methods and tools in the context of cutting-edge thinking, like the

Life Cycle Assessment<sup>32</sup>, ESG policy, Organizational “foot printing”, CSR report development, sustainability metrics, and enterprise sustainability software.

Tom Swarr: Tom Swarr was a University lecturer teaching a class on life cycle assessment and has been committed for years to promote more responsible product design. Too often; products carry unintended consequences of environmental damage and social inequity. He advocates for regional-based strategies for sustainable development that build off the principles of life cycle management developed for industrial product systems.

Jim Fava: Jim Fava has spent over 30 years supporting businesses and governments to understand the risks and opportunities facing them and provided them guidance to operate in a more environmentally responsible and sustainable fashion. He is passionate about driving business value (increased revenues, mitigated risks, enhanced brand, reduced costs) from operating sustainably and has promoted the application of life cycle information to support decision-making globally.

Ophelie Poder: Ophelie is working with Lucas Le Provost and is committed to promoting an ecological transition in the organic food and beverages industry. She conducts audits for CSR actions and reporting.

Lucas Le Provost: Lucas holds a Master of Science in Sustainability Studies and is working as a CSR Coordinator, conducting diagnostics, audits and roadmaps, setting up an energy and management system, and developing the carbon reporting, Life-cycle Assessment, eco-design and sustainable purchase practices in his company. He is also involved in the CSR communication and CSR brand approach, taking into account both internal and external stakeholders.

Anonymous man: He is working with climate impact analysis, performance and forecasting, supporting the development of renewable energy for his company.

Oscar Alberto Vargas Moreno: Oscar is a geologist, with a focus on quality, industrial security and the environment. He is currently finishing his PhD in Process Engineering and is managing the program of corporate sustainability for the Mayor’s office of Bogota.

Senise S. Rita: Science and technology analyst, consultant, researcher and civil engineer. Expert for COST (European Cooperation in Science and Technology) and consultant in innovation system management, funding and regulatory/

Philip Strothmann: Philip has extensive experiences in environmental management, with a special focus on Life Cycle Management, resource management and energy and climate policies. He is the Co-Founder of the FLSCI, a multi-stakeholder and membership-based community organization for professionals working in business, science and policy organizations who are interested in working with Life Cycle approaches to enhance the sustainability of economic activities.

Anne Enger: Anne has a broad experience from innovation to production to sustainability, and is working with packaging and material development, developing sustainability and eco-design within her company.

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<sup>32</sup> A systematic set of procedures for compiling and examining the inputs and outputs of materials and energy and the associated environmental impacts directly attributable to the functioning of a product or service system throughout its life cycle. A life cycle assessment determines the environmental impacts of products, processes or services, through production, usage and disposal (The Global Development Research Center).

### 3.3 Ethical considerations

When conducting a research project, one must keep some ethical values in mind. Codes of ethics for business and management researchers have been established for this purpose. The British Academy of Management, the higher Education Academy and the Chartered Association of Business Schools developed an ethics framework, and ethical principles in business research have been broken down into four main areas by Diener & Crandall (1978):

1. Harm to participants: Concerns about how to treat the people that are subject of the research as well as the activities that we should not engage in with them are to be taken into account (Bryman & Bell 2011). Harm includes physical harm, harm to participants' development or self-esteem, stress, harm to career prospects or future employment (Ibid).

To make sure no harm was caused to the participants, I told them prior to the interview that if they did not feel comfortable with one question or topic, they should immediately tell me, and we would move on to the next questions. I did not involve the participants in a study that could generate any kind of conflict of interest, I carried out the interviews with honesty and transparency, and I did not ask them questions that could put them in uncomfortable situations, nor insisted on information that could be confidential or critical for the company.

2. Lack of informed consent: The respondent should be informed before being interviewed. The information to communicate includes the identity of the organization that will profit from the collected data, the purpose of the data, and if recording equipment is being used (MRS Code of Conduct 2014).

All participants are informed that they are taking part in an interview that will be published in the format of an academic master thesis, and a document introducing the research purpose is sent to them. Time was allocated to answer all of their questions and doubts.

3. Invasion of privacy: The researcher must ensure that confidentiality and non-disclosure agreements about personal and professional information are not violated (Bryman & Bell 2011).

Anonymity (if required) is guaranteed. One interviewee asked to participate anonymously, the name of this person nor the company are mentioned. For the other interviewees, no critical or confidential information about their work positions and companies is diffused in this paper.

4. Deception involvement: Deception -when researchers represent their research as something other than what it is (Bryman & Bell 2011)- should be minimized (MRS Code of Conduct 2014).

To make sure there are no misunderstandings, all words and concepts possibly confusing or unclear are defined and explained to the participants. The work around the research and the thesis has been conducted on basis of trust, honesty and transparency.

Moreover, this research is not funded and not involved in any possible conflict of interests since the researcher is not working for the company that developed the Maturity Model of Corporate Foresight.

# CHAPTER 4

## Interview Analysis

*The purpose of the qualitative data analysis is to organise the collected data, interpret it, and identify patterns in order to draw conclusions. In this chapter, the analysis of the interviews is structured according to the five dimensions of the MMCF in order to identify which dimensions resonate more with the work of the sustainability professionals that were interviewed. The aim is to answer to Research Question 2 by analysing the empirical data in the light of the analytic framework Merging Corporate Sustainability and Corporate Foresight (Table 3).*

*For each dimension, some theoretical aspects from Table 3 are reminded, then the interviews are quoted and analysed. Finally, the main findings are summarized both in writing and in a table.*

### 4.1 Information Usage

The empirical data collection aims at understanding better how sustainability professionals work with data in practice. The participants were asked about the kind of information that enters their corporate sustainability system, and about how this information is collected. The theory review (Table 3) outlined that both sustainability professionals and foresighters need to collect information from a wide variety of internal and external sources. However, the theory section also outlined that sustainability professionals collect information mainly from their current business, while foresighters collect information also from adjacent businesses.

Many interview participants mentioned that their data collection is mainly based on external sources of information. For instance:

*P5: "We listen to key suppliers, consumers and organizations."*

*P6: "Most of the information comes from the suppliers. But we also participate in forums related to sustainability standards and initiatives, to try to foresee what will be important in the next years. Finally, we also collect information from our customers (principle of collective intelligence)."*

P6 mentions three sources of data collection. First, the suppliers and the customers, which are very related to the company's daily operations. Then, the external forums give the possibility to be aware of the evolution of sustainability standards. Furthermore, P6 specifically uses the word "foresee". Thus, attending the external forums is seen as a foresight activity which shows that sustainability professionals act like foresighters. Similarly, P1 specifically mentions that sustainability is a foresight activity:

*P1: "Sustainability encourages forward thinking and search for information."*

P1 also explains how a sustainability team can use social media to proactively look for information and future insights.



*P1: “For example, a proactive sustainability team can identify what consumers say on social media and participate in shaping the conversation before it gets to the country leaders and law makers.”*

By using social media, P1 fosters open innovation with the aim of foreseeing future events that might impact the company. Once again, we can see that the sustainability professionals, because they adopt proactive behaviours, act like foresighters.

The importance of collecting data internally, and of accessing internal knowledge was mentioned by one participant only:

*P10: “We use a combination of both internal and external sources of information. It is important to use the internal knowledge [...]”*

To carry out sustainability operations, we can thus notice that more efforts are made for external data collection than for internal data collection. The interview participants outlined that most of the data they need to formulate sustainability strategies come from external sources: the suppliers, the customers and external forums (events where professionals from several organizations gather to exchange ideas about specific topics). Those three external sources are strongly connected to the current business of the organization. Indeed, the suppliers are part of the daily operations of the organization, the customers are also part of the daily activities the organization, and the external events are made to exchange about topics directly linked to the organization. Therefore, the interviews confirmed the information contained in Table 3: sustainability professionals focus the collection of information on their current business, and not on adjacent businesses. The fact that sustainability professionals focus on their current business can be due to a lack of resources, to a lack of understanding of the relevancy of collecting information from adjacent businesses, or to the actual lack of relevancy of doing so. To collect information from adjacent business or white spaces, sustainability professionals would have to become part of networks that are not related to their daily operations: suppliers of other companies, customers of substitute products or services, etc.

In corporate foresight, a successful practice consists in building sensors that detect changes in the current business but also in adjacent businesses and in all areas, at long, medium and short term, with diverse sources (Rohrbeck 2010). As a conclusion, we can say that because sustainability professionals see themselves as foresighters and because they collect external data from their current business in order to “foresee”, they can contribute to CF to some extent. Indeed, for corporate foresight, external data also has to be gathered from current businesses. However, a successful practice in corporate foresight does not only consist in building sensors that detect changes in the current business, but also in adjacent businesses and white spaces<sup>33</sup>, and in all areas (technology, political, competitor, customer and socio-cultural environment) (Rohrbeck 2010). As a conclusion, we can say that corporate sustainability can participate in improving the data collection of corporate foresight in some areas, but not at all-depths nor all contexts.

Table 5 summarizes the main similarities that were found between Corporate Sustainability practices and Corporate Foresight practices, concerning the “Information Usage” dimension.

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<sup>33</sup> White spaces are areas that currently seem to have no relevance to the company but which could breed disruptive changes that are difficult to perceive and to prepare for (Rohrbeck, 2010, p. 75)/

Table 5: "Information Usage" similarities between Corporate Sustainability and Corporate Foresight.

Information Usage		
	Corporate Sustainability (Interviews)	Corporate Foresight (Rohrbeck 2010, p. 96)
<b>External data collection</b>	Scanning in the current business	Scanning in the current business (and also adjacent businesses and white spaces)
<b>Sources</b>	Mainly external sources: Social media, customers, suppliers, forums (external, informal and formal).	Use of many sources: external, internal, formal, informal.

## 4.2 Method sophistication

Methods sophistication describes the methods used to interpret the information, which is particularly important if large amounts of data have been gathered and if interdependencies are expected between the information coming from different sources (Rohrbeck 2010). The theory section (table 3) outlined that methods are needed in order to make sense of the collected data, and the interviews aimed at understanding better if sustainability professionals work with specific methods in their day-to-day activities, and at understanding if those are similar in some ways to the ones used by the foresighters. The participants mentioned some specific methods:

*P1: "We use a tool that was developed internally and that is called CSR insight. It pulls together many frameworks -UN SDGs, GRI; Code of Ethics, ISO- in order to distil which core expectations are behind them and apply them to companies. I also use product life cycle assessment, focus groups and stakeholder analysis."*

*P4: "We use carbon analysis, stakeholder analysis, environmental analysis and existing referential like ISO 26000 norm. We also conduct brainstorming."*

*P9: "Combining both a Life Cycle Assessment<sup>34</sup> and a Hotspot Analysis helps obtaining a view on how to sustainably develop products."*

Most of the interview participants use specific methods and guidelines for the interpretation of the data and for the formulation of sustainability strategies: stakeholder analysis, Life Cycle Assessment, carbon analysis, etc. However, those methods mainly aim at analysing the current situation and the current state of operations. For instance, a stakeholder analysis focuses on the actors impacted by a given situation, in the present or in the near future<sup>35</sup>; and a Life Cycle Assessment is an analysis of a product's construction and usage stages (once again, focus on the present or near future). On the other hand, methods characterized as being particularly effective in the foresight process for integrating huge amounts of data from different perspectives are the scenario technique<sup>36</sup> and

<sup>34</sup> A systematic set of procedures for compiling and examining the inputs and outputs of materials and energy and the associated environmental impacts directly attributable to the functioning of a product or service system throughout its life cycle. A life cycle assessment determines the environmental impacts of products, processes or services, through production, usage and disposal (The Global Development Research Center).

<sup>35</sup> Maximum 5 years, while foresight uses methods that look at the next 10 to 20 years.

<sup>36</sup> Tool encompassing many different approaches to creating alternative visions of the future based on key uncertainties and trends (Cook et al. 2014). To creatively explore the consequences of issues and plan how to respond.

roadmapping<sup>37</sup> (Rohrbeck 2010). Those two methods specifically guide the user towards a forward thinking. The scenario technique aims at “creating visions of the future”, and roadmapping answers six strategic questions, among which “Where do we want to go?”. Thus, both methods aim at anticipating, analysing the future.

Furthermore, the previous section “Information usage” showed that sustainability professionals do not collect data from such a wide variety of sources as foresighters do. Therefore, the needs for the interpretation of data are not the same, and as a consequence methods and approaches used for CS and for CF are quite different. However, the methods used by sustainability professionals can help trigger conversations that prepare the company for the future indirectly. For instance, a Life Cycle Assessment shows which parts of a product’s construction and usage can be improved, which can encourage the company to improve and create products more fit for future customers.

As a conclusion, we can say that since sustainability professionals do not collect such a wide variety of data, they do not have the same needs in terms of data interpretation that foresighters. Different methods are therefore being used. However, it seems that some CS methods can bring support to CF methods, because CS methods facilitate communication and thus help gathering all employees around a common purpose.

Table 6 summarizes the main similarities that were found between Corporate Sustainability practices and Corporate Foresight practices, concerning the “Method Sophistication” dimension.

Table 6: “Method Sophistication” similarities between Corporate Sustainability and Corporate Foresight.

Method Sophistication		
	Corporate Sustainability (Interviews)	Corporate Foresight (Rohrbeck 2010, p. 101)
<b>Methods supporting communication</b>	Sustainability professionals use preferably methods that facilitate internal and external communication, such as Life Cycle Assessment, Carbon Analysis, UN SDGs.	Foresight must use methods that facilitate internal and external communication, and can therefore build on the methods used by CS.

### 4.3 People and Networks

The objective of asking about people and networks was to understand what qualities and skills sustainability professionals must have, how should the sustainability teams be constituted, and how much value is seen in collaborating with internal and external networks. The theory framework (Table 3) outlined that the success of the sustainability implementation rests on the commitment of the management (leadership), on the corporate culture and on the involvement of diverse employees in the strategy formulation. Furthermore, successful sustainability also rests on the sharing of sustainability projects, both internally and externally.

<sup>37</sup> Roadmapping is a flexible and collaborative technique that supports strategic alignment and dialogue between functions. Underpinned by a generic framework defined by six strategic questions: why do we need to act? What should we do? How can we do it? Where are we now? How can we get there? Where do we want to go?

Participants first mentioned the skills and qualities they look for in sustainability professionals:

*P10: "One must be passionate, engaged and enduring. Sustainability is a new and complex domain, so one must be able to try, fail, experiment [...] in order to get things to change."*

*P5: "CSR employees should be passionate in order to lead and show the example."*

*P10: "A combination of both curiosity, deep and broad knowledge."*

*P6: "One must be open-minded and adaptable".*

All the characteristics that one expects in a good sustainability professional aim at attaining one same objective: being open to change, being open to new perspectives, and being passionate enough to advocate for what you believe in. The participants also recognized that communication is a key ingredient to a successful sustainability implementation. Because of the challenges of implementing sustainability, good communication skills are also required to be able to defend and carry out a sustainability project, without maybe much formal support from the organization. Indeed, according to the interview participants sustainability is still not always seen as of extreme importance by top management.

*P4: "A good CSR employee should be a good communicator in order to have allies in the company."*

*P10: "Our Vice President of communication is the head of sustainability."*

*P10: "When you introduce a new vision, you need to organize workshops, group projects, meetings, to inform the whole company. It can take one or two years to really take the whole organization to understand what the vision is about."*

Furthermore, the strong focus of sustainability teams on building internal networks, confirms that communication and collaboration are key to sustainability implementation. Sustainability is a discipline that requires a very broad range of skills, which explains why sustainability teams need to involve all departments of a company. Actively building internal networks supports the access to different, new perspectives.

*P6: "It is important to have a strong internal network and experience from other areas of the business in order to know the whole company".*

*P1: "Sustainability teams are very small and therefore need to be well networked in the organization [...]. The sustainability person must be a good networker, must know everyone in the company, and must have been working for a while for the company in order to know how things work."*

*P10: "Usually, the employees involved have been in the organization for a long time in order to have a good knowledge of the organization and of the brand."*

People working with sustainability should thus have a broad and extensive understanding of all the ins and outs of the business. This means that employees having a few years of experience within the organization are preferably included into the sustainability teams or departments. Because they have worked for the organization before, they will build internal networks faster, and thus foster internal collaboration easier. They benefit from a stronger internal legitimacy, know who to reach out to in order to get their projects approved, etc. A new recruit would take more time to understand the whole functioning of the business and the relations of power between decision makers or departments.

Furthermore, building cross-functional teams is also important for a successful sustainability implementation. A cross-functional team has a facilitated collaboration with various departments in the company, and benefits from both broad and deep knowledge. Building cross-functional sustainability teams facilitates the collaboration within internal networks.

*P3: "Diversity is key, because everyone has blind spots."*

*P10: "All departments of the company are involved and working with sustainability, it is important to have a cross-functional team."*

We recognize here that for many interview participants, internal networks are important for a successful sustainability implementation because they support the collection of information from various perspectives and increase the commitment of everyone in the company. While internal collection of information was not specifically mentioned by participants in the "Information Usage" section, the importance of collecting information internally is recognized by the participants in the "People & Networks" dimension. Thus, we can see that those two dimensions are interrelated: internal networks ("People & Networks") are required to collect Internal Information ("Information Usage"). We can imagine that participants did not emphasise the importance of internal information in the "Information Usage" dimension because it is collected very naturally; while they have to make more efforts to collect external information.

Besides the internal networks, building external networks is also an important part of the sustainability work.

*P10: "Since sustainability is evolving fast, networks are important to learn, get different perspectives, and new techniques. [...] Sometimes we talk with other industries, we share, and we help each other".*

*P6: "External networking is very frequent in our company. Sustainability professionals meet external stakeholders, attend events, collaborate with NGOs or competitors for sustainability questions. We work in a very integrated way. [...] A lot of professional networking (direct email, LinkedIn, phone calls) is done."*

External networks help collect information about new sustainability perspectives and innovations that can support sustainability implementation. In other words, being part of external networks facilitates the access to experts, knowledge, innovation, new perspectives, etc. Once again, because the external networks support the collection of external information, we can notice the strong interdependency between the "People & Networks" and "Information Usage" dimensions.

Furthermore, internal networks facilitate the openness to change of the organization. If employees are involved and made aware of the sustainability vision and projects, they will be more open to collaborate, and to implement the change. Finally, being open to change and being open to sustainability initiatives is very dependent on corporate culture. As one interview participant said:

*P6: "Successful sustainability implementation depends a lot on informal governance and corporate culture".*

It is thus important that corporate culture supports the sustainability efforts and the internal and external networking initiatives.

Verifying what was mentioned in the theory framework (Table 3), we can say that strong communication, internal networks, external networks, openness to change, cross-functionality, curiosity and persistence are key elements that will support and facilitate the formulation and the implementation of sustainability strategies. Sustainability is indeed a new and unstable field,

continuously evolving, which requires for sustainability professionals to always keep an eye open for innovations and information. In other words, sustainability professionals scout for new information and look forward. In that sense, they have a mindset and purpose similar to foresighters. Table 3 outlines in fact that successful foresight rests on the diffusion of foresight projects internally and externally through strong communication, on an extensive external and internal cross-functional collaboration; which are all aspects that were mentioned by sustainability professionals. Foresighters are also expected to have qualities such as deep and broad knowledge, curiosity, passion, open-mindedness, and strong internal and external networks (Rohrbeck 2010), once again qualities that were also mentioned by the interview participants.

As a conclusion, we can say that the empirical data collection strengthens the idea that sustainability professionals and foresighters have to show similar characteristics. Because foresighters and sustainability professionals build internal and external networks, and because they develop similar skills, we can assume that sustainability professionals would be perfectly suited to support foresighters in their work. Foresighters can benefit from the internal and external networks set up by the sustainability department and can also benefit by incorporating someone from the sustainability department in the foresight department. This person would for instance bring strong communication skills and facilitate the collaboration of the foresight teams with the whole organization. Furthermore, because sustainability teams are cross-functional, they have access to a wide variety of information (internally and externally) and skills, and we can imagine that a foresight team would benefit strongly from organizing work sessions/brainstorming sessions with the sustainability team.

Table 7 summarizes the main similarities that were found between Corporate Sustainability practices and Corporate Foresight practices, concerning the "People and Networks" dimension.

*Table 7: "People and Networks" similarities between Corporate Sustainability and Corporate Foresight*

<b>People and Networks</b>		
	<b>Corporate Sustainability (Interviews)</b>	<b>Corporate Foresight (Rohrbeck, 2010, p.78 &amp; p.160).</b>
<b>Characteristics of the employees</b>	Open-minded, curious, adaptable, passionate, engaged, enduring.	Curiosity, receptiveness, open-mindedness, passion, team player.
<b>Experience of the employees</b>	Deep and broad knowledge of the company and the industry, years of experience in the company.	Deep and broad knowledge
<b>Composition of the teams</b>	Diverse and cross-functional teams (or strong internal network)	A few full-time employees, and managers from different business units.
<b>Internal networking</b>	Internal collaboration and communication through workshops, events, newsletters, to gain different perspectives and commit everyone to the sustainability visions.	Internal collaboration to ensure the efficient diffusion of information throughout the company, for an efficient communication.
<b>External networking</b>	Collaboration with external stakeholders, other industries, NGOs, competitors, etc. to gain knowledge for the sustainability implementation.	External collaboration to ensure the access to high-quality information.

#### 4.4 Organization

The organization dimension describes how information is gathered, interpreted, and used in the organization (Rohrbeck 2010). It captures the ability of a company to translate information into future insights and insights into action (Ibid). Table 3 showed that both foresight and sustainability are more likely to be successful if reward systems are set-up to foster internal accountability. The interviews aimed at understanding whether reward systems or rules exist for the implementation of sustainability operations.

*P5: "Project ideas come from the CSR department, and have to be validated by the top management."*

*P10: "The leadership team needs to approve the sustainability activities."*

The interviews show that little structure exists in corporations to support the implementation of sustainability strategies. Sustainability initiatives are mostly triggered by sustainability professionals and then validated by top management: a bottom-up approach is adopted. According to one participant, this is due to CS not being always recognized as of first importance by the top management. Furthermore, no system of reward was put forward by the interview participants. Thus, the empirical data shows that in practice, sustainability in companies is not fostered by incentives nor by internal accountability as much as what was suggested by the theory section.

To achieve successful foresight, the projects should be triggered both bottom-up and top-down, the insights generated should be integrated into most decision-making processes, all employees should be involved in detecting signals (internal accountability), and incentives should be given to employees (Rohrbeck 2010). None of the above was mentioned by the sustainability professionals. We can suggest several reasons for that:

- CS practices are more informal and do not need to be organized according to specific rules (companies do not see the need to trigger both bottom-up and top-down the activities),
- Even if many employees with diverse backgrounds (see People & Networks) are involved in the sustainability process, it does not mean that it is necessary for all employees to be held accountable in order to reach a successful sustainability implementation,
- Sustainability employees might not ask for incentives because they are passionate by what they do.

However, another aspect of the "Organization" capability dimension of the MMCF can benefit from incorporating CS practices:

*P10: "We sometimes have internal forums or conferences where we share our projects".*

CS professionals are committed to formal information sharing. Foresighters can thus use the same formats (conferences, forums), to communicate their insights to employees, and to build a more open organization. In conclusion, we can see that foresighters can benefit from incorporating the formal information sharing practices of sustainability professionals.

Table 8 puts the light on the main similarity that was found between Corporate Sustainability practices and Corporate Foresight practices, concerning the "Organisation" dimension.

Table 8: "Organization" similarities between Corporate Sustainability and Corporate Foresight.

Organization		
	Corporate Sustainability (Interviews)	Corporate Foresight (Rohrbeck 2010, p. 107)
<b>Formal diffusion of insights</b>	Sustainability professionals commit to formal information sharing to have everyone onboard: conferences, workshop, newsletters.	Foresighters also try to formally share foresight insights in order include them into the decision-making processes. They can thus get support from the sharing formats set-up by CS professionals.

#### 4.5 Culture

In the MMCF the capability dimension culture refers to the processes in place in the company to trigger appropriate actions from the identified insights. Those processes can be encouraging the ongoing information sharing across departments (formally or informally), building an open organization, encouraging informal communication and incentivizing employees to be open to change and innovation. In fact, Table 3 outlined that both sustainability and foresight need a specific supportive corporate culture in order to be successful. The corporate culture must be committed to sustainability/foresight and must be encouraging the diffusion of sustainability/foresight strategies across the organization. Participants were thus asked about the support they receive or expect from their organization.

*P7: "CSR should involve all employees, by organizing conferences for example, in order to share information about CSR projects."*

The CS professionals that participated in the interviews mentioned formal ways of sharing information about sustainability: forums, conferences, newsletters. Because participants did not mention informal information sharing, we can guess that they do not see it as extremely important or strategic for the success of sustainability operations; or that sustainability information is not specifically suited to short, unstructured informal information sharing. But according to Rohrbeck (2010), informal communication is crucial for transferring information and insights to decision makers and ultimately taking appropriate actions. Furthermore, interview participants outlined the importance of internal networks (see dimension People & Networks) and internal networks foster informal information sharing. Indeed, if employees from various departments are involved in the formulation of sustainability strategies, or if they are contacted to give their opinions, informal information sharing happens. Thus, we can assume that interview participants did not mention informal information sharing for two potential reasons: they do not necessarily recognize informal information sharing as a benefit that comes from working with internal networks, or they do not recognize informal information sharing as key for the success of sustainability operations. However, we can say that every time there are internal networks or cross-functional teams, informal information sharing happens because the members of the teams or networks communicate with their colleagues from their department.

As a conclusion, we can say that the cultural processes that facilitate the foresight effort are also found in the sustainability processes. Indeed, ongoing information sharing happens thanks to the internal networks, formal information sharing, cross-functional teams (People & Networks dimension), the organization becomes more open because information is collected both internally



and externally (Information Usage dimension), and because sustainability employees are open to change and innovation (People & Networks dimension). Thus, CS processes can contribute to a successful foresight by improving the dimension 5 of the MMCF.

Table 9 summarizes the main similarities that were found between Corporate Sustainability practices and Corporate Foresight practices, concerning the “Culture” dimension.

Table 9: “Culture” Similarities between Corporate Sustainability and Corporate Foresight.

Culture		
	Corporate Sustainability (Interviews)	Corporate Foresight (Rohrbeck 2010, p. 109)
<b>Ongoing informal information sharing</b>	Sustainability professionals always try to get the support of all employees, because it becomes easier to implement their sustainability vision.	Foresighters also work to informally diffuse future insights, which is also a way to share their vision with all employees and to receive support.
<b>External networks and open organization</b>	As said in “People & Networks”, sustainability professionals work with external networks a lot to access information.	Close collaboration with external networks and an open organization facilitate foresight.



#### 4.6 Time horizon and future opportunities

As showed in the last line of the theory framework (Table 3), both sustainability strategies and foresight strategies focus on long-time horizons and steer the organization towards the future. The aim of the interviews was to verify if sustainability professionals actually had in mind the long-term competitiveness and innovation in their daily activities.

*P6: “We have visions and concrete projects. For concrete projects we consider 1 to 3 years of time horizon, and for visions we consider 15 to 25 years of time horizon.”*

*P5: “Sustainability in a company helps identifying new opportunities or constraints for the company. It is about Darwin survival.”*

*P10: “Sustainability is something that you can use to develop your company for the future.”*

*P8: “It [sustainability] affects the corporate profit and creates long-term results.”*

Thus, all interviewees agreed on the fact that sustainability practices help the company moving forward. Sustainability professionals underlined the fact that sustainability creates future benefits for the companies, by identifying new opportunities, increasing competitiveness and improving costs. Furthermore, in the “Information Usage” section, participants specifically mentioned that the data collection aims at foreseeing the future and looking forward; and in the capability dimensions “People & Networks” and “Culture” patterns of similarities between foresight and sustainability could be identified. Because all dimensions are interdependent, if sustainability professionals facilitate the work of foresighters for specific dimensions of the MMCF, the other capability dimensions will be positively impacted also.

## 4.7 Summarized findings

The interviews build on the theoretical contribution from Table 3 and give the possibility to identify which Corporate Sustainability practices are more relevant from a Maturity Model of Corporate Foresight perspective. Table 3 provides information on which theories relate CS to CF and provides suggestions on which dimensions of the MMCF were most relevant and most targeted by those theories. The interview analysis shows that three dimensions benefit predominantly from the contribution of CS, and that CS practices also have a small influence on the capability dimensions Method Sophistication and Organization.

Table 10 outlines the MMCF capability dimensions that benefit from CS processes.

*Table 10: The Capability Dimensions of the MMCF that benefit from the incorporation of CS practices. Classified from the one benefiting the most, to the one benefiting the least.*

<b>MMCF capability dimension (the numbers correspond to the order of importance)</b>	<b>CF common practices</b>	<b>CS contribution</b>	<b>Warnings</b>
People & Networks (1)	Foresighters should have deep and broad knowledge (years of experience within the company), be open-minded, curious, passionate, have good communication skills, and collaborate with internal and external networks (Rohrbeck 2010).	Sustainability professionals have skills and characteristics similar to foresighters. Foresighters can benefit from the internal and external networks set up by the sustainability department and can include in their teams a sustainability professional.	External networks built by sustainability professionals are not as broad as external networks needed by the foresighters.
Culture (2)	Encouraging ongoing information sharing across departments (formally or informally), building an open organization, encouraging informal communication and incentivizing employees to be open to change and innovation.	Ongoing information sharing happens thanks to the internal networks, the formal information sharing and the cross-functional teams. The organization becomes more open because information is collected both internally and externally and because sustainability employees are open to change and innovation.	No incentives are given to the employees.
Information Usage (3)	Building sensors that detect changes in the current business but also in adjacent businesses and in all areas, at long, medium and short term, with diverse sources (Rohrbeck 2010)	Sustainability professionals collect external data from their current business to "foresee" => can thus support the data collection of corporate foresight in some areas. Because CS professionals work in cross-functional teams, foresighters can benefit strongly from the info collected by CS.	Foresighters cannot fully depend on CS data collection, because it is not broad enough.
Method Sophistication (4)	Methods used to interpret the information. Particularly important if large amounts of data have been gathered and if interdependencies are expected between the information coming from different sources (Rohrbeck 2010).	The methods used by sustainability professionals can trigger conversations that prepare the company for the future.	Since sustainability professionals do not collect such a wide variety of data, they do not have the same needs in terms of data interpretation than foresighters.
Organization (5)	Ability of a company to translate information into future insights and insights into action (Rohrbeck, 2010).	Foresighters can use the same formal information sharing activities (conferences, newsletters) than those used by sustainability professionals.	The other criteria of the dimension Organization have really no echo with the sustainability practices.

# CHAPTER 5

## Discussion

*The aim of this chapter is to provide answers to the three Research Questions and to investigate whether companies should in fact integrate sustainability practices into their corporate foresight activities in order to improve their ability to detect and anticipate future changes in the environment. This chapter contains further explanations of how foresight activities can benefit from CS and introduces a revised conceptual model of the MMCF.*

### 5.1 Contributions of Corporate Sustainability to Corporate Foresight

The insights gained from the interviews and from the theory section allow the formulation of a revised foresight model that integrates the sustainability efforts. The interview analysis outlined the main contributions that CS teams can bring to CF teams, to facilitate the work with foresight. Those main contributions concern the five dimensions and show that CF teams should collaborate with CS teams. Foresighters can in fact:

- Build their cross-functional teams on the same model as the CS teams and/or collaborate with CS teams to benefit from their cross-functionality.
- Leverage the internal networks built by the CS teams, to facilitate ongoing informal information sharing and commitment across the organization, and to facilitate the collection of internal information.
- Leverage the external networks built by the CS teams to access insights about future sustainable developments. However, because those external networks are mostly focused on sustainability aspects, they cannot be the only ones used by foresighters. Foresighters need to collect a wider variety of information, which is not solely focused on sustainability.
- Include CS professionals to the CF teams in order to benefit from their skills and strengths: open-minded, curious, passionate, persistent, future-oriented, good communicators.
- Include CS professionals to the CF teams in order to benefit from their deep and broad knowledge and from their years of experience in the company.
- Organize workshops where both CF and CS teams get to share their insights about the future trends, and where foresighters access the information collected by sustainability professionals.
- Reuse the formal information sharing activities set up by sustainability professionals.

We can thus assume that foresighters will benefit from a collaboration with sustainability professionals to carry out their foresight activities. Furthermore, we can assume that a company committed to sustainability has the suitable structure, culture and mindset to implement foresight. It will indeed be easier for a company committed to corporate sustainability to achieve best practices and successful foresight than for a company not committed to corporate sustainability, because a company implementing CS benefits from a culture favourable to change, to innovation, to collaboration and out-of-the-box thinking.

Because all dimensions of the MMCF are interdependent, integrating CS processes within the MMCF does not solely influence one dimension. For instance:

- If foresighters decide to leverage the internal networks set up by the sustainability professionals, they improve their capacity to collect internal information. Thus, by strengthening their internal networks (dimension People & Networks), they also strengthen their access to internal information (dimension Information Usage).
- Likewise, if foresighters decide to leverage the internal networks set up by the sustainability professionals, they strengthen their capacity to gather everyone around a common purpose: forward-thinking and long-term survival. Indeed, by building active and strong internal networks, collaboration is encouraged, the willingness to share across functions increases, and the organization becomes more open. All employees become actors of the change. Thus, increasing the CF internal networks by building on the CS internal networks (dimension People & Networks) also improves the openness of the organization towards change and innovation (dimension Culture).
- If foresighters decide to leverage the external networks set up by the sustainability professionals, they can collect external information about sustainability. Thus, by strengthening their external networks (dimension People & Networks), they also strengthen their access to external information (dimension Information Usage).
- If a CF team decides to collaborate closely with a sustainability professional (People & Networks), it can benefit from his deep and broad knowledge, from his communication skills and can directly access data that has been interpreted by the sustainability team. A foresighter can be interested in a Life Cycle Assessment for instance. Thus, by strengthening the foresight team (dimension People & Networks), the access to information and the interpretation of this information are also improved (dimensions Information Usage and Method Sophistication).
- If the Methods used have a strong communication capacity (dimension Method Sophistication) and ensure that internal stakeholders understand and interpret well the information, then the formal diffusion of information will be successful (dimension Organization).

## 5.2 The Revised Conceptual Model

Figure 10 is a revised conceptual model of the MMCF, schematizing the integration of Corporate Sustainability to the different dimensions of the MMCF. The red arrows symbolise the integration of Corporate Sustainability to specific dimensions or criteria of the MMCF (identified with red circles).

The arrows and the circles show which dimensions or criteria of the MMCF can the most obviously be impacted by Corporate Sustainability activities. Of course, because all dimensions of the MMCF are interdependent, the impacts of CS activities do not limit themselves to the circled dimensions and criteria. The information contained in the red square text boxes gives insights on how and why CS activities contribute to the dimension/criteria that is being pointed at.

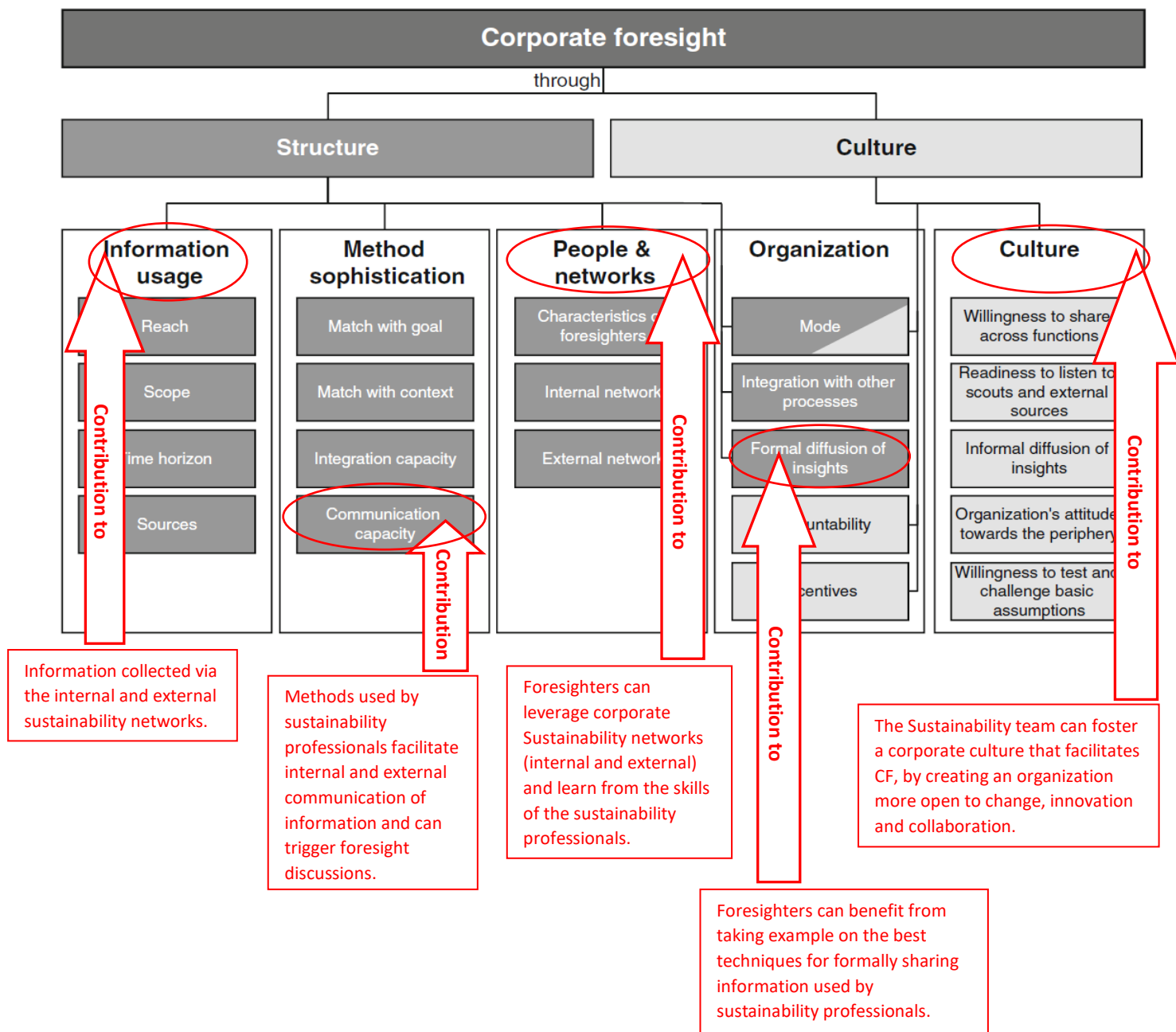


Figure 10: Revised Maturity Model of Corporate Foresight – Adding Corporate Sustainability (2019).

The revised conceptual model of the MMCF below outlines how Corporate Sustainability can improve Corporate Foresight processes:

- **Information Usage:** Internal and external sustainability networks collect important amounts of information, that can enrich the Information Usage dimension of the MMCF by bringing new perspectives.

- **Method Sophistication:** Sustainability professionals usually use specific methods to successfully communicate their insights to everyone in the corporation. Companies have more experience with CS than with CF and can thus have better methods for CS, that have been tested and revised many times. Foresighters can thus take example on the methods used by CS, which could facilitate the communication of foresight insights within the corporation.
- **People and Networks:** CS teams are usually cross-functional, and sustainability professionals show skills that are also very important for a successful CF. Foresighters can thus take example on how the CS team was built in their company and consider incorporating a few sustainability professionals to the foresight activities.
- **Organization:** Again, because CS is more ancient than CF within corporations, it uses work processes that have been tested and improved many times. It is important for all corporations to diffuse sustainability insights internally. Foresighters can therefore build on the methods used by the sustainability professionals that proved to be successful for internal diffusion of foresight.
- **Culture:** A company committed to CS is a company that is open to change, to innovation and to cross-functional collaboration. Those aspects are also key for a successful corporate foresight implementation: foresight needs to involve all departments of a company and will be more successful in a company that is open to changing the status-quo. Therefore, it will be harder for a team of foresighters to work for a company that does not implement CS and that does not know how to evolve.

Of course, processes must be formulated in order to guide the incorporation of CS practices to the MMCF and to find answers to the following questions:

- How can foresighters work with the internal networks set up by the CS professionals? Are those enough to trigger internal collaboration and information sharing or should further internal networks be managed?
- How can the information collected via the internal and external sustainability networks be integrated to the other foresight information sources?
- Can the information collected via the internal and external sustainability networks be interpreted with the regular foresight methods?
- How can the external sustainability networks be integrated to the other external networks the foresighters are collaborating with?
- Can sustainability information and foresight information be formally shared across the organization with the same techniques?

# CHAPTER 6

## Conclusion

*This chapter provides answers to the three research questions and points out the main contributions of the research, connects the previous results to a wider context, and emphasizes the reasons that CS and CF are interesting to study together. It also contains a critical reflection of the MMCF.*

### 6.1 Addressing the Research Questions

Corporate Foresight enables a company to detect discontinuous change early, to interpret the consequences for the company, and to formulate effective responses with the aim of ensuring the long-term survival and success of the company (Rohrbeck 2010, p.12). In the present master thesis, a focus was set on Corporate Sustainability practices, which also aim at preparing the company for the future. Because both CF and CS are forward-thinking activities, and because their purpose is to ensure the long-term survival of the organization, it can be assumed that they can support each other and that they are built on similar managerial processes. Furthermore, it is critical for companies today to learn how to survive and adapt to an ever-faster changing environment. However, there exist little research exploring Corporate Foresight practices in the light of Corporate Sustainability. Therefore, the goal of the research was to identify whether CS can contribute to CF. It is interesting to study CF in the light of CS, because CS has often been present within corporations for longer than CF. As a result, there is less unknown about the management of CS than about the management of CF. Furthermore, because CS is more strongly established and framed within corporations than CF, it can be used to strengthen some aspects of CF.

The three research questions guide the structure of the thesis. RQ1 aims at focusing on the existing theories and identifying theoretical similarities between CF and CS processes. RQ2 aims at building on the theory to collect empirical data. Finally, RQ3 aims at formulating a conclusion based on the theoretical and empirical findings.

The three research questions are answered below.

**Research Question 1** *What theories show overlaps between Corporate Sustainability and Corporate Foresight?*

Both Corporate Sustainability and Corporate Foresight encourage:

- The establishment of reward systems, to provide incentives and an internal accountability to employees: it facilitates the commitment to implementing CS or CF.
- The integration of all business units, to access a wide variety of information, skills, competencies, and to commit all stakeholders to the implementation of CS or CF.
- The collection of information from a wide variety of internal and external sources.
- The use of specific methods to interpret the data: both CS and CF encourage the collection of data/insights from a wide variety of stakeholders and sources: specific and strong methods are therefore needed to make sense of the data.

- A corporate culture that facilitates change and collaboration: the organization and top management must create an internal culture that encourages employees to bring ideas to the table, a corporate culture that does not stigmatize failure and that encourages reassessment, and questioning.
- Extensive internal and external communication to share and promote the foresight or sustainability initiatives: having everyone on board, both internally and externally, facilitates the successful implementation of the foresight or sustainability vision.

Table 3 also outlines a few differences, specifically the fact that the stages “Formulate and Plan a Strategy”, “Implement the Strategy”, “Monitor, Assess, Improve” are not detailed in the MMCF.

**Research Question 2** *Which Corporate Sustainability practices are more relevant from a Maturity Model of Corporate Foresight perspective (MMCF)?*

The interviews provide insights showing that among the 5 dimensions of the MMCF, three have strong dominant echoes within the sustainability practices: Information Usage, People & Networks, Culture.

**Research Question 3** *How can Corporate Sustainability improve Corporate Foresight processes?*

Corporate Sustainability, by paving the way towards strong internal and external networks, towards a corporate culture favourable to change, towards ongoing formal and informal information sharing, etc. has the capacity to bring support to Corporate Foresight processes. Sustainability professionals are forward-thinkers: their work consists indeed in interpreting information about sustainability and directing the corporation towards the future. We can thus say that sustainability professionals are foresighters, that they should be included to the corporate foresight teams and that they can improve corporate foresight processes.

The research therefore shows that CS can improve several capability dimensions of the MMCF. Foresighters can thus seek help from the sustainability teams to make foresight more efficient. Several criteria of the MMCF can be indeed positively influenced by CS practices: setting up internal and external networks, sharing insights about foresight informally and formally, sharing and collaborating cross-functionally, etc.

## **6.2 Contributions to the field**

We will now talk about the theoretical contributions and managerial implications of this research about the contribution of corporate sustainability to corporate foresight.

The research field of corporate sustainability includes many different definitions and frameworks, and the literature review allowed to identify the most relevant definitions and sustainability frameworks for the research. All sustainability frameworks were merged into a single one in order to capture the corporate sustainability process thoroughly. The research field of corporate foresight is a young but fast-growing research area (Rohrbeck 2012, p.208), and fewer CF frameworks exist. The research was built on the MMCF, a recent and detailed CF framework. The aim of the research was to



enrich the knowledge about corporate foresight implementation by investigating foresight in the corporate sustainability context. The literature review highlighted similarities between CF and CS, and gave the possibility to build Table 3, which outlines the many similarities between CS theories and CF theories. Then, through interviews with sustainability professionals it became possible to identify less theoretically and more practically what managerial similarities exist between CS and CF. Finally, the literature review and the empirical data collection gave the possibility to extend the Maturity Model of Corporate Foresight to include Corporate Sustainability, and to build a revised MMCF. The aim of this revised model is to show companies how they can benefit from encouraging collaboration between CS and CF teams. It is also important to remember that because the capability dimensions of the MMCF are interdependent, including CS to the model does not only affect one dimension, it also creates implications for the other dimensions of the MMCF.

From a practitioner's point of view, the present research is a basis for managers who would like to understand how to integrate the sustainability efforts into their corporate foresight system. The thesis guides the integration by providing insights according to each dimension: information usage, method sophistication, people and networks, organization, culture. The research aims at helping companies to organize their managerial foresight practices and to have a better understanding of the benefits generated by corporate sustainability practices. The findings indicate that there are several challenges for the integration of corporate sustainability but there are also opportunities that come with this approach. By integrating sustainability into the corporate foresight activities, foresighters get early insights into new sustainability trends, and receive support for data collection and/or from their sustainability colleagues. Furthermore, integrating sustainability also ensures a high-level of commitment from all business units, because sustainability activities are often carried out with the support of strong internal networks, cross-functional teams and internal collaboration; and if the knowledge-transfer between sustainability teams and foresight teams works well, synergies between sustainability and foresight can be exploited and will drive innovation and forward-thinking. Finally, foresight will be more successful within a company strongly committed to sustainability. Indeed, sustainability creates a corporate culture open to change, innovation, cross-functional collaboration, etc. All those parameters are important in a company and will facilitate the work with foresight.

Furthermore, corporations have usually more experience with CS than with CF, CF being newer than CS. Executives and managers therefore understand better the consequences of CS and can thus be more committed to it. Therefore, encouraging collaboration between CS and CF can help CF become more present and anchored in the corporate strategy. A stronger collaboration between CF and CS will help people have a more tangible understanding of foresight. Furthermore, by encouraging synergies between CF and CS, CS will be more seen as a key strategic activity that steers the company toward a successful future. Creating more links between CS and CF means that it will become more anchored in people's minds that a sustainable corporate is a corporate that will be successful in the future. And by extension, it will be more anchored in people's minds that a sustainable society is a society that will be successful in the future. And that a sustainable country is a country that will be more successful in the future. Promoting the collaboration between CF and CS equals to promoting the importance of sustainability and of acting responsibly. Thus, with the proper processes in place, both CS and CF will benefit each other. In other words, creating synergies between CF and CS will be beneficial for foresighters, for sustainability professionals, for the corporations, and for our society as a whole.

Some challenges should also be taken into account. Because it is so broad, foresight is a complex process to manage. Sustainability can be complex to manage too. Both fields contain some part of unknown, because their objective is to look forward, and to prepare the organization for the future (future consumer needs, future regulations, future technologies, etc.). This part of unknown makes the management of foresight and sustainability somehow risky. It is therefore helpful and relevant to know in which cases sustainability can support foresight. Two other challenges come with managing

sustainability and foresight. Even if foresight is in most cases recognized as important for organizations, it is still at its beginning within corporations, and managers have little experience with foresight. Another challenge that comes with managing sustainability is that sustainability can still today sometimes be seen as unnecessary or as a loss of money by executives. Thus, even if sustainability managers show passion, dedication, strong communication skills, etc. it can be tricky for them to get the support of the executives and of the whole organization and to gather everyone around a common purpose. On the other hand, it can be easier to convince executives of the importance of foresight.

#### **6.4 Limitations and Future Research**

Firstly, it is important to reflect critically on the MMCF. The MMCF can be used both to analyse the foresight capabilities of a specific organisation and to guide the foresight efforts of a specific organization. Because it is so wide and broad, it is a very complex framework to use. Some drawbacks are identified:

- The five dimensions of the model (information usage, methods sophistication, people and networks, organization, culture) are interdependent and scan the entirety of the organization. For instance, collecting a broad range of information (Information Usage) requires dynamic networks (People & Networks) and committed employees (Culture). The formal and informal communication of insights (Organization, Culture) depends on the employees involved in the foresight process (People & Networks) and on the methods used to communicate (Method Sophistication). Scanning in all areas and all spaces (Information Usage) requires broad networks (People & Networks) and methods to analyse the collected information (Method Sophistication). The dimensions of the MMCF cannot be tackled individually but must be addressed all together.
- Corporate foresight is moving towards a collaborative approach, characterized by the integration of multiple perspectives, the involvement of external and internal stakeholders and experts, and the interdependency of customer needs, technological capabilities, competitor behaviour, legislative contingencies, production cost (Heger & Rohrbeck 2012, p.829). For instance, using social media can be a way to develop open collaborative foresight activities. However, even if collaborative has proved more successful than individual foresight projects for many companies (Wiener et al. 2018), it can be very complex to implement, and limit its access to a small minority of companies.
- The MMCF requires many resources (experts, time, money, capacity to collect and analyse data, etc.). The complexity and immensity of the task can discourage executives and employees to commit to foresight and limit the access to foresight to a minority of organizations. Today, access to foresight is limited to the biggest organizations, and smaller companies have smaller chances to survive long-term, because they do not have the resources to implement complex foresight systems. To be able to use the model, it must first be delimited.
- When implementing corporate foresight, companies face choices that depend on factors (appropriate methods and sources of information) that can only be assessed at the individual company level. The MMCF does not provide guidelines to take into account the individual specificities of each company.

Secondly, by its nature research will always carry limitations with regard to interpretation and generalizability of results (Rohrbeck 2010, p. 184). I would therefore like to suggest future research

directions, in the hope that these insights will be used by other researchers to engage in research projects that will increase understanding of the contribution of corporate sustainability to corporate foresight.

*Recommendation for Future Research 1: Formulate clear methods*

One limitation of the study is that no procedures nor guidelines are given to guide the incorporation of corporate sustainability to the foresight effort. In order to provide research results as applicable as possible by corporations, it would be necessary to conduct a research project with the aim of investigating the best methods to include CS to CF efforts.

*Recommendation for Future Research 2: Include the cultural dimension*

Cultural orientation toward the future varies widely around the world. The GLOBE (Global Leadership and Organizational Behavior Effectiveness) project study showed “that the greater a society’s future orientation, the higher [...] its levels of innovativeness, [...] competitiveness”. Future orientation is defined in the GLOBE project as the extent to which a culture encourages and rewards behaviors like delaying gratification, planning and investing in the future. For reasons of availability of resources, this research does not take into consideration the cultural dimension. The CS and CF performances are not benchmarked and compared according to their corporate culture nor country of origin. Further research would thus be needed to put into evidence the eventual differences in views about CS and CF according to geographical sectors, industries, and organisational categories.

*Recommendation for Future Research 3: Carry out a longitudinal study*

A longitudinal study should be carried out to understand whether a company increasing its efforts to incorporate CS to CF becomes more successful at Corporate Foresight. This would allow the verification of the benefits a company can get from including the CS teams to CF. It would also allow to identify potential drawbacks from including the CS teams to CF.

*Recommendation for Future Research 4: In-depth investigation of one organization*

The current study collects empirical data from various organizations, with only one interviewee per organization. Thus, an in-depth investigation of one organization, with several interviewees within this one single organization, would provide a deep understanding of the CS processes, the CF processes, and of the opportunities for the contribution of CS to CF.

*Recommendation for Future Research 5: Interdependency of the capability dimensions of the MMCF*

An organization implementing the MMCF could be investigated, in order to understand how the foresighters use the MMCF and which capability dimensions are more or less developed. Then, the researcher could introduce tools to help the foresighters improve and strengthen one specific dimension. And the researcher would then observe if any changes occur on the dimensions that were not directly modified. This would allow to understand how the capability dimensions are interdependent, and which dimensions are more or less correlated.

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# Appendices

## Appendix **A**

### **The 21 criteria of the five capabilities of the Maturity Model**

**Source: Rohrbeck 2010.**

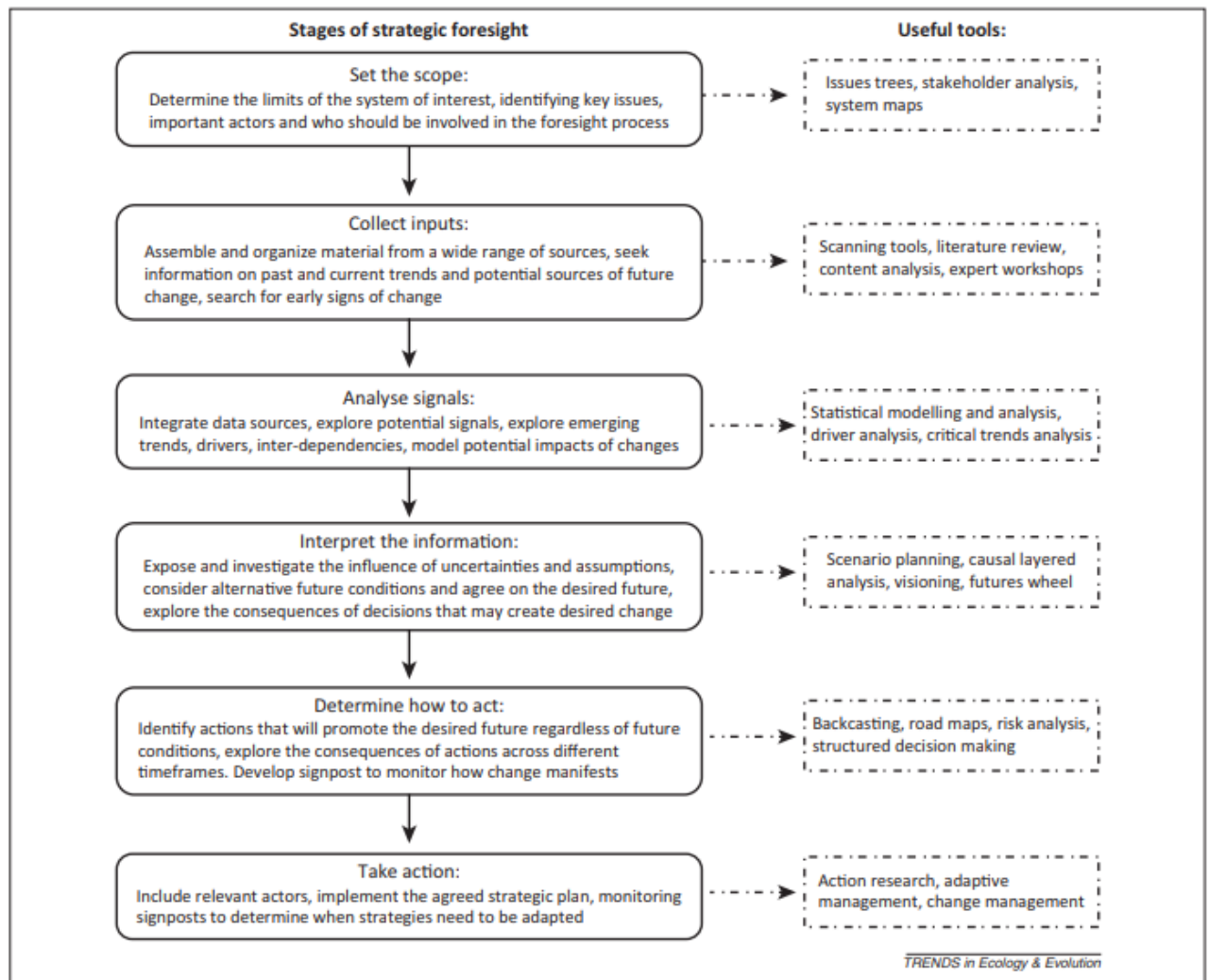
- (1) Information usage:
  - a. Reach: describes how deeply a company scans current business, adjacent business, and white spaces.
  - b. Scope: describes how broadly a company scans (technology, socio-cultural, customer, competitors, political environment).
  - c. Time horizon: describes the time horizons of foresight activities (ranging from the near future to 30 years into the future).
  - d. Sources: Describes the sources of information; differentiated into internal vs. external, formal vs. informal.
- (2) Method sophistication:
  - a. Match with context: describes how deliberately the method is chosen, given a certain context.
  - b. Match with problem: describes how deliberately the method is chosen, given a certain problem.
  - c. Integration capacity: describes the usefulness of a method portfolio for integrating various types of information.
  - d. Communicative capacity: describes the usefulness of a method portfolio for communicating insights internally and externally.
- (3) People & Networks:
  - a. External network: describes the extent and intensity of external ties, and the ability of the firm to channel information through external people.
  - b. Internal network: describes the extent and intensity of internal ties, and the ability of the firm to channel informal through internal people.

- c. Characteristics of foresighters: describes the degree to which characteristics of the foresights meet the ideal characteristics (deep knowledge, broad knowledge, curiosity and receptiveness, open-mindedness and passion, strong external networks, strong internal networks).
- (4) Organization:
- a. Mode: describes how companies engage in foresight activities. Differentiated into top-down vs. bottom-up continuous and issue -driven.
  - b. Integration with other processes: describes the follow-up processes to which the foresight activity is linked.
  - c. Formal diffusion of insights: describes the role and effectiveness of formal communication to transfer future insights.
  - d. Accountability: describes the extent to which employees are responsible for detecting and acting on weak signals.
  - e. Incentives: describes whether rewards or bonuses are awarded to encourage future orientation and a wider vision.
- (5) Culture:
- a. Willingness to share across functions: describes the degree of openness and inclination to share information across functions.
  - b. Readiness to listen to scouts and external sources: describes the openness and inclination to listen to external sources of information.
  - c. Informal diffusion of insights: describes the role and effectiveness of information communication for the diffusion of future insights.
  - d. Attitude of the organization toward the periphery: describes the level of curiosity of the top management toward the periphery.
  - e. Willingness to test and challenge basic assumptions: describes the degree of willingness of executives to challenge underlying assumptions.

## Appendix **B**

**The six stages of the strategic foresight process and some of the many tools that can be used to assist at each stage.**

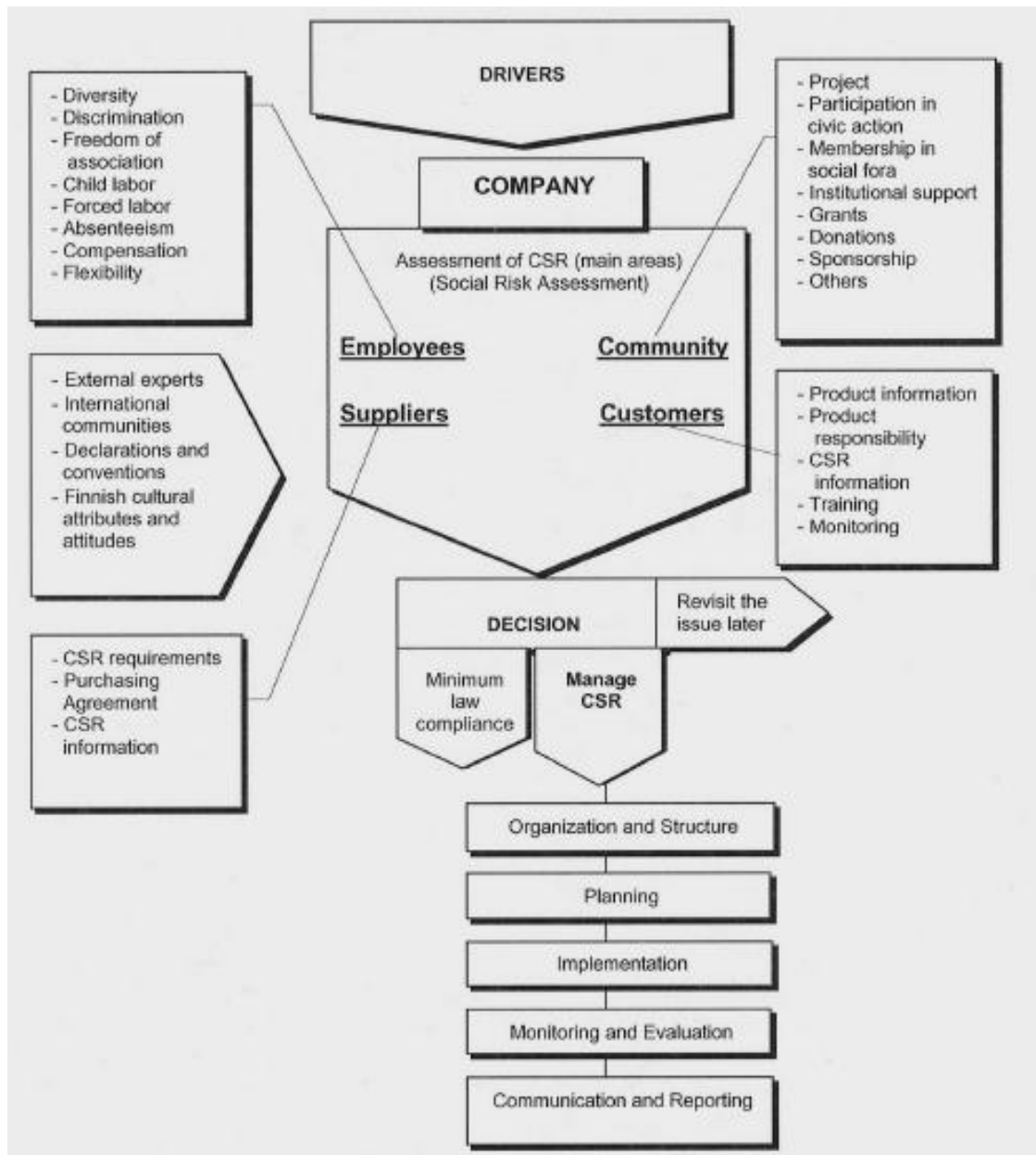
Source: Cook et al. 2014.



## Appendix **C**

### Initial framework for managing Corporate Social Responsibility

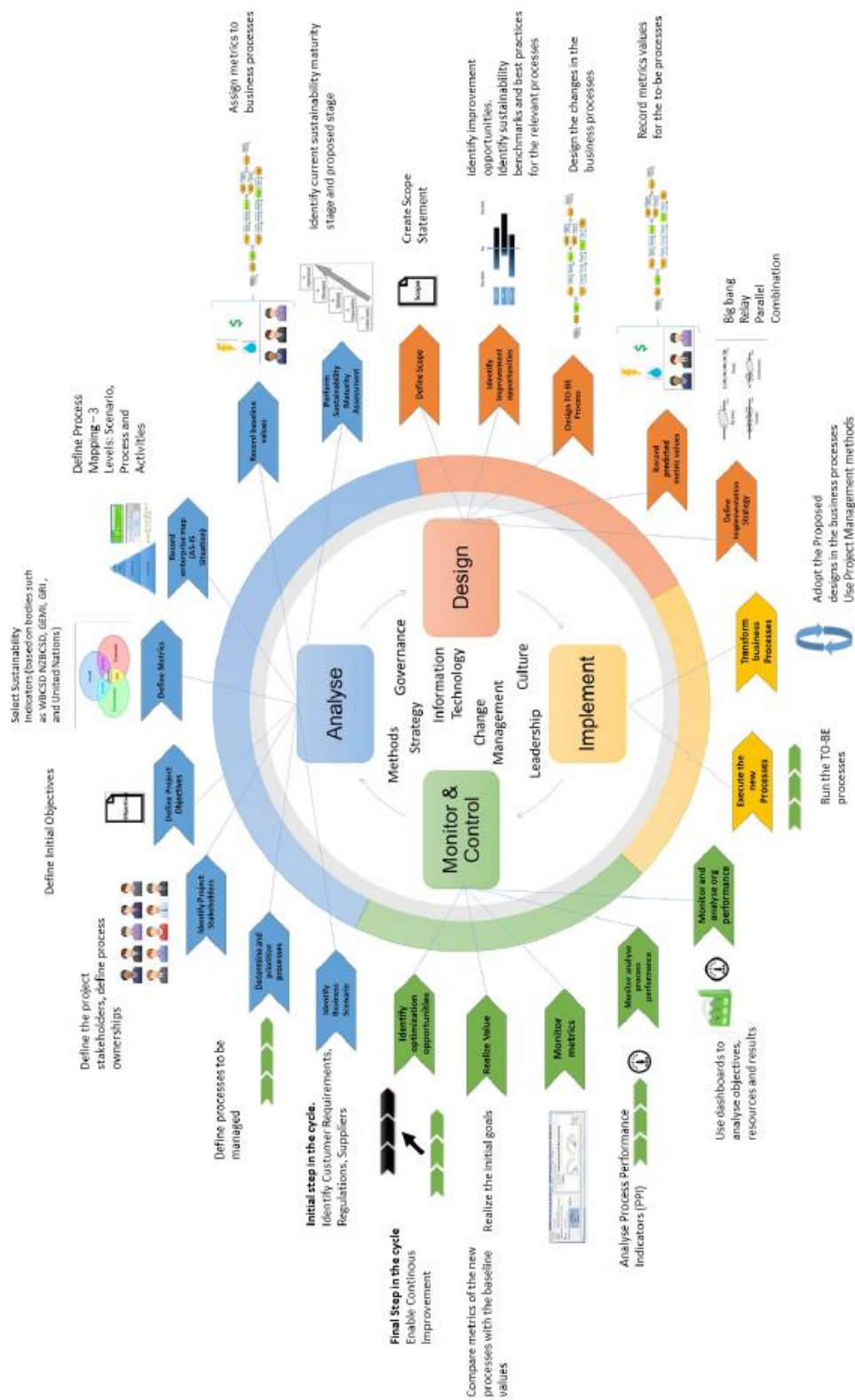
Source: Panapanaan et al. 2003.



## Appendix **D**

### A conceptual framework to implement sustainability initiatives in business process

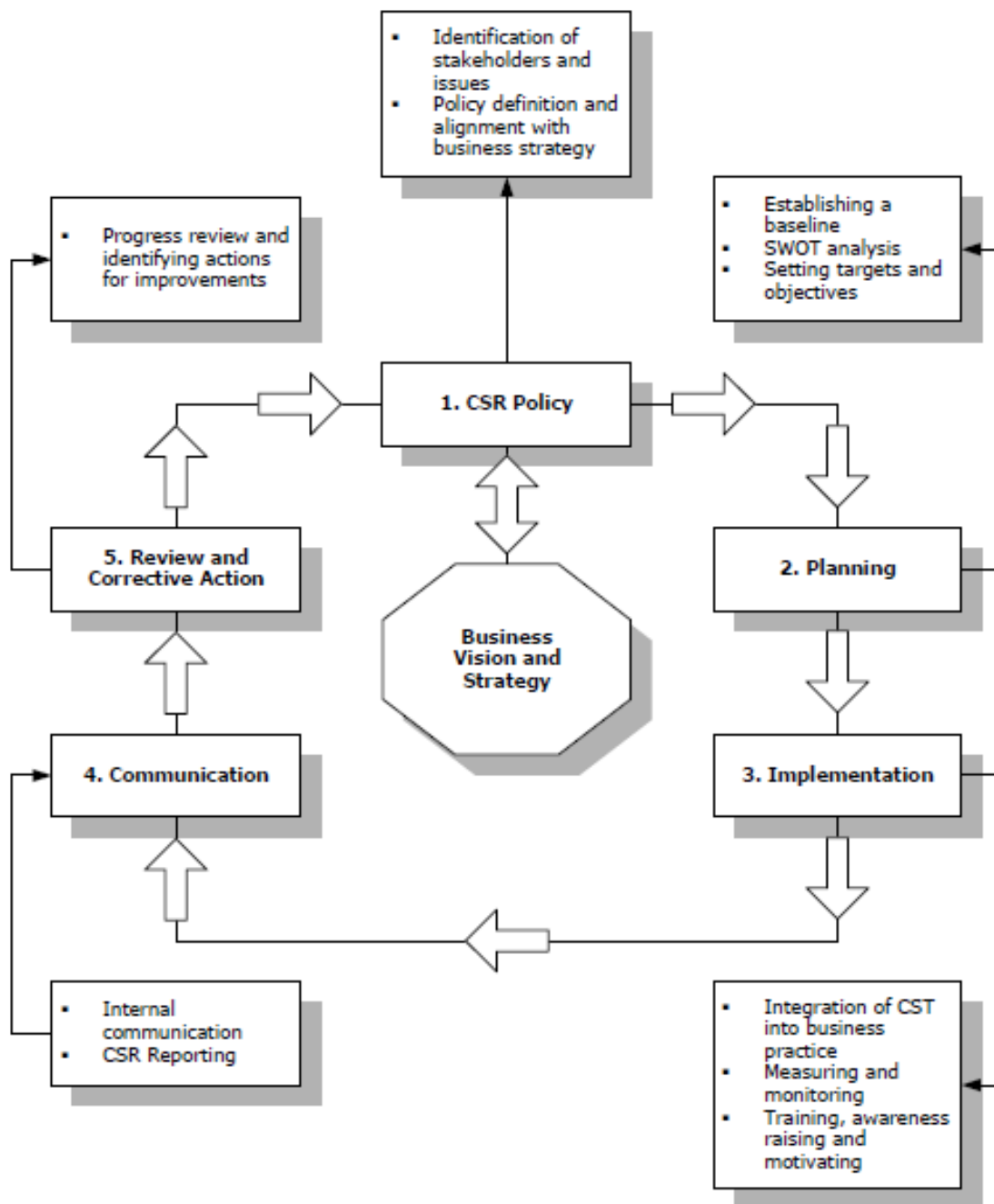
Source: Galotta et al. 2016.



## Appendix E

### CSR implementation model

Source : Azapagic et al. 2003.



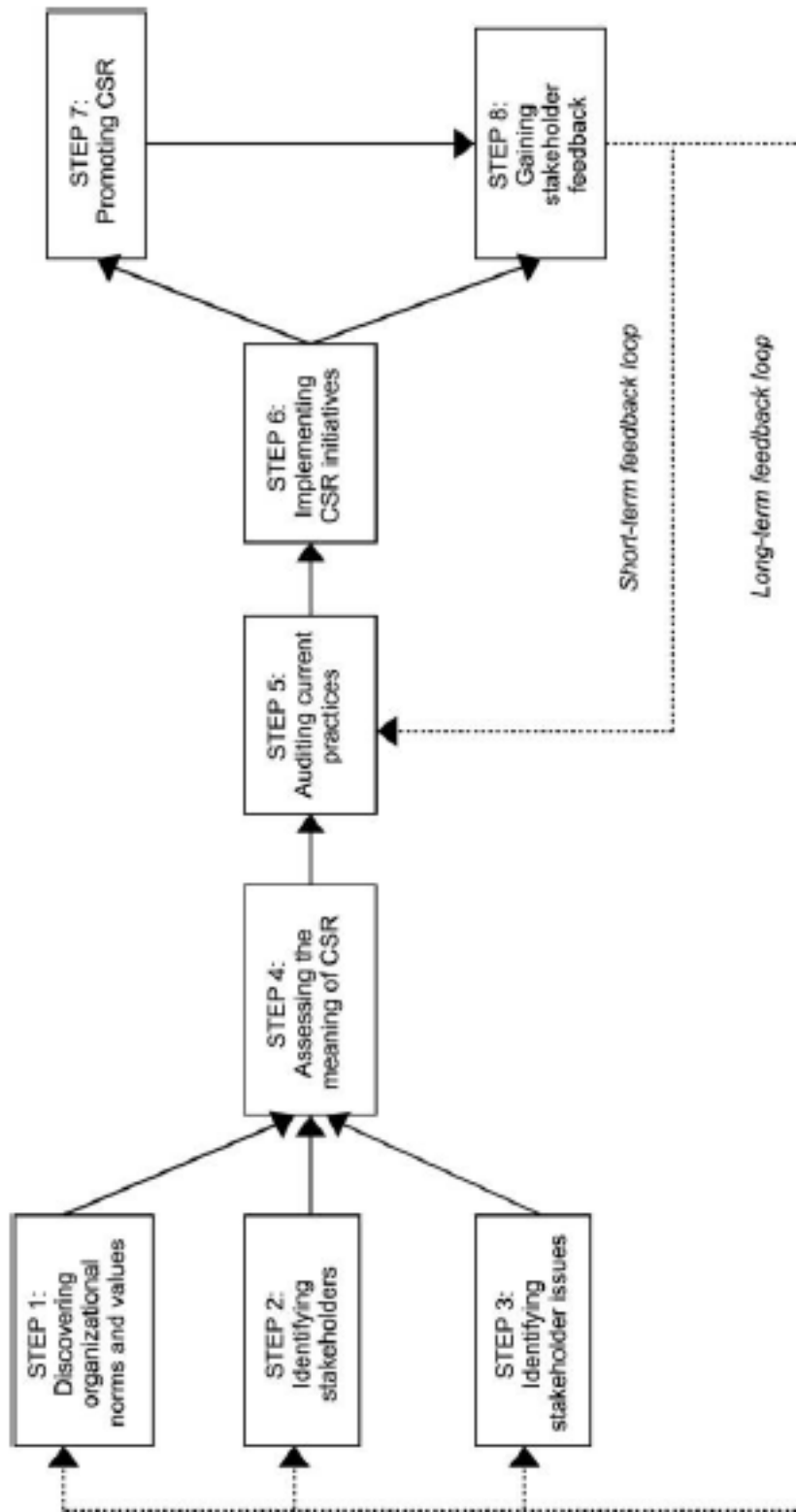
## Appendix **F**

### A step by step approach for implementing CSR

Source: Maignan et al. 2005.

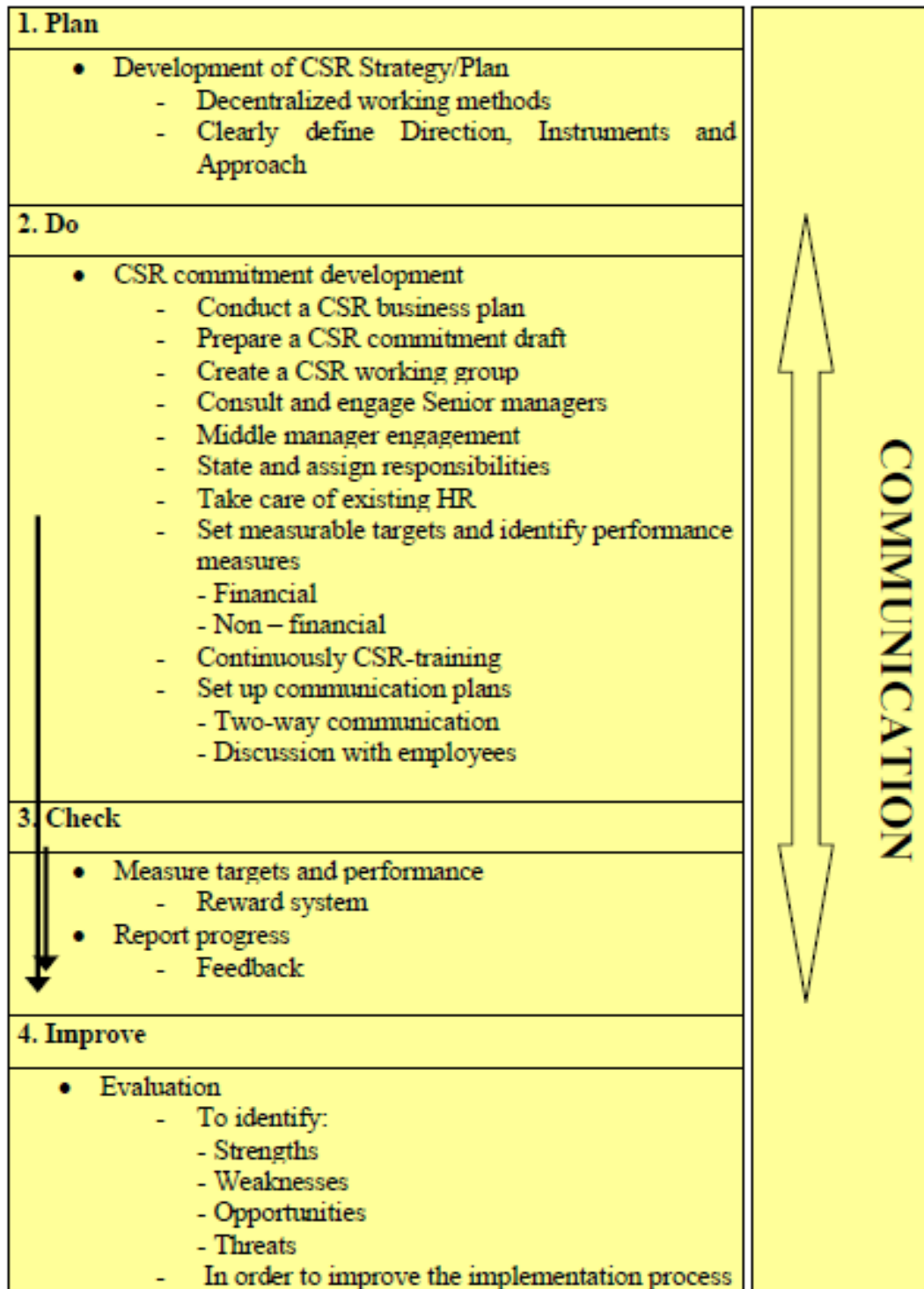


G



Appendix

CSR implementation model



# Sustainability Implementation framework

Source: Oxford Consulting Group

Functions → Steps ↓	Executive/ Leadership	Facilities/ Operations	Procurement/ Supply Chain	Sales/ Marketing	Human Resources
Learn	<ul style="list-style-type: none"> <li>-Attend conferences</li> <li>-Know reporting requirements</li> <li>-Share at quarterly executive meetings</li> </ul>	<ul style="list-style-type: none"> <li>-Conduct environmental compliance audits</li> <li>-Identify health/safety risks</li> </ul>	<ul style="list-style-type: none"> <li>-Analyze consumption patterns</li> <li>-Survey suppliers</li> </ul>	<ul style="list-style-type: none"> <li>-Conduct customer interviews</li> <li>-Understand consumers' &amp; NGOs' concerns</li> </ul>	<ul style="list-style-type: none"> <li>-Survey employees</li> <li>-Analyze top ranked employers' practices</li> </ul>
Measure & Benchmark	<ul style="list-style-type: none"> <li>-Compare best in class</li> <li>-Review industry data</li> </ul>	<ul style="list-style-type: none"> <li>-Baseline:                             <ul style="list-style-type: none"> <li>•GHG</li> <li>•Waste</li> <li>•Water</li> <li>•Hazardous materials</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>-Baseline:                             <ul style="list-style-type: none"> <li>•Consumables</li> <li>•Office supplies</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>-Measure products' environmental risks</li> <li>-Measure stakeholder's knowledge gaps</li> <li>-Complete Wal-Mart scorecard</li> </ul>	<ul style="list-style-type: none"> <li>-Baseline:                             <ul style="list-style-type: none"> <li>•Employee involvement</li> <li>•Healthy work &amp; life balance outcomes</li> </ul> </li> </ul>
Plan & Implement	<ul style="list-style-type: none"> <li>-Establish short &amp; long term corporate &amp; community goals</li> <li>-Build KPIs</li> <li>-Appoint leader</li> </ul>	<ul style="list-style-type: none"> <li>-Develop programs to reduce water, waste, GHG &amp; hazardous materials for office and manufacturing</li> <li>-Build EMS &amp; HSMS</li> </ul>	<ul style="list-style-type: none"> <li>-Develop purchasing guidelines</li> <li>-Conduct supplier audits</li> <li>-Enact sustainable practices with supply chain</li> </ul>	<ul style="list-style-type: none"> <li>-Improve products</li> <li>-Develop new products</li> <li>-Create external educational tools</li> <li>-Enact sustainable practices with customers</li> </ul>	<ul style="list-style-type: none"> <li>-Set individual &amp; department targets</li> <li>-Launch education programs</li> <li>-Create joint NGO, government &amp; academia projects</li> </ul>
Monitor, Share & Grow	<ul style="list-style-type: none"> <li>-Develop internal and external annual progress reports</li> <li>-Apply to accredited GHG registries</li> <li>-Publish data with 3<sup>rd</sup> party organizations</li> </ul>	<ul style="list-style-type: none"> <li>-Track performance to goals &amp; baselines</li> <li>-Conduct 3<sup>rd</sup> party audits</li> <li>-Apply green building principles to existing and new structures</li> </ul>	<ul style="list-style-type: none"> <li>-Create supplier environmental score card</li> <li>-Set supply chain reduction goals</li> <li>-Track and report on indirect GHGs</li> </ul>	<ul style="list-style-type: none"> <li>-Brand environmental programs</li> <li>-Share best practices with stakeholders</li> <li>-Create educational forums</li> </ul>	<ul style="list-style-type: none"> <li>-Track retention &amp; attraction performance</li> <li>-Conduct employee satisfaction survey</li> <li>-Incorporate green into performance evaluation</li> <li>-Implement green rewards</li> </ul>

## Appendix

# The Seven-step Sustainability Model

Source: Larsh et al. 2016.

1. Brainstorming to identify improvement potential. This step is supported by the catalogue, which provides possible example activity examples for sustainability development. The outcomes of this step are **ideas** and their sustainability **dimensions**.
2. Identification of compatible **activities** to implement the ideas.
3. Labeling of the identified activities according to their feasibility (**status**):
  - Already implemented
  - Implement immediately
  - Implement over longer period of time
  - Don't implement
4. Gathering of additional information:
  - **Stakeholders:** Who is affected?
  - **Goals:** Why do we want to implement this idea?
  - **Activities:** How can we implement this idea?
  - **Business rules:** What rules have to be received?
  - **Indicators:** How can we measure the successful implementation?
  - **Impacts:** What impact does the idea have on the sustainability dimensions?
  - **Complications:** Which problems are expected to occur?
5. After every step, enter the gathered information in the "result table". The result table is the modeling basis.
6. Modify the process: Add, delete or change activities according to the result Table
7. Highlight the changed elements in the business process.

**Table 1.** Output of the executed process steps

Areas	Output information
Idea	Send coupons to customers
Process	Delivery process
Status	Implement immediately
Dimension	Economic
Goal	Increase rebuy rate
Stakeholder	Customers, marketing
Business rule	Respect economic viability
Indicator	Number of rebuys
Impact	Increased turnover, stable customer base
Complication	None

## Corporate Foresight Assessment Questionnaire

Questionnaire to assess the need for Corporate Foresight in organizations and the maturity of Corporate Foresight. Source: Rohrbeck Heger.

### 2. The need for Corporate Foresight in your organization

In this section, we ask you to evaluate the nature of your strategy and how the corporate environment of your organization/business unit can be characterized on a range of dimensions.

#### 2.1 Nature of your Strategy

Choose one of the statements below that most closely describes your current organisation:

- ☐ **Strategy 1:** This organization typically operates within a broad product-market domain that undergoes periodic redefinition. The organization values being "first in" in new product and market areas even if not all of these efforts prove to be highly profitable. The organization responds rapidly to early signals concerning areas of opportunity, and these responses often lead to a new round of competitive actions. However, this organization may not maintain market strength in all of the areas it enters.
- ☐ **Strategy 2:** This organization attempts to locate and maintain a secure niche in a relatively stable product or service area. The organization tends to offer a more limited range of products or services than its competitors, and it tries to protect its domain by offering higher quality, superior service, lower prices, and so forth. Often this organization is not at the forefront of developments in the industry—it tends to ignore industry changes that have no direct influence on current areas of operation and concentrates instead on doing the best job possible in a limited area.

#### 2.2 The corporate environment of your organization

Please indicate in the following scales which best describes your organization's business environment. The scale permits you to give a nuanced answer which description (left or right) matches best your organization's business environment. You may also choose an option in between the two statements depending upon your best estimate of an intermediate position.

4/8/2018	Qualtrics Survey Software
<b>Enabling technologies</b> Few and mature (simple systems)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> Many converging (complex systems)
<b>Regulations (federal, state, etc.)</b> Few or stable	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> Many or changing rapidly
<b>Public visibility of industry</b> Largely ignored	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> Closely watched by media or special-interest groups
<b>Dependence on government funding and political access</b> Low: operates largely independent of government	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> High: sensitive to politics and the funding climate
<b>Dependence on global economy</b> Low: affected principally by domestic conditions	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> High: affected by global conditions

#### A. Complexity of your Organization

Likert scale 1-7

<b>Industry structure</b> Few, easily identifiable competitors	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Many competitors from unexpected sources
<b>Supply chain structure</b> Simple and direct	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Long and complex
<b>Market structure</b> Fixed boundaries and simple segmentation	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Fuzzy boundaries and complex segmentation

<https://qsu.qualtrics.com/ControlPanel/JavaScriptAction=GetSurveyPrintPreview>

#### B. Dynamism of your Environment

Likert scale 1-7

<b>Number of surprises by high-impact events in the past three years</b> None	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Three or more
<b>Accuracy of past forecasts</b> High: small deviations from actual forecasts	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Low: results differs greatly from forecasts
<b>Market growth</b> Slow and stable	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Rapid and unstable
<b>Growth opportunities</b> Have decreased dramatically in the past three years	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Have increased dramatically in the past three years
<b>Speed and direction of technological change</b> Very predictable	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Highly unpredictable
<b>Behaviour of key competitors, suppliers, and partners</b> Very predictable	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Highly unpredictable
<b>Posture of key rivals</b> Live-and-let-live mentality	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Hostile (aggressive)
<b>Susceptibility to macroeconomic forces</b> Low sensitivity to price changes, currencies, business cycle, tariffs, etc.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	High sensitivity to price changes, currencies, business cycles, tariffs, etc.
<b>Dependence on financial markets</b> Low	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	High
<b>Customer and channel power</b> Low	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	High
<b>Sensitivity to social changes (fashion and values)</b> Low: mostly gradual change from the past	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	High: good chance of major disruptions and changes in business models
<b>Potential for major disruptions in the next five years</b> Low: few surprises expected, mostly things we can handle	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	High: several significant business shocks are expected, without knowing which in particular

## C. Hostility of your Environment

Likert scale 1-7

**Industry riskiness**  
Very safe; little threat to the survival and well-being of my firm

**Industry munificence**  
Rich in investment and marketing opportunities

**Environment dominance**  
An environment that my firm can control and manipulate to its own advantage, such that a dominant firm has in an industry with little competition and hindrance



Very risky; a false step can mean my firm's undoing

Very stressful, exacting, hostile; very hard to keep afloat

A dominant environment in which my firm's initiative counts for very little against the tremendous competitive, political, or technological forces

## 3 The maturity of corporate foresight in your organization

## 3. The maturity of Corporate Foresight in your organization

In the next section, we ask you to evaluate how well your organization/business unit detect, anticipate and responds to longer-term future trends or issue and how well your organization/business unit undertakes activities.

## 3.1 The processes of your organization

## A. Perceiving

Likert scale 1-7

**Sensing capability**  
Our sensors are able to identify a small number of important trends

**Report capability**  
Trends are identified but not systematically reported

**Response capability**  
We provide original information that we collected when detecting the trend



Our sensors ensure that we detect 80% of all trends that will shape our industry in the next 5-10 years and most ahead of competitors

We report trends regularly and in formats that are adequate to the internal stakeholders. We use for example trends radar, trend briefs and trend reports, which are also available through the intranet

We provide the information about why the trend matters to our company; how we could act and provide examples of suitable actions

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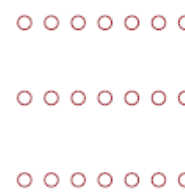
## B. Prospecting

Likert scale 1-7

**Number of alternatives**  
Single. We typically identify the one best strategic alternative

**Distance of alternatives**  
Low. We typically select the most feasible over the most desirable alternative

**Exploration capability**  
We are best at exploring our current markets and/or adjacent to our current markets



Multiple. We often consider multiple futures and have systematic ways for defining strategy in environment with different levels of uncertainty

High. We have in the past repeatedly acted upon ambitious strategic alternatives that were distant to our current strategy at that time

We have in the past repeatedly explored new markets that were distant to our current business and typically led that we have had an information advantage over our competitors

## C. Probing

Likert scale 1-7

**Dedicated unit**  
We rely mostly on existing business unit to explore new markets within their market scope

**Scope**  
Low. Our activities for exploring new markets are limited to low risk probing (For example through showing new offerings to existing customers)



We have a dedicated unit that has the mandate to explore and develop new markets that can become a significant contributor to our overall revenues

High. Our activities for exploring new markets can take the form of venture investments, alliances, acquisitions, mergers, and substantial investment in assets such as factories

## 3.2 Your organization practices

## A. Information

Likert scale 1-7

**Reach**  
Almost all of our scanning attention is directed towards our current business



We systematically scan our entire environment including our current business, adjacent business and in far away fields

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METHOD

## B. Methods

Likert scale 1-7

**Integration capacity**  
Low; we rely mostly on experience-based intuition rather than explicit methods to interpret our environment

**Communication capacity**  
Low; we rely primarily on formal reports that are distributed to explicate the strategy (including vision, mission, milestones)

**Choosing of methods (problem fit)**  
We usually do not know what methods we can apply and when to apply these, thus most of the time the choice of methods is guided by which have been used in the past

**Choosing of methods (content)**  
We have used methods in the past that did not lead to the wanted results



High; we systematically utilize a range of formal methods (such as scenario analysis and roadmapping) to create alternative future outlooks

High; we use a large variety of communication mechanisms to paint motivating pictures of our strategic ambitions (we may utilize videos, strong narratives, pictures of desirable future states)

We carefully evaluate the situational needs for methods and employ regularly novel methods and develop our own approaches

We know about limitations of methods we use and often systematically plan on how to overcome the limitations by using multiple methods that complement each other

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## C. People and Network

Likert scale 1-7

**External network**  
Weak  
(Some employees have external personal relations)

**Internal network**  
Weak  
(Some employees have formal and informal contacts to other units within the organization)

**Traits of personnel that engages in corporate foresight**  
Weak  
(e.g. analysts have only deep knowledge in their domain)



Strong  
(Building and maintaining a network of external partners is encouraged and perceived as important for every employee)

Strong  
(employees are expected to build and maintain formal and informal networks to other units)

Strong  
(Analysts have strong internal and external networks, deep and broad knowledge, and are passionate, curious and open minded)

## D. Organization

Likert scale 1-7

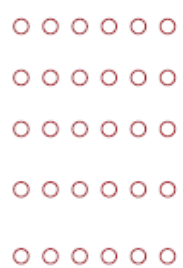
**Mode of gaining future insights**  
Mostly triggered top-down and issue-driven

**Integration with other processes**  
Weak

**Formal diffusion of future insights**  
Emerging issues are occasionally presented at dedicated meetings

**Accountability**  
No defined responsibility for detecting emerging issues

**Incentives to reward wider vision**  
No incentives in place



Both continuous and issue-driven scanning that can be triggered bottom-up and top-down

Strong (corporate foresight activities are directly linked to other processes in the organization, e.g. to the mid-term strategy process)

Discussion of emerging issues is part of central meetings in all relevant units

We have a dedicated unit that performs scanning duties and serves as a hub to collect future insights generated by others inside and outside the organization

We employ a large variety of incentives to encourage employees to contribute to a wider vision of the organization

## E. Culture

Likert scale 1-7

**Willingness to share across functions**  
Poor  
(Information is ignored and hoarded)

**Readiness to listen to scouts and external sources**



Excellent  
(Ongoing information sharing on multiple levels)

The organization is open  
(Bringing external information into

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<p>The organization is closed (Contacts to the outside are discouraged)</p> <p>Organization's attitude towards the environment Limited and myopic (Few people care)</p> <p>Willingness to test and challenge basic assumptions The basic assumptions are neither known nor made transparent</p>	<p>○ ○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○ ○</p>	<p>the company and maintaining an external network is encouraged)</p> <p>Active and curious (Scanning the periphery is commonplace)</p> <p>We are not afraid to reflect critically on the shared assumptions we have about our market, customers, and the way we do business</p>
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#### General information about your organization (B)

### 4. General information about your organization

Please provide details about your organisation such as its size, principal industry and recent performance.

Please indicate the size of your organisation (In employees) :

Less than 10	10-49	50-249	250-499	500-999	1000-4999	5000-9999	10,000-49,999	50,000 or more
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate your organisation's principal industry:

- ☐ Telecom/Digital & Business Service
- ☐ Energy & Utilities
- ☐ Healthcare & Pharmaceutical
- ☐ Chemical
- ☐ Finance & Insurance
- ☐ Automotive
- ☐ Manufacturing
- ☐ Retail & Consumer Business
- ☐ Transportation
- ☐ Other (type below)

Revenue of your organisation over the last fiscal year (in million EUR):

Less than €5 million EUR	€5 million - €1 million EUR	€1 million - €5 million EUR	€5 million - €10 million EUR	€10 million - €50 million EUR	€50 million - €100 million EUR	€100 million - €500 million EUR	€500 million EUR or more
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