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ABSTRACT

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Abstract

As previous foresight studies show, successful foresight activities are the key to organization's long-term survival and increased performance. But what are the elements that constitute successful foresight? And furthermore, how organizations understand "foresight success"? This thesis approaches the issue of successful foresight in organizations by building an overview of factors that promote or hinder organizational foresight. The aim is to improve organizational foresight practices by increasing the understanding of foresight success elements. An organization that cultivates these elements can eventually transform into a forerunner in foresight.

Foresight success and success factors are first examined through previous foresight studies and further considered through empirical material. The selected approach is qualitative inquiry: by interviewing 12 Finnish organizations of which six can be considered as forerunners in foresight, a deeper understanding of organizational foresight success is constructed. Empirical findings are further supported by theoretical framework of foresight maturity models, in which elements of foresight are depicted as organizational capabilities that develop over time.

As a result, this study confirms the importance of factors identified in previous foresight research that promote, or conversely hinder, foresight successfulness in organizations. These factors include methodological solidness, employees' and managers' skills in futures thinking, foresight supporting technology, diversity and networks, mental models and mindsets of foresight participants, organizational learning and learning traps, structural integration of foresight, foresight as an organizational routine, and organizational culture. Two additional elements, focus and communication, were identified from the basis of empirical data. Of these, especially communication is highly significant to organizational foresight success. The question of what is meant by foresight success is answered from organizations' perspective: what constitutes as foresight success is socially constructed in organizations, and its meanings and definitions vary depending on the context.

Key words	foresight success, organizations, maturity models

Further information	linnea.sinkkila@gmail.com

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Tiivistelmä

Aiemmissa tutkimuksissa onnistuneen ennakoinnin on osoitettu olevan yhteydessä organisaation selviytymiseen pidemmällä aikavälillä sekä sen lisääntyneeseen suorituskykyyn. Mutta mistä elementeistä onnistunut ennakointi koostuu? Entä miten organisaatiot itse käsittävät ennakoinnin ”onnistumisen”? Tässä tutkimuksessa onnistunutta ennakointia pyritään tarkastelemaan luomalla kokonaiskuva tekijöistä, jotka edistävät tai heikentävät ennakointia organisaatioissa. Tavoitteena on kehittää ennakointikäytäntöjä lisäämällä ymmärrystä ennakoinnin menestystekijöistä. Organisaatiot, jotka kehittävät näitä tekijöitä toiminnassaan, voivat ajan myötä muuntautua ennakoinnin edelläkävijöiksi.

Onnistunutta ennakointia tarkastellaan aiempien tutkimusten ja empiirisen aineiston kautta. Lähestymistapana on kvalitatiivinen haastattelututkimus: 12 suomalaisen organisaation (joista kuutta voidaan pitää edelläkävijöinä ennakoinnissa) näkemyksistä rakentuu kuva onnistuneesta ennakoinnista organisaatioissa. Empiirisiä havaintoja tukee ennakoinnin maturiteettimalleista koostuva teoreettinen viitekehys, jossa ennakoinnin elementit kuvataan organisaation ajan myötä kehittäminä ominaisuuksina.

Tutkimuksen tulokset vahvistavat aiempien tutkimusten havaintoja ennakointia tukevista tai estävistä tekijöistä. Tällaisia tekijöitä ovat vankka metodologia, työntekijöiden ja johtajien kyky tulevaisuusajatteluun, ennakointia tukeva teknologia, moniäänisyys ja verkostot, ajattelua ohjaavat mallit ja asenteet, organisaation oppimiskyky ja oppimisen sudenkuopat, ennakoinnin integraatio organisaation toimintoihin ja sen rutinoituminen sekä organisaation kulttuuri. Lisäksi haastatteluista tunnistettiin edellisten lisäksi vielä kaksi tekijää: ennakoinnin fokus ja viestintä. Näistä etenkin viestinnällä on keskeinen rooli ennakoinnin onnistumiseen organisaatioissa. Kysymystä siitä, mitä on onnistunut ennakointi, määrittää ennen kaikkea konteksti: kokemus ennakoinnin onnistumisesta rakennetaan organisaation toimijoiden välisessä vuorovaikutuksessa, ja sen määritelmä vaihtelee organisaation tavoitteista ja päämääristä riippuen.

Asiasanat	onnistunut ennakointi, organisaatiot, maturiteettimallit

Muita tietoja	linnea.sinkkila@gmail.com

UNIVERSITY OF TURKU
Turku School of Economics

BECOMING A FORERUNNER IN FORESIGHT

Key elements of success in organizational foresight

Master´s Thesis
in Futures Studies

Author:
Linnea Sinkkilä

Supervisor:
Professor Toni Ahlqvist

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1 INTRODUCTION

> The greatest danger in times of turbulence is not the turbulence; it is to act with yesterday's logic. –Peter Drucker

In today's turbulence, organizations are increasingly trying to look ahead in attempt to keep up with constantly changing conditions and to better understand the complex environment they navigate in (Pouru et al. 2019, 84). Often, uncertainty about the future steers organizations towards short-term planning (Graefe et al. 2010, 394), while the real question should be how organizations can become resilient against threats and increase the capability to perceive new possibilities that might arise from the change (Rohrbeck 2012, 449). As a first step, an organization has to *organize for uncertainty* (Battistella 2014, 61): organizing for uncertainty requires the ability to recognize signals and trends that may affect the organization in near future or in long-term, and to understand what these changes can potentially mean to the organization. The capability to conduct foresight is the most important thing to organization's strategy (Reid & Zyglidopoulos, 2004, 241), as strategic foresight generates futures knowledge the organization can utilize when planning its long-term actions, thus enabling decision-making based on shared understanding of the future.

Van der Laan and Erwee (2012, 376), describe foresight competence "as the cognitive ability to creatively envision possible futures, understand the complexity and ambiguity of systems and provide input for the taking of provident care in detecting and avoiding hazards while seeking to achieve a desired future". The use of foresight practices allows organizations to recognize potential moments when action is needed to help the organization cope with unexpected events (Schreiber 2019, 3). This flexibility and adaptability are further reflected in organization's performance, as organizations that are prepared for the future are more likely to perform better than others in the long-term (Rohrbeck & Kum 2018, 105). Öner and Beser (2011, 50) describe the strengths of foresight in a following way:

> The strength of foresight as a process is that it can accommodate uncertainty and diversity, and it highlights longer-term opportunities and vulnerabilities. The process identifies factors that are driving change and allows anticipation of and preparation for such change. Awareness of what futures might look like allows preparation for such futures, as opposed to surprise if they do come to pass. Specifically, foresight engages multiple stakeholders across many disciplines and encourages the building of networks. By creating mental images, the meaning and understanding of

> possible changes become clearer. The foresight process offers a rehearsal for potential critical challenges and also serves as a tool to educate leaders, communicators and the public.

As a process, foresight is expected to produce concrete outcomes, "nuggets of information about the futures" (Pouru et al. 2019, 85). However, foresight outcomes are manifested at several levels, where the interplay between physical objects and organizational actors affects the cognitive process of organizational decision-making. In this regard, what foresight can in fact deliver – besides trend-reports and scenarios, that is – is often unclear (Hines 2016, 2), and the wider impacts of foresight are still poorly understood (Piirainen & Gonzalez 2015, 197). Consequently, the benefits of foresight are not always fully realized in organizations. Foresight produces additional value to organizations primarily through enhanced ability to perceive change, but it also increases the capacity to make sense of this change and to respond to it. Additionally, foresight promotes organizational learning and helps the organization to influence events and actors in its operating environment (Rohrbeck & Schwarz 2013, 1593). As an organized social process, foresight aims to produce "actionable and context-specific information or knowledge about the future" (Piirainen & Gonzalez 2015, 192). This futures-knowledge is created in social interaction between the actors of the organizational foresight system (Dufva & Ahlqvist 2015, 115) – in this regard, foresight is a process that changes and influences those taking part in the process. Thus, it is not only the information that foresight produces that is valuable, but the whole process in itself and its wider effects on the organization.

However, several organizational factors hinder utilization of futures knowledge: scanning of signals from organization's operational environment might be too narrow and focused only on signals that reinforce existing assumptions, foresight competes with other organizational functions for resources, foresight function and process lacks structure, and foresight generates knowledge that is not connected to the everyday realities and activities of the organization (Pouru et al. 2019, 86). Moreover, what organizations consider as "futures knowledge" is often interchangeable with market information (Pouru 2016, 49), further implying that there is a lack in understanding the basic concepts of foresight. Consequently, foresight may be an underutilized tool for strategic planning tool in organizations, yet a highly potent one for gaining a deeper understanding of continuous change and navigating the organization through that change, unscathed.

In Finland, foresight is yet to become a central part of organizational activities, and the foresight is often understood as a separate function or a process rather than a holistic way of thinking and acting (Pouru et al. 2020, 62). Conducting foresight in an "organizational vacuum" impairs organization's ability to link foresight to critical decision-making

processes. To fully utilize the benefits of foresight, foresight needs to be conducted effectively and in a successful manner. This requires that foresight overcomes organizational barriers such as lack of resources or managerial interest. Additionally, as foresight is a social process, it involves individuals' mindsets, interactions, and mental models that shape and affect the outcomes of foresight and the implementation of these outcomes – and sometimes even prevent foresight from being successful. Effective foresight should account for not only how the foresight process is implemented in the organization, but also how foresight affects and influences the people involved in the organization's foresight system. By altering individual perceptions, beliefs and attitudes, the use of foresight increases organizational future-orientation – in this sense, foresight is not just about *anticipating* change, but *bringing* change into the organization.

At the core of successful foresight process are the different elements that contribute to it. During the last decade, the research focus in foresight has shifted to elements of foresight practice, integrating foresight "further into questions of strategic advantage" (Gordon et al. 2020, 6, 8). Assessing the success elements of organizational foresight may further contribute to this research by shedding light to how to ensure success in organizational foresight, and, ultimately, organization's long-term success. Factors that promote, or conversely hinder foresight successfulness in organizations, have been touched upon in previous foresight literature from various perspectives. To name a few examples, these include methodological solidness, foresight supporting technology, structural integration of foresight, foresight as an organizational routine, diversity and networks, mental models and mindsets of foresight participants, organizational learning and learning traps, and organizational culture. In addition, previous research has also created a variety of best practice -models that have delved into factors that support foresight. However, a comprehensive overview of these factors is missing.

This thesis approaches the issue of successful foresight in organizations by building such an overview: foresight success factors are first examined through previous foresight studies and literature and are further considered through empirical material. Theoretical approach overviews maturity models for foresight, where elements of foresight are depicted as organizational capabilities that develop over time. By increasing the understanding of success elements in organizational foresight, this thesis seeks to improve organizational foresight practice. The question of what is meant by foresight success is answered from organizations' perspective: the notion of foresight success is socially constructed in organizations ,and its meanings and definitions can vary. Final section of this thesis paints a portrait of a foresight forerunner by forming a synthesis of research results, theory, and previous literature.

2 FORESIGHT SUCCESS IN ORGANIZATIONS

Foresight can serve different purposes in organizations: foresight is used, for example, in strategic planning, research and development and innovation (Öner & Beser 2011, 50). Voros (2003, 12) describes foresight in an organizational context as "an aspect of strategic thinking", that opens up different views of the strategic options available through exploration. Exploration and reflection are central to foresight, as these actions help the organization to gain insight into change, adopt alternative perspectives, and facilitate learning (Rohrbeck & Schwarz 2013, 1598). The combined effect of collective experience, imagination and interaction between actors with a wide range of expertise is expected to form a collective, comprehensive view of the future – in this sense, foresight provides "means of liberating thinking" (Öner & Beser 2011, 50).

As an activity, foresight consists of "identifying, observing, and interpreting factors that induce change, determining possible organization-specific implications, and triggering appropriate organizational responses" (Rohrbeck et al. 2015b, 2). Foresight is a systematic approach for future organizations can use to make sense of change: it does not aim to predict the future but rather to envision different futures by interpreting the observed change. Through these multiple futures, issues and views that may not have been considered before are made visible (Öner & Beser 2011, 50). In this regard, organizations use foresight to "develop a more appreciative understanding of their current environment and its likely evolution" (Cunha et al. 2006, 946), and to prepare the organization for future challenges (Vecchiato 2015, 26).

Terms *strategic foresight*, *corporate foresight* and *futures research* are often used interchangeably (Rohrbeck et al. 2015b, 1). In this thesis, the term *organizational foresight* is adopted – as the focus of this thesis in in organizations from both public and private sector, using the term *corporate foresight* would unnecessarily limit the perspective to companies in this sense. Gordon et al. (2020, 1) define organizational foresight as "the application of futures and foresight practices by an organization to advance itself [---], to fulfil its purpose and achieve success on whatever terms it defines such success". As evidence for correlation between organizational success and successful foresight activities has already been presented in longitudinal foresight studies (see Rohrbeck & Kum 2018), it is plausible to assume that improving foresight success would in turn yield greater benefits for organizations conducting foresight: improved understanding of foresight success factors is likely to improve organizational foresight practice and its outcomes.

2.1 Research questions

The aim of this thesis is to form a comprehensive view of the factors that promote foresight in organizations. The underlying assumption in this thesis is, that some organizations are more successful in their foresight activities than others. In other words, these organizations have *mature* foresight systems and are thus better prepared for the future (Rohrbeck & Kum 2018, 114). But what makes an organization forerunner in foresight? And how does one become a forerunner? These are the questions that form the common thread in this thesis. However, the question of *What is foresight success?* also demands for attention: in order to define success factors, what is meant by foresight success needs to be defined first. Moreover, as this thesis seeks to improve organizational foresight, from practical perspective one must also pose the question of what can be done to improve foresight success in organizations? Hence, the research questions are following:

1. What is foresight success?
    - What are the benefits of foresight to organizations?
2. What are the factors that contribute to foresight success?
3. What makes an organization forerunner in foresight?
    - How forerunners conduct foresight?
4. How can organizational foresight still be improved?

In the following chapters, these questions are first approached from the basis of previous literature by trying to define what foresight success is (Chapter 2.2) and identify factors, that affect foresight success in organizations (Chapter 2.3). From theoretical viewpoint, success factors are assessed as organizational capabilities that develop over time as the organizational foresight systems matures (Section 3). The empirical part of this thesis constitutes of analyzing the material collected from semi-structured interviews of organizational foresight experts (Section 5). These experts represent 12 Finnish organizations, of which six can be considered as forerunners in foresight based on the maturity level of their foresight systems. An understanding of what is foresight success and what are the factors supporting successful foresight is formed by examining empirical and theoretical material. Through this examination, a preliminary idea of foresight as a transformative, cultural process is built (Section 6).

2.2 What is foresight success?

Organizations are increasingly trying to look ahead and anticipate the future in constantly changing conditions (Pouru et al. 2019, 84), where rapidly changing technology and megatrends such as globalization create a need for futures-thinking in order to remain competitive (Schreiber 2019, 36). At the same time, there are growing expectations that investments in foresight are likely to yield benefits in form of greater profits (Rhisiart et al. 2017, 204). Foresight activities offer means to manage change: foresight is regarded as essential for the long-term success of organizations (van der Duin et al. 2014, 62) and engaging in foresight activities prepares organizations for the future, raising their ability to detect changes and readiness to respond to those changes (Jahn & Koller 2019, 91). By implementing formalized strategic foresight actions, organizations are also more capable of interpreting perceived changes and influencing other actors in their operational environment while fostering organizational learning (Rohrbeck & Schwarz 2013, 1604).

For example, foresight has been shown to increase long-term performance (e.g., Rohrbeck & Kum 2018), to have impact on policy (e.g., Calof & Smith 2010, Rhisiart et al. 2017) or to provide first-mover advantage to organizations (e.g., Vecchiato 2015). However, the question of what makes foresight successful as an activity remains partially unresolved. This is partly due to the difficulty of defining "success", as even futurists themselves are struggling with the concept (Hines 2016, 1). Furthermore, it is also difficult to discern positive effects of foresight from other factors affecting organizational outcomes (Rohrbeck & Kum 2018, 108). And finally, as Kuusi et al. (2015, 21) state, criteria for assessing foresight quality are still largely missing.

Therefore, the question of foresight success needs to be framed: what does it mean for foresight to be successful? In an attempt to answer the research questions of this thesis "*What is foresight success?"* and "*What are the defining factors in foresight success?",* a preliminary idea of foresight success is formed by reviewing foresight literature from this perspective. The notion of success is further elaborated through empirical material in Section 5 by examining how organizations themselves define foresight success and which factors organizations deem as critical for the success of foresight activities.

2.2.1 Contextuality of success

Foresight literature is scarce on the subject of foresight success. Calof and Smith (2010) suggest that foresight success is defined by the policy impact of foresight, and the overall growth and continuity of foresight function. On the other hand, a foresight project that

does not immediately lead to action can simply reveal that there is no need for immediate action (van der Duin & Ligtvoet 2019, 81). To further complicate matters, the benefits of foresight, or successful outcomes, may not even be realized until after a long time, if ever. On practical level this causes difficulties, as investing in foresight is often risky, as the value of foresight is revealed only in the long-term, and those who originally invested in foresight may have already moved on and are not able to witness their investments to realize (Rohrbeck 2012, 448).

However, for most companies and other organizations, there remains the need to connect foresight activities to concrete actions. Foresight is also expected to bring tangible benefits for the organization, such as improved performance. However, in absence of concrete measures for foresight success, discerning the benefits of foresight becomes increasingly difficult. Measuring foresight success solely in terms of profits or performance is especially challenging in public sector organizations, which often lack a clear strategy that could provide means to be accountable for stakeholders (Houck 2019, 348). Moreover, when defining foresight success, there remains the question whether success is considered solely in terms of the execution and outcome of a single foresight project, or as a wider impact of multiple, connected projects or processes together creating a foresight system within an organization. One may ponder, what in fact is the outcome of foresight process – a report or roadmap providing insights about future, an action or a policy implemented, or ultimately an "expansion of perception", as Voros (2003,15) suggests?

According to Schartinger et al. (2012, 44), foresight creates impact over two mechanisms: 1) by producing tangible products, such as reports, that may affect subsequent decision processes, and 2) through the actions of participants of a foresight process. What constitutes as "success" may concern achieving stated objectives or they can relate to intangible impacts: stimulating collaboration, forming new networks or inducing organizational change (Rhisiart et al. 2017, 204). While foresight processes can be evaluated in terms of reaching the planned objectives or focusing on the organizational and methodological aspects, demonstrating the actual value and impact of foresight is challenging (Poteralska & Sacio-Szymańska 2014, 25). Intangible impacts are typically associated with creating, diffusing and absorbing knowledge, increasing social capital and building networks (Amanitadou & Guy 2008, 539), generating organizational learning (Schartinger et al. 2012), and changing the ways of thinking in foresight participants (Voros 2003, 15); a thorough understanding of strategic options available is generated through these intangible impacts.

In determining foresight success, it might feel easier to focus solely on the foresight process, as Öner and Beser (2011) have done: how well is it planned, organized and car-

ried out, what are the roles of different actors in foresight process etc. Yet, viewing foresight mainly as a technical process and focusing on its tangible outcomes disconnects it from the everyday operations of the organization and fails to consider the dynamics between foresight agents (Dufva & Ahlqvist 2015, 112; Dufva 2015, abstract). Moreover, as foresight encompasses long-term perspective and holistic thinking (Amanitadou 2017, 2), defining foresight success solely in terms of technical features of the foresight process feels counterintuitive to the exploratory, interpretative and interactive nature of foresight. A foresight process is more than just a technical process: it is essentially a human process that can often be conflicted. Therefore, "foresight success" can be understood both in terms of quality of the process and its immediate outcomes (i.e., reports, scenarios etc.), but also in terms of impact (i.e., gaining and implementing new insights, fostering learning etc.). Hence, foresight success factors are also related to both the process of foresight and the impacts of this process on organization and organizational actors.

Finding a single definition for foresight success from literature is challenging. As Hines (2016, 8) states, it might be even impossible to separate the notion of foresight success from its context: thus, "success is what we agree it is". From this social constructionist perspective, "foresight success" can be defined from several viewpoints depending on the context, and it can have multiple meanings and measures. Thus, there cannot be an "objective" criteria for evaluating foresight success: adapting Ahlqvist and Uotila's (2020, 10) idea of contextuality to this argument, "multiple depictions from different angles and different framings" are required to define success in this sense. Accordingly, each organization interviewed for this thesis provides their own definition of foresight success. Nevertheless, factors that aid or impede foresight have been identified in foresight literature: next chapter examines typical pitfalls in foresight and provides an overview of factors that affect foresight successfulness.

2.3 Elements of foresight success

Although organizations are increasingly adopting foresight practices to cope with change, there are barriers in "successful conversion of foresight project results into actual change in corporations" (Öner & Beser 2011, 51), and organizations are still struggling with how to use futures knowledge effectively (Pouru et al. 2019). Complex hierarchies that slow down decision making, focus on the short-term objectives and lack of resources are typical barriers hindering foresight (Nestik 2018, 79). Problems also arise when managers are expecting foresight to ease decision-making by offering clear facts, but foresight only brings uncertainty and a plethora of possibilities, or the value contribution of foresight is

not clear to stakeholders and managers (Rohrbeck 2010, 157). A foresight process may also fail when it lacks a clear purpose, is poorly planned and organized, does not progress according to the plan, does not meet its targets and deadlines, and the resources are uncoordinated (Öner & Beser 2011, 53). Further, several reasons may block the signals of change from turning into organizational action: change signals might go undetected, foresighters or decision makers might not see detected signals as relevant or change management strategies are not planned or acted upon (Rohrbeck et al. 2015a, 116). Social interaction and individual qualities also play a part: individual capabilities, group dynamics, cognitive biases and lack of personal motivation typically hinder foresight success, if overlooked (Nestik 2018).

Previous research has contributed to developing foresight process models and best practices to enhance foresight effectiveness in organizations (see for example Rohrbeck 2010; Battistella 2014), and provided criteria for successful foresight (Rohrbeck 2012, 440; Kononiuk & Sacio-Szymańska 2015, 23). Additionally, previous studies have also highlighted several factors that contribute to foresight success in various stages of a foresight process. However, less attention has been given to forming a general overview of these factors. Understanding success factors as interlinked *elements* of organizational foresight may help to further improve foresight effectiveness. Therefore, the success factors found in previous foresight and futures research studies were brough together and categorized loosely in seven different themes as depicted in Table 1 – each theme is further discussed in the following chapters.

Table 1. Categorization of foresight success factors

Foresight success factor	How it affects foresight?	References
Foresight methodology and individual foresight skills	Selection of appropriate foresight methods is crucial for foresight effectiveness; training foresight actors to use and understand foresight methods ensures the quality of foresight process and promotes the use of leading-edge techniques and best practices.	E.g. Heger & Rohrbeck 2012, Durst et al. 2012, Rohrbeck 2010
Technological tools for foresight	ICT tools support foresight in collecting and analyzing trends/change signals, sharing information, collaboration between foresight actors, and selecting and using the right methods for given problem.	E.g. van der Gracht et al. 2015, Durst et al. 2015, Rohrbeck et al. 2015a, Raford 2013,
Structure and routine for foresight	Embedding foresight process as a part of organizational structures and routines helps turning foresight into a continuous practice with established link to strategy and other organizational functions (i.e., other functions are not competing with foresight).	E.g. Schreiber 2019, Appiah & Sarpong 2015, Sarpong et al. 2013, Battistella 2014, Rohrbeck 2010
Diversity and networks	Diversity of perspectives helps to challenge prevailing assumptions and inspire unconventional thinking and novel ideas; inter-organizational collaboration and foresight networks help organizations to detect trends and weak signals outside their usual scope.	E.g. Gattringer et al. 2017, Weigand et al. 2014, van der Duin et al. 2014, Durst et al.2013, Heger & Rohrbeck 2012
Mental models and mindsets	As the expansion of mental models is a core benefit of foresight, overcoming socio-psychological mechanisms and mental barriers of thinking that hinder organizational foresight is essential for foresight success. Attitudes (particularly managerial mindsets) can either accelerate or decelerate foresight adaption in organization.	E.g., Vecchiato et al. 2019, Nestik 2018, Vecchiato & Roveda 2010
Learning	Effective double-loop learning is a necessary condition for foresight and helps to overcome learning traps; organization with high levels of foresight demonstrate high levels of organizational learning and innovation.	E.g. Burt & Nair 2020, Baškarada et al. 2016, Yoon et al. 2018
Culture	Organizational culture determines organization's readiness to respond to change; future-oriented, anticipatory culture promotes organizations systemic capacity for transformation and nurtures innovation at every level.	E.g., Appiah & Sarpong 2015, Alhqvist et al. 2012, Rohrbeck 2010

These themes relate to foresight methods and skills, technological tools to support foresight, foresight integration into organizational structure and routines, diversity of perspectives through collaboration and networks, understanding the socio-psychological mechanisms of foresight, organizational learning as a prerequisite to foresight, and the role of organizational culture. Although the success factors, or elements, are presented here as rough categorizations, they may contain several "sub-factors", which are addressed only briefly. For example, there are different types of cognitive biases and thinking traps associated with foresight success and addressing all of them would make a topic for a thesis in itself – to anyone interested in learning more about a particular success factor, further reading of the source material is recommended. Furthermore, referring to these factors as "success factors" might be somewhat misleading. As stated before, what is meant by foresight success largely depends on the context: therefore, success factors are also contextual in this sense. From practitioner's perspective this means that the relevance of each factor might depend on given foresight goals, the level of foresight maturity in said organization etc. Therefore, a factor that is crucial for some organization may not be an issue to others, and vice versa.

2.3.1 Foresight methodology and individual foresight skills

The role of methodology in conducting successful foresight may seem somewhat self-evident, but previous research shows that methodological problems are often hindering foresight either by inaccuracy of results when quantitative methods lack grounding or by management's acceptance of qualitative foresight methods (Neef & Daheim, 2005, according to Öner & Beser 2011, 51). While some researchers state that the best methods practice is becoming well-known within the foresight community around the world (Calof & Smith 2010, 31), others point out that "specific details about successful methods and the results of foresight activities are hard to find" (Hammoud & Nash 2014). Defects in methodology may result in foresight failure if the applied methods only produce outputs without advancing insights (Nemeth et al. 2018, 101). Because foresight methods are "critical for the interpretation ability of a company" (Rohrbeck 2010, 137), using them in the most efficient way is crucial for foresight success.

Foresight methods should be selected to matche the problem and the context of the organization (Rohrbeck & Gemünden 2008, 6). Methods that allow users to incorporate data from different sources and with varying time-perspectives without "oversimplifying" the issue are especially important for organization's interpretation capacity (Rohrbeck

2010, 137). In addition, more than one method should be utilized, as this increases reliability and helps to integrate both quantitative and qualitative data, and to involve variety of perspectives (Heger & Rohrbeck 2012, 289). However, as Hammoud and Nash (2014, 15) remark, “the domain of foresight is currently lacking a standard vocabulary to describe future focused concepts, methods, or practices”, resulting in difficulties in identifying and using suitable foresight methods. Due to this, relatively few foresight methods are regarded as successful in companies: these include environmental scanning, trend analysis, scenarios, workshops and detecting weak signals (Hammoud & Nash 2014, 15). Durst et al. (2015, 102) also note that even experienced foresight experts may struggle with choosing the right method to apply on a certain research question, and foresight participants might have difficulties in understanding the selected foresight methods, especially the more advanced these methods are.

While the quality of methods in itself does not guarantee success in foresight (van der Steen & van der Duin 2012, 487), training foresight participants in how to properly apply the selected methods and to understand the idea behind them is likely to improve their application in foresight projects, thus improving the results (Durst et al. 2015, 102–103). Kononiuk and Sacio-Szymańska (2015, 23) emphasize the role of individual skills in building organizational foresight capacity by developing skills to find, filter and interpret futures knowledge. The use of coaching methods and foresight training toolkits is recommended for organizations looking to increase their foresight effectiveness, emphasizing the need to train employees (Kononiuk & Sacio-Szymańska 2015, 23). Training employees to use and understand foresight methods not only ensures the "quality of foresight process and its results” but also helps to generate a “wider and deeper foresight culture” (Amanitadou & Guy 2008, 550). Relevant training and education also promote the use of leading-edge techniques and best practices, further highlighting the need for organizations to continuously develop foresight skills of employees (Baškarada et al. 2016, 420).

2.3.2 Technological tools for foresight

As effective use of information is one of the biggest challenges in organizations (Prokesch et al. 2015, 47), technological tools to gather, organize, analyze and distribute data have a significant role in easing the information flow in organizations. The benefits of ICT solutions have also been recognized in foresight: both foresight practitioners and researchers are increasingly interested in how ICT-systems for foresight are designe, applied and developed (van der Gracht et al. 2015, 1).

Keller and von der Gracht (2014, 81) define ICT-based foresight tools as "ICT used to initiate, automate, implement or support foresight processes". These tools are used for example to gather information (e.g., newsreaders and such), to analyze data, to store and distribute knowledge and insights (i.e., internal libraries where employees have access to reports and studies, blogs, wikis), and to manage documents and tag them with relevant keywords. Communication channels such as mailing lists and instant messaging provide further means to communicate foresight related topics between employees and groups of experts, and corporate directories and social networks help to identify relevant experts and stakeholders for foresight. (Rohrbeck 2010, 146–149.) In addition to these, some organizations employ specific foresight software solutions and platforms that have become increasingly common with the development of Web 2.0, social media, and crowdsourcing (Rohrbeck et al. 2015a, 117; Raford 2013, 65). Furthermore, the difficulty associated with choosing the appropriate methodology for foresight can also be eased with software tools that assist users in selecting suitable methods based on their foresight needs (Durst et al. 103).

Use of ICT tools to support foresight increases the efficiency and effectiveness of foresight: tools are useful for gathering information and interpreting it, as they allow multiple experts and stakeholders to join the interpretation process while acting as effective communication channels to a large amount of people (Rohrbeck 2010, 149–150). Case evidence of the beneficial influence of online foresight platforms concurs that the usage of platforms increases the total number of participants involved, enables wider geographic distribution in foresight participants, and ensures the professional diversity of participants (Raford 2015, 69–70). Involving more experts within and outside of the organization increases the breadth and depth of discussion (Rohrbeck et al. 2015a, 123) and helps to create robust scenarios with several detailed views of the possible futures, thus improving organization's competitiveness (Crews & Farrington 2017, 45–46).

However, the actualization of these benefits requires organizations to overcome the individual barriers of use: most foresight tools necessitate that all the relevant stakeholders are engaged in using them, making the probability of achieving a widespread use a tool a factor worth considering when initially deciding to employ ICT tools for foresight. It is also noteworthy that while many organizations employ ICT solutions in foresight believing in their significant contribution to foresight success, only few manage to enjoy the benefits of these tools due to difficulties in getting all the relevant stakeholders to use them. (Rohrbeck 2010, 149–150.) Furthermore, mere technical tools alone are not enough to build trust and social capital between foresight actors to overcome difficult issues (Raford 2015, 72), and technology can conversely even reduce the overall level of commu-

nication between actors (Rohrbeck et al. 2015a, 122). While technological tools may engage more people in a foresight process, they simultaneously lack the social and emotional dimension of face-to-face interaction. Because foresight can be seen fundamentally as a "social project based on individual judgement, group sensemaking and individual persuasion" (Weigand 2014, 148), neglecting the social aspects of foresight could have a negative influence on foresight success. Therefore, to mitigate the negative communication effects of ICT tools in foresight, technological tools should be used in addition to other activities producing sufficient emotional engagement in participants, such as face-to-face workshops (Raford 2015, 72).

2.3.3 Structure and routine for foresight

One of the most typical barriers in foresight is converting futures knowledge into action (Öner & Beser 2011, 51). This is partly due to nonspecific nature of futures knowledge, leading organizations to treat it as a "separate block" (Pouru et al. 2019, 85) or "just another piece of information" (Rohrbeck 2010, 157), and preventing managers from identifying its value to strategic management. Even if the value of information produced by foresight activities is recognized, organizations still struggle with how to turn insights into positive performance outcomes (Appiah & Sarpong 2015, 513). As foresight success necessitates organizations to turn foresight insights into actionable plans or policies, successful implementation of futures knowledge has been a focus of interest in corporate foresight. Failure in implementation can bring competitive disadvantage – there is a clear need for organizations to establish effective mechanisms that allow them to respond in time to changes and disruptions in their operational environment (Rohrbeck 2010, 170).

Organizational structure refers to how organizational actors are divided for certain tasks: structure impacts all operations, such as division of labour, reporting and accountability and budget-distribution (Schreiber 2019, 15). In foresight context, "structure" refers to how organization's foresight function is structured and linked to other organizational structures: who are responsible of foresight, to whom they report, which actors are involved in foresight activities, what kind of resources are given for foresight etc. Battistella (2014, 60) argues that while foresight literature acknowledges the need to design a particular structure to enhance foresight capabilities, less attention is given to how foresight process integrates to organizational structures in general. Similarly, Appiah and Sarpong (2015, 513) point out that "while no study has yet been conclusive on how organizations can optimally implement their strategic foresight insights in strategically useful ways, the general consensus appears that there are key antecedent factors that influence

an organization's ability to successfully align signals from strategic foresight activities with organizational plans".

Battistella (2014, 77) suggests defining a particular "future-management system" that increases foresight effectiveness by creating a structure that supports foresight implementation. This system can either be a "structural solution" (i.e., a specific foresight unit or function) or a more "cultural" approach (i.e., supporting the organization with soft factors such as building corporate scanning mechanisms for emerging change). In principle, foresight effectiveness is affected not just by how foresight unit (or function) is organized, but also how the "organization itself organizes for uncertainty" (Battistella 2014, 77). Despite how well the foresight system is constructed, the information that this system produces needs to be seamlessly linked to organization's strategic planning activities for foresight to be effective (Battistella 2014, 64).

Appiah and Sarpong (2015) examine the role of routines in integrating foresight insights into strategy: as large, highly routinized organizations are most commonly utilizing foresight, it is reasonable to assume that routines affect organizations' ability to react to change signals. Three key routine factors determine whether foresight integration fails or succeeds: 1) level of mindfulness of routine actors, 2) context of action of the routine, and 3) organizational ambidexterity. Firstly, as foresight integration requires "commitment and conscious effort", performing foresight integration efforts as mindful accomplishments supports openness for novel insights and eases the integration of new ideas or even radical changes. Secondly, the level of dependence of foresight integration on routines (such as budgeting or scheduling routines) determines the ease of foresight integration – deeply embedded routines that are strongly tied to foresight will hinder foresight integration especially when radical change is called for. On the other hand, established and stable routines may also foster change by improving the predictability and certainty of processes towards change. Thus, organization's capability to either strengthen the existing routines or to bring flexibility into certain routines at different times in a balanced manner determines successfulness of foresight integration. (Appiah & Sarpong 2015, 517–521.)

High level of foresight integration reflects the organization's ability to systematically "identify, interpret, and diffuse future insights, independent of the nature of the foresight units and the place where they are operating" (Rohrbeck 2010, 79). But without formal processes for foresight integration, any change in organizational circumstances is likely to deteriorate this ability; establishing organizational policy is therefore necessary for creating the "formal mechanism" that helps to turn foresight insights into action (Schreiber 2019, 44; 382), and shaping foresight into a permanent and ongoing process that is connected to organization's strategic planning activities.

2.3.4 Diversity and networks

Conducting foresight collaboratively enhances organizational resilience in several ways: collaboration improves the creation of ideas, defining problems ideation and creates consensus over long-term strategies while increasing the variety of perspectives in scenario creation, leading to improved strategic options (Weigand et al. 2014, 134). In addition, using collaborative decision-making has been shown to create better results in foresight (Durst et al. 2015, 103). Through in-depth dialogue on shared challenges and solutions, collaboration can increase trust between organizational actors and help to establish communication and cooperation between groups that previously competed for resources (Weigand et al. (2014, 147).

While the benefits of collaborative foresight have been recognized, Weigand et al. (2014, 135) point out "that participatory collaboration among mixed participants is rarely indicated as a methodology for strategic foresight", resulting in persistent institutional biases when top-down, management-lead foresight is favoured in organizations. Sarpong et al. (2013) have considered the role of "ordinary" employees located further down in the organizational hierarchy in foresight, stressing the importance of paradigmatic shift away from managers and top-down decision making. Instead of relying solely to managerial foresight, involving other organizational members enables decision-making based on a "collective formulation of the most relevant knowledge" (Weigand et al. 2014, 148).

Gattringer et al. (2017) present collaborative foresight as "a joint discussion and analysis process of various organizations concerning future developments". Collaboration makes it possible to share resources and expertise, gather richer data, and link multiple perspectives from various backgrounds, thus inspiring out-of-the-box thinking and helping foresight participants escape rigid mental models. Collaboration can be either internal, involving various members located in different levels of organizational hierarchy, or it can be inter-organizational, extending outside an organization. Inter-organizational collaboration and use of foresight networks can help organizations to overcome issues related to more traditional approaches to foresight and potentially integrate new insights into an organization's foresight process. Organizations with different cultures also have the opportunity to learn from each other, thus promoting the development of futures knowledge – however, this necessitates that the organizational culture leans towards openness and innovativeness to begin with. (Gattringer et al. 2017, 298–299, 308.)

Especially smaller organizations may benefit from foresight networks formed by companies, research institutes and governments sharing futures knowledge and foresight competences (Pouru et al. 2019, 89). Networked approach is also fundamental for scanning

trends and weak signals outside organization's usual scope, thus giving the gathered information depth and width (Battistella 2014, 77). In general, wide engagement is seen as the key to foresight success (Farrington & Crews 2012, 32) as multiple perspectives both challenge the trends and validate the conclusions (Heger & Rohrbeck 2012, 829). Diversity is also "a necessary condition for foresight sessions' productivity" as it helps to overcome some psychological effects of homogenous group work (Nestik 2018, 86). Rohrbeck and Thom (2008, 16) propose that involving as many internal and external stakeholders as possible enhances both the acceptance of foresight insights and their implementation to organization's action. To cover all the relevant actors in a value network, an interdisciplinary team is recommended (Heger & Rohrbeck 2012, 829). However, because foresight activities are often bound with time and cost resources, involving a large number of participants is not always possible nor beneficial. As Dufva (2015, 45) points out, instead of new ideas, wide participation can also result in an insipid consensus which does not satisfy anyone – therefore, it is important to consider carefully "when and how to strive for broad participation and what is the role of the participants".

Individual characteristics also play a role in collaborative futures work: ideally, foresighters should be "curios and receptive, open-minded and passionate", and possess both deep and broad knowledge, and have strong internal and external networks (Heger & Rohrbeck 2012, 823). They should also be able to embrace uncertainty and harness risks, think outrageously and challenge assumptions, be able to "connect the dots" and be ready to present unpopular ideas (Salvatico & Spencer 2019, 352).

Choice of participants may determine the success of a foresight exercise: for example, Nestik (2018, 82) describes *overconfidence effect* stemming from experts' "insensitivity to other people's opinions and to information that contradicts their already taken positions". When selecting foresight participants, Inayatullah (2015, 360) encourages to ask the question "Who is not in the room?". Workshop consisting solely of experts creates self-referential conversations, while the "people who can provide the new ideas are not there" (Inayatullah 2015, 360). Yet the balance between diversity and similarity is often critical: while diversity inspires out-of-the-box thinking, too much diversity may lead to communicative problems as participants struggle to find a common language (Gattringer et al. 2017, 307). Foresight participants need to have a similar enough knowledge base and understanding of possibly relevant developments to facilitate learning – regardless, as Gattringer et al. (2017, 307–308) emphasize, diversity is still far more important factor for "creation of new ideas and perspectives" in collaborative foresight than similarity, or, as Schartinger et al. (2012, 42) argue:

A large number of invited participants, experts from diverse disciplines and heterogeneous backgrounds in recurring dialogues, seems favourable for the acquisition of additional factual knowledge and understanding, the provision of new insights derived from communication processes with other stakeholders, for the acquisition of social capital and in turn, the development of strategic alternatives.

2.3.5 Mental models and mindsets

Foresight is essentially a people process, with individuals interacting with each other and exchanging thoughts and ideas. Foresight is about collective reflection and open strategic dialogue about joint actions and group objectives helping the organization to construct a collective understanding of the future and adapt to changes. In this regard, foresight is also susceptible to various socio-psychological factors that affect foresight effectiveness in different stages of the process (Nestik 2018, 78). Prevailing mental models, cognitive biases and incorrect assumptions are difficult to detect and might even go unnoticed unless challenged (Baškarada et al. 2016, 418). Dufva and Ahlqvist (2015, 114–115) describe mental models as *cognitive schemes*, which represent how individuals in foresight system perceive the roles of their co-workers, attitudes toward foresight and a common understanding a particular subject or a more general mutual understanding of the purpose and goal of organization – in short, cognitive schemes "represent the mental models the agents have of the environments in which they operate".

While mental models cannot be directly influenced, they change and evolve in interaction with other agents and "can be influenced by constructing focus points for the interaction" (Dufva & Ahlqvist 2015, 115). Overcoming these traps in thinking necessitates that their existence is first acknowledged: the role of foresight is to question prevailing assumptions and underlying mental models by making them transparent (Rohrbeck 2010, 110). In addition, special techniques may be applied to diminish the negative effects of cognitive traps, thereby increasing foresight effectiveness (Nestik 2018, 82).

As managers are often the focal point of organizational foresight and foresight has been mainly led by management, reshaping managerial attitudes and strategic beliefs of managers is one of the biggest challenges of foresight (Sarpong et al. 2013, 614; Weigand et al. 2014, 135; Vecchiato & Roveda 2010, 1532). Moreover, as managers often tend to perceive foresight input more as a hindrance to decision-making, changes in managerial attitudes are needed to effectively apply foresight for strategic management (Rohrbeck 2010, 162). Vecchiato et al. (2019, 5) regard expansion of decision-makers' mental models as the core benefit of foresight activities: through foresight exercises, managers are

able to reach “beyond the boundaries of their past experiences so that they can notice and make sense of a larger array of events in their external environment”. Because mental models are based on previous experience, they tend to inhibit creative problem solving and limit the range of possibilities managers perceive, leading to a situation where the organization performs poorly in uncertain and rapidly changing conditions (Vecchiato & Roveda 2010, 1532). Thus, foresight is not meant to predict or anticipate the future but to prepare the organization for it by changing the mental models and freeing managers from the constraints of their previous beliefs. (Vecchiato et al. 2019, 5)

According to Nestik (2018, 82), most common cognitive traps in foresight sessions are: 1) distant future is perceived as less important as current situation or near future, 2) future perceptions are based solely in trends and topics discussed in the media and on social networks, and 3) experts undermine the likelihood of events they have no personal experience of. In addition to these, there might be distrust towards long-term predictions, participants are not willing to take responsibility of their own future, or the organizational focus on the future and social cooperation are low (Nestik 2018, 78). Foresight workshops also suffer from various psychological effects such as overconfidence, desirability effect, future stereotyping, availability heuristics etc. (Nestik 2018, 79). For foresight to be effective, challenging the existing ideas and “moving from thinking about one future to alternative futures” is essential (Inayatullah 2015, 360). It is crucial to recognize and address the motivational and cognitive biases and group dynamic effects hindering reflection and reducing sensitivity to vision alternative futures (Nestik 2018, 82).

Nemeth et al. (2018) describe the failure of foresight project by Hungarian Ministry of Defense: while the Ministry was able to foresee both the European migration crisis of 2015 and the aggressive Russian foreign and security policy (i.e., the tangible outputs of the project were of good quality), they still failed to time them correctly and were not adequately committed to the results, leaving the Ministry ultimately unprepared for these events (i.e., intangible results were poor). Disparity in the tangible and intangible outputs resulted from overlooking the interpretative nature of foresight – data analysis produced outputs without insights, alternative futures were not explored, and prevailing assumptions went unchallenged (Nemeth et al. 2018, 101). This example highlights the importance of changing mental models in order to successfully implement insights produced by foresight. If the ways of organizational thinking are not changed through the reflective and prospective stages of foresight, the process ends up being shallow (Voros 2003, 19), inhibiting learning that is essential to foresight.

2.3.6 Learning

The ability to learn as an organization and to do so faster than competitors is highly important in today's fast-changing environment and is also one of the main factors in organizational success (Kirwan 2013, 1). Organizational learning is also deemed as one of the value contributions of foresight (Rohrbeck & Schwarz 2013, 1603). Organizational learning can be seen as a consequence of foresight: foresight process fosters learning as a "hidden benefit", enhancing the success of foresight (Amanitadou & Guy 2008, 543; Baškarada et al. 2016, 426). On the other hand, learning can also be considered as a prerequisite for successful foresight, as the prevailing mental models of foresight participants are challenged through learning (Baškarada et al. 2016, 415). From this perspective, learning drives the organization in a transformative journey, so that it can adapt to changing conditions instead of just applying technical fixes (Inayatullah 2015, 354). Learning also acts as the mechanism through which group consensus can be achieved (Weigand et al. 2014, 147), and foresight-generating activities are part of organization's strategic learning process (Mackay & Burt 2015, 548). Through organizational learning, organizations can utilize existing knowledge more efficiently and access new skills (Yoon et al. 2018, 635).

Inayatullah (2015, 359) considers effective foresight as a *learning journey*, consisting of four levels of learning: zero loop (foresight fails, participants give up), single-loop (elimination of uncertainties by providing a number of actionable strategies), double-loop (embracing uncertainty by creating a learning organization that is capable of adapting to change) and finally narrative foresight (search for stories that support emerging change). Foresight process in itself fosters learning: successful foresight cases go through several iterations of perceiving, probing and prospecting phases, setting off powerful learning and feedback loops (Højland & Rohrbeck 2017, 736, 744).

While organizational learning has been repeatedly linked to strategic foresight, the mechanism has been somewhat unclear, because this relation is often discussed in a highly abstract level: it is often just assumed that exercises, such as scenario planning, foster organizational learning and lead to strategic foresight, but they can just as well lead to strategic oversight, caused by learning traps inhibiting organizational learning (Burt & Nair 2020, 1–2, 4; Baškarada et al. 2016, 414). In order to avoid learning traps, organizations need to move from single-loop to double-loop learning through unlearning, i.e. by letting go of their existing mental models, assumptions, and beliefs in order to perceive their current conditions in a new light (Burt & Nair 2020, 10). While unlearning does not always come before learning, it is a necessary condition for cultivating strategic foresight:

foresight emerges from "the participants gaining insights about their changing competitive landscape and then using those insights to re-perceive their environment, firm and to probe future possibilities" (Burt & Nair 2020, 12).

While the importance of organizational learning in strategic foresight is recognized by researchers, in practice its role is often overlooked: organizational learning was deemed as one of the least useful purposes of futures knowledge in Finnish SMEs (Pouru et al. 2019, 88). Yet without learning – or unlearning – organizations have trouble in recognizing the limits of their current knowledge, thus being unable to fully utilize the futures knowledge and insights in examining future possibilities (Burt & Nair 2020, 12). Organizational learning also mediates the relationship between foresight and innovation: organizations that use foresight a lot also display high levels of organizational learning and are likely to integrate knowledge more efficiently to support and increase innovation (Yoon et al. 2018 640, 642).

2.3.7 Culture

Appiah and Sarpong (2015, 515) state that "the kind of culture governing a company will determine is receptiveness to strategic foresight knowledge", meaning that agile and flexible organizations "respond faster to the need for change" regardless of how stable their current position is. Organizational culture also determines organization's capability and willingness to take advantage of the information emerging from strategic foresight (Appiah & Sarpong 2015, 515). Cultural openness and exchange of information between organizational and inter-organizational actors fosters dialogue and helps to challenge basic assumptions and is especially helpful for organizations lacking formalized structure for foresight, as organizational culture that supports foresight activities and future-orientation is "an important enabler for […] foresight systems" and even compensates for weaknesses in formal processes (Rohrbeck 2010, 79, 81). If the organizational culture encourages employees to absorb external information and share it effectively with others, this will support the organization's ability to survive and maintain its position even in discontinuous change (Rohrbeck 2010, 79).

Ahlqvist et al. (2012) argue that *anticipatory culture* enables organizations to connect critical knowledge and increases the organization's systemic capacity for transformation. Anticipatory culture is built on the tension between future expectations and uncertainty, decisions made in the past that affect the organization, and the present moment requiring actions and decision. Anticipatory culture acknowledges both realized and unrealized past

decisions as well as future possibilities, solving the paradox of basing strategy on historical paths while simultaneously fostering future-oriented adaptability. Anticipatory agency acts as a catalyst here: it is described as a "strategic ability of an organization to construct feasible targets for the future through shared dialogue, and to implement actions on this basis", meaning that strategy should be constantly evaluated and adjusted accordingly in relation to changes in the operational environment. (Ahlqvist et al. 2012, 4–6.)

A good example of an organization that has created a culture, which nurtures innovation at every level, is Tesla: as every employee is made part of the design and car-model decision-making processes, everyone is constantly encouraged "to dream, remain passionate and deliver consistently to use of foresight and scenario building within the company" (Akakpo et al. 2019, 63). Tesla's culture is supported by institutionalized, continuous foresight activities and organizational policies that promote organizational success (Akakpo et al. 2019, 679). Embedding foresight as a part of day-to-day activities of an organization generates an open, foresight-favourable culture (Kononiuk & Sacio-Szymańska 2015, 10); in the long term, this is what organizational foresight processes should aim for (Battistella 2014, 64).

2.4 Foresight success as an organizational capability

In previous chapters, factors that support successful foresight were briefly discussed. For the purposes of this thesis, these factors were loosely categorized as follows: 1) foresight methodology and individual foresight skills, 2) technological tools for foresight, 3) structure and routine for foresight, 4) diversity and networks, 5) mental models and mindsets, 6) learning, and 7) culture. These factors can be summarized as follows:

1. Organization has sufficient skills in foresight methodology and is willing to train its employees in using foresight.
2. Organization deploys ICT tools for foresight that promote knowledge sharing, interaction, and wide participation in foresight processes.
3. Foresight is supported by organizational routines and structures that enable continuous, systemic foresight and seamless implementation of foresight results (turning insights into action), eventually institutionalizing foresight at cultural level.

4. All the relevant stakeholders are involved in the foresight process and the organization utilizes external foresight networks, thus enriching the results of a foresight process and supporting organizational learning. Foresight is perceived as a joint project within the organization.
5. Through foresight, organization becomes aware of the underlying assumptions and views that guide its current actions and is able challenge them, thus creating space for novel ideas and organizational learning.
6. Organization learns from foresight activities and becomes aware of the range of possible futures by challenging the existing perceptions of managers and other decision-makers, creating feedback loops through evaluation of foresight projects, and learning from past experiences.
7. Organization promotes a future-oriented culture building on openness and dialogue between organizational actors and encourages employees to express their ideas and views of the future.

The categories are more or less overlapping and interconnected: together, they comprise the conditions for successful foresight practice in organizations. Appropriate methods and skills in applying them provide intellectual foundation for foresight by ensuring the rigor of foresight process (i.e., choosing the right methodology and applying it accordingly), and training employees to use foresight tools and methods generates future-oriented culture and increases organizational futures-awareness. Use of ITC tools to support foresight activities eases the collection and analysis of change signals, increases the effectiveness of scanning phase, and enables collaboration and effective knowledge sharing among wider groups of organizational and inter-organizational actors. Diversity of people involved in foresight helps to challenge existing views and nurture trust, thus creating space for transformation and shifts in mental models necessary for profound visions for future. Socio-psychological factors, biases and underlying assumptions of individuals engaging in foresight are recognized and overcome, and organization is able to learn without falling into learning traps. Organizational structures provide organizational mechanisms to institutionalize foresight and make it a permanent and ongoing, routine process that connects foresight to organization's strategic planning activities. Institutionalization foresight fosters future-oriented and open organizational culture, making foresight a joint process to which everyone can contribute.

These factors further describe organization's foresight maturity level: what is the overall capability of an organization to conduct foresight and how well is foresight supported by organizational structures and culture? From this perspective, "foresight success" could be regarded as organization's ability to conduct foresight successfully. The next section examines foresight as an organizational capability and discusses foresight maturity models from theoretical perspective.

3 CULTIVATING SUCCESS: MATURITY MODELS FOR FORESIGHT

As past research has defined foresight narrowly as "a process executed by a dedicated team and linked to other function and processes" (Rohrbeck 2010, 110), so have the theoretical frameworks focused on indicating the process flow of a foresight project, suggesting outcomes in the form of deliverables (Hines 2016, 7). Similarly, evaluation of foresight impact has also focused on a specific foresight project or a process and its outcomes (Vataja et al. 2019, 320), disregarding the wider effects of organizational foresight. In this sense, foresight success has been regarded as a *process* success. But as argued previously in Chapter 2.2, while foresight as a project or a process can be highly successful in terms of methodology, execution and direct outcomes, it does not necessarily lead to right (or any) organizational actions or decisions, let alone continuity of foresight activities, thus rendering it ineffective in terms of impact. If we are to understand foresight as "organizational ability that allows for the identification and assessment of discontinuous change, triggering management actions and ultimately ensuring the long-term survival" of an organization (Rohrbeck 2010, 110), foresight needs to be regarded as an organizational *system*.

While the terms "foresight process" and "foresight system" are sometimes used interchangeably as synonyms to describe how organization's foresight process is organized, keeping the focus strictly on process level disregards some aspects of foresight success, such as organizational culture and learning. As foresight impacts have no clear boundaries, a systemic perspective that considers the contextuality of organization's actions and their relation to what other actors are doing is required (Vataja et al. 2019, 328). Similarly, foresight success factors are not limited to a single foresight project or process but instead illuminate how well-established foresight system an organization has. The difference between foresight as a process and foresight as a system is crystallized by Dufva (2015, 29): where foresight system represents the changing assembly of people, *agents*, who collaboratively produce future-oriented insights through "sharing, discussing, debating and shaping perceptions of futures", foresight process in turn is the formal mechanisms that transfers interaction between agents within the system to crystallized insights and activities.

In this sense, foresight can be seen both as a process producing *memory objects* in easily accessible form, such as documents, presentations, reports or other tangible objects (Dufva 2015, 28), and as a wider system developing over time and encompassing the whole organization and its actors. As Dufva (2015, 43) suggests, the outcomes of foresight process from a systems perspective can also be seen as an increase in capability, in

which case foresight can be seen "as a continuous action to increase and maintain this capability". From this perspective, as argued in Chapter 2.4, foresight success is tied to organizational foresight capability: the more capable of conducting foresight the organization is, the more successful its foresight activities are, as foresight capability is continuously increased through foresight activities. While this presumption was not specifically examined in this thesis, it serves as hypothetical starting point for exploring organizational foresight success. Moreover, foresight maturity models serve as a loose framework that help to examine foresight success factors as organizational capabilities.

As foresight is increasingly regarded as organizational capability, frameworks for assessing organization's ability to conduct foresight successfully have also been constructed. The terms *foresight maturity* (e.g., Grim 2009, Rohrbeck 2010) and *foresight capability* (e.g., Schreiber 2019) have been used somewhat interchangeably – however, these terms have a slightly different meaning. *Capability* can refer to either "the quality or state of being" or to an "ability" to do something (Merriam-Webster, retrieved online 5.4.2021). The latter definition in relation to foresight describes organization's *skills* in foresight (how good is the organization's ability to conduct foresight?) whereas *capability as a state* is closer to the term *maturity*: the verb "mature (into something)" stands for "to fully develop a particular skill or quality" (Oxford Learner's Dictionaries, retrieved online 2.4.2021). Foresight as organizational capability matures over time as the organization learns from its past attempts at foresight and gradually becomes more future-oriented.

Hence, assessing the state of organizational foresight systems requires considering *dimensions* of foresight (i.e. what kind of capabilities or skills the organization has related to foresight?) and the different *stages* of foresight (i.e. how fully developed is the organizational foresight system in relation to different capabilities?). Different frameworks approach this issue from slightly differing perspectives: whereas Grim's (2009) maturity model focuses more on measuring the level of foresight practice and less on measuring the outcomes of foresight, Rohrbeck's (2011) maturity model reaches further by assessing foresight maturity in terms of context (organizational needs for foresight), capabilities (organization's ability to identify, interpret and respond to change) and impact (value contribution of foresight activities) (Hines 2016,4). The Schreiber-Berge model for organizational capability of futures thinking adopts elements from both Grim and Rohrbeck's models and draws new ideas from several foresight case studies; in this model, foresight capability is presented as the evolution of organizational foresight system exhibited in four different stages (Schreiber 2019, 38–39, 47). In the following chapter, these models are first examined more closely and further discussed in Chapter 3.2.

3.1 Overview of maturity models

Grim's (2009) maturity model framework aims to measure organizational foresight practices and the competency of those practices. The framework consists of disciplines, practices, maturity levels and maturity indicators forming a matrix that can be used to assess organizational foresight capability. Disciplines consist of independent sets of activity that a foresight practitioner would use, whereas practices within each discipline describe "what needs to be done in order to execute a discipline". Maturity levels further describe the level at which the practice is executed: ad hoc, aware, capable, mature and world-class. In the first, initial level of practice (*ad hoc*), the organization is mostly unfamiliar with foresight processes and foresight activities are conducted without precise plans or expertise. *Aware* organizations recognize the best foresight practices and are learning from external input and past experiences. *Capable* organizations have reached a level where they have a consistent and sufficient approach to foresight producing additional value for the organization. *Mature* organizations have invested additional resources to develop foresight expertise and advanced processes for the practice. At the highest level, *world-class*, the organization is considered a forerunner in foresight and is capable of creating new foresight methods. (Grim 2009, 69–70, 72.)

Organizations can move from one maturity level to another (for example through learning from previous experiences, but this can only happen by mastering one maturity level before moving on to another. As Grim states, organizations have to "mature with experience and guidance". However, setting a goal to become world-class in every aspect of foresight should be considered only if this level is deemed as necessary for organization's success – the level *capable* is usually considered as the optimal performance level. Maturity indicators describe how a certain practice is performed at certain level of maturity: they are not fully comprehensive as such, as the purpose of the indicators is to act more as examples of the practice within each level. (Grim 2009, 71–74.)

Rohrbeck's maturity model of corporate foresight (Figure 1) seeks to highlight the elements of organizational foresight systems, levels of proficiency within these elements and to provide guidance best foresight practices. The starting point for designing a foresight system is to define the context for it: what are the organizational needs for foresight? Context can be evaluated by assessing the size of the organization, nature of its strategy, organization's culture, the source of its competitive advantage, and complexity and speed of its operating environment. Context for foresight needs also determines which capabilities should be emphasized. The capabilities, or the five dimensions of the maturity model, can be used to assess how well the organization's foresight system is able to *identify*, *interpret* and *respond* to discontinuous change. (Rohrbeck 2010, 7, 72–73.)

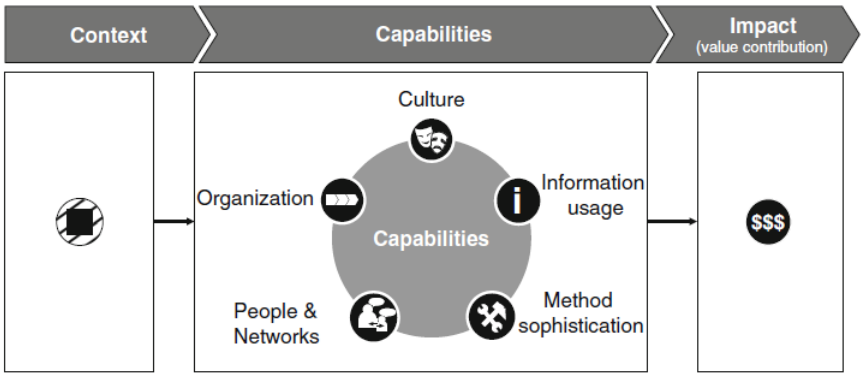

Figure 1. Maturity model for corporate foresight (Rohrbeck 2010, 72)

Characteristics of capability dimensions consist of different elements that describe organization's abilities in each dimension. *Information usage* depicts the organization's ability to gather future-oriented information in terms of breadth and depth, time range of foresight, and information sources. *Method sophistication* describes the organization's ability to integrate various information and the methods used for systematic interpretation of gathered information. The selected methods have to match with the context and the problem at hand and help to communicate foresight insights both internally and externally. *People and networks* describe how the organizational foresighters' characteristics correspond with ideal characteristics (see Rohrbeck 2010, 105), and how internal and external networks are used to communicate foresight-related information and insights. *Organization* describes the nature of foresight activities: top-down or bottom-up, continuous or ad hoc, how foresight integrates with other processes, the extent of employee's responsibility to detect and act on weak signals, and whether there are any additional bonuses or rewards related to futures-orientation. *Culture* describes how well the organizational culture supports foresight. Organizational culture that is beneficial for foresight is created through openness and willingness to distribute information between units and functions, readiness to absorb information from external and internal sources and from the periphery, informal diffusion of foresight insights, and management's willingness to challenge underlying assumptions. In each capability dimension, four levels of maturity (rudimentary, better practice, good practice and best practice) can be used to determine the level of proficiency within the elements of each capability. The use of foresight activities creates value for the organization by reducing uncertainty, triggering organizational actions, providing means to influence others and sparking secondary outcomes, such as organizational learning. (Rohrbeck 2010, 72–81, 82, 93–94.)

Schreiber's organizational capability model for futures thinking (Figure 2) describes how organizational foresight systems mature over time to a level where futures thinking becomes institutionalized and embedded in everyday activities of the organization. This

process of maturing can be depicted as phases illustrating the state of foresight maturity of an organization, or as a "maturity continuum". Foresight capability is a "capability for futures thinking", meaning that organizational futures thinking encompasses "both the use of foresight methodologies and the establishment of related organizational policie"s to support foresight. The organizational capability for futures thinking develops over time in a *maturity continuum* that consist of "knowledge, skills, behaviour and attitudes related to use of foresight and futures thinking for planning and taking action". (Schreiber 2019, 36, 381–382.)

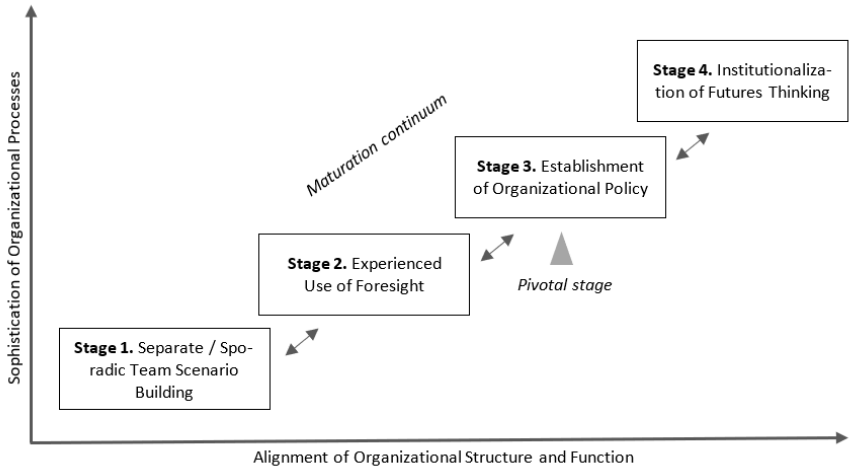

Figure 2. Stages of Organizational Capability for Futures Thinking (Schreiber 2019, 39)

Organizational capability for futures thinking is exhibited in four stages. At the initial stage of futures thinking, foresight is limited to single events with a single employee or a small project team scanning for change signals and building scenarios of possible future outcomes. Foresight activities are isolated and sporadic, and resources and access to information are limited. At the first stage, organization has only cursory knowledge of foresight methodologies and often relies on external service providers offering tools for data collection. In the second stage, organization uses foresight effectively to provide input for planning activities and inform management of immediate demands due to changes in the operating environment and implements actions to increase organizational competitiveness. Organization's structure is flat, and its functions are aligned to ease the information flow and shared decision-making. Foresight is conducted in interdisciplinary teams and team partnerships and foresight methodologies are employed with high degree of expertise. In third stage, organization develops and implements organizational policies that support foresight and transform the behaviour and attitudes of organizational actors. Organization becomes open to innovative strategies, time and resources for foresight are made available to employees, and skills, trust and commitment increase. Organization's identity and culture become clarified at this stage. Finally, in the fourth stage, foresight

becomes institutionalized by building on outcomes of organizational policies established at third stage. In the final stage, working relationships are enhanced and new policies and procedures become institutionalized, sustaining futures thinking and increasing organizational well-being. Foresight activities are driven by "vision and mission", and organizational action plans are aligned with organizations goals. Organization's management encourages implementation of foresight and further establishment of organizational policies to support foresight. (Schreiber 2019, 41–46.)

Organizational policies shape behaviours and attitudes creating paradigm shifts, which become consequently institutionalized as a part of the identity of the organization. Organizational policy externalizes what is expected from the organization as a collective and its employees as individuals: it promotes innovativeness and creative implementation of strategies, facilitates new roles and structures, defines criteria for accountability, and increases communication and shared dialogue. Establishment of foresight-related organizational policy is the pivotal point in the development of organization's foresight capability: through transitioning from early levels of maturity to higher capability in organizational futures thinking, organizational flexibility and adaptability increase, thus allowing the organization to better adjust to rapidly changing conditions. (Schreiber 2019, 39, 44–45.)

3.2 Evaluation of models

Maturity models offer a useful framework for evaluating the state and quality of organizational foresight systems. While Schreiber (2019) and Grim (2009) focus on the level of foresight practice, Rohrbeck's (2011) model emphasizes individual foresight capabilities. In this regard, Rohrbeck's model can be used to look at the level of maturity of an organization's foresight system in more detail (i.e., maturity level for each capability can be assessed separately) while Schreiber's and Grim's models assess the overall state of the organizational foresight system (i.e., the stage of maturation of the system).

According to Rohrbeck (2011, 103, 111), organizations can choose to base their foresight system either on structural dimensions (foresight is approached through a formalized process) or cultural dimensions (foresight lacks structure, but supportive organizational culture enables foresight system to operate). Depending on which approach is taken, emphasis is put to different capabilities: for example, structural approach composes of information usage, method sophistication, people and networks and some elements of organization, while cultural approach highlights culture and elements of organization

(Rohrbeck 2010, 111). In this regard, organization can choose to emphasize different capabilities according to its needs, just as it can choose an appropriate overall target level for foresight maturity.

However, as Schreiber's (2019, 39) model states, cultural and structural approach may not really be two separate approaches to a foresight system, as proposed by Rohrbeck, but instead describe different stages of foresight maturity. In Schreiber's model, organizational policy acts as the mechanism for *formal diffusion of insights* (Rohrbeck et al. 2015b, 4; Rohrbeck 2010, 105) within organization, and, contrary to Rohrbeck's dimensions of foresight maturity, diffuses organizational culture and Grim's uniqueness of foresight practice within third and fourth stage of foresight maturity (Schreiber 2019, 39). The formalized structural elements, or the organizational policies for foresight, lead to a pivotal cultural shift that institutionalizes foresight (Schreiber 2019, 39) – hence, culture follows from structure.

In terms of foresight success, these models provide perspective to how foresight systems develop over time and which elements support organizational foresight at each stage of maturity. Maturity models depict a continuum for the development of organizational foresight system: at each stage or level of maturity, the organization becomes more capable at conducting foresight. Foresight maturity is represented through different foresight capabilities, or skills – organizations move through a maturity continuum while simultaneously honing different foresight capabilities to the desired level. At each stage of foresight maturity, the organization overcomes different barriers to foresight before moving on to another stage – or, in other words, organizational foresight system matures as different success elements are incorporated to it over time. At the same time, the maturation process is a transformative journey, where the organizational culture changes as foresight becomes a holistic way of thinking and doing things in the organization.

4 RESEARCH DESIGN

The objectives of this study are 1) to understand which factors affect organizational foresight success, 2) to build an understanding of what is meant by foresight success and what benefits organizations expect to gain from foresight, 3) to describe what elements make an organization a forerunner in foresight, and 4) to find out how organizational foresight can still be improved. While some of the research questions of this thesis would also benefit from quantitative approach (for example, the importance of different success factors could be measured through quantitative survey data), the notion of foresight success is highly subjective due to its socially constructed nature, as discussed earlier. A qualitative inquiry seeks to answer *what* is foresight success and *why* different elements of foresight success are deemed as important or unimportant. Furthermore, as *foresight success* is a contextual notion and determined by actors involved in the foresight process, qualitative approach can shed light to how organizations define foresight success. Through qualitative interviews, a deeper understanding of what are the expected benefits of foresight and what motivates organizations to conduct foresight can be obtained.

The selected approach is interpretive in the sense that the research questions are assessed from the perspective of informants, allowing the researcher to have multiple perspectives to a research problem (Rashid et al. 2019, 4). Interpretivist paradigm emphasizes how research subjects understand the phenomena (Rashid et al. 2019, 4) – in this study, the research subject is both an entity (organization) and its representation (foresight expert of the organization). Foresight success is socially constructed by organizational actors: what constitutes as success is therefore a subjective interpretation of individuals, here the interviewed foresight experts.

4.1 Empirical material and methods

For the purpose of data collection, twelve Finnish organizations from both private and public sector were interviewed. The aim was to interview organizations considered as forerunners in foresight. However, identifying forerunners from the outside can be difficult, as it requires in-depth knowledge about the foresight practices in selected organizations in advance. Hence, two sampling methods were used: *purposive sampling* and *convenience sampling*. In convenience sampling, the research subjects are selected because they are easy to reach and therefore a convenient source of information, while purposive sample is a non-random sample selected by using certain criteria (Lavrakas 2008). The criteria for purposive sampling were that the organization had a well-established foresight

practice and was likely considered a forerunner in foresight. As for the convenience sample, organizations were selected because their foresight practice was considered as a good example and because the author of this thesis had an easy access to these organizations.

To validate the current maturity level of foresight activities in selected organizations, the interviewees were asked to evaluate the level of their foresight practice by using Grim's (2009) maturity levels. A description of the maturity levels (as described in detail in Chapter 3.1) was sent to the interviewees in advance with a request to consider the maturity level of the organization's foresight function. As experts are often busy, it had to be assumed that not everyone would have time to get acquainted with the model in advance. The basic maturity model was selected because it was thought to be clear enough to make a quick assessment even during the interview – the purpose here was not to delve deeply into the specific features of organizations' foresight systems but to form a rough idea of the maturity level of foresight in these organizations. During the interviews, the interviewees were asked to describe at which foresight maturity level they would place their organization and why.

Grim's (2009, 74) model considers the level *capable* as optimal for functional foresight practice: anything above this level requires additional investments, and at lower levels the results do not reach a sufficient performance level. Thus, for the purposes of this thesis, organizations placing themselves on levels *mature* and *world-class* can be considered as forerunners, whereas organizations below the level *capable* are still novices in this sense. Therefore, the original categories of Grim's maturity model *ad hoc* and *aware* were combined to form a new category *novice,* and *mature* was merged with *word-class*, forming a category *forerunner* (Table 2).

Table 2. Typing of the organizations interviewed

Organization	Maturity level	Use of foresight
Organization 1	Forerunner	Strategy
Organization 2	Forerunner	Strategy
Organization 3	Forerunner	Strategy, innovation
Organization 4	Forerunner	Strategy, innovation
Organization 5	Forerunner	Strategy, innovation
Organization 6	Forerunner	Strategy
Organization 7	Capable	Strategy
Organization 8	Capable	Strategy
Organization 9	Capable	Strategy
Organization 10	Novice	Strategy
Organization 11	Novice	Strategy
Organization 12	Novice	Unclear

As a result, six of the interviewed organizations were considered to be forerunners or at least had reached a foresight maturity level at which the foresight system could be considered to be notably good, three of the interviewed organizations had a consistent approach to foresight and were in the process of developing their foresight systems, and three of them were still at the early stages of establishing a foresight system. All but one of the interviewed organizations used foresight to support strategy, and in three organizations foresight was also used for innovation purposes. In one of the novice organizations, it was unclear to what purpose foresight was used, as it did not produce direct input to top management's decision-making nor innovation.

While the original goal was to focus solely on forerunners, the final material provided an opportunity to compare organizations on different levels of maturity. However, due to small sample size, this comparison is indicative even at best. Similarly, this sample is limited in terms geography: the original intention was to interview organizations internationally, but due to practical reasons only Finnish organizations were interviewed in the end.

The organizations interviewed for this thesis are (presented here in no particular order): Finnish National Agency for Education, Sitra, VTT, Neste, Skanska, Finnish Tax Admin-

istration, Business Finland, Lähitapiola, City of Espoo, City of Turku, Tampere City Region and Academy of Finland. From each organization, a person, who represented organization's foresight unit or function (referred now on as a "(organizational) foresight expert") was interviewed. While the interviewees were asked to consider the questions from their organization's perspective, it is undoubtedly clear that their personal experiences, opinions, and worldviews affect how they perceive discussed topics and are therefore reflected in the given answers as well. For example, interviewees were all familiar with central concepts of foresight: in this regard, the constructionist perspective assumes that the responses of the interviewees also reflect expectations about their professional role and the prevailing "foresight discourse". This discourse constantly interacts with foresight experts' experiences – thus, the answers given by foresight experts may reflect the interviewees' general understanding of "good and best practices" in foresight, and what is expected of them as foresight experts of their organization, as well as their own experiences. Therefore, the interviews are not just individual accounts of foresight but represent "particular organizational discourses merely voiced in here" (Silverman 2010, 229).

The interviews were carried out in Finnish – excerpts from the interviews are translated in English by the author of this thesis, and the author takes full responsibility of incorrect translations or possible misinterpretations. Interviews were carried out by using a semi-structured approach. A list of open-ended questions was used to loosely guide the discussions with the interviewees, while allowing space to pursue topics that emerged during the interviews. The core questions were following:

1. Describe, how your organization's foresight activities started (when and why you started conducting foresight).
2. Describe, what is meant by "foresight" in your organization (i.e., what are the usual foresight activities in your organization).
3. What are the benefits of foresight in your organization in ideal case?
4. What does it mean to you that foresight is "successful"? Describe a case where foresight was successful.
5. Which factors have helped your organization to succeed in foresight?
6. Which factors have negatively affected foresight success in your organization?
7. How is the information generated by foresight (observations, scenarios, etc.) put into practice in your organization?
8. What could be improved in your organization's foresight activities?

Analysis of the material was approached from two different perspectives. As the categories for foresight success factors were already determined based on literature, the analysis of data focused on examining whether these same categories occurred in interviews. The notion of foresight success, however, was constructed in the interviews and the following analysis, loosely following a grounded theory approach to the issue.

In data analysis phase, the aim was to compare if general knowledge of foresight success elements (based on literature) corresponds to the interviewee's idea of foresight success factors in their organization. Therefore, the interview transcripts were analyzed for recurring themes to see if they match with themes found from literature. As a result, the categories described in Chapter 2.3 were identified from the data and additional categories *communication* and *focus* were created (discussed in depth in Chapter 5.3). Similarly, the data was analyzed to identify the benefits of foresight and to form an idea of how organizations define foresight success. However, as success was assumed to be contextual, the given responses were approached from the subjective perspective of the interviewees. In the analysis phase, foresight maturity models served as a loose framework to form an overall idea of how foresight forerunners conduct foresight and what are the elements of an effective foresight system. The resulting analysis is presented in Section 5.

4.2 Validity of research

In qualitative research, sample size and its representativeness are often discussed topics. In convenience sampling, it is important to assess, what was excluded from the sample and what types of people were over-represented in the sample (Silverman 2010, 269–270.) As the convenience sampling consisted mostly of organizations known to utilize a foresight platform software in their foresight activities, it is possible that the role of technology in successful foresight is over-emphasized, and the results should be regarded from this perspective. However, the beneficial connection between foresight and technology is already established in past research – the results of this study can mainly confirm this connection.

Another aspect is the research design: as the main object of research is the foresight practice of an organization, the inquiry may have benefitted from interviewing several people within the same organization. As such, the given responses reflect the opinions of an individual expert and may differ from the views of other organizational actors, as already discussed in Chapter 4.1. However, as the given responses from different organizations were analyzed as a whole, together they form a multifaceted outlook to success factors in organizational foresight practice. It should be kept in mind, however, that this

outlook is geographically limited: as one interviewee pointed out, foresight is still used relatively seldom in Finnish organizations compared to rest of Europe. In this regard, an organization considered a forerunner in Finland may not be a forerunner in international comparison. The adequacy of the data could have been more complete in this respect if international organizations had also been involved. However, at national level the data can be considered as sufficient, as the last interviews no longer brought new perspectives to the research topic. In qualitative research even a sample size as small as one can be considered acceptable, if it generates great insight (Boddy 2016, 430). Moreover, a constructivist approach calls for building *depth* of understanding instead of *breadth* (Boddy 2016, 430) – understanding the limitations of the selected sample and the contextuality of research helps to evaluate the quality of research design.

In order to evaluate research quality in qualitative research, research objectivity needs to be considered. Any research that calls for interpretation from the researcher is always biased in some ways, as it is impossible to completely separate the researcher's perspective from the analysis of material. However, it can be argued the whole concept of "bias" fits poorly with "the reflective, subjective nature of qualitative research" (Galdas 2007, 1), and is in itself debatable, as analysis is always made from *someone's* point of view. In this regard, the researcher cannot be separated from the research process (Galdas 2017, 1), and therefore qualitative analysis is always value-biased in this way. It is, however, important to acknowledge that the interpretation of research material is done from researcher's perspective – especially when a researcher has to deal with perspectives of others as well as her own.

5 BECOMING A FORERUNNER

The empirical part of this thesis consists of building an idea of how organizations perceive the benefits of foresight, which elements contribute to succeeding (or failing) in foresight, how organizations themselves define success in foresight, and what could still be improved in organizational foresight. As foresight success factors were previously examined through foresight literature in Chapter 2.3, empirical analysis of research material seeks to examine whether these same factors are present in the day-to-day practice of foresight in 12 Finnish organizations (Section 5), and how the organizations themselves see the importance of these factors to their foresight practice (Chapter 5.1). The research question "What are the defining factors in foresight success?" is answered by combining previous results from literature analysis to empirical analysis of the material. Similarly, the research question "What is foresight success?" is now answered from the perspective of foresight practitioners in Chapter 5.3.

One of the goals of this thesis was to form a clear notion of how forerunners conduct foresight and how they perceive the importance of foresight and the benefits gained from it. This question is approached by combining theoretical observations to empirical material: by assessing, what are the benefits of foresight to organizations (Chapter 5.1), how organizations perceive the importance of different success elements, and what is there to still improve in their foresight processes (5.4), an image of "foresight forerunner" is constructed in Section 6, where the empirical results, theory and results from previous research are brought together.

5.1 "From the snapshot of the present to the image of the future": Benefits of foresight

In previous research, foresight has been shown to create impact or additional value in four different ways: 1) by reducing uncertainty, 2) triggering actions, 3) influencing others to act, and 4) through secondary benefits (i.e. positive value creation outside the initial aim of foresight activities) (Rohrbeck 2010, 82). These categories were also reflected in the interviews, when foresight experts were asked, what are the ideal benefits of foresight in their organization. While there was some variation depending on organization's purpose (for example, companies operating in private sector were using foresight to set and achieve business goals while public sector organizations had more societal goals), common themes emerged from the interviews. The most prominent benefits of foresight were reduction of uncertainty by recognizing disruptive change, and the ability to identify and

interpret change. Succeeding in setting a focus for foresight by recognizing which signals and trends are significant for the organization was also deemed as critical element for foresight success (discussed further in Chapter 5.3.1):

> *The point is to find your own angle to those megatrends and to learn to break them down and look at the trends within trends, and thereby find your own angle on the current issues. (Organization 4, forerunner)*

With the right focus, foresight reduces uncertainty and guides organizational decision-making by helping to make right decisions and direct actions based on future-oriented information (Rohrbeck 2010, 84). Through foresight, interviewed organizations were able to gain a better understanding of the current situation and changes in their operational environment and thus become more aware of tomorrow's (business) needs. Organizational preparedness for change and futures-resilience are increased when different strategic options become available through multiple views of possible futures:

> *[Foresight generates] an understanding that there is not just one possible future, but there are many different options for those futures. Secondly, better decisions can be made because there's more insight into different options and uncertainties. In a way, futures-resilience is strengthened through foresight. (Organization 8, capable)*

Foresight creates a deeper understanding of the current situation and ongoing changes that might be significant for the organization, thus providing input for strategy. One interviewee described that the benefits of foresight are best realized when changes, that are likely to have a considerable effect on the organization, are made visible through foresight and consequently "those changes are considered in strategy, and actions are planned based of them". For most interviewed organizations, foresight produced value when it triggered actions and supported strategic decision making. In addition to triggering internal actions, some organizations felt that through foresight, the organization not only had means to anticipate external events, but to also influence them to their own benefit:

> *[The benefit of foresight is that] we are not surprised from one direction or another, but we are also able to influence in advance how the organization should be positioned and how we can influence, for example, things that we*

think are negative for the future. [---] That is, the aim is to proactively influence some priorities in order to make a better future. (Organization 4, forerunner)

Another benefit the interviewees had observed was transparency and unobstructed information flow. As foresight activities increased, information was made more readily available to others (to other teams, departments etc.), and a shared dialogue increased organizational transparency. The process of creating a shared vision of the future also enhanced employees' commitment to strategy, as noted by one of the interviewees. Through shared dialogue of alternative futures, organizations are able to move "from the snapshot of the present to the image of the future" by establishing "a shared vision of the future":

When considering why a strategy does not work, one explanation is that different people have different views of the future and see different phenomena (e.g., the effects of demographic change) differently. Working together through foresight reduces uncertainty and helps to form a shared vision of the future, which means that strategic commitment is also better. To summarize, [the benefit of foresight is the ability to move] from the snapshot of the present to the image of the future. (Organization 7, capable)

Lastly, some interviewees pointed out cultural changes taking place through foresight: foresight increases organizational futures-capability and helps individuals expand their thinking by exploring new ideas and focusing "not so much on yesterday but what comes the day after tomorrow", as described by one of the interviewees. The organizational process of becoming future-oriented is iterative: increase in foresight activities spreads futures thinking further in the organization, which in turn leads to more foresight.

Another benefit is that futures knowledge, foresight competency and futures thinking increase: while we produce and analyze futures knowledge, that kind of evokes new ideas, and thereby the needs for operational development are recognized. Simultaneously, [organizational] foresight competency increases – there is a clear benefit in that. (Organization 5, forerunner)

The results from the interviews seem to support the conclusion that foresight produces additional value for organizations in several ways. Foresight reduces uncertainty by help-

ing organizations to recognize early signs of change and to make sense of them by bringing these signals into organization's context. Foresight supports strategic decision making, triggers internal actions and generates agency when awareness of external change increases the ability to influence events outside the organization. A shared vision of a preferable future engages employees to organization's strategy and increases organizational openness. As a consequence of learning through foresight activities, organization's overall futures-capability is increased as organizational actors discover new ways of thinking about the future. These results further validate the value contribution of foresight: through foresight, organizations can expect "1) an enhanced perception, 2) an enhanced ability to interpret change, and 3) an enhanced ability to propose responses, together with an enhanced capacity of organizational learning and influencing others" (Rohrbeck & Schwarz 2013, 1604). Conversely, these benefits, or value contributions of foresight, could be used as measures for foresight success: foresight activities are successful, if they provide value for the organization in this sense. However, as the next chapter shows, the interviewees" *experience* of foresight success varied significantly, further underlining the contextuality of foresight success.

5.2 "It is always work in progress": The difficulty of defining foresight success

Initially, the interviewees were asked to describe what they understood as "foresight success" and reflect on examples, where foresight was considered as highly successful. Especially the latter part proved to be difficult for two reasons. Firstly, some organizations had only been conducting foresight for a relatively short period, meaning that they were unable to evaluate long-term effects of foresight let alone success in this sense. Secondly, "success" in the context of foresight proved to be an elusive concept, as foresight was regarded as a continuous process with goals that evolve and shift constantly:

> *Well, in a way foresight is never "successful"…it is always work in progress. [---] Once you move one step forward, you already have another vision or step ahead. (Organization 10, novice)*

As a consequence, the informants in the very first few interviews found it difficult to provide concrete examples of "foresight success", and in the following interviews more emphasis was put to how the interviewees themselves understand or define foresight success.

Another difficulty was separating different aspects of success. As one interviewee pointed out, foresight success can mean several things, and therefore it is necessary to differentiate between foresight *process* success and foresight *impact* success:

> *[Foresight success] can mean two things. Firstly, that [---] the foresight process was successful, it worked well. But then again, foresight should be an ongoing process that can be re-directed over and over again. Too easily, scenarios become carved in stone, that this is the scenario we have, and changes in the operational environment are then ignored, because hey, we already have that one scenario. I would say that [foresight] is an ongoing process where one has to constantly take into account what is going on around us and whether it is affecting the future. [---] Foresight is never finished. (Organization 11, novice)*

As stated in the excerpt above, foresight can be deemed as a success from process perspective: the process itself was carried out excellently and with high degree of professionality. However, if the process is then treated as nonrecurring, and its results become "carved in stone" and are never revisited, the long-term benefits and impacts of foresight are not realized fully, or not at all. In this case, the results of the foresight process are in danger of "ending up in a box to gather dust", as described by another interviewee:

> *Probably the biggest thing is that foresight has challenges with impacts and effect. Anyone who works with foresight has probably seen a pile of reports that end up in a box to gather dust and have no effect on anything. These are not failures per se, because you always learn something during the process, but when it comes to concrete actions – indeed, I think that foresight [success] should be measured as concrete actions and not as some hypothetical development during the foresight process. But what can be described as "successes", well, that is really hard to define. (Organization 3, forerunner)*

As these deliberations show, there is sometimes a mismatch between managerial expectations for foresight and organizational foresight experts' views. The management (especially in organizations where a foresight system is yet to evolve) may see foresight as a one-time project or as a process that is carried out whenever necessary but not con-

stantly. The organizational foresight experts, however, see foresight as a continuous organizational activity that needs to be revised on a regular basis – and how can you evaluate success of something that is "never ready", as pointed out by one the interviewees?

> *Foresight work is never ready; it is an ongoing process that needs to consider everything that is happening around and whether it affects the image of the future one has. And that image also needs to be flexibly changed if it feels outdated. (Organization 11, novice)*

These interviews highlight that there is no single definition for foresight success. Foresight success depends on the perspective: are we looking at process success, or evaluating the outcomes or even the wider impacts of foresight? As stated previously, success seems to be defined by the context: foresight is successful when it meets the criteria set for its success. In the case of interviewed experts, each defined success in their own terms: to one expert, success followed from methodological rigour, to another, successful foresight meant getting a good feedback. However, after discussing this topic with the interviewees, the topmost impression was that foresight success was not something that was considered in many organizations, or at least not in depth. While some organizations had mechanisms for evaluating foresight outcomes from different perspectives, and most organizations seemed to have expectations for foresight at least on the level of project goals, clearly defined criteria for what was expected from foresight activities still seemed to be largely missing, or at least did not become apparent in the interviews. If there are no clear expectations for foresight and understanding of what foresight can deliver on a project level or on an organizational level, it will be more difficult to establish an ongoing process for foresight, as pointed out by Hines (2016, 2). But then again, if foresight studies are "inherently difficult" to evaluate in the sense that there is no clear consensus on *what* should be evaluated (van der Steen & van der Duin 2012, 491). Therefore, as argued before, setting a universal success criteria for foresight may be just as difficult, as expectations of foresight outcomes depend on the given context.

5.3 Elements of foresight success in organizations

In Chapter 2.3, elements that affect foresight were examined through foresight literature. In the interviews, organizational foresight experts were asked to describe which factors support, or conversely hinder foresight according to their own experience. The aim for this empirical examination was to find out how the importance of these factors is reflected in the foresight activities of organizations and whether they are considered as important. The empirical results regarding the benefits of foresight support previous research: Foresight success factors that were identified through literature review were also repeated in the interviews. All the pre-established success categories were confirmed to be present in the empirical material and mentioned by several organizations. The only exception was *organizational learning*, which was directly mentioned only once. However, in the discussions with the interviewees, elements that could be interpreted as organizational learning were reflected in several cases. While the answers given by interviewees cannot be generalized as such due to small sample size and qualitative, inquisitive nature of interviews, some themes emerged more often than others. Of these, the most prominent were foresight structure as a success factor and effective communication of foresight results. A strong linkage between foresight and strategy was deemed as crucial to create actual impact from foresight, but at the same time, effective ways of communicating foresight insights are needed to convince managers and stakeholders that action is called for.

Table 3 depicts the frequency of different success elements: “Count” describes the number of interviews this topic was brought up. As some themes were mentioned notably more often than others, it is reasonable to presume these themes to be especially crucial for foresight success. This presumption is further supported by the fact that the two elements, structure and communication, that came up in almost every interview, were brought up regardless of foresight maturity level of the organization. Therefore, it would seem that creating a structure for foresight (i.e. integrating it to other organizational processes and dedicating sufficient resources to it) coupled with effective communication form the two top key elements of foresight success.

Table 3. Elements contributing to foresight success in interviewed organizations

Theme	Count
Structure for foresight	11
Effective communication*	11
Methodology and skills for futures thinking	9
Focus for foresight*	7
Future-oriented mindset	6
Technological tools for foresight	5
Diversity & networks	5
Organizational culture	5
Organizational learning	1

n=12
*The category was formed based on interviews.

Another aspect was to examine how well empirical data fits with the theoretical models of foresight maturity discussed in Section 3. The initial assumption was, that organizations develop different foresight capabilities over time as organizational foresight maturity increases. The small sample size of twelve does not really allow for statistical comparison but can still be considered to be indicative. While the results seem to imply that some of the success elements follow each other in linear way, some of them are less tied to temporal phases of foresight maturity. Similarly, some elements relate to foresight success in process level while some are related to wider impacts of foresight. Hence, the evaluation of these elements from the perspective of foresight maturity is difficult and would require a different research setting. However, as the aim was to build an understanding of success elements, the empirical evidence confirms the importance of factors previously identified in the literature and complements them in some respects. In the next sub-chapters, foresight success elements observed in empirical material are discussed in depth.

5.3.1 Finding focus

Rohrbeck (2011, 131) differentiates between mode of foresight activities. Mode describes how foresight activities are triggered and executed: issue-driven foresight often starts as a specific project (i.e. the organization is looking to find an answer for a specific question) whereas undirected foresight is more general of nature, meaning that emerging trends are scanned continuously without focus, both of them being “essential” to corporate foresight (Rohrbeck 2010, 105, 131). In the interviewed organizations, signals were collected either through established mechanisms (the organization had a continuous process for collecting

signals and reporting them), or as ad hoc (the organization scanned its environment sporadically and relating to a specific project or question). While all the organizations aimed to collect signals continuously, there were differences in the mode of foresight activities depending on organizations' maturity level: while mature organizations had refined their signal collection processes and were able to feed signals systematically into their foresight system, in less mature organizations the collection of signals often relied on single employees' efforts.

The main purpose of scanning activities was to detect change signals in the operational environment and to keep an eye on how trends and megatrends were evolving, and whether they affected the organization in some way. Weak signals were also mentioned as important: collecting weak signals deepens the reach of scanning activities (Rohrbeck 2010, 75), making the organizational foresight system more comprehensive. However, while scanning activities produce initial input for the foresight system, it is the foresight experts' task to separate important signals and trends from less important and make sure that only relevant signals are taken into further discussion. The foresight experts also needed to be able to convince others of the importance of selected signals and trends:

> *The road from a signal to insight is long: too wide a focus in foresight workshop will result in the signals not being of good quality. The groundwork is not done properly then, why this or that signal is interesting. It has to be focused. (Organization 6, forerunner)*

Setting an aim that is too wide undermines the credibility of foresight work and might even prevent the recipients from taking in signals and trends. This creates procedural barriers to foresight work: first, the foresight expert has to judge the relevancy of change signals and select the important ones, secondly, decision makers have to be convinced of the importance of selected signals (Rohrbeck 2010, 114). To ensure that signals are of "good quality", the perceived signals and trend have to be filtered in early stages of the foresight process and their relevance for the organization needs to be carefully assessed. Lack of focus at this point was seen as a hindrance to foresight, or even as a "failure":

> *Perhaps the most important thing is to create a focus. If the aim is too wide, then that is the biggest sin in foresight. [Foresight] has to be confined – trying to perceive everything that moves is failure number one. (Organization 6, forerunner)*

Similarly, the signals and trends have to be credible for the audience:

> *You have to select correct variables, the information must be relevant and up-to-date. Trend-wise, the content needs to be credible, good, and of high quality for the recipient to take it in. (Organization 9, capable)*

Taking into account that in most of the interviewed organizations the time frame of strategic foresight was quite short (between 4–10 years), credibility of signals and trends requires anchoring them to the present instead of the (too) distant future. This sometimes makes it difficult to differentiate between foresight-generated information and market information (cf. Pouru et al. 2019, 89): as one of the interviewees noted, it is hard to draw a line between changes that were detected *because* of foresight and not just because they were already visibly taking place in the operational environment as trends. Hence, the scope of foresight needs to be wide enough to incorporate important change signals from the periphery (Pouru et al. 2019, 88), but at the same time the perspective has to be narrow enough for the signals to be relevant for the organization in question. Finding the right focus demands balancing between sifting out the most relevant trends and signals in organization's immediate operational environment and detecting weak signals of change outside of its operational environment.

5.3.2 Technology to support foresight

In the age of smart applications and big data, technology has become an integral part of foresight. IT tools create a support system for foresight, which enables collaboration despite physical distance, ensures transparency and consistency of foresight deliverables and offers means to handle large volumes of data (Durst et al. 2015, 92). All the interviewed organizations applied one or several software solutions[1] that were specifically targeted for foresight purposes: these purposes varied from collecting signals, analyzing large volumes of data, creating a shared platform for foresight work, or using tools to support methodology. Having an ICT tool – or several tools – for foresight was seen as a "pretty concrete success factor", as they can save time and effort for those who take part in foresight projects but also for the organizational foresight experts:

[1] It should be noted that this result may be skewed due to the nature of the sample.

> *A pretty concrete [success] factor is that there is a tool for foresight [---] through which to conduct workshops and summarize results. Sure, you could do the same anyway, but any tool will make it easier. International partners, for example, have their own tools, which has made it easier to participate in, for example, scenario work – it saves time and effort. (Organization 7, capable)*

ICT tools for foresight help to store all the relevant information in one place and make it easily accessible for all relevant actors. Introducing foresight tools for people who have no previous experience in foresight also lowers the threshold to participate in foresight activities:

> *The advantage [of technological tools] is that, when thinking about foresight as a continuous and systematic process, it helps to have all the information in one place with many people having access to it – that information can also be updated constantly. [---] Through these technologies, it is also easier to bring in people who do not know much about foresight – that these people can become part of the foresight process so conveniently, they can collect signals or to look at the collected data. That is, [technological tools] lower the threshold for foresight. (Organization 3, forerunner)*

As pointed out by Schreiber (2019, 42), dependency on technology is more prominent at lower levels of foresight maturity. However, while in less mature organizations the foresight activities seemed to be more focused around a single foresight tool, mature organizations demonstrated a greater need for multiple IT solutions. These organizations often experienced with different technical solutions depending on the task at hand and had clearly identified the best uses for foresight tools regarding information usage (collecting and analyzing large volumes of data and connecting foresight scouts in internal and external networks), people and networks (providing employees and other stakeholders tools for foresight collaboration) and utilizing IT tools for effective communication (Rohrbeck 2010, 124, 149).

An important difference between mature and less mature organizations was their stance to technology. While mature organizations deployed ICT tools to enhance different phases of the foresight, the technology itself was seen as less relevant:

> *My experience is that stories and pictures and, in life before corona, post-its and such were hard stuff. [Technological] tools are good in the sense that they create a shared platform. But then again, depending on the person, some people might find them less inviting – on the other hand, others may appreciate getting the overall picture [from a technological tool]. Personally, I see the [foresight] process itself and the interaction between people more important: if a technical tool can help with that, then it might be useful. (Organization 2, forerunner)*

In this sense, the usefulness of technology lies merely in its ability to create a channel for communication. Interaction between people is crucial for foresight, and the role of technology is simply to ease that interaction – foresight activities that require human qualities such as interpretation, cognition and creativity are less likely to overcome technological barriers (Keller & van der Gracht 2014, 90).

As the interviewed organizations often needed multiple tools for different phases of the foresight process, the use of software solutions for foresight was mostly restricted by the fact that they were often expensive: budgetary issues were mentioned as a common obstacle to utilizing technology in foresight.

5.3.3 Methodology is for pros, futures thinking for everyone

Previous studies have highlighted the use of certain methods common to foresight: scenario planning, trend analysis, environmental scanning, workshops, and looking for weak signals are the most commonly used foresight methods in organizations (Hammoud & Nash 2014, 115). Similarly, these methods were commonly used by organizations interviewed for this study. Valid methodology and training employees in foresight were also considered as important factors for successful foresight. Choosing reliable, good-quality methods likely creates results that are also good and justified:

> *A systematic methodological approach increases credibility and justifies why these very issues are raised. On the other hand, members of the organization may not have a very good knowledge of foresight methods – however, a good frame of reference will help. (Organization 9, capable)*

Foresight mature organizations displayed a greater variety in methods, implying greater method sophistication by being able to utilize methods for interpreting information systematically and not just for data collection (Rohrbeck 2010, 76). In addition, foresight mature organizations were also cultivating their own methods. The need to develop new methods stemmed from insufficiency of current foresight methods: for example, as one interviewee noted, there is an incongruity between the (often lengthy) foresight processes and today's fast-paced world, leading to a need to develop foresight methods that are more compatible with limited time-resources and management's expectations:

> *Futures research is so wide and requires an openness of the mind – from this basis the [foresight] processes take more than a few weeks to complete. One needs to be patient and wait for the results, and the management should have the patience to give those processes time. In a fast-paced world with limited resources, this is a difficult equation. [---] In terms of the [foresight] process, high-quality methods that are suitable for a fast-paced world should be developed. (Organization 1, forerunner)*

However, it became clear from the interviews that while it was expected that the foresight experts were able to utilize different methodologies with expertise to produce quality results, those who were merely participating in the foresight process were not expected to understand applied foresight methods. On the contrary, it was suggested that methodology is often best left to the facilitator(s) in a foresight project:

> *The facilitator needs to know what is being done. That sort of comes through selected methodologies, that there is a certain model by which [foresight] is done. I believe it is good for a facilitator to be a little more generalist than an expert in some narrow specialty. One has to be curious and create a good atmosphere for discussion – these features are not necessarily different from basic facilitation otherwise than the fact that one must have a methodological toolkit in the context of foresight. [---] Participants do not need to understand the methodology, but the facilitator needs to be able to describe it somehow through the foresight process: what we are doing now and why and what outcomes are being produced. You do not need to go into methodological details, though – not everything needs to be revealed. (Organization 8, capable)*

This is in contrast with results from Durst et al. (2015, 102), where foresight participants themselves felt that advance training in selected foresight methods would have improved the application of these methods during the foresight project. This difference may just reflect the different perspectives of foresight practitioners and those who are taking part in a foresight project: while participants may feel like they should be more knowledgeable of selected methods, practitioners may consider this to be a hindrance. One of the interviewees reflected that if participants of a foresight workshop are too familiar with methods, this can disturb the whole process by making them less open to new ideas and thoughts:

> *Foresight participants need to understand the purpose of foresight, but it is almost better if they have no understanding of foresight tools and processes. That way, they are more open to thinking new things [---] and do not try to think one step further like strategically thinking people tend to do, thus locking themselves in too far-reaching conclusions. (Organization 4, forerunner)*

Overall, the need to train other organizational members in foresight was recognized in the interviews as a factor for improving the quality of foresight. It would seem that while expertise in methods is seen as a condition for well-executed foresight project, training organizational members to become more familiar with foresight serves a slightly different purpose of increasing the overall futures orientation in organization, making it also easier to advance foresight activities in the organization. The main goal of foresight training was then not just to increase methodological know-how but to raise organizational foresight competency by spreading futures-awareness throughout organization:

> *Raising organizational foresight competency is what I'm looking for: that there would be more people who might know a little bit about foresight methods, but even more so that they would be able to see the future a bit differently – this might be the next step for us. (Organization 11, novice)*

What was meant by training varied from organizing workshops for futures thinking, teaching employees to use foresight tools, spreading awareness about foresight and its uses in the organization through workshops, seminars and presentations, and to sending selected employees to specific foresight training programs. Training employees in foresight by developing their skills to find, filter and interpret futures knowledge adds to organizational foresight capacity (Kononiuk & Sacio-Szymańska 2015, 23) and is espe-

cially crucial in the early stages of maturity when the organization's knowledge of foresight methodologies is limited and the skills in sense-making are minimal (Schreiber 2019, 41–42).

5.3.4 Bringing in diversity

Successful foresight necessitates high degree of participation: participation helps to make decisions faster, promotes a shared dialogue and increases the likelihood that foresight insights will lead to concrete action (Rohrbeck 2010, 151). The interviewed organizations had also identified the necessity of various perspectives in foresight and, in addition to internal foresight collaboration, a few of them actively participated in or had even constructed themselves external foresight networks. As one of the interviewees aptly put it:

> *In foresight, it is generally not enough to just mull over issues with your own people, you need to strive to gain insights from outside your own organization and industry. Not all wisdom resides in one's own head nor in one's own organization. (Organization 7, capable)*

By utilizing external networks, organizations can strengthen their scanning activities by making sure they have coverage not just outside their own organizations but outside their own field as well.

The way the topic of diversity was brought up in the interviews seemed to imply that diversity was a well-understood cornerstone of foresight and there were no particular struggles in involving a variety of people in foresight projects. In fact, diversity was often not brought up at all by the interviewees as a foresight success factor or a hindrance. Instead, diversity was reflected in the way the organizations were conducting foresight: who, or which units, were involved in the process, how signals were collected and how foresight knowledge networks were utilized in information-exchange and learning. In some organizations, foresight was an open process in a sense that anyone interested in it had the chance to participate. Couple of the interviewed organizations were seeking new ways to ease the collection of signals by creating specific tools for it: with the help of these tools, all organizational members would be able to report signals they deem as important. In addition, organizations were arranging open events to employees where foresight in general or a particular topic of interest was presented and discussed. In some organizations several units or branches were conducting foresight, their insights brought

together in cross-sectional processes – these internal arenas for discussion were seen as essential for the foresight process:

> *It is really important also to have a large number of people participating [in foresight]. And there's various angles to that: you want to have a wide range of people who collect signals and that you have a variety of perspectives, different people looking at things from their own perspective. In that sense, it is good to do foresight in different units, that foresight is always holistic. And then, at some point, you just have to bring it all together. And in that, the arenas of internal discourse are essential: when and which topics to discuss and who are the ones giving input to those discussions. (Organization 3, forerunner)*

The importance of these kind of internal conversations is that they act as mediating events, bringing together agents in the foresight system and allowing them to interact, challenge each other's mental models and thus influence the outcomes of the foresight process (Dufva & Ahlqvist 2015, 114, 116). In that sense, the question of which organizational members are getting their voices heard and what topics are brought into the conversation is highly critical.

5.3.5 Communicating foresight results effectively

As foresight is based on interaction between organizational and inter-organizational actors, communication is unquestionably one of the most central success factors in foresight and brought up as such in several interviews. Previous research on foresight and communication has focused more on aspects of effective foresight communication – i.e., highlighting organizational openness and shared dialogue (e.g., Schreiber 2019, 46) or focusing on communicative capacity of foresight methods and the interaction between agents in foresight networks (Rohrbeck 2010, 101, 103). Additionally, as mentioned before, the role of technology in foresight communication has also been a focus of interest (e.g., van der Gracht et al. 2015, 2). However, what actually works in getting across the message of foresight is a less researched topic (Müller & Schwarz 2016, 76).

As this topic turned out to be central to the first few organizations interviewed, it was intentionally brought up by the interviewer in the rest of the interviews. Communication was clearly an overarching theme as it crossed several other themes: communication

needs to be focused and effective to convince managers that actions are needed, and at the same time communication is a tool for changing the mindsets of organizational actors. Communication relates closely to organizational culture as well, as it supports an open culture favourable to foresight and can be used to promote foresight in the organization. Communication was also a topic that concerned organizations regardless of their foresight maturity level: even mature organizations were still in the quest of finding the best ways to communicate foresight results across the organization and outside of it.

As previous studies suggest, foresight insights need to be delivered internally "in the right format, to the right person, and at the right time" (Rohrbeck & Thom 2008, 16). Communication has to be effective to overcome procedural barriers – decision makers have to be convinced about relevancy of chance by using methods with high communication capacity (Rohrbeck 2010, 114). At the same time, different functions and units should promote openness by sharing their insights with others (Rohrbeck 2010, 114) – and not just sharing, but communicating them in a way that captures the intended receivers:

> *And then, of course, there's the communicative challenge you come across a lot: that, for example, marketing unit collects a lot of signals, but they do not communicate them to other units. Even if you collect signals or catch something interesting, then you still need to be able to put it in a way that addresses all the relevant actors inside the organization. That [signal] has to be translated in a way that more people can catch it. Pervasiveness of the message is truly essential: how the message is shaped and the way it progresses in the organization is extremely critical. (Organization 3, forerunner)*

As reflected in the quote above, organizational structures sometimes prevent communication to be effective. Especially in early stages of foresight maturity, the structure of the organization has to be flattened "to remove barriers to communication" by aligning structures and functions within the organization (Schreiber 2019, 42). This is often more easily said than done, since organizational silos sometimes persist, as noted by one of the interviewees:

> *The bare minimum would be to get all the reports and outputs in one place [to be accessed by anyone]. And again, we collided with someone thinking that "Our field is nobody else's business, we do not want others to see [our*

outputs]". I guess we are going to solve that eventually, but I did wonder that attitude, though. (Organization 11, novice)

As a way of crossing the existing organizational silos, Dufva & Ahlqvist (2015, 115) propose using *strategic objects* as a tool for integrating knowledge: through strategic objects, agents in the foresight system are brought together around a specific topic while it also signals "what is acceptable or preferable in the system".

However, it is not just organizational barriers that have to be crossed: mental barriers of individuals play an equally important role in foresight communication and these have to be crossed as well. In order for communication to be effective, the message has to be clear, well communicated and graspable to others. It should also be "tailored to the needs" of receivers by providing contextual information (Rohrbeck 2010, 125), linking communication closely to the theme of finding the right focus:

That is certainly one of the most critical issues, how the message is taken forward [to management], and perhaps even more so that the message should be accompanied with concrete examples of where foresight has been utilized and what has been achieved with it. Things that stay on the level of thinking alone do not lead to anything, effectiveness must come through concreteness. Focusing on a specific theme, such as sustainable development, brings structure to communication and the issue in context. (Organization 12, novice)

In this sense, communication helps to reinforce the status of foresight in the organization: foresight is constantly brought up and people are reminded of its existence. Getting foresight "in front of people at every opportunity" is a way to routinize foresight in organizations (Voros 2003, 12), and of creating a futures-oriented organizational culture. However, as the interviewees pointed out, communicating foresight results is often unidirectional by nature: since other organizational members are often not eagerly waiting to hear about foresight outcomes, communication has to be proactive lest the results go unnoticed in the organization:

To begin with, I keep [foresight] on the agenda all the time: when we have meetings or workshops [---] I always bring forth why this relates to foresight or why do we do foresight in the first place. [Foresight] has to be kept strongly present in one's own communication. (Organization 8, capable)

> *Communication is at least 60% of foresight, its role cannot be underestimated. I would still emphasize proactive communication, that is, nobody's going to ask you for the results if you do not communicate them specifically to others. (Organization 4, forerunner)*

Difficulties related to communication were also acknowledged. Communicating the foresight results was seen as an arduous process that takes time to penetrate all organizational levels. As resources are often scarce and employees cannot dedicate as much time and effort to foresight communication they would like to, communication is readily just cut out from the foresight process altogether:

> *Once the [foresight] process has been completed and the results have been obtained, those [results] should be communicated, but that may not always happen as well as it should. Roughly, one could say that if you do a year's work as a researcher, you should almost set aside another year to get the message across. And this, of course, does nothappen linearly, but overlaps [with other phases of the foresight process]: one should constantly communicate during the process and maintain others' interest in the topic by doing so. [---] Sufficient resources, time and effort should be set aside for communication on all possible channels. In that we have had shortcomings: when there is too much to do and limited resources, communication is often just sort of left out. (Organization 1, forerunner)*

Another issue was the complex nature of foresight and terminology used by foresight experts, which may not always resonate with the audience. The core message of foresight insights has to be clear and condensed – as Rhisiart et al. 2017 (210) note, a shorter brochure instead of long research report brings the content "to a more digestible level" while making it accessible to a broader audience. Crucial for foresight communication is also how the message is formulated: the language and word-choices have to be "simplified" lest the message be rejected, and nuances in different word choices have to be thought out carefully.

> *You need to constantly remind yourself to simplify things quite a bit and strive for plain language. The jargon associated with foresight methods is quite foreign to many people: if one were to communicate in complex terms, the message might be more easily rejected. [---] And then there are smaller things,*

> *like how to say things: whether we are talking about the future or the futures, for example. Such nuances can be really important in communication. (Organization 8, capable)*

But even a carefully crafted message might not reach the audience if its contents lack focus. Just as foresight needs to be focused enough on the execution phase, the outcomes, when presented to organizational decision-makers, also have to be "screened for things that are relevant" in order to be credible and lead to concrete actions:

> *The content must be of high quality, credible and relevant to the listeners. Content is high quality when it is screened for things that are relevant to your business – then it serves the audience in the best way. (Organization 9, capable)*

Ramos (2006, 1122) suggests "communication of foresight needs to begin with a more general appreciation of the ways by which people perceive their world – not with the particular perspective brought forth through the work of a futures researcher". Individual consciousness of people forms a barrier to communication of foresight, when people give different meanings to things according to their interior value systems (Ramos 2006, 1122). From this perspective, communication strongly relates to sociopsychological factors, as reflected in one of the interviews:

> *On a profound level, the problem is that foresight should be considered from sociopsychological perspective: what is the social psychology of futures research, the mechanism that transfers thoughts from people to people? (Organization 1, forerunner)*

As the underlying idea in foresight is to change mental models, long reports are usually poor tools for that. As noted by van der Duin (2016, 9): "The future does not only consist of words, but also images. It is especially the visualization of what may happen that can inspire people to engage in the future more." Some of the interviewed organizations were investing in visual communication and tried to summarize foresight results as much as they could:

> *It is better to report verbally and visually everything you do: when there is the underlying idea of changing mental images and models, textual form does notwork that well and even makes it a bit challenging. We invest as much as*

we can in communication, depending on the case. We try to use resources for visual communication – that is an important part. And particularly to summarize things, because no one has time to read a full report on all the little details. (Organization 4, forerunner)

Usually when one thinks of foresight or uncertainties, long reports are immediately brought to mind. I always try to condense things into one picture through visualization, and that perhaps helps to open up [---] things and phenomena. Visualization and simplification are important anchors for me. (Organization 8, capable)

In foresight, visual communication seems to be especially powerful as it instantly evokes mental images in the audience. Stories and narratives can also have a similar, albeit slower effect, as was noted in couple of the interviews. However, narratives might not capture everyone's interest and can even have the opposite effect as they are not the most convincing tools for corporate decision-making.

Rhisiart et al. (2017, 212) suggest that the key factor to successful communication of foresight results is to combine detailed reports with shorter, visually appealing summaries to make the results both credible in content and equally attractive to experts and non-experts. In attempt to enhance foresight communication, one of the interviewed organizations was in fact using a communication professional who also had a deep understanding of foresight. Utilizing such professionals in communicating the results of foresight could improve the overall effectiveness of foresight, especially if these results are intended to reach a wider audience.

5.3.6 Challenging the mindset

As previously discussed in Chapter 2.3.5, foresight is faced with the challenge of overcoming prevailing mental models that prevent learning during the foresight process, making the organization susceptible to learning traps (Burt & Nair 2020). Additionally, managers' reluctant attitudes towards foresight may also act as an obstacle to foresight in several ways, as described by the interviewees. For example, managers are sometimes unwilling to allocate time and resources to foresight and have little patience to wait for outcomes to realize – in a fast-paced world this creates tensions between the foresight process and managerial expectations, as one of the interviewees noted:

> *You must be patient and wait for the results. Managements should have patience to give time for those [foresight] processes to unfold. In a fast-paced world with limited [organizational] resources, this is a challenging combination. (Organization 1, forerunner)*

As the impacts of foresight might be slow to emerge, convincing organization's management of the usefulness of foresight might become a challenge in itself, and, as noted by Hines (2016, 1), prevent foresight integration especially in early stages of foresight maturity. By framing the discussion about foresight outcomes, managerial expectations regarding these outcomes can be managed more easily – this in turn helps to overcome barriers of foresight integration (Hines 2016, 2).

In the interviews, it became clear that one of the biggest organizational tasks of foresight was to challenge managerial assumptions, especially in foresight mature organizations:

> *To me, one of the purposes of foresight and futures work is to challenge the top management of the [organization] by presenting views on where the world is going, or how certain things are evolving, or what should be taken into account, and bringing them into a debate. Challenging is one of the most important things this is about. (Organization 5, forerunner)*

As pondered over in another interview, challenging prevailing worldviews through sharing and discussing ideas is crucial, as this dialogue generates future-related insights, further changing the conceptual maps of organizational actors and the way future is discussed in the organization. Accordingly, obsolete ways of thinking and unwillingness to embrace new ideas present organizational obstacles for change. Holding on to what is familiar and known, the established routines and dominant logics may seem more comforting than looking forward to the unknown (Cunha et al. 2006, 943). The fear and anxiety triggered by uncertainty and change are present in most people, but in managers this trait may be especially destructive, as they are the ones responsible for steering the organization through turbulent times. This inability to think differently was seen as hindrance to foresight, although – as noted in the excerpt below – imagining different futures is challenging to all of us:

> *[An obstacle to foresight is] a certain kind of inability or unwillingness to set out to think about the future, that one is firmly attached to familiar things. And the fact that it is difficult for us to imagine different futures and to challenge the future. (Organization 2, forerunner)*

As suggested by one of the interviewees, anyone partaking in foresight activities should be "into foresight", i.e., initially open to the idea of exploring multiple futures. For some, this kind of curiosity comes naturally while others may be reluctant to let go of their previous ways of thinking and acting. But when the mental models of these initially sceptic individuals actually changed during the foresight process, this was seen as a "biggest breakthrough":

> *People need to be into foresight: for some, foresight is more interesting than for others. For example, people who were initially not interested in foresight still joined our signal observation groups – sometimes I almost lost my temper when discussing with them. But that's also where the biggest breakthrough came, when one of them came to tell me afterwards that his world hasn't been the same since, that he sees things quite differently now. (Organization 10, novice)*

Foresight facilitators have a significant role in creating an encouraging and favourable atmosphere for foresight. In order to overcome the mental barriers of people partaking in foresight, a good facilitator can "reduce the collective anxiety over the future" by making the sessions less serious and "putting the participants in a positive mood" (Nestik 2018, 83). In one of the interviewed organizations, bringing humour to foresight sessions was recognized as a powerful tool to disengage participants' minds from their daily tasks:

> *Creating inspiration and humour are the most important things [for foresight]. If we have a workshop to think about future problems, we try to first create an atmosphere for futures thinking so that the participants do not just think about their monthly reports, for example. By humour, I mean engaging with a positive mindset, making it easier to notice opportunities than focusing solely on not-haves. In exploring the future, what is possible is more important than what is not possible. (Organization 4, forerunner)*

Getting the participants to focus on possibilities instead of what cannot be achieved helps them to overcome obstacles in their thinking while humour alleviates concerns about future. Open mindset makes it easier to accept new ideas and see thing differently, creating a precondition for learning.

5.3.7 Learning from foresight

In foresight literature, learning is considered as an important factor for effective foresight and was deemed as a success factor previously in this thesis (Chapter 2.3.6). However, learning was not a theme that came up in the interviews as a success factor – in fact, it was hardly mentioned at all. This is not surprising if considering previous research: in a study of Finnish SME's, organizational learning was seen as one of the least important uses of futures knowledge (Pouru et al. 2019, 88). Therefore, while learning likely takes place during the foresight process, it might be deemed as inconsequential. This was indicated in one of the interviews, where the foresight expert mentioned that while learning was something that *always* happened during the foresight process, it is not a goal for foresight nor a sign of success in itself:

> *Even though you always learn something during the [foresight] process [---], foresight success should be measured as concrete actions instead of some hypothetical development taking place during the process. (Organization 3, forerunner)*

Moreover, as organizational learning is constituted of mental processes of individuals, it can be difficult to observe this kind of learning taking place in practice. Additionally, learning processes take time, so it is possible that the interviewees were unable to pin down organizational learning as a success factor, considering that many of them had been practicing foresight only a few years.

Indeed, as noted by Rohrbeck (2011, 92), organizational learning can be seen as a *secondary benefit*, a by-product of foresight activities yielding additional value or sometimes even higher value than the actual outcome. In this sense, organizational learning captures "the extent to which foresight projects and reports channel knowledge into the company and promote common views and terminologies" (Rohrbeck 2010, 93). Additionally, organizational learning occurs when organizational actors are "forced to think

about future trends" and "confronted with insights from foresight activities": through intensive dialogue, joint opinions can emerge, thus reducing the risk of unaligned work (Rohrbeck 2010, 93).

The opponent role of foresight portrayed in some of the interviews suggests that while learning may not be a foresight goal explicitly articulated, it still takes place in the organizations' foresight processes. This was further supported by the fact that interviewees shared examples on how participation in foresight activities had changed the ways of individual employee's thinking in their organization. As a theme, learning is closely related to the theme of changing the mindset of foresight participants and challenging management's thinking, since "unlearning and subsequent foresight" emerge only when foresight participants let go of their rigid assumptions– in this sense, learning can be seen as a crucial aspect of the foresight process triggered by the activity of re-perceiving the organization's operational environment (Burt & Nair 2020, 12).

5.3.8 Making foresight a routine

It was widely agreed in the interviews that for strategic foresight to be truly effective, it needs to become an integrated, continuous process in the organization with an established link to strategy. In mature organizations, this goal had already been achieved, while novices still had to establish a continuous practice, let alone to integrate it to other processes. In the early stages of introducing foresight to the organization, this means that "someone has to put future on the agenda", as stated in one of the interviews. Managers have an important role in facilitating growth and maturation as they are engaging in employee interaction "more so than anyone else" and have a wide access to organizational information (Schreiber 2019, 42). Additionally, managers can act as foresight advocates in their organization, making sure foresight is discussed at board level as well.

As depicted in the interviews, when foresight is first brought into the organization, foresight champions are needed. These champions were often employees dedicated to advancing foresight in their organization, with the additional support of their manager (although this was not always the case – sometimes foresight activities had sparked from a single employee's efforts to drive it forth). When asked why and how the organization's foresight system had started to develop in the first place, one of the interviewees gave the following explanation of what had been the beginning of organizational interest to conducting foresight:

> *The organization's senior manager's interest in matters related to the future, and how he managed to get other members of the management team interested. Foresight activities have been seen and perceived as important and thus resources have been dedicated to foresight. And with more resources, you also get more results – thus, a positive spiral emerges. But it has not been easy to reach this point: there has been resistance and fighting against windmills. (Organization 5, forerunner)*

The role of champions is essential in early stages of maturity: without champions, foresight is in danger of becoming something that "shines forth briefly and then vanishes without trace" (Voros 2003, 12). Champions are needed to convince others of the benefits of foresight: ideally, champions are people who are in the position to push foresight forward on the organizational agenda, organizational members high in the hierarchy and with power to advance things in their organization make the most powerful advocates for foresight. Additionally, it often takes ordinary employees to take charge of the foresight process:

> *Well, yeah, it is about personal matters and, in a way, about what kind of people get their voices heard inside the house and make things move forward in the organization. Clearly, we can identify that we have foresight-oriented people in such positions that they are able to speak for foresight and spread more awareness of it within the organization. [---] Then, of course, you have to find the people who are interested [in foresight]. [Foresight] is both a matter that must be constantly carried out and kept afloat, and it takes the champions to do it, people who take foresight as their responsibility and make sure it proceeds. (Organization 3, forerunner)*

Sometimes foresight integration becomes a question of timing: as noted in several interviews, turbulent events and uncertain times raise organizational interest in foresight. When external events, such as the COVID-19 pandemic, cause economic and societal uncertainty, organizations are more willing to invest in foresight:

> *Interest in foresight also varies. For example, with the pandemic there has been a great demand for foresight, but then again in some years not so much. [---] And then you have to push it. (Organization 11, novice)*

In times of stability, the need to perceive the future is less acute, and foresight has to be "pushed" ahead in the organization. Similarly, as Amsteus (2014, 139) tentatively observes, if the organization is running smoothly, managers "are less prone to exhibit foresight", and the need to do something often arises only when things are looking alarming for the organization. The role of communication was once again highlighted in the interviews: communication was not only an instrument to engage organizational interest in foresight but to tie foresight processes more closely to strategic decision-making. As one of the interviewees suggested, it was the foresight expert's job to "nag in every turn" in order to turn foresight insights into organizational actions:

> *"Nagging" is the best way, meaning that you should bring those [foresight insights] forth all the time. Management is very obstinate; they have their own areas of responsibility and they tend to think things from that perspective. And of course, there is the issue of money: managers always consider expenses and if there are some, their ears close. [Foresight] requires repetition and articulating the results in every possible turn. (Organization 11, novice)*

The mechanism of turning foresight insight into concrete measures proved sometimes to be an issue even in foresight mature organizations – the interviewees seemed to feel that the link between foresight and strategy could be still further reinforced in some way. Schreiber (2019, 35, 45) proposes, that the implementation of "most viable plan of action to actualize future success" is done by establishing organizational policies that support foresight in every organizational level. Through means of established organizational policies, foresight becomes a formalized process within the organization, a routine instead of "strategic fluff":

> *Foresight demands that people have time for it, for even just one day per month, in order to be able to familiarize themselves with pre-existing knowledge, and then [foresight] can gradually establish itself into the daily routine. If only the management is doing foresight and discussing it, that does not really pay off. [Foresight] remains as strategic fluff that might be noticed briefly but its meaning is not really understood. Perhaps it is mentioned in some policy, but it does not flow into the organization the way it should. That is why you need contact points, i.e., foresight people." (Organization 11, novice)*

Lack of formal processes also creates a risk of losing foresight capability through changes in administration or personnel (Schreiber 2019, 44). Without institutionalized process for foresight, foresight depends on individual employees' knowledge, degree of foresight skills and overall interest in foresight. This creates a situation, where every organizational change poses a risk of setting back foresight, as noted by one interviewee when asked, which factors impede foresight in their organization:

> *Turnover in the organization and especially in the management level when new people come there. Every one of them needs to be individually informed of what is futures-oriented thinking and foresight and how to be involved in it – however, there might not be time for that, and so this person is left out of core activities. (Organization 7, capable)*

Therefore, as noted by another interviewee, foresight should not be "up to people but how the whole thing is organized". The routinization, or institutionalization of foresight turns it into a continuous process with enough resources and people dedicated to it and connects it to other organizational activities while simultaneously making it less vulnerable as a process to fluctuations in personnel:

> *[Foresight] should be continuous: often, as the strategy period changes, an external consultant comes in and hands out four scenarios for strategy work and then those scenarios are discussed – that feels a bit superimposed. Foresight should be incorporated, it should be continuous and communicated, and people, who are able to take foresight into the right situations within the organization, should be attached to it. (Organization 3, forerunner)*

> *[Foresight] should not be mystified as gazing in a crystal ball, it should be as mundane as washing your teeth – that it is just another thing that needs to be done daily, a routine that is connected to organization's other activities. (Organization 2, forerunner)*

A concrete mechanism for attaching foresight process and its outcomes more closely to organization's strategy work was to "bring it as a part of organization's annual clock", as suggested in one of the interviews. However, the topic of connecting foresight to strategy was still left vague in most interviews. This was partly due to the interviewed expert

not being directly involved in management's strategy work and thus having no clear outlook on how top management was implementing or using foresight results, or because this information was confidential, and the interviewee was thus unable to share it with the interviewer.

5.3.9 Culture for futures-thinking

Organizational culture as a success element was mostly reflected in foresight mature organizations, although novices and capable organizations were also striving for cultural change. As changes in organizational culture happen slowly and over time, less mature organizations are still developing their culture towards future-orientation while forerunners are already there. Organizational culture as foresight capability dimension not only enhances the use of foresight generated insights but also helps to trigger actions (Rohrbeck 2010, 108). Rohrbeck (2011, 175) suggests that investing in culture that supports communication might be particularly valuable, as it enables wider diffusion of foresight insights within organization. In light of the interviews, the question of cultural or structural approach to foresight is a *chicken or the egg?* -type of question: is an open, communicative culture a precondition for effective foresight, or is it the activity of conducting foresight that in fact helps lowering the threshold for communication and makes organizational actors more willing to share information, thus transforming the organizational culture? To some organizations, sharing information and being transparent was "the premise" of foresight:

> *Transparency is the basis, that people are involved in conducting foresight and working on foresight insights, that information is shared with people who have been involved in producing it. The aim is to ensure that, for example, trend reviews etc., do not just end up as shelf filling but are put to use instead – for example by trying to integrate foresight insights in the annual planning process and informing all branches of it. Everything is as open as possible, sharing information is the premise. (Organization 7, capable)*

On the other hand, in of the interviewed organizations the foresight expert described that they had already experienced a cultural transformation to some degree *because* the organization had been engaging in foresight activities:

> *Also, the fact that our [organizational] culture has become more open: we receive more information about our operational environment [from other units] and hand it out to others as well. Information flow and accessibility has transformed radically – these are big cultural changes that lay foundations for futures work. Of course, a change in attitudes as well, and the fact that while previously foresight was considered mainly as constructing scenarios, it is now more often thought as futures literacy. Everyone should be able to think about their own tasks in a proactive way and try to see what lies ahead instead of looking back and thinking that everything is going to continue as is. (Organization 11, novice)*

In this particular case, the cultural shift did not result from organizational policies but from a change in interpersonal communication and individual attitudes. Moreover, as the said organization was still in many ways a novice in foresight, observed changes in organizational culture are particularly noteworthy as they suggest a cultural approach to foresight. However, as openness of interaction was not reflected in all functions of this organization, it can be noted that organizational policies likely have a significant role in advancing practices that are favourable for foresight as well as spreading a future-oriented culture.

Without future-oriented culture, foresight becomes less effective, as there are more barriers present on both organizational and individual levels. As stated by one of the interviewees, foresight success "demands that [futures-thinking] is allowed in the organization, that it is encouraged." Widely spread, future-oriented culture also provides more input for the foresight process, as it puts employees across the organization on the lookout for signals (Rohrbeck 2010, 175). But as a difference to Rohrbeck's (2011, 175) results, employees in mature organizations were not culturally "obliged to fulfill some foresight duties" – it was rather assumed that employees would be willing to contribute to foresight by observing and reporting signals just as soon as a "cultural awareness of future" would spread throughout the organization:

> *And then one of our goals is to create a procedure for gathering signals widely in the organization, especially weak signals or even general observations about what is going on in the operational environment. We still have a lot to develop in that sense, so that future awareness would spread so broadly in the organization that we would also get those signals widely across the organization. (Organization 5, forerunner)*

Forerunner were active in spreading futures-thinking in the entire organization through means of training people in foresight, engaging them in using foresight tools and collaborating in workshops:

> *We are gradually building that, that [foresight] will be taken into account more widely in various arenas. Of course, it cannot be applied everywhere, but in general we are raising awareness of how foresight can be used as a tool among others when making business plans. Workshops are a natural way [of increasing foresight awareness], training, and showing foresight tools to people. And the results and opinions are communicated internally as much as possible in an attempt to process things through. (Organization 4, forerunner)*

In this sense, culture that supports foresight can be seen as a pinnacle for foresight integration, an ultimate success, as it incorporates all the other success elements. At this level, the organization has transformed and become fully future-oriented.

5.4 Improving organizational foresight

Foresight system is established in several phases, often starting from a single foresight project followed by another, then turning into a continuous foresight process connecting to other organizational processes, spreading foresight awareness through the entire organization and increasing foresight capabilities of individual employees, and finally transforming the organizational culture into becoming more future-oriented. However, the process of changing the organizational culture requires a significant amount of time and continuous dedication to the process in all organizational levels, as demonstrated in the empirical examination of the development of futures-orientation in a Finnish company: it requires “a lot of motivation and perseverance”, especially in early stages where the outcomes are not concrete and visible enough to convince employees of the usefulness of foresight (Ketonen-Oksi 2020, 5, 7). In other words, foresight systems need time to mature, and the maturity level determines the successfulness of foresight activities to some degree: it is plausible to assume, that as the organization develops its foresight capabilities, the organizational foresight system produces better outcomes and has wider impact on high levels of foresight maturity.

One of the interview questions concerned how the foresight experts would improve foresight in their organizations: what would be the ideal way of doing foresight and what

should it entail? Throughout the interviews, the interviewees had pointed out factors that were impeding foresight activities in their organization. These factors were combined into five different categories of organizational foresight barriers:

1. Foresight is not tied to decision-making processes (i.e., futures knowledge has no impact on organization's strategy or its actions).
2. Foresight is not seen as important (by management).
3. Foresight lacks focus.
4. Foresight lacks resources (mostly time).
5. Foresight fails to challenge management's beliefs.

Conversely, an ideal foresight system would have overcome these organizational challenges and included all the success elements. Structural, systematic and continuous foresight process was once again highlighted as an ideal model for foresight in the interviews: an integrated foresight process would help to guarantee resources for foresight and improve how foresight insights are connected to strategy. For example, as described by several interviewees, connecting horizon scanning to organization's annual clock and having the top management to pore over the results annually or several times per year would improve organization's strategic decision making by making the substantial changes in operational environment more visible to management.

Another important aspiration was having all or majority of employees involved in foresight activities. This implied a cultural change, where futures thinking would spread widely in the organization so that foresight "would gradually become part of everyday work" of all the employees, as one interviewee hoped. This would further support environmental scanning, as all the employees would keep their eyes open for weak signals and report them forward. Efforts were also made to involve organizational actors in foresight by increasing the future orientation of employees through training. Training was seen as particularly important for those who were closely involved with foresight. As one of the interviewees pondered:

> *Experts [in our organization] already understand what foresight is and why it should be done, but perhaps they lack methodological expertise, or they have not had the proper tools for it before. (Organization 8, capable)*

Additionally, the role of foresight technology was seen as important area of development not only because a larger number of people could be involved in foresight through technology, but because technological solutions could help in gathering data and produce

analysis based on it, thus automating the foresight process in this respect. Alternatively, the organization could utilize a foresight analyst "who could dig into databases and what-not", as one interviewee contemplated.

The organization's need to further integrate foresight systems may indicate that there is no separate "cultural approach" to foresight, as suggested by Rohrbeck (2011, 113), but that cultural change follows from formalization of foresight activities. The results from the interviews, with the exception of one novice organization, seem to imply that structured approach, where foresight is "executed according to a process by dedicate units and in which the response to discontinuous change is achieved by linking the foresight process to other corporate functions" (Rohrbeck 2010, 111), *precedes* cultural shift "involving a much larger proportion of employees and making them accountable for detecting and responding to weak signals of discontinuous change" (Rohrbeck 2010, 111). In this respect, an *organizational culture for futures thinking* is reached at the highest level of foresight maturity and that developing other organizational foresight capabilities support and nurture the cultural growth of an organization to become future-oriented.

However, one should keep in mind that these responses reflect the ideas of foresight systems the organizational foresight experts have, and their ideals are not necessarily shared by organizations top management. As Grim (2009, 74) reminds, not every organization need to attempt to become world-class – while the benefits of reaching high levels of foresight maturity might be "astounding" (Schreiber 2019, 837), it might make more sense to the organization to assess at what level of foresight maturity the outcomes are sufficient to meet the needs of the organization. But for organizations seeking to improve foresight success, aligning organizational structures and functions with the foresight process could bring greater benefits (Schreiber 2019, 386) while serving as a steppingstone to cultural change. Additionally, organizations should assess each element of foresight success to identify possible shortcomings and revise them if necessary. More importantly, as one of the interviewees reminded, it is not the process that matters in the end but the impacts of that process at individual level:

> *The problem with foresight [in our organization] is not the lack of adequate methods, or data, or conclusions, or the quality of research, but impact: what happens at the end of the chain or whether anything happens there at all.. (Organization 1, forerunner)*

6 A PORTRAIT OF A FORESIGHT FORERUNNER

Previous sections have highlighted different aspects of successful foresight. At the same time, the notion of "foresight success" has been shown to be highly contextual and thus lacking objective criteria for evaluation. As argued before, the context of foresight determines organization's *needs* for foresight (Rohrbeck 2010, 72), meaning that evaluation of foresight success should be case-specific in this respect. Furthermore, foresight also produces outcomes that were not initially sought for – for example, while organizational learning produces additional value for the organization, it is often not regarded as a goal in itself but as something that happens "in any case". Abstract and far-reaching effects of foresight are difficult for organizations to grasp, yet the very nature of foresight requires patience for these effects to yield value for the organization. Herein lies the dilemma of foresight success: in today's fast paced world, organizations expect immediate outcomes from a foresight process and are quick to regard foresight as unnecessary if these outcomes do not produce value that can be observed immediately. However, the effects of foresight become visible mostly over time, as foresight activities increase organizational future-orientation in a holistic way. The physical end-product of the foresight process itself has no value unless it provokes necessary discussion, evokes thoughts and insights, and challenges prevailing views in the organization. Thus, foresight success seems to necessitate a systemic change in the organization, starting from the establishment of a foresight system and followed by its maturation.

At mature level, foresight is a continuous process that produces additional value for the organization in several ways. At this level, futures-thinking is deeply emmbedded in organizational culture. The usefulness of foresight as a function is no longer questioned, as foresight has been integrated to organizational structures and is supported by different organizational policies – in short, foresight has become an organizational routine, a way of thinking and doing things. At this level, the organization possess' all the necessary capabilities needed for foresight success: focus and intention for foresight, profound skills in foresight methods and futures-thinking, open and reflective mindset of organizational actors, technological solutions that can aid in collection and analysis of signals and streamline collaboration, diverse range of foresight participants, internal and external networks that further support inclusion of multiple views and detection of weak signals, effective communication strategy for foresight, a dedicated function for foresight incorporated to organizational structures and finally, a culture that encourages futures-thinking and learning.

Understanding the selection and application of foresight methods creates a basis for foresight activities but is not necessarily something that requires wide expertise in the

organization. While it helps if foresight participants are familiar with the basic concepts of foresight, too much familiarity with the process and selected methods might even hinder foresight as this might lock participants in their routine trajectories of thinking. To ensure methodological soundness of the process, it suffices that the organizational foresight expert or external foresight consult is familiar with foresight methods. However, employees can and should be trained in futures-thinking in order to increase overall foresight competency and future-preparedness of the organization. Especially managers may benefit from foresight training, as such training helps to overcome dominant mental models and leads "to the development of great strategies" (Schwarz et al. 2020, 7).

At the early stages of setting up a foresight system, organization is often faced with the challenge of convincing management: as depicted in the interviews, it sometimes takes champions to get the message across. People with more organizational power, such as managers, have greater means to further foresight integration in their organization. However, sometimes the only thing needed is perseverance and ability to inspire others, as described in one of the interviews. The key is to keep foresight topical in the organization: to bring up any foresight results and insights as often as possible, and make these results appealing and thought-provoking through effective communication tactics (for example, using visualizations, narratives and crystallizations). Visualizations have been shown to "increase the effect of creative stimulation, [---] knowledge transfer, insight generation and a stronger buy-in of stakeholders on both levels, rationally and emotionally" (Müller & Schwarz 2016, 88). However, context plays a role in here as well: visualizations, or narratives, need to be tailored to the needs of a specific foresight case, and in some cases they can even limit engagement and imagination, making it important to assess case by case which approach might yield best results (Müller & Schwarz 2016, 88).

Just as important it is to focus the scope of foresight to issues that are relevant for the organization: finding the organization's own perspective to ongoing trends helps to highlight key change phenomena and argue the relevance of those phenomena for the organization. Temporal and spatial scope also play a role in here, as issues happening near-future often seem more relevant than those far in the future. Similarly, changes outside organization's operational environment are sometimes deemed as less relevant or even go unnoticed. While limiting the range of foresight to a duration of a single strategy period may help to tie foresight activities more closely to strategic planning, there lies a risk of not being able to respond to changes that affect the organization in the longer term. However, as previous research shows, the organizational scanning perspective is already too "short-sighted and narrow", allowing changes in the periphery to go undetected – yet the

biggest opportunities and threats often emerge outside organization's own field of business (Pouru et al. 2019, 88). Hence, organizations should keep their radar open for changes outside their field and particularly to screen for the signals that are most relevant to the organization.

As organizations already struggle with information overload and attention deficit when it comes to detecting signals, this might be easier said than done. In this sense, technological tools can play an important role in "steering organizational attention to issues of greatest importance". (Schoemaker 2018, 10.) As the results of this study show, organizations are already quite confident in using technology to support foresight and are hoping to get even further assistance from applications and software in collecting various phenomena and especially in interpreting their meanings and effects. With the aid of supporting technology, organizational foresight processes can be boosted significantly (Durst et al. 2015, 103). Another aspect of technology is that it can increase collaboration and lower the threshold for participation in foresight. However, as several interviewees reminded, the benefits of technology depend on its users: while technological solutions can support foresight, what ultimately matters is human interaction, not the technology itself.

Interaction and diversity of perspectives is critical for foresight success, as shared understanding of possible, probable and preferable futures is created in dialogue between foresight participants. When actors in the foresight system interact with each other, this interaction changes their mental models indirectly (Dufva & Alhqvis, 2015, 115). Some of the interviewed organizations particularly emphasized the "opponent role" of foresight: besides offering strategic guidance, foresight was meant to challenge top management's beliefs and ideas. In this regard, the results of this study differ from previous results, where the opponent role was less emphasized or even missing (Pouru et al. 2019, 89). In general, networked approach to foresight and involving a wide range of people in foresight activities seemed to be self-evident as a foresight success element to the organizations interviewed. Instead, a more critical question was whose opinions were heard in the organization and which topics were brought to internal discussions. Tentatively, this may suggest that even if foresight activities initially involve a wide range of actors, barriers of organizational hierarchy and power can render the results useless by blocking the essential information from reaching the top management, if they have not been directly involved in foresight activities.

The topic of how and when foresight insights are included in strategic planning is highly critical to organizations. In organizations where foresight had yet to become a routine process, this theme emphasized particularly: the link between foresight and strategy was not supported by organizational structures and policies, and foresight seemed to take place sporadically and in isolation from other organizational processes. However,

even mature organizations expressed their hopes for further integrating the use of foresight to other organizational processes, the ultimate goal being the routinization of foresight. Several factors perceived as hindrances to foresight were also related to the level of foresight integration. Lack of resources to foresight are directly related to structural issues: if the organization does not have its own foresight process, other priorities will easily take precedence over it. Similarly, lack of structured foresight process impedes the organization from turning foresight insights to direct action, rendering acquired futures knowledge to a mere nice-to-know-information. Therefore, as suggested by Schreiber (2019, 380), functional and effective foresight requires integration to organizational structures, and policies to advance the use of foresight in organizational decision-making. As suggested in the interviews, this could for example mean linking scanning activities to organization's annual clock so that foresight provides continuous and regular input to other functions and activities.

At meta-level, routinization of foresight can also be interpreted as cultural change. Several of the interviewed organizations had experienced a cultural shift: organizational transparency and willingness to share information had increased, and employees were encouraged to scan for signals and particularly weak signals. Employees' future-orientation was actively promoted by offering training in foresight, teaching employees to use foresight tools and arranging workshops and seminars related to foresight and futures-thinking. Through training and exposure to futures-thinking, employees had learned to "see the world differently", as described in one the interviews. In this sense, learning appears to be an important part of foresight success, albeit organizations may underrate its importance. Additionally, learning appears to create the necessary conditions for cultural change in the organization by altering the attitudes and mindsets of organizational actors.

The transformation from foresight novice to foresight forerunner does not happen overnight but rather takes place through different temporal phases of foresight maturity. In each phase, organization acquires new capabilities that further ensure foresight success – accordingly, a variety of organizational challenges that undermine the effectiveness of foresight must be overcome. However, even though the maturation process takes place along a continuum (Schreiber 2019, 39), the acquisition of different capabilities is rather a nonlinear process, meaning that different organizations acquire different capabilities at different phases of maturity. While the empirical results tentatively point out to a certain order, the capabilities are to some degree fluid and therefore unconnected to different stages of maturity. For example, while a deep understanding of foresight methodology creates the basis for organizational foresight, a future-oriented culture seldom is the premise for foresight activities but rather a pinnacle of organizational transformation through

foresight. Similarly, communication is a factor that affects foresight both during the actual process of creating futures-knowledge and afterwards, when this knowledge is further transferred to others.

Furthermore, success factors differ in whether it is possible to influence them directly or indirectly, and whether they relate to foresight as a process or foresight as a broader, organizational system. For example, organization can choose to incorporate ICT solutions in the foresight process or not, but the organizational culture cannot be changed at will – yet the increased use of foresight technology may affect organizational culture over time, as the future-orientation of the organization increases when employees become more capable of using these tools. Similarly, the context of foresight affects which success elements are critical for the organization: framing what is expected from foresight may also help to frame foresight success and which success elements are critical in this respect.

As social interaction is central to foresight, this interaction already provides certain context for foresight that should not be overlooked: people as organizational actors largely constitute the system in which foresight operates and matures. Figure 3**Virhe. Viitteen lähdettä ei löytynyt.** illustrates how the foresight process affects the people involved and changes their perceptions of future, which in turn leads to increased use of foresight. At the same time, the interaction between the process and people affects organizational culture by slowly changing the mindset of the entire organization towards greater future-orientation.

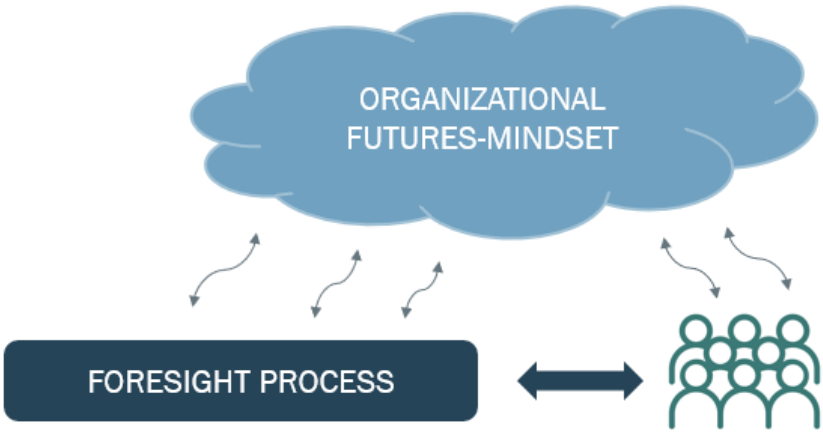

Figure 3. How foresight affects organizational transformation.

In this regard, foresight affects capabilities both on individual and organizational levels (Schwarz et al. 2020, 10). Maturation of the foresight system is also a process of

organizational transformation, where these capabilities play a key role as either enabling or, conversely, disabling foresight success. Examining success factors as part of maturity models helps to assess foresight as an organizational system that evolves over time and increases organizational future-orientation, rather than approaching successful foresight solely in terms of process performance. As futures-thinking creates "conditions for a paradigm shift" (Inayatullah 2008, 6), the maturation process ultimately leads to a cultural transformation. In this regard, foresight integration should not be regarded merely as a structural integration of the foresight process, but as *cultural integration* where the organization switches from its previous mindset to futures-mindset, i.e., becomes oriented towards future. As Ketonen-Oksi (2020, 11) observes, organizational future-orientation is affected by attitudes and mindsets of individual employees and managers. In this sense, the foundation for successful foresight practice is largely created at individual level, suggesting that more understanding of foresight as a social process and the sociopsychological mechanisms' that affect foresight is still needed.

6.1 Discussion and practical implications

This thesis set out to answer to following research questions:

1. What is foresight success?
2. What are the factors that contribute to foresight success?
3. What makes an organization forerunner in foresight?
4. How can organizational foresight still be improved?

The results of this study contribute to increasing general understanding of organizational foresight by providing an overview of factors that support or hinder foresight in organizations. The question of which factors contribute to foresight successfulness was answered by categorizing success elements from the basis of previous foresight research and observing whether these same categories were present in the empirical material as well. As all the interviewees were familiar with foresight best practice, it is possible that their answers were affected by this knowledge and their notion of what was "expected" from them as foresight experts. Therefore, despite the request to reflect on factors that affects foresight in interviewees' *own* organization, general notions of foresight may have affected the responses provided. As foresight experts, the interviewees might have a general idea of what foresight *ought* to be – to get a more robust view on elements affecting

foresight, it could have been beneficial to interview several people from the same organization, each providing a different perspective on foresight.

Another limitation of this study is the relatively small sample size. Additionally, the fact that empirical material is limited solely to Finnish organizations may prevent the results from being generalizable. However, as this study takes a constructivist approach and seeks to gain deeper perspective of foresight success in organizations, even a single case can provide richer understanding of the researched phenomenon (Boddy 2016, 430). In this regard, the selected sample size is ample enough to provide answers for the research questions. Moreover, previous research supports the empirical findings of this study, further validating the results. However, a quantitative approach to the research subject might add to this understanding, especially to the assessment of success elements in different phases of foresight maturity. The results are tentative in a sense that they point out to a certain direction, but additional quantitative research would help to validate them as well as to further fit these observations into foresight maturity models.

Nevertheless, together these interviews complement each other and form a pervasive view of the success elements in organizational foresight. While each of these elements could be further broken into several "sub-categories" to increase the understanding of specific aspects of each category, this thesis presents success elements merely as rough generalizations to offer an overview of the topic. Success elements can be seen as capabilities or features the organization develops over time as its foresight system matures. From this perspective, as an answer to the research question "*What makes an organization forerunner in foresight?"* is, that organizations that possess all or most of these capabilities can be considered as "forerunners" in foresight. However, success elements should be also assessed from the basis of the foresight needs of an organization: what is the sufficient maturity level for foresight to deliver outcomes that meet this need and, more importantly, what are the central success factors for achieving this level?

The empirical material is not comprehensive enough to evaluate whether organizations in certain levels of maturity put emphasis on certain success elements. In the light of empirical data, success elements are contextual and to some degree interconnected, making it difficult to evaluate them individually. Combined together, the success elements depict an "ideal" of foresight. In different maturity models, foresight capabilities were seen as either particular stages of maturity (Grim 2009; Schreiber 2019) or as dimensions of foresight, where each capability contains different maturity levels of its own (Rohrbeck 2010). The results of this study imply that success elements are best described as different layers of the organizational foresight system that develop over time like growth rings in a tree. However, more comprehensive research on the subject would be needed to confirm these tentative ideas.

The question of *"What is foresight success?"* was approached through qualitative inquiry, where the notion of success was built by examining themes emerging from empirical material. As a result, no single definition or criteria for foresight success was found, suggesting that success depends on the context and is socially constructed by parties involved in foresight. What organizations deem as "success" varies from case to case and organization to organization, and largely depends on who is defining success. Nevertheless, organizations share some similar expectations from foresight – assessing the expected and perceived benefits of foresight may help to evaluate foresight success in this regard. One must also keep in mind, that foresight is not a goal itself but rather a means to an end (van der Duin 2016, 8) – while foresight may support organizational decision-making, it is the quality of those decisions and their outcomes what counts.

As foresight is a pragmatic approach to futures studies (Kuusi et al. 2015, 22), this thesis too aims to provide practical recommendations for improving organizational foresight. Key tips for improving foresight relate to framing success, integrating foresight process to other organizational processes, communicating foresight results in an effective way, maintaining a notion that foresight should be a viewed as a continuous process, and increasing skills in futures-thinking through education:

1) **Framing**. Foresight success should be contextualized by framing expectations: What is expected from foresight activities in terms of immediate and longer-term results? Is there additional value that foresight may bring to the organization? Successfulness of organizational foresight activities and their outcomes should be evaluated from this basis (see also Hines 2016).

2) **Integration.** Foresight should maintain a robust link to strategy. A solution to this could be to integrate environmental scanning and other foresight activities to organization's annual clock so that it provides regular input for strategic planning and discussions.

3) **Communication**. Invest in effective communication. Foresight is all about influencing people – only effective communication can change the views and prevailing mental stances within and outside the organization. Visualizations are a particularly potential tool for communicating foresight results as well as conveying information during the foresight process.

4) **Continuity.** Maintain a notion that foresight is a dynamic process that needs to be constantly redirected for the organization to keep up with changes in its environment (Ahlqvist et al. 2012, 4–6) – foresight is never ready!

5) **Education.** Train employees in futures-thinking. The foundation for organizational future-orientation is created at individual level. Training employees and especially managers in foresight is likely to increase organizational change-resilience and overall future-orientation.

As an answer the research question of "*How to improve foresight in organizations?"*, this study has attempted to highlight typical barriers for foresight, assess the success elements of organizational foresight and to deduce from empirical material, what are the most critical points for development of organizational foresight systems. Foresight integration is central to foresight success: foresight should not happen in a "vacuum" but rather be closely linked to organization's other functions. The empirical results from this study also point out the need to put greater emphasis on how foresight outcomes are communicated during and after a foresight project – a factor, that is largely missing from previous literature (cf. Müller & Schwarz 2016). Further research about *communicative capability* as a foresight success factor could provide insights both on practical and theoretical level, as well as open new perspectives on (socio)psychological aspects of foresight. Foresight as an organizational social system involves multiple actors, each affecting each other either unconsciously or intentionally. With humans, verbal and visual communication are the most powerful tools of persuasion – a deeper understanding of the dynamics of organizational communication might help to turn foresight-generated insights into actions and boost both short- and long-term impacts of foresight in organizations.

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