# Scaling organizational agility: key insights from an incumbent firm's agile transformation

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## Abstract

**Purpose** – This paper aims to examine the key challenges experienced and lessons learned when organizations undergo large-scale agile transformations and seeks to answer the question of how incumbent firms achieve agility at scale.

**Design/methodology/approach** – Building on a case study of a multinational corporation seeking to scale up agility, the authors combined 36 semistructured interviews with secondary data from the organization to analyze its transformation since the early planning period.

**Findings** – The results show how incumbent firms develop and successfully integrate agility-enhancing capabilities to sense, seize and transform in times of digital transformation and rapid change. The findings highlight how agility can be established initially at the divisional level, namely with a key accelerator in the form of a center of competence, and later prepared to be scaled up across the organization. Moreover, the authors abstract and organize the findings according to the dynamic capabilities framework and offer propositions of how companies can achieve organizational agility by scaling up agility from a divisional to an organizational level.

**Practical implications** – Along with in-depth insights into agile transformations, this article provides practitioners with guidance for developing agility-enhancing capabilities within incumbent organizations and creating, scaling and managing agility across them.

**Originality/value** – Examining the case of a multinational corporation's exceptional, pioneering effort to scale agility, this article addresses the strategic importance of agility and explains how organizational agility can serve incumbent firms in industries characterized by uncertainty and intense competition.

**Keywords** Organizational agility, Agile transformation, Dynamic capability, Agile scaling, Case study, Organizational challenge

**Paper type** Original article

## 1. Introduction

The ubiquity of digitalization and disruptive business models is currently reshaping industries and challenging many organizations to pursue large-scale transformations to keep pace in today's volatile, fast-moving business environment (Appelbaum *et al.*, 2017; Parida *et al.*, 2019). Companies' 20th-century models, in which competitive advantage derives from economies of scale, hierarchical structures and complex decision-making processes, are simply no longer fast enough to keep up (Holbeche, 2018). In response, the concept of agility has gained momentum, especially following the emergence of transformational digital technology and its potential to



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fundamentally change corporations' business models, relationships with customers, competences, products and services and ecosystems (Bharadwaj *et al.*, 2013; Chan *et al.*, 2019; Oliva *et al.*, 2019). According to Doz *et al.* (2008, p. 65), *agility* is "a higher-order dynamic capability that is built over time" and thus requires being aware of trends and forces, making bold decisions fast and reconfiguring business systems and rapidly redeploying resources. Such higher-order capabilities include the dynamic capabilities of sensing (i.e. the capacity to identify, develop, co-develop and assess new technological opportunities and threats in relation to customers' needs), seizing (i.e. the capacity to mobilize resources to address opportunities and capture value) and transforming (i.e. the capacity to maintain competitiveness via continuous renewal) that are necessary to addressing new opportunities and threats brought forth by today's new technological environment (Teece *et al.*, 2016).

Several studies have indicated, however, that managers experience severe difficulties with implementing agility across their organizations in large-scale settings, or *agility at scale* (Calnan and Rozen, 2019; Dikert *et al.*, 2016; Sommer, 2019), defined as the ability to spread and drive agility across an entire organization. Likewise, a global study by McKinsey & Company involving more than 2,000 organizations revealed that only approximately 10% of the ones that had recently undergone an agile transformation characterized it as having been highly successful (Aghina *et al.*, 2020). When executed poorly, agile transformations can cause not only frustration but also intense friction with entrenched legacy systems and other aspects of the organization's culture. Annosi *et al.* (2020a, b), for example, have examined potential pitfalls and negative consequences of implementing agility, including a decreased interest in learning and high levels of stress and argued that large-scale adoptions of agile practices often result in problems with team–team coordination. Other potential negative consequences of agile transformations include decreased efficacy in individual performance amid increased pressure to perform, less access to and the weakened accumulation of knowledge related to decentralized team structures, and the reduced integration of knowledge.

Even so, pursuing agility at scale seems to be worth the risks. Prominent corporations such as Amazon, ING Group and Bosch have demonstrated how large-scale agile transformations can be shaped while maintaining traditional functions in parallel with agile units (Rigby *et al.*, 2018). In fact, companies that are further along in their agile transformations achieve "around 30% gains in efficiency, customer satisfaction, employee engagement, and operational performance" and become five to ten times faster than their less agile competitors (Aghina *et al.*, 2020, p. 2). Even though the literature and practical examples offer various conceptualizations of agility at the project and organizational levels, incumbent firms continue to struggle to identify the concept that best fits their distinct purposes and to deploy it in ways that achieve agility at scale (Kalenda *et al.*, 2018).

Thus, identifying appropriate agile practices, methods and frameworks for scaling agility—that is, successfully improving agility across an organization—requires profound knowledge, expertise and understanding. Along those lines, research has addressed the need for tailored, company-specific agile frameworks because agility hinges on organizational complexity, organizational routines and the renewal of key competences (Annosi *et al.*, 2020a, b). In our research, we thus conceived agility at scale as the ability to drive agility at an organizational level but not as a universally applicable concept in practice. Instead, agility at scale requires a set of capabilities involved in not only allocating resources but also dynamically balancing them to manage uncertainty and maintain flexibility over time (Shams *et al.*, 2020; Teece *et al.*, 2016; Vecchiato, 2015; Weber and Tarba, 2014) as well as a multilayered analysis of the strategic, organizational, team-focused and leadership levels that fundamentally impact the entire organizational system (Girod and Kralik, 2021).

Although scholars have emphasized the need for further investigation into ways of scaling and thereby enhancing agility in organizations (Girod and Kralik, 2021), there is little

conceptualization, let alone empirical evidence, about how or what is needed to achieve agility at scale. Therefore, we investigated the dissemination of agility from a divisional to an organizational level and studied how organizations scale agility. As a result of our investigation, this paper examines the key challenges experienced and lessons learned when organizations undergo large-scale agile transformations and seeks to answer the question of how incumbent firms achieve agility at scale.

To accomplish our objective, we performed a single-case study to understand the implementation of an agile center of competence (ACC) and the scaling of agility across an organization. The case was a multinational financial services company operating in the insurance and asset management industry that has been exposed to rapidly emerging digital technology, changing behavior among customers, increased industry competition and disruptive threats due to the emergence of innovative fintech firms (Verhoef *et al.*, 2021; Yan *et al.*, 2018). Thus, to keep pace with digital opportunities in today's volatile digital business environment, the company's management announced that the organization would undertake a large-scale transformation—namely, the launch of a global, corporate-wide digitalization agenda and the ensuing opening of an ACC.

By consolidating research on organizational agility and dynamic capabilities, we investigated how an incumbent firm undergoes a large-scale agile transformation and, as a result, can provide a theoretically grounded set of transformative organizational actions as well as several critical lessons for implementing agility. More precisely, by applying the dynamic capabilities framework, we illuminated how an incumbent firm might employ the framework as a means to implement agility and identified a pathway for keeping pace with digital opportunities in the volatile digital business environment. In particular, we analyzed the role of top management in the actions of sensing, seizing and transforming within the context of an agile transformation and identified how two complementary systems, hierarchy and network (Kotter, 2012), are linked through a separate entity—in our case, an ACC—that can serve to accelerate employees' realization of an agile organizational culture and mindset. Herein, we detail how incumbent firms develop and successfully integrate the agility-enhancing capabilities of sensing, seizing and transforming in times of rapid change and uncertainty. By extension, with this article, we contribute to a broader discussion on organizational agility and highlight the importance of merging top management's commitment with the allocation of resources and a mutual understanding of the organization's strategic objectives.

In the remainder of this article, Section 2 outlines the theoretical foundations of dynamic capabilities and organizational agility in the literature. Next, Section 3 explains the case study and its abductive research process, after which Section 4 presents the results of our analysis. Section 5 discusses our findings and condenses them as propositions, after which Section 6 articulates our conclusions, the study's limitations and recommended directions for future research.

## 2. Theoretical background: dynamic capabilities as a framework for organizational agility

In response to increased global competition, new forms of digital technology, disruptive threats and changing consumer behavior, agility has received considerable attention in practice and in scholarly work on management (Harraf *et al.*, 2015). However, given agility's emergent nature, scholars and managers continue to debate what *agility* and *agile* mean. Table A1 presents agility-related terms that we identified in literature.

Of all of those terms, this article focuses on *organizational agility*, defined as "the capacity of an organization to efficiently and effectively redeploy/redirect its resources to value creating and value protecting (and capturing) higher-yield activities as internal and external

circumstances warrant" (Teece *et al.*, 2016, p. 17). We understand organizational agility, also termed *agility at scale*, as the ability to drive agility broadly across organizations via practices, values and behaviors that enable the organizations to become more resilient, flexible and innovative, especially given today's tumultuous markets and the rapid advancement of digital technology (Teece *et al.*, 2016). In a large-scale study of leaders in digital transformation, organizational agility has been identified as the most important factor of success that differentiates leaders from laggards in the agile transformation (Brock and von Wangenheimz, 2019).

The literature often describes organizational agility as a specific higher-order dynamic capability (Doz *et al.*, 2008; Lee *et al.*, 2015; Walter, 2021), one involving the role of strategic management in integrating, building and reconfiguring competences as a means to continuously adjust and adapt ways of creating and capturing value in light of internal and external circumstances (Teece *et al.*, 2016). In that context, it is necessary to distinguish ordinary capabilities from dynamic ones (Winter, 2003). On the one hand, ordinary capabilities, characterized as "'how we earn a living now' capabilities" (Winter, 2003, p. 992), are needed to produce and sell a (static) set of products or services. On the other, dynamic capabilities enable organizations to exploit opportunities and avoid threats by adapting and/or extending ordinary capabilities that allow them to develop new processes, products and/or services for improved speed, efficiency, or effectiveness (Drnevich and Kriauciunas, 2011). Because organizational agility entails several components—proactivity, change, responsiveness and adaptiveness—in sensing and responding to opportunities (Lee *et al.*, 2015), as well as involves strategic sensitivity (i.e. an awareness of changes and real-time sense making), leadership unity (i.e. the ability to make bold decisions fast) and resource fluidity (i.e. the ability to reconfigure and redeploy systems and resources rapidly; Doz *et al.*, 2008), it can be regarded as an important dynamic capability. Indeed, as the digital transformation continues to accelerate and amplify uncertainty, volatility and complexity, organizational agility is a critical dynamic capability that incumbent firms need to sense and seize opportunities and, in turn, succeed in their digital transformations.

In the literature on strategic management, *dynamic capabilities* refers to "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece *et al.*, 1997, p. 516). Those capabilities are reinforced by organizational and managerial competences used to identify and reshape the organizational environment and generate new business models able to address new opportunities or emerging threats (Eisenhardt and Martin, 2000; Ghezzi and Cavallo, 2020). Teece (2007) has identified three primary types of dynamic capabilities—sensing, seizing and transforming—that allow companies to compete and survive in the long term while facing fundamental uncertainty due to highly disruptive business models along with rapid technological change.

First, regarding the capability of sensing, environments characterized by uncertainty require organizations to sense fundamental changes and opportunities in advance in order to keep ahead of rivals (Helfat and Peteraf, 2015; Reeves *et al.*, 2015; Schoemaker *et al.*, 2018). In particular, generative sensing capabilities support activities used to identify technological opportunities, analyze markets, listen to customers and formulate hypotheses on how the future might look. They require managerial insights and vision, accompanied by constant research and the probing of customers' needs and technological possibilities to discover new market opportunities (Teece *et al.*, 2016), which together involve continuous learning, interpretation, scenario planning and creative activity across the organization (Schoemaker *et al.*, 2013). Beyond that, if markets are impacted by continuous change, then the organization's search activities should be both local and distant (March and Simon, 1958). Using typical practices of open innovation, organizations can also incorporate internal and

external stakeholders able to actively contribute their broad expertise and knowledge (Chesbrough and Appleyard, 2007). Further still, they may deploy new approaches or organizational formats—for instance, establishing separate business units and partnerships with accelerators or corporate incubators—that allow combining activities of exploration with activities of exploitation (Gibson and Birkinshaw, 2004; Weiblen and Chesbrough, 2015). All of those efforts underscore the relevance of broad-based external processes to search for and identify trends, create hypotheses and contemplate possible future scenarios to plan for (Teece *et al.*, 2016). Along those lines, in our study we investigated top management's role in sensing changes and opportunities in relation to scaling agility in their organization.

Second, when sensing new technological or market opportunities, organizations have to seize those opportunities by leveraging new products, services and/or processes. Each organization needs to identify an appropriate business model for defining their commercialization strategy and investment priorities (Agostini and Nosella, 2021; Chesbrough, 2010). Mastering the mechanism of dynamic transformation thus becomes imperative for creating agile organizational structures and optimally exploiting current market opportunities while simultaneously exploring new ones as they arise due to changing environments and emerging digital technology (O'Reilly and Tushman, 2011). In that context, exploitation relates to continuous improvement and efficient implementation, whereas exploration is linked to experimentation and discovery (Bodwell and Chermack, 2010). However, due to the historically entrenched emphasis on efficiency within stable environments, companies continue to struggle in jointly pursuing exploitation and exploration—the former to ensure their current viability, the latter to ensure their future viability—a combination termed *organizational ambidexterity* (Bodwell and Chermack, 2010; Tushman and O'Reilly, 1996). Scholars have also averred that such ambidexterity can nevertheless create a dilemma, for managers often face difficulties with striking an appropriate balance between the requirements of exploration and of exploitation (Doz, 2020; Lewis *et al.*, 2014). At the same time, efficiency's dependence on organizational structures is nothing new; in fact, research on their relationship dates back to the 1960s (Doz, 2020; Doz and Kosonen, 2010), and companies have long been built to maximize efficiency in stable environments, with well-defined and structural systems, hierarchies, roles and responsibilities (Kotter, 2014). On that topic, scholars have also highlighted that mechanistic management systems involving hierarchy, top-down decision-making, efficiency and/or economies of scale, are most suitable for stable conditions (Burns and Stalker, 1961). By contrast, organizations facing today's dynamic, digital business environments need to develop flexible systems of operational routines that incorporate a network structure of control, authority and communication and that are appropriate for shifting conditions (Burns and Stalker, 1961). Because corporations face a wide range of challenges in realizing both exploitative and explorative capabilities and processes (Burns and Stalker, 1961), it is unsurprising when organizations sense a business opportunity but fail to invest in it. Leadership thus plays an obvious role in making quality decisions, communicating goals and mobilizing resources to capture value from future business opportunities. For that reason, in our research we focused on how dual structures can serve as a vehicle to explore, acquire and scale agile practices in a separate organization and what top management's role is in connecting and aligning that organization with the hierarchy.

Third and last, transforming, as a key to sustainable growth, involves continuous renewal by way of "asset alignment, co-alignment, re-alignment and redeployment" (Teece, 2007, p. 1336). To be continuous, transformation requires organizations to adapt routines, restructure departments and/or organizational structures, and be able to recombine and reconfigure tangible as well as intangible assets as markets and technology change (Teece, 2007).

Moreover, to overcome radical challenges revealed by sensing and/or seizing activities, organizations can draw on various transformative orchestrated processes (Teece, 2014), which enable them to rearrange and reallocate their resources in accordance with a new strategy and/or develop new resources to supplement current gaps in their resource bases (Ambrosini and Bowman, 2009; Teece, 2014). Studies have emphasized top management's crucial role in accelerating organizational change and subsequently increasing a firm's ability to sense and seize new opportunities (Helfat and Peteraf, 2009; Teece *et al.*, 2016). In such research, Harraf *et al.* (2015) have developed a framework with essential pillars for accelerating the transformation toward organizational agility. One pillar is a common culture, shared values and the importance of a shared organizational vision; the second, linked to benefits of empowerment, is the connection between employees and management; and the third is organizational learning processes that can contribute to a firm's dynamic capabilities and subsequently accelerate its agile transformation (Harraf *et al.*, 2015). In the same vein, Pisano and Teece (2007) have argued that empowering management practices and entrepreneurial initiatives enables a firm to learn. Meanwhile, the ability to cope with an increasing degree of uncertainty—an ability with significant implications for the entire organizational system—requires strategic thinking, an innovative mindset, the exploitation of change and an unrelenting need to be adaptable and proactive (Harraf *et al.*, 2015). Encouraging bottom-up entrepreneurial initiatives and interaction among all stakeholders both within and beyond a firm's boundaries can ultimately contribute to the organization's transformation (Teece, 2007).

Therefore, the challenge is transforming incumbent firms that are established in stable environments and have grown complacent as a result of long-standing market dominance into adaptive, flexible organizations (Kotter, 2014). Although theoretically compelling, research on the link between dynamic capabilities and organizational agility remains in its infancy. For that reason, in our study we focused on organizational agility and how a successful digital transformation, understood as a continuous process, should be managed to resolve tensions that arise when employees trained in agility confront rigid routines, cultures and structures of their hierarchical organization.

In this article, standing at the intersection of organizational agility and dynamic capabilities, we offer a framework that explores a mechanism for scaling agility. In particular, because "the pursuit of agility requires sensing, seizing, and transforming" (Teece *et al.*, 2016, p. 26), the framework offers researchers a useful approach to understanding how agility contributes to exploiting opportunities and promoting change, as well as offers managers practical guidance in creating, scaling and managing agility. Accordingly, we detail here how firms develop and successfully integrate agility-enhancing capabilities to sense, seize and transform in times of rapid change and uncertainty.

The framework's contribution is an important one, for many companies struggle in their attempts to scale agility in their organizations (Rigby *et al.*, 2018). Despite abundant research on agility in small teams, the ways in which companies can develop the dynamic capabilities needed by agile organizations at a relatively large scale remain poorly understood. Although some literature links dynamic capabilities with organizational agility at the conceptual level, the process of developing and scaling agility as such a capability has yet to be examined. That gap in the literature was the focus of our study.

## 3. Methodology

### *3.1 Research design and data collection*

Our research followed an abductive process by balancing existing theoretical conceptualizations with empirical evidence (Dubois and Gadde, 2002; Ince and Hahn, 2020). We considered the abductive process to be suitable for our study because it applies a theory for explaining a phenomenon but not either purely inductively or purely deductively

(Spens and Kovács, 2006). In that sense, our research was aimed at "generating novel theoretical insights that reframe empirical findings in contrast to existing theories" (Timmermans and Tavory, 2012, p. 174).

Our research consisted of a single-case study conducted to understand how an incumbent firm implements an agile transformation at scale (Yin, 2017). Allowing a profound understanding of real-world phenomena that are too complex for surveys, case studies are especially suitable for comprehensively exploring an event to test a proposed theoretical, or conceptual setting (Cha *et al.*, 2015; Ridder *et al.*, 2014; Yin, 2017). In this section, we describe the primary steps of our study, the research context and our methods of collecting and analyzing data.

The company under study is a multinational corporation offering financial services that operates in major markets in the insurance and asset management industry. With offices in approximately 70 countries and more than 150,000 employees worldwide, the company is characterized by distinct business divisions that are hierarchical and managed across several tiers. Although the corporation ranks among the top players in the global market for insurance and asset management, the insurance sector in general is exposed to rapidly emerging digital technology, changing behavior among customers and increased industry competition, along with disruptive threats due to the emergence of innovative fintech firms (Yan *et al.*, 2018). In its shareholder presentation in 2016, the company reported that many of its divisions had already experienced more than 50% business growth in digital markets and a nearly 90% increase in reach supported by social media, as well as expected revenues to grow by more than 30% within the next four years. Thus, the company's milestones were clearly set. However, reaping the benefits of digital business in 2018 and beyond has required a foundation for accelerating and embedding a digital culture. Consequently, management initiated a large-scale agile transformation in 2016 to keep pace with digital opportunities in the volatile digital business environment. Indeed, as a case, the company was chosen due to its experience with two major events: the launch of a global, corporate-wide agile transformation agenda publicly announced at a shareholder conference and the ensuing opening of ACCs. For the latter event, our research team was granted internal access to the company's data, facilities and meetings.

To explore the phenomenon of scaling agility within organizations, we gathered data from various sources to ensure construct validity and data triangulation (Yin, 2014). We developed a semistructured interview guide, tested it and conducted 36 interviews at three time points from 2018 to 2021 in order to gain insights into the context of scaling agility and the agile transformation. In line with previous research, we chose semistructured interviews to enable open and follow-up questions about the topic (Venkatesh *et al.*, 2021; Cooper and Schindler, 2008).

Interviewees were purposively selected based on their experience with and perception of the phenomenon (Cooper and Schindler, 2003), and our sample included personnel with a broad spread of roles and qualifications. Several were internal employees with hands-on knowledge about practicing agile methods, including developers, product owners, stakeholders of scrum teams and agile masters as well as coaches with the expertise to enable others to scale agility. We also interviewed managers and employees who were currently confronting with the agile transformation agenda. Table A2 details the demographics of the employees interviewed in our study; for confidentiality's sake, they are referred to as ID1, ID2 and so on, up to ID36.

The interviews were conducted over the phone or in person, lasted 45–60 min on average and were recorded and transcribed. In all interviews, we followed suggestions for empirical social research and study design (Eisenhardt, 1989; Yin, 2003). As a result, our interview guide had five primary sections. First, we addressed the implementation of agile practices to gain an understanding of agility and appropriate areas for its adoption in the organization. Second, we analyzed the setup of the company's ACC (e.g. the extension of agility into other

areas of the organization or challenges that arose with agile practices). Third, the interviews focused on the vision and perception of agile organizations and, fourth, the design of the agile transformation in terms of roadmap planning, the role of management and the means used to disseminate agile practices. We also asked interviewees about obstacles, barriers and solutions that arose in the process of disseminating agility. The fifth and final section addressed requirements and necessary changes for the ongoing transformation to succeed. Altogether, we were able to probe different aspects of agility, scaling and organizational change during the interviews. Because we conducted interviews at three time points in the agile transformation, we slightly adapted the interview guide to follow a specific focus along the agile transformation process. Table A3 details the themes of the interview guide and when its various parts were used during our research.

According to Tellis (1997, p. 3), "Consideration must be given to construct validity, internal validity, external validity, and reliability." To ensure reliability, we therefore developed a formal case study protocol. Meanwhile, to increase validity, secondary data were consulted along with the primary data as a means to refine our findings (Gerbl *et al.*, 2015; Yin, 2017). Sources of secondary data included the company's internal and public presentations, annual reports and relevant handbooks, along with data archived on the company's website regarding its agile transformation and key strategic objectives, onboarding information for employees, training materials, press releases and industry journals. We triangulated all of the data from the primary and secondary sources following the steps outlined by Tellis (1997). By utilizing multiple data sources alongside a research protocol for a single-case study, we increased the overall construct validity and consistency (Yin, 1994). Moreover, we reduced the risk of researcher bias by taking data from various sources and thereby ensured the rigor and richness of our findings (Eisenhardt, 1989; Yin, 2003).

### *3.2 Data analysis*

In data analysis, we manually coded the data in an iterative process consisting of testing, comparing and retesting each other's codes to reduce intercoder discrepancies. All coders were experienced in the field as well as in applied content analysis (Duriau *et al.*, 2007). During coding, the coding guidelines were constantly refined, based on mutual exchange and aligned with interpretations of the codes following a two-step process (Venkatesh *et al.*, 2021). First, we created first-order codes based on interviews with agile experts. For instance, a recurring theme was "Customer value orientation" following market intelligence from new offerings from competitors. That theme was merged into the first-order code "Customer and market signals." Data management software was used to manually analyze interview data. Second, we derived literature-based codes as overarching themes based on theoretical concepts. For that purpose, we searched and reviewed literature on agility, digitalization and dynamic capabilities. In analyzing the literature and investigating theories, methods and results, we iteratively moved back and forth between first-order codes and overarching themes to derive second-order code categories (Murphy *et al.*, 2017). The coding scheme is illustrated in Figure A1. With reference to our coding framework, we paraphrased individual statements, generalized them and derived our results (Mayring, 2015). Figure 1 illustrates the study's abductive research process.

## 4. Findings

In this section, we present the results of our data analysis by highlighting exemplary quotations that emerged from the interviews. First, we illustrate the firm's identification of opportunities and threats as a major trigger for its transformation and highlight its strategic response.

Second, we explore how the ACC's setup contributed to cultivating agility and related competences, and, third, we focus on the dissemination of agility across the organization.

*4.1 Sensing: exploring opportunities and threats*

Our case analysis revealed that the firm, a multinational corporation, is exposed to uncertainty due to the proliferation of digital technology and disruptive threats at the hands of major players such as Google, Apple and Amazon. Such exposure was underscored by the corporation's shareholder presentation in 2016, which stressed the rapid emergence and increase of innovation in its business environment in relation to its own business model. The mentioned companies, however, enjoy the advantages of being data-driven and well-versed in end-to-end IT-related operations, and the same can apply even to nascent startups in the financial and insurance service landscape. Our interviewees thus emphasized the urgency of taking action in order to remain viable:

> So, if you have competitors such as Google or Amazon, then you have to be able to move faster, and you cannot do that with a traditional approach. (ID19).

> I see a threat from fintech firms trying to dig into our business model or in that other insurers have long since jumped on the agile bandwagon and designed their products much faster and more flexibly. (ID22).

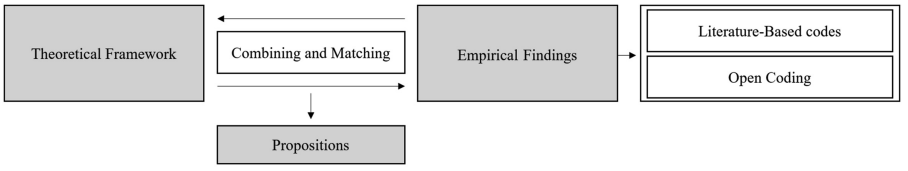
> That means that if we, as an enterprise, cannot change quickly, we will die out sooner or later. (ID16).

The leaps across industry borders by new competitors could also be connected to needs among new customers. Along those lines, one software developer stated:

> Clearly, the insurance industry is no longer separate from everyone else. If Netflix's customers can cancel their subscriptions quickly, then why do I have to write a letter to an insurance company? Even if I am lucky enough to meet a cancelation deadline, or have to do that three months in advance, then I have to wait another six months until I get an answer. (ID19).

Top management at the firm was aware of the significant risk of competitors and, in response, formulated a strategic shift supported by external consultancies. The newly appointed CEO, for instance, introduced a so-called agile transformation agenda, which, according to data from the company, comprised five key strategic objectives: (1) a client orientation, (2) pervasive digitalization, (3) technical quality, (4) new areas for growth and (5) an integrative culture of performance. Pressured as a key market player, the firm developed the agenda to strategically focus on better understanding customer segments, seize new cross-selling opportunities and achieve higher retention rates. Above all, creating superior customer value was the top strategic objective for all subsequent actions, as mentioned in an interview with an IT consultant:

> The goal is to be the market leader and to be the biggest. That means we have to get to markets faster with swifter product cycles and perhaps also simpler products that customers can choose on the Internet without having any insurance expertise. (ID22).




**Source(s):** Adapted from Dubois and Gadde (2002), Ince and Hahn (2020), and Spens and Kovács (2006)

**Figure 1.**
The Study's abductive research process

However, in view of the implementation of that priority, interviewees noted that using traditional structures and management tools were no longer appropriate. As a department lead stated:

> As long as we are hierarchically equipped, we are not customer-centric. As long as we report upward in the hierarchy, we are not committed to the customer. That is why the process of becoming agile is sensible, because only then can you really understand the customers' needs and really align all of your actions accordingly and deliver faster. (ID14).

Within the organization, the understanding of an agile approach covered several aspects, including leadership, transparency in work and a focus on giving customers easy-to-use digital services. In the domains within the firm found to suit such an approach, front-end applications with interfaces were prominently advocated for working on agile teams. Soon enough, that perception became distilled into the notion that value for customers could be increased only by creating end-to-end responsibility in applications. As one software developer emphasized,

> The greatest benefit that agility can yield is creating end-to-end responsibility… across departments, maybe across companies,… to work better with each other and not against each other. (ID21).

Another prevailing drive was to level up against competitors along the entire value chain. However, despite recognizing market pressure and the virtues of following an agile approach, members of the organization reported experiencing difficulties and uncertainties with the agile transformation agenda. In fact, numerous internal debates about how to change the multinational corporation had arisen following its failed bottom-up initiative a few years prior. According to the company's data, a first agile transformation approach failed to garner support from a sufficient number of employees due to management's lack of commitment in the form of attributed importance, understanding and driving force. Regarding that initial attempt, one interviewee indicated that management had not recognized the concerns of personnel who require clear direction throughout the transformation. As a department lead added, "We really need a fundamental decision from the very top. At least the CIO should say—even better the CEO—"Well, that is where we want to go" (ID14).

Ultimately, the matter was addressed at a turning point in the transformation process, when the CEO publicly claimed to be a front-and-center part of that process, not a victim. The CEO's claim heralded a further push for digitalization by shaping and organizing the corporation, via an agile transformation, into a fully customer-centric, end-to-end digital company. Based on an agile approach, the goal involved enhancing flexibility in reacting to market changes and adapting the product portfolio accordingly. The agile transformation received a budget of up to €700 million, partly to establish ACCs, which were expected to promote the digitalization of the company's product portfolio. It also promised to address both the back-end software calculation of insurance rates and the front-end user interface, particularly with new channels such as insurance apps on smartphones. Figure 2 illustrates the incumbent firm's agile transformation agenda, including the transformation's detailed strategic objectives announced publicly at a shareholder meeting in 2016 and the founding principles of the first ACC launched in 2017.

Under the guiding principles of driving digital initiatives, becoming centers of digital knowledge and fostering digital culture, ACCs embody the agile transformation. The mentioned guiding principles were again substantiated by the six pillars that formed the foundation of an understanding of agility on the teams. From a business side, the product teams in the ACCs would address both the back-end software's calculation of insurance rates as front-end user interfaces, with new channels such as insurance apps on smartphones.

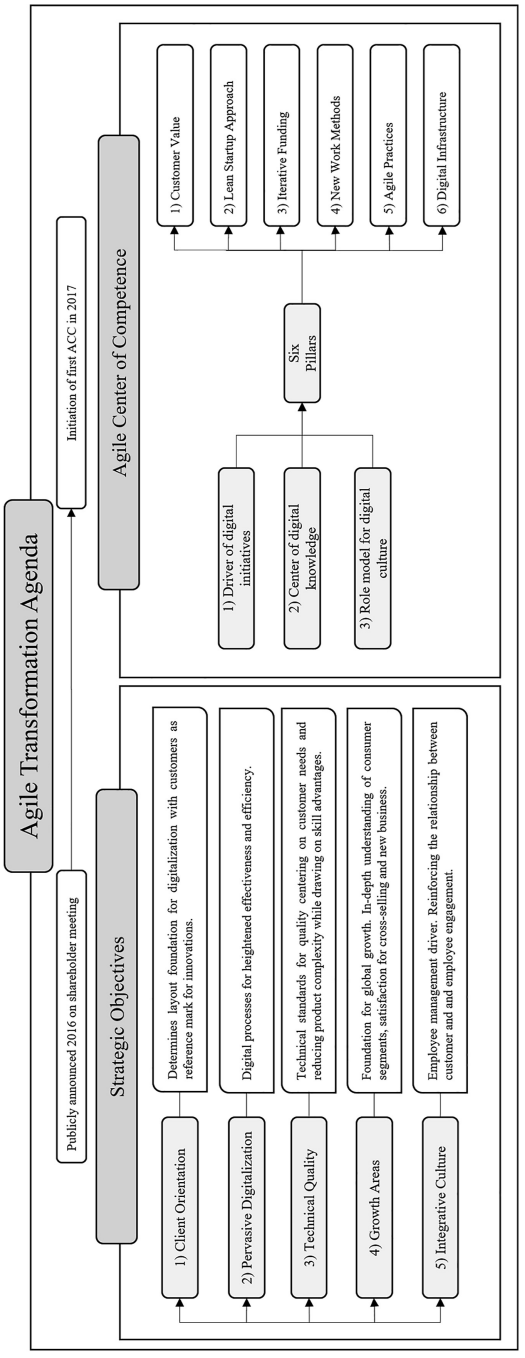



**Figure 2.**
Agile transformation agenda

Thus, business divisions were able to allocate complete units from an end-to-end perspective in the new setting.

Additional prominent examples of sensing, including activities to identify technological opportunities, analyze markets, listen to customers and formulate hypotheses on how the future might look, appear in Table A4.

### *4.2 Seizing: scaling agility with an agile center of competence (ACC)*

The ACC that we studied was implemented in 2017 in a newly rented site outside the company's existing campus and initially hosted only a couple of teams. At the time, because the company started the location from scratch, the key challenges primarily revolved around developing a functioning work environment for the teams—among other things, getting desks, working IT infrastructure and Internet access. After a few months, however, those pain points had been resolved:

> I think that hardware and infrastructure formed the basis of a lot of our problems at the beginning, when we made a lot of progress. It was not clear what kind of workstation equipment was available or what kind of technical infrastructure the teams used, meaning stuff like the continuous integration platform, cloud environment, and that kind of thing, not to mention how the rooms were equipped. (ID03).

The ACC constituted the operative kickoff for the agile transformation and consolidated training for employees about how to work in an agile setting. Inside the ACC, teams have developed digital insurance products and services while observing agile values, methods and team constructs. Beyond that, the ACC has provided employees the opportunity to experience and learn agile work methods in a completely new environment. The distinct combination of agile methods, an isolated environment and team-based constructs has proven to be ideal for an inherently agile setting. However, our case study also revealed that the agile work environment did not automatically reflect a connection between strategic objectives and operational perspectives, as one agile master explained:

> It is still not clear to me what problem we are trying to solve by making the entire organization agile. That is why it seems to me that we are now going agile because it is cool and because everyone's doing it. Sometimes, it was a bit more like we wanted to become more efficient. So, the question is whether you need agility to do that. (ID18).

Other critical voices pointed out that best practices borrowed from born-agile companies would eventually collide with traditional hierarchy-based structures, culture and leadership models. In response, management has sought to acknowledge entrenched legacy systems and introduced a dual-speed architecture. On the one hand, because the existing operations model with established hierarchies, workflows and functions cannot be dismantled, it is instead maintained for the ongoing exploitation of business. On the other, in a separate organizational setting, agile approaches can be explored, acquired and scaled while being segregated from pre-existing structures. Overall, the ACC combines a pool of newly introduced work approaches and the space to experiment while maintaining distance from traditional organizational proceedings. Indeed, that purpose guided the foundation of the ACC, which was established at an external location at a certain distance from headquarters and built on six pillars of agility. Table 1 details the six pillars structuring the ACC, all of which originate from a user manual within our secondary data intended as an onboarding handbook for employees joining the ACC.

Above all, the organization's way of discussing, finding consensus and dealing with fundamentally new roles and processes yielded new forms of collaboration. With the emergence of new roles and positions unlike the functions within the preexisting organizational model, extensive expertise needed to be accessed from external consultants.

| Pillar | Description |
|---|---|
| Customer value | (1) The aim is to solve customers' specific problems by developing intuitive, easy-to-use products and/or services |
| | (2) Customers are involved in product creation process to understand their needs and in testing initial ideas |
| | (3) Customers are asked directly for feedback, which is then incorporated into further iterations of development |
| Lean startup approach | (1) Minimum viable products (MVPs) are developed in a lean organizational structure |
| | (2) Prototypes are created within approximately 100 days in order to demonstrate early functionality and provide testable software |
| | (3) If customers approve, then the MVP is further developed |
| Iterative funding | (1) Iterative rounds of funding begin after 100 days |
| | (2) Agile teams are formed in the ACC, with a product owner who takes the overall responsibility for the project |
| | (3) Based on the initial results, the implementations are further financed, modified or scrapped at regular intervals (i.e. after customer and technical tests) |
| | (4) Financing is oriented toward funding rounds for startups |
| New work methods | (1) The work is done across departments, on cross-functional teams with a broad field of expertise (e.g. operating organization, IT, and marketing, or in specialist units or divisions (e.g. sales) |
| | (2) Co-location ensures lean coordination processes, short feedback loops, and high quality |
| | (3) The teams work together on their topic in one room without interference (e.g. teams focus 80% of their time on their project) and use collaborative tools (e.g. chats) to communicate with each other |
| Agile practices | (1) The ACC enables experienced agile coaches to teach knowledge about agile practices |
| | (2) The work is performed using agile methods |
| | (3) The development is based on methods such as pair programming and scrum |
| Digital infrastructure | (1) The infrastructure enables software to be scaled and adjusted |
| | (2) Requirements for information security and data protection are met throughout |
| | (3) Various forms of technology enable test-driven development |

**Table 1.**
The six pillars of the agile center of competence (ACC)

The influx of external facilitators combined with a steep learning curve in practices enabled an initial functional version of the ACC. Little by little, teams received necessary support with testing new work methods and started to successfully devise products in lean, agile processes. In a rather brief period, the popularity of the ACC increased rapidly, and the number of teams working in the facility has more than doubled over time. During our first round of interviews, an IT consultant noted, "We currently have only 22 agile teams, which accounts for approximately 5–8% of our overall portfolio" (ID23). Two years later, however, internal company data evidenced that the number had increased to as many as 50 teams. Given those results, the corporation founded a second ACC at another location, and three years since its opening, approximately 400 people were working in a special digital division with 50 agile teams.

Despite the rather small number of personnel working in the ACC compared with the entire workforce, many interfaces in the digital value chain have been affected by the ACC's teams. One major impediment in particular revealed dysfunctional collaboration with non-agile departments in the organization but outside the ACC—to be specific, traditional organizational units primarily dealing with the back-end parts of applications, legal and regulatory departments and operations with low complexity in planning customer interaction and market volatility. The ACC's focus, by contrast, was front-end applications, particularly for online distribution and the virtual settlement of insurance

processes, which automatically prompted different operating speeds in communication, the creation of product increments and planning horizons. Therefore, during the initial interviews, interviewees highlighted severe tension between the ACC and major parts of the organization's legacy structures. Coordination efforts in response were underscored by a product owner:

> Integrating the product into the overall product landscape is very challenging and still one of the biggest barriers, because it is outside the team setting and therefore dominated by classic project management. (ID17).

Even after a year, interviewees revealed that cross-linkages to departments outside the agile setting of the ACC continued to face serious obstacles:

> Where challenges are most likely to be observed is in contact with the outside world—units that have not gone agile. In the past, we were used to knowing more or less precisely what was going to happen and when in the next two years. Now, we again want to have that pseudo-certainty in planning while suppressing the fact that those plans usually become quickly outdated, change, or have to be discarded. (ID14).

Meanwhile, the branching out of teams from the ACC and its integration into the larger organizational setting turned out to be a concern. Table A4 shows exemplary quotations about agility-oriented seizing and scaling capabilities in the ACC.

*4.3 Transforming: disseminating agility across the organization*

Having implemented the ACC in a separate setting, the incumbent firm's challenge continued to be disseminating agile practices at the organizational level, as highlighted by one experienced agile master:

> How would I scale agility? I would stick to the ACC concept for the time being. So, I would say every team, no matter where it comes from. . . has to go through the ACC. And, for me, that means two tasks: the managers have to provide a framework. They have to provide the system that allows agile working. And the second step is that people have to understand what is required of them. They also have to be trained. (ID23).

For the agile transformation to succeed, developing an appropriate scaling framework and embedding it in the organizational structure proved to be pivotal. Because all frameworks for scaling agile methods vary in complexity, there is no one-size-fits-all framework, and different requirements have to be considered. The concrete task for top management was thus to expand agility from the project to the organizational level. Our findings clarify, however, that agility can be achieved only with continuous transformation-oriented effort and is linked to adapting routines, effecting cultural change, modifying structures and being able to reconfigure assets. Therefore, to disseminate agility, the firm trained personnel from the hierarchy-based structure in the facility and thereby imparted capabilities essential to working on an agile team. Despite the relevance of that approach—after all, achievements in agility heavily depend on employees' knowledge, capabilities and access to information—concerns remained about integrating agile projects at an organizational level in ways that would yield business value without interfering with legacy structures. Simply returning newly formed agile teams that had compiled new product features into a rigid, non-agile environment characterized by traditional thinking and working would have proven dysfunctional. For that reason, a new design needed to be established to assimilate the organization's agile project-driven endeavors, and, in doing so, equal standards had to be imposed to create the same prerequisites for work across organizational divisions. Thus, following the standards built on the six pillars of the ACC's foundation, digital equipment, office space design and team constellations became increasingly similar across different sites and organizational units.

From the perspective of employees, different stages of the transformation have been associated with different difficulties. For instance, although top management provided guidelines for employees that included essential information concerning onboarding within the ACC, it could not clarify to everyone how the change ought to proceed in the larger organizational context. Our findings indicate that the direction and communication strategy for agility at scale has indeed remained vague and prompted diverse challenges. Communication events with top management present have continued to be very limited and failed to foster open exchange about the future direction of the agile transformation. Overall, such trends reveal that the transformation is ultimately not static but dynamic and requires continual change and renewal in an ongoing process reified by a change agent:

> We are not going to say, "Well, we are done with the transformation now. We are an agile company now." Instead, the objective would be achieving a state where we can admit that we are never finished. Every day, we face a demand for something new, but now we have the ability to change. (ID16).

The agile transition from static models to truly adaptive organizations is a multilayer endeavor in which agile capabilities are employed and continuously developed. Figure 3 illustrates the incumbent firm's ongoing agile transformation and highlights the dissemination of the three pillars of agility achieved by using an ACC, which can strategically serve as an accelerator of organizational agility.

As shown in Figure 3, employees from the incumbent firm's various divisions were transferred to the ACC to learn about agile practices and receive intensive hands-on experience. Following the six mentioned pillars, they work as product owners, developers and agile masters on certain digital products following agile practices. After a given period or a major event (e.g. the launch of an application), employees are relocated outside the ACC with the aim of disseminating agile practices and the accompanying mindset across the organization. Since our first inquiry, hundreds of employees have undergone that process as part of the firm's agile transformation to scale organizational agility. Exemplary quotations on transforming and disseminating agility across the organization appear in Table A4.

## 5. Discussion

This article illustrates how an incumbent firm has transformed while scaling agility broadly across the organization as a means to cope with challenges presented by disruptive digital

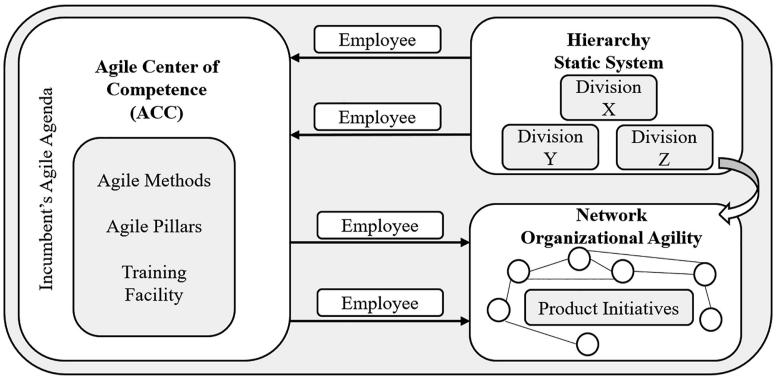



**Figure 3.**
Incumbent's ongoing agile transformation process

technology, tumultuous markets and rapidly changing business environments. Our case study revealed a sizeable gap between the popularity of the concept of agility and understandings of the underlying principles of agile scaling and agility-enhancing capabilities. As a result of our detailed application of Teece *et al.*'s (2016) dynamic capabilities framework, we revealed the agility-enhancing capabilities of sensing, seizing and transforming in the organization in times of digital transformation and change. Table 2 shows how such an incumbent firm can employ the framework as a means to identify pathways of agile practices to implement agility throughout the organization. In what follows, we abstract and organize the findings according to the framework and offer propositions about how companies can achieve organizational agility by scaling up agility from a divisional toward an organizational level.

### *5.1 Exploring the fit between market signals and internal capabilities*

Our findings indicate that the incumbent firm has to build sensing capabilities in order to identify business opportunities (e.g. digital market channels, cross-selling opportunities and ways of ensuring higher retention) as well as defend market shares against rivals. Our case study revealed that the incumbent firm's top management, over time, was highly cognizant of and sensitized to handling the latest industry trends and market disruptions. On that count, other scholars have highlighted top management's role in implementing agile strategies and employing them throughout their organizations (Holbeche, 2019a, b; Meredith and Francis, 2000). In our case, the incumbent firm

**Table 2.**
Incumbent Firm's sensing, seizing, and transforming activities

| Activity | Description | Who and what |
|---|---|---|
| Sensing | *Sensing and scanning:* Top management reviewed the environment for threats and opportunities<br>*Augmenting and learning:* The incumbent firm incorporated internal and external experts for search activities and subordinate scenario analyses<br>*Deduction:* Strategy shifted toward an agile transformation agenda | Top management<br>Constant research activities, continuous learning, and interpretation |
| Seizing | *Allocating resources:* Top Management allocated €700 million to fund the agile transformation<br>*Mobilizing:* Top management introduced the ACC for employees to commence working in projects in an agile environment | Initiative on a divisional level<br>Employees as key driver<br>Importance of management in making informed decisions, operationalizing, and communicating goals |
| Transforming | (1) *Expanding and scaling:*<br>(2) The ACC serves as the key accelerator for producing agile teams that are reintegrated into the organizational setup<br>(3) Organizational network structures have to be established to achieve the same standard<br>(4) Transforming requires rethinking beyond structures, organizational functions, management practices such as budgeting, incentives, and measurement systems and resolving biases from the previous standard of work | Activation of internal and external change agents<br>Repeated entrenchment of best practices and key learning in organizational structures<br>Holistic transformation |

enhanced its sensing capabilities by integrating internal and external sources, including customers across markets, vendors and external consultancies and industry experts. That observation aligns with the findings of Teece *et al.* (2016), who have highlighted the importance of searching locally and broadly across technical and market domains to gather the relevant information for internal teams. Especially when digital transformation is a disruptive threat, an open mindset of senior executives is essential (Stadler *et al.*, 2021). As Andy Grove, former CEO of Intel, famously said, "When spring comes, snow melts first at the periphery, because that is where it is most exposed" (Day and Schoemaker, 2004, p. 128). To sense early warning signs of change, executives have to develop an awareness of disruptive digital competitors, changing consumer behaviors and disruptive digital technology, as well as understand how all of those aspects affect their own business model. In other words, they need to develop digital sensing capabilities useful in scouting trends, understanding scenarios and establishing a long-term digital vision (Warner and Wäger, 2019). To encapsulate those needs, we thus offer our first proposition,

*Proposition1.* Top management needs to develop sensing capabilities using formal and informal sources inside and outside the organization to clearly view digital opportunities and threats, to understand how they affect the business model, and to set a clear direction for digital transformation.

### *5.2 Mobilizing resources to scale agility*

Over the course of our analysis, we discovered that the incumbent firm's initial attempt at an agile transformation was hamstrung by its neglect to address the sensing and seizing actions at the managerial level. Such neglect negatively affected its ability to reconfigure resources to meet changing market conditions at the time. In essence, incumbent firms such as the one that we investigated continue to face severe challenges imposed by their organizational structure, culture and leadership during their quests to combine internal stability with external agility. Mobilization capabilities, however, require management's ability to defy traditional decision-making rules and processes of resource allocation (Teece, 2007). On that point, our findings complement Tushman and O'Reilly's (2002) concept of having exploitative and explorative capabilities concurrently or else facing severe challenges in allocating adequate resources toward a sensed opportunity. Our case shows how the incumbent firm rallied a second, more comprehensive attempt at achieving an agile transformation when emerging digital possibilities spurred management to drastically and rapidly shape and organize a new transformation. In the second attempt, the ACC served as the intermediate link that accelerated the transition of people between traditionally managed and agile projects. On that note, Kotter (2012) has described two complementary systems: one driven by hierarchy, the other characterized by systems of networks. Transitioning between the two systems remains voluntary for all employees, albeit without any further specifications about how such a transformation can be achieved. In our case, the ACC extended Kotter's (2012) construct by linking the two systems, thereby creating a bridge for the transformation to an agile organization. The transformation began in a small setting, evolved and gained traction, as shown by the increased number of teams. Thus, our study has shown that incumbent firms have to rethink traditional structures, functions and management practices as well as resolve biases in their previous ways of working. For speed and agility, incumbents need fundamentally different ways of sensing information, seizing opportunities and implementing them. As Kotter (2014, p. 12) also has observed, "All successful organizations operate with a dual system more or less during the most dynamic growth period in their lifecycle." Thus, we also propose,

*Proposition2.* The successful scaling of agility requires dual structures, in which agile practices are explored, acquired and scaled in a separate organization, launched and sponsored by top management, and with top management's support, connected and aligned with the hierarchy.

### *5.3 Managing an agile transformation*

To address uncertainty in today's volatile digital business environments, organizations seek to develop transformative capabilities, which focus on effecting continuous organizational change (Helfat and Peteraf, 2009). After all, integrating, building and reconfiguring internal and external competences are vital activities for developing organizational agility, and viewing organizational agility within the dynamic capabilities framework can elucidate such multilayer endeavors, including major challenges and setbacks confronted during the transformation to agility. Transformative capabilities are important because they support organizations in reconfiguring existing resources for new digital strategies as well as in building or accessing new resources to supplement current gaps in their resource bases. As explained by Teece (2007), a successful continuous transformation requires routines to be adapted, departments or organizational structures to be restructured and assets to be recombined and reconfigured. Although training people from the hierarchy in the ACC to develop essential skills and capabilities in agile principles worked well, transferring them back to a more rigid, non-agile environment of the hierarchy to disseminate agile practices turned out to be challenging. To ensure that agile practices are adopted at scale, all routines, all structures and the culture need to be adapted. That process is a continuous one, and employees expected to disseminate agile practices need the backing of top management, along with clear directions and communication on how the change is being implemented. Therefore, we additionally propose,

*Proposition3.* Successful transformation needs to be understood as a continuous process that requires (a) top management's extensive efforts in addressing the challenges that employees trained in agility face when confronted with rigid routines, cultures and structures of the hierarchy-based organization; (b) continuous direction and support for their integration back in the hierarchy; and (c) a clear communication strategy.

## 6. Conclusion

Organizational agility is not a one-size-fits-all solution precisely because requirements for agility are sensitive to the organizational context (Teece *et al.*, 2016). Therefore, a general framework is needed that gives managers guidance in their decision-making about agile activities and how to scale them. In our research, applying the dynamic capabilities framework to study and understand agile transformation proved to be very useful (Teece *et al.*, 2016) and revealed that a successful agile transformation requires a specific set of activities in sensing, seizing and transforming. As described in the literature on dynamic capabilities, sensing is a necessary but insufficient condition for a successful agile transformation (Schoemaker *et al.*, 2018). Sensing activities have to be complemented with "new systems that take advantage of external changes" (Schoemaker *et al.*, 2018, p. 21)—in our case study, an ACC. For an agile transformation to be sustainable, routines, structures and assets need to be adapted (Teece, 2007). As revealed by our case study, however, organizational agility as a dynamic capability is difficult to develop and scale in organizations. In response, the dynamic capabilities framework offers a useful guideline that managers can follow to decide which activities are needed for sensing, seizing and transforming in order to achieve agility at scale.

Our findings contribute to the literature on organizational agility by showing how an organization can disseminate agility in a large-scale setting. We provide a theoretically grounded set of actions oriented toward organizational transformation drawn from the dynamic capability's framework, actions that focus on the organization's ability to sense market opportunities and threats and to exploit them by reconfiguring resources, processes and structures, all to adapt to a changing environment. Following Teece *et al.*'s (2016) dynamic capabilities framework of sensing, seizing and transforming, we have identified assorted transformative actions, an endeavor that extends literature on agility as a dynamic capability (Doz *et al.*, 2008; Lee *et al.*, 2015; Walter, 2021) and highlights the role of top management for successfully scaling it. Our work also complements research investigating the role of dynamic capabilities for digital transformation (e.g. Warner and Wäger, 2019) adding the role of agility for sensing, seizing and digitally transforming. On top of that, we also contribute to the idea of dual structures (Kotter, 2012, 2014) by showing how the concept can be used to address the challenges of scaling agile in a hierarchy.

Our study has yielded several practical insights. First, our findings indicate that corporations need to develop capabilities in sensing, seizing and transforming in order to be more resilient and flexible when external events require rapid adaption. For instance, to put sensing capabilities into practice, managers should regularly cooperate and maintain proximity with external stakeholders by conducting workshops to anticipate future threats and opportunities. Second, the allocation of resources (i.e. seizing) is related to top management's strong commitment to capturing value from emerging opportunities and implementing a clear communication strategy to do so. Third, incumbent firms should incorporate network structures in parallel to their hierarchical ones, ideally a separate agile entity characterized by flat, decentralized structures with novel roles entrenched in the established system. We believe that such an approach can accelerate the transformation to organizational agility. To aid such endeavors, Figure 4 provides practical guidance for organizations and executives to achieve better organizational agility. Therein, based on our discussion, we developed a sequence of questions that incumbent firms could walk through to

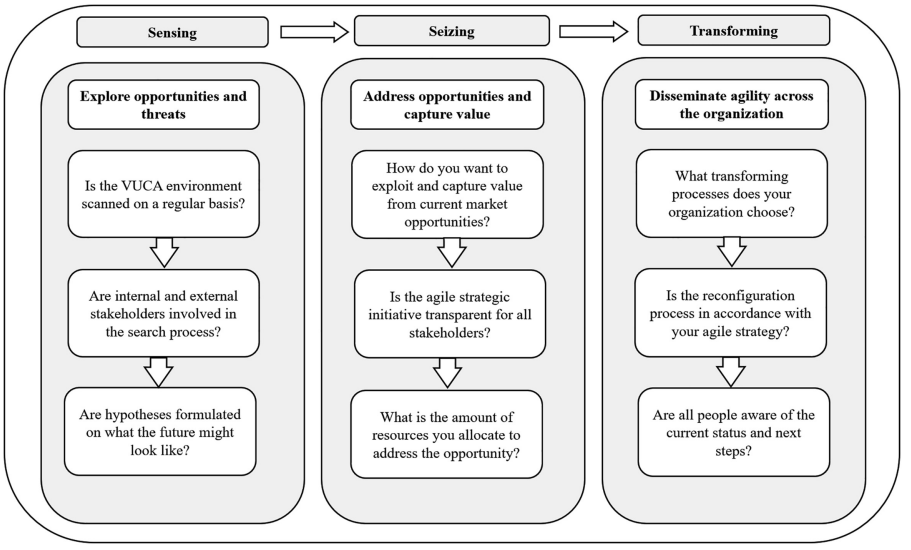



**Figure 4.**
Guidelines for achieving organizational agility for practitioners

develop and successfully integrate agility-enhancing capabilities to sense, seize and transform in times of digital transformation.

Our findings come with some limitations that offer opportunities for future research. First, we extensively studied the transformation of an incumbent firm toward agility; however, lingering criticism of the case-study methodology's dependence on single cases precludes any generalizing conclusions (Tellis, 1997). Second, while the time frame of four years allowed an in-depth understanding of the transformation process, it did not allow observing the full transformation. Third, another limitation may be potential bias due to our study's focus on a single industry. In that light, we encourage scholars to conduct empirical studies at a larger scale in different settings to examine congruency among results.

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## Appendix

| Term | Description | Source |
|---|---|---|
| Agile | "An umbrella term for a set of management practices—including Scrum, Kanban, and Lean—which enable offering requirements and solutions to evolve through collaboration between self-organizing, cross-functional teams" | Denning (2016, p. 11) |
| Agility | "The ability of organizations to be quick and to have an effective response to unexpected variations in market demand" | Prange (2021, p. 3) |
| Organizational agility | "The ability to function and compete within a state of dynamic, continuous and often unanticipated change" | Appelbaum *et al.* (2017, p. 7) |
| Organizational agility | "A firm's capacity to respond with speed to environmental changes and opportunities and define it in terms of three dimensions: customer responsiveness, operational flexibility and strategic flexibility" | Ravichandran (2018, p. 25) |
| Organizational agility | "The capacity of an organization to efficiently and effectively redeploy and redirect its resources to value-creating (and capturing) higher-yield activities as internal and external circumstances warrant" | Teece *et al.* (2016, p. 17) |
| Organizational agility | "A core competency, competitive advantage, and differentiator that requires strategic thinking, an innovative mindset, exploitation of change and an unrelenting need to be adaptable and proactive" | Harraf *et al.* (2015, p. 675) |
| Strategic agility | "A meta-capability that comprises the allocation of sufficient resources to the development and deployment of all specific capabilities, and further refers to the ability to stay agile through balancing those capabilities dynamically over time" | Shams *et al.* (2020, p. 2) |
| Strategic agility | "The ability to remain flexible in facing new developments, to continuously adjust the company's strategic direction, and to develop innovative ways to create value" | Weber and Tarba (2014, p. 5) |
| Strategic agility | "The ability to continuously adjust and adapt strategic direction in core business, as a function of strategic ambitions and changing circumstances, and create not just new product and services, but also new business models and innovative ways to create value for a company" | Vecchiato (2015, p. 29) |
| Enterprise agility | "The ability to adjust and respond to change" | Sherehiy *et al.* (2007, p. 445) |
| Corporate agility | "The capacity to react quickly to rapidly changing circumstances" | Brown and Agnew (1982, p. 29) |

**Table A1.**
Agility-related terms

| Interview ID | Position | Age (years) | Experience with agile practices (years) | Education | Date of interview | Gender | Duration of interview (minutes) |
|---|---|---|---|---|---|---|---|
| *Inquiry 2018* | | | | | | | |
| (1) | Agile master | 29 | 6 | Master's degree | 05/04/2018 | Woman | 34 |
| (2) | Line manager | n/a | 3 | Master's degree | 05/04/2018 | Man | 34 |
| (3) | Product owner | 43 | 2 | Apprenticeship | 10/04/2018 | Man | 51 |
| (4) | Product owner | 33 | 1,5 | Master's degree | 10/04/2018 | Man | 51 |
| (5) | Agile master | n/a | n/a | n/a | 10/04/2018 | Man | |
| (6) | Project lead | n/a | n/a | Master's degree | 12/04/2018 | Man | 21 |
| (7) | Agile master | n/a | 5 | Apprenticeship | 12/04/2018 | Woman | 20 |
| (8) | Project lead | 48 | 2 | Apprenticeship | 12/04/2018 | Man | 33 |
| (9) | Line manager | 39 | 0 | Master's degree | 17/04/2018 | Man | 34 |
| (10) | Product owner | 43 | 11 | Master's degree | 18/04/2018 | Woman | 97 |
| (11) | Head of ACC | 46 | 13 | Master's degree | 20/04/2018 | Man | 31 |
| (12) | Product owner | n/a | 0 | Master's degree | 20/04/2018 | Woman | 36 |
| (13) | Product owner | n/a | 1 | Master's degree | 23/04/2018 | Man | 27 |
| *Inquiry 2019* | | | | | | | |
| (14) | Department lead | 42 | 2 | Master's degree | 13/03/2019 | Man | 58 |
| (15) | Product owner | 34 | 0,5 | Doctoral degree | 15/03/2019 | Man | 46 |
| (16) | Agile master | 32 | 5 | Master's degree | 19/03/2019 | Man | 64 |
| (17) | Product owner | 28 | 2,5 | Master's degree | 19/03/2019 | Woman | 46 |
| (18) | Agile master | 30 | 3 | Master's degree | 19/03/2019 | Man | 53 |
| (19) | Software developer | 25 | 1,5 | Master's degree | 20/03/2019 | Woman | 68 |
| (20) | Business analyst | 30 | 2 | Master's degree | 20/03/2019 | Man | |
| (21) | Software developer | 34 | 7 | Master's degree | 20/03/2019 | Man | 49 |
| (22) | IT consultant | 35 | 2 | First diploma | 27/03/2019 | Man | 51 |
| (23) | Agile master | 59 | 12 | Apprenticeship | 28/03/2019 | Man | 70 |
| (24) | Agile master | 29 | 3 | Master's degree | 03/04/2019 | Man | 46 |
| (25) | Division lead | 36 | 3 | Bachelor's degree | 03/04/2019 | Woman | 54 |
| (26) | Department lead | 45 | 2 | Master's degree | 04/04/2019 | Man | 48 |

(*continued*)

**Table A2.** Demographics of the Interviewees

| Interview ID | Position | Age (years) | Experience with agile practices (years) | Education | Date of interview | Gender | Duration of interview (minutes) |
|---|---|---|---|---|---|---|---|
| (27) | Head of change initiative | 56 | 4 | Master's degree | 09/04/2019 | Woman | 39 |
| (28) | Product owner | 52 | 6 | Master's degree | 12/04/2019 | Man | 44 |
| (29) | Project lead | 34 | 3 | Doctoral degree | 18/04/2019 | Woman | 27 |
| *Inquiry 2021* | | | | | | | |
| (30) | Product owner | 45 | 13 | Master's degree | 13/10/2021 | Woman | 41 |
| (31) | Product owner | 52 | 5 | Master's degree | 15/10/2021 | Man | 48 |
| (32) | Agile master | 31 | 2 | Master's degree | 15/10/2021 | Woman | 42 |
| (33) | Agile master | 56 | 9 | Master's degree | 22/10/2021 | Man | 56 |
| (34) | Head of ACC | 48 | 15 | Master's degree | 22/10/2021 | Man | 45 |
| (35) | Agile master | 52 | 4 | Master's degree | 27/10/2021 | Woman | 39 |
| (36) | Agile master | 61 | 14 | Apprenticeship | 29/10/2021 | Man | 63 |

**Table A2.**

Section 1: Understanding agility (inquiries, 2018, 2019, and 2021)

*Agile work*

1) What is your understanding of agility, and why is agility relevant?
2) Describe your journey and experience while working in an agile environment
3) Why and when did your company introduce agile practices? Please elaborate on the motivation and main internal and external drivers of that change

*Identification of organizational areas for agile transformations*

4) Which departments and/or domains do you view as being particularly suitable for adapting agile practices?
5) In which departments and/or domains do you think agile practices have no added value?

Section 2: Agile center of competence (inquiries, 2018, 2019, and 2021)

6) How would you describe your work environment in the ACC?
   Briefly describe the culture on teams, the kind of teamwork that occurs, and your interactions with team members
7) What do you consider to be the greatest advantages of agile practices in your daily work?
   What are the biggest obstacles, and how do you deal with them?
8) How do you assess the maturity of teams with agile practices in the ACC?
9) What are the most important facilitators for driving agile work?

Section 3: Objectives of agile organizations (inquiries, 2019 and 2021)

10) What does the term *agile organization* mean to you?
11) In your opinion, what is the general vision of any agile organization?
12) For organizations, why is becoming agile necessary?
    Please illustrate the relevance of being agile
13) How do you feel about the agile transformation agenda?

Section 4: Agile transformations (inquiries, 2019 and 2021)

*Designing the agile transformation*

14) Imagine that you have to design a roadmap for scaling agility within your firm. How would you do it?
    What steps are needed for your firm to become agile?
15) What do you expect from the firm's leaders in relation to the agile transformation?
16) Which people in your firm are particularly suited to impart agile principles?

*Obstacles, barriers, and solutions*

17) What obstacles might arise in the process of disseminating agility?
    What cultural barriers within your firm *might stand* in the way of its becoming an agile organization?
18) How could those barriers be overcome?
19) What aspects of the organizational structure need to change?
20) What needs to be improved in the firm's organizational structure to support the scaling of agile practices?

Section 5: The agile transformation process (inquiries, 2019 and 2021)

*Agile organization and transformation*

21) How would you describe the agile organization at your firm today?
    Has your image of an agile organization changed in recent years? If so, then how and why?
    Can you give examples of specific characteristics of the agile organization?
22) Where is the firm in its transformation process?
    Has the organization become more agile in recent years, and, in either case, what do you attribute it to?
23) Can you describe the drivers of the firm's transformation in greater detail?
    What capabilities were needed to make it happen?
    What capabilities did the organization need to redevelop?
    Which internal and external factors slowed down or hindered the transformation?

(*continued*)

**Table A3.**
Interview guide

| Section 5: The agile transformation process (inquiries, 2019 and 2021) |
|---|
| 24) What were the key challenges during the transformation? |
| *Agile measurement and performance* |
| 25) In your opinion, what is the most important indicator of agility in your organization today? |
| 26) How do you measure the success of agility?<br>Does competitive agility help to better achieve project, unit, and/or organizational goals?<br>Has anything changed in the definition of those goals? |
| 27) In your experience, where has the adoption of agile practices produced little output?<br>Where were expectations not met? |
| *Agile management and employees* |
| 28) In addition to the introduction of agile practices such as scrum, what changes have occurred in the firm's organizational structure? |
| 29) What impact do agile practices have on teamwork? What changes have you observed in that regard? |
| 30) What is the new understanding of leadership at the firm?<br>What role do leaders (e.g. management) play in the agile transformation? |
| 31) How does the corporation's understanding of agility affect manager–employee relationships? |
| 32) How is a culture of trust fostered at the firm? |
| *Change management* |
| 33) What would you change about the corporation's approach to the change process? |
| 34) What have you learned from the experiences of teams that urgently need to change at the organizational level? |
| 35) Imagine that it is five years into the future. What is viewed as having been the most important building block for making the corporation a success? |
| *Closing* |
| 36) Is there anything that you would like to add or comment on from your side that we haven't talked about? |

**Table A3.**

**Table A4.** Additional quotes from findings

| Phase | Quote | Interview ID |
|---|---|---|
| Sensing: exploring opportunities and threats | "For a while, we had discussions about whether you can only apply agile practices in the front end or also back-end applications such as inventory systems, and so on. I'm more of the opinion that you have to apply agile practices in the entire specs and shouldn't just do half of it, because we also need the interplay between front-end and back-end in the interaction of the products." | *ID12* |
| | "Up to now, companies have only lost their way since individual decisions were made somewhere at the very top, and then were rigorously implemented top bottom, completely bypassing customer benefits and needs. Boom. And then no one needed Nokia anymore, hmm (laughs)." | *ID14* |
| | "Why is this necessary? (. . .) What I do notice is that a lot of colleagues, especially at a higher strategic level, are talking about the fact that the market is changing at high speed, which is something that we, as end users, are very much aware of. This means that there are new products developed considerably faster. Many more suppliers are entering the market quicker, simply because of digitization. This means that no matter how large or small my company is, and this organization is no exception as the market leader, I must try to adapt to new conditions very quickly." | *ID16* |
| | "So greatest benefit that agile practices can bring, is just to create the end-to-end responsibility and, just make that possible, that across departments, maybe across companies, if it's about technology, to work better with each other and not against each other." | *ID21* |
| | "Our management then went to America to Silicon Valley, and they came back talking about test-driven development and agility." | *ID 36* |
| Seizing: scaling agility with an agile center of competence (ACC) | "I think that is the biggest success factor of the ACC, because we started in small steps with product increments (. . .) and we have teams creating something valuable after half a year and with each further release." | ID16 |
| | "A current barrier is creating physical space for the teams. Our current infrastructure is bursting at the seams. Everyone wants and needs space." | ID19 |
| | "And you are not used to it in this organization, because everyone has their silo (. . .) you have to break up (the silo structure), to really become a team that interacts with each other. That was the biggest challenge we had to learn. It sounds totally banal, but it was truly hard." | ID23 |
| | "So, that we've already got the basic right, and agile teams have learned a lot of methodology and mindset (. . .) and yet, agile scaling is still ahead of us. But I still lack the scaling framework with fixed architectures, with program views on several agile teams." | ID25 |
| | "The people there (ACC) were freed from the daily work and could do new digital product developments (. . .)." | ID 36 |
| Transforming: Disseminating agility across the organization | "C-level management support and an Agile mindset seem to be the crucial factors (. . .)." | ID10 |
| | "And since a few days ago [board member] wrote an article where finally, for the first time after twelve years, our highest boss declares what he understands by organizational agility. It coincides quite well for me with what is also in our textbook." | ID22 |

(*continued*)

| Phase | Quote | Interview ID |
|---|---|---|
| | "Now with this agile scaling initiative, meaning a clear expansion, we look at what already worked well in the ACC, what we can adapt, but also what we have to change. This is because in the ACC we have a single-team context, i.e. we have one team, one backlog, one Product Owner, and in scaling initiative we will combine several teams into tribes. So for the first time we have a scaled setting and that is of course another level." | ID28 |
| | "You need management commitment, that was also clear learning from the first agile change approach. The management must understand there is a behavioral change, and it starts with themselves. And the second learning embraced, that we only applied agile practices in front-end IT teams, which per se is nonsense, because agility says you need cross-functional teams. Now with the new agile transformation agenda we did it completely different from the very beginning." | ID30 |
| | "So of course, the biggest challenge is, when you introduce new ways of working in a large or structures in an organization you always have a lot of resistance. By now it manifests that there has already been a significant change, especially in the classic hierarchy (. . .) "There is also a change in employees' mindset (. . .)." | ID 31 |
| | "There are three success factors that have made us strong. First. the setting of incremental, iterative learning development, ultimately applying the agile principles ourselves (in the ACC). Second, then there's the principle of one-some-many, i.e. saying I'll think about an implementation, a pilot, and if it works, I'll try it out in two or three other domains of the company. And if it works there, I proceed with disseminating it further. Building the whole thing up in an evolutionary way. And the third is to look first at processes and then at structures." | ID34 |

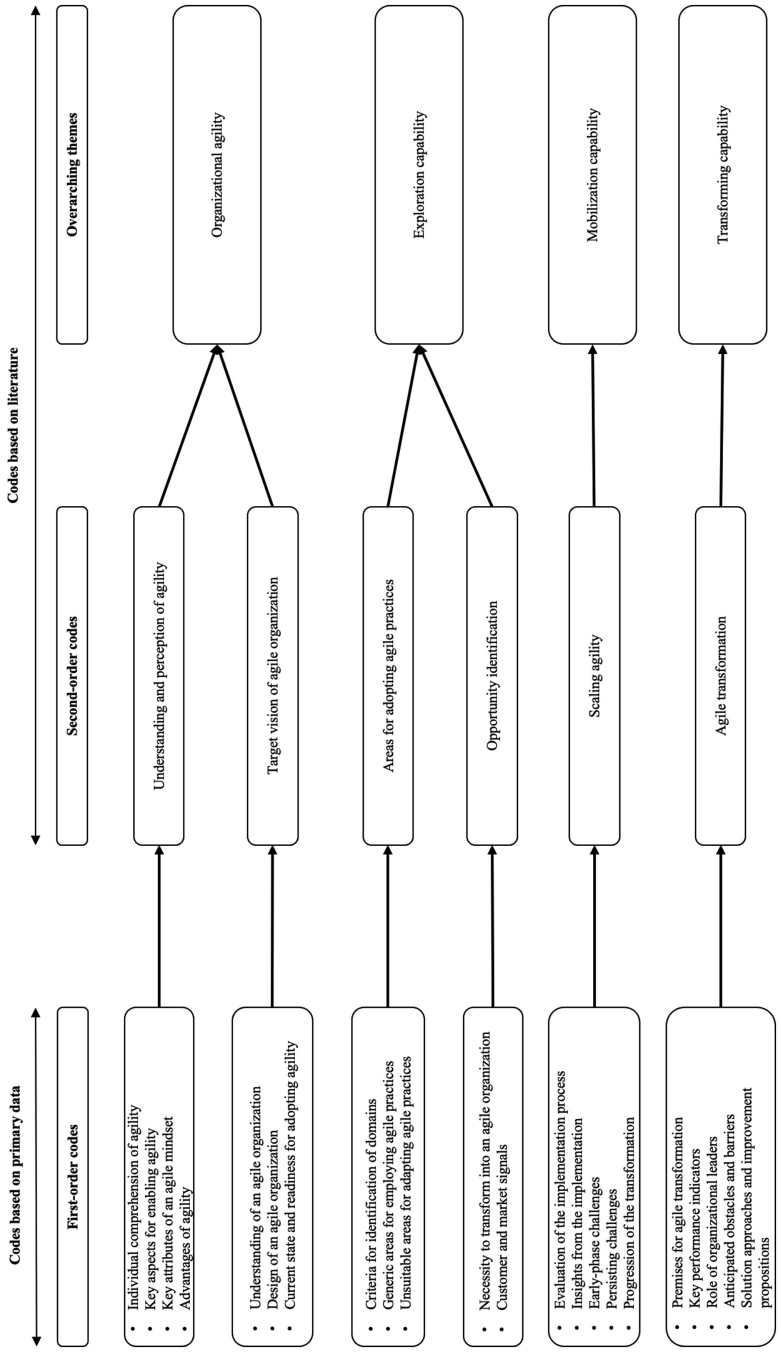


**Figure A1.**
Coding scheme

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