Strategizing as Prototyping –
A Sociomaterial Approach to Strategic Sensemaking in Emerging Contexts

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Summary

This dissertation explores how organizations make sense of what is not there yet. Organizations that engage in strategizing to evolve their future value creation face challenges that can best be described as wicked problems. In other words, they deal with ill-formulated problems that continue to evolve themselves and their context, cannot be solved by individuals alone and need to be proactively addressed and defined.
Hence, this thesis applies a strategy as practice lens to investigate how organizations engage in sensemaking about future states that are just about to emerge. While most research has primarily emphasized the discursive and cognitive practices involved in retrospective sensemaking, this dissertation aims to close these gaps and foreground the material side of a proactive engagement with an organization's emerging context. By applying a strong sociomaterial perspective – which treats the material and social as inextricably interwoven – the importance of sociomaterial enactments and an ensuing equal treatment of people and objects allow a promising investigation of the empirical context. This context is addressed with the following research question: *How are abstract strategic ideas in emerging contexts crafted, collectivized and enacted to enable strategic sensemaking?*

My research is based on the single case study of a strategic initiative within the German insurance industry that I followed for three consecutive years. It encompasses the early days when the initiative was nothing more than an idea on a sticky note, all the way to its successful market launch and beyond. The emerging nature of the strategic initiative provided a stellar research context to study the practices and sociomaterial artefacts involved in proactively enacting future states to make them accessible for collective sensemaking. Building on these findings, I introduce the flow model of strategic prototyping which integrates three distinct loops. The prototype loop provides a dynamic definition of sociomaterial prototypes that oscillate between crystallized and liquefied states. The synthesis loop characterizes the mapping, crafting, and projecting practices that proactively generate sociomaterial enactment. Last, the resonance loop shows how such enactment is not kept in isolation, but deliberately exposed to the emerging context through experimenting, prioritizing and storyshaping to evoke and sustain resonance. In combination, our understanding of strategizing is enhanced with the notion of strategic prototyping as a defining practice to develop an organization's future value creation.

Zusammenfassung

Diese Dissertation untersucht, wie Organisationen Sinn in zukünftigen Kontexten schaffen, ohne dass diese bereits existieren. Wenn sich Organisationen mir ihrer zukünftigen Wertschöpfung auseinandersetzen, finden sie sich sogenannten Wicked-Problems gegenüber. Sie sehen sich mit lückenhaft formulierten Problemstellungen konfrontiert, welche sich selbst und ihren Kontext kontinuierlich verändern und nicht von Einzelpersonen, sondern nur im Kollektiv gelöst werden können.
Die Strategy as Practice Literatur bietet eine vielversprechende Perspektive, um dieses Phänomen zu untersuchen. Der Fokus liegt dabei auf dem Sensemaking, durch welches Organisationen entstehende Kontexte besser zu verstehen versuchen. Die bisherige Forschung hat bereits gezeigt, wie diese Auseinandersetzung retrospektiv stattfinden kann. Jedoch fehlt weiterhin ein Verständnis dafür, wie eine proaktive und von Materialität getriebene Auseinandersetzung mit der Zukunft stattfindet. Die vorliegende Dissertation schliesst diese Forschungslücke durch die explizite Untersuchung der materiellen Gegebenheiten unter Anwendung einer Soziomaterialitätsperspektive. Eine soziomaterielle Herangehensweise behandelt das Soziale und das Materielle nicht als gegensätzlich, sondern als miteinander verflochten. Die zugrundeliegende Forschungsfrage lautet entsprechend: *Wie werden abstrakte strategische Ideen in entstehenden Kontexten erschaffen, kollektiviert und inszeniert, um strategisches Sensemaking zu ermöglichen?*

Meine Forschung basiert auf dem mehrjährigen Studium einer strategischen Initiative in der deutschen Versicherungsindustrie. Die sich kontinuierlich weiterentwickelnde strategische Initiative bot eine wertvolle Forschungsmöglichkeit, um die Praktiken und soziomateriellen Artefakte einer proaktiven Zukunftsinszenierung zu beobachten. Aufbauend auf diesen Erkenntnissen leite ich das Modell für strategisches Prototyping her, welches aus drei Zyklen besteht. Der Prototyp-Zyklus ermöglicht eine Definition von soziomateriellen Prototypen, welche zwischen kristallisierten und flüssigen Zuständen oszillieren. Der Synthese-Zyklus beschreibt Mapping-, Gestaltungs- und Projektionspraktiken, welche proaktive soziomaterielle Inszenierungen ermöglichen. Der Resonanz-Zyklus zeigt, wie solche Inszenierungen nicht in Isolation stattfinden, sondern gewollt mit dem entstehenden Kontext in Kontakt gebracht werden. Durch die Praktiken des Experimentierens, Priorisierens und Storyshaping wird Resonanz geschaffen. Gemeinsam erweitern die drei Zyklen des Modells unser Verständnis von Strategie mit einer Prototyping-Praktik, welche die zukünftige Wertschöpfung von Organisationen im Jetzt inszeniert.

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I say to you: one must still have chaos in oneself
in order to give birth to a dancing star.
I say to you: you still have chaos in you.
(Nietzsche, 2006, p. 9)

1 Introduction

1.1 Research puzzle

Try to imagine someone planning strategy. What probably comes to mind is a senior manager sitting in her corner office, bent over extensive sheets full of numbers, absorbed in thoughts and composing elaborate plans to be executed by the people in operations. Mintzberg (1987) opened his influential article in Harvard Business Review with exactly the same request, only to catch us on the wrong foot and introduce his now famous metaphor of the strategist as a potter. He urged us to see strategizing as an act of craft, dedication, perfection and – most importantly – involvement. In his view, strategy formulation and implementation are no longer separate but melded into a fluent exchange with the material at the hand of the manager (or potter). As they shape the outcome with every turn of the pottery wheel, they are simultaneously thinking of the next moves and feeling them materialize with their hands… turn after turn.

As powerful as this metaphor might be, please try to imagine the scene in a slightly altered way once more: instead of one potter crafting with two hands, imagine ten, twenty, or even fifty hands all trying to shape the same chunk of clay as it incessantly spins in the middle. To make things even more complicated, these hands do not belong to skilled potters, but practitioners of various backgrounds who happen to have been involved with the ceramic at some point, all attempting to make sense of what they are trying to achieve together. As crucial as direct involvement might be, there are considerable challenges to enabling this engagement on an organizational scale. Thus, we need to not only better understand the agency of the various involved human actors, but also how the agency of matter itself can be leveraged to guide such collective strategizing processes.

What can we learn about strategizing from Mintzberg's pottery metaphor and my alteration? Strategizing in emerging contexts is demanding. Uncertainty and ambiguity are constant companions as a strategic idea evolves, a product, policy or service unfolds and a context emerges (Alvarez & Barney, 2005; Grand, 2016a; Mintzberg, 1978). Thus, successful strategizing cannot be achieved in isolation but requires a diverse set of actors to successfully make sense of an emerging context. To do so successfully, they must be directly involved with the matter at hand to recursively craft an ever-improving understanding of the organization's intended future state.

Many organizations shy away from this challenge, resorting to stabilizing and affirming the status quo instead (Weick, 1995a; Weick & Sutcliffe, 2001). Others, however,

understand that the ability to recurrently create and evolve their future value creation is vital for their survival in fast-moving and competitive environments (Grand, 2016a; Rüegg-Stürm & Grand, 2019). As they aim to stay relevant for their customers, employees and societal context, they must not only make sense of what has happened in the past and is happening in the very moment, but especially what *will* happen in the future. This occupation with their emerging contexts is strategic, involving not only what *will,* but also what *could* or *should* happen (Grand, 2016b; Tsoukas, Haridimos & Chia, 2002). Thus, sensemaking is a fundamental activity of collective strategizing (Gioia & Chittipeddi, 1991).

Doing so, however, exposes organizations to considerable challenges, accurately described by Kierkegaard's (1960, p. 111) notion that life can only be understood backward, but must be lived forwards. In other words, to make sense, something must have materialized already. To engage in strategic sensemaking, however, organizations can no longer wait for on external events to happen to them (Hernes & Schultz, 2020). Instead, they need to move *beyond themselves* and enact uncertain future states in a tangible and material manner in the present. Only through this enactment can they engage in collective sensemaking about where they want to go and how they can get there (Emirbayer & Mische, 1998). While sensemaking studies have excelled at allowing us to better understand how organizations make sense of disruptive episodes retrospectively (Maitlis & Christianson, 2014; Weick, 1995a; Weick et al., 2005), they often fall short in answering the question: *How to make sense of what is not even there yet?*

When answering this question, organizations face uncertain and ambiguous circumstances that can best be described as "wicked problems" (Rittel & Webber, 1973). The main characteristic of wicked problems is that they do not present themselves in clearly formulated and defined form. Instead, the lack of information, an involvement of diverse stakeholders with conflicting values and numerous interknitted dependencies all make a clear definition of the challenge impossible (Churchman, 1967). Wickedness, thus, does not necessarily entail a higher degree of complexity but describes the lack of a definitive problem. This shortcoming, in turn, results in a need for a continuous definition of the problems using the circumstances (Buchanan, 1992; Rittel & Webber, 1973).

Framing an organization's challenges as wicked problems has three major implications. First, it introduces a processual view; wicked problems need to be continuously defined

and are thus constantly becoming. This renders their final solution secondary, as the process of understanding them moves into the center of attention (Buchanan, 1992). Second, wicked problems can no longer be solved within a single business firm, or in the head of a single practitioner. Instead, the necessary knowledge and capabilities are imperfectly shared over time and across interdependent groups of people, organizations and industries (Erickson, 1995; Nicolini et al., 2012; Tuomi, 2006). Third and most importantly, an organizations' role in framing wicked problems is no longer reactive but a decisively active one, as each action contributes to evolving the problems themselves. Enactment becomes a crucial activity to shape the problem at hand (Garreau et al., 2015).

In summary, organizations must recurrently evolve their future value creation to remain relevant. To do so, they engage in strategizing not limited to a single practitioner but spread across a diverse set of practitioners (Nicolini, 2012). Their engagement with their emerging context exposes them to wicked problems, which do not present themselves as given, but must be "constructed from the materials of problematic situations which are puzzling, troubling, and uncertain" (Schön, 1983, p. 40). To make sense, organizations need to enact the existence of hypothetical future states and work their way backwards into the present to identify what actions are required for these states to come true (Tsoukas & Shepherd, 2004). Only through this involved enactment does strategizing not just exist from examining the past but is able to craft creative and novel answers (Mintzberg, 1987). Thus, the research puzzle that remains unsolved revolves not around the need to prove that such future states must be enacted if organizations want to engage in strategizing. Instead, the relevant question lies in how they can do so in a collective, actionable and recursive manner. Therefore, a better understanding of how future states can be enacted in the present to become the locus of strategic sensemaking enhances our ability to collectively generate answers to wicked problems that characterize most of today's biggest challenges.

1.2 Research gap and focus

How organizations collectively strategize and make sense in emerging contexts has always been a vital interest of the strategy as practice and sensemaking perspectives (Burgelman et al., 2018; MacKay et al., 2021; Maitlis & Christianson, 2014). Both have applied their distinct approaches to contribute to a better understanding of how organizations engage with their uncertain future; strategy as practice, on one hand, was heavily influenced by the practice turn in strategy and organization research (Schatzki

et al., 2001; Vaara & Whittington, 2012), which led scholars to change their understanding of strategy from something an organization *has* to something its members *say and do* (Jarzabkowski et al., 2007). Thus, scholars investigate emerging strategy by focusing on strategy practitioners, strategy practices and strategy praxis (Burgelman et al., 2018; Vaara & Whittington, 2012). The literature building on the sensemaking perspective (Weick, 1995a; Weick et al., 2005), on the other hand, conceptualizes strategizing as a social process of meaning construction and reconstruction through which actors aim to retrospectively make sense of events and cues in the external environment (Balogun et al., 2014). Sensemaking clearly goes beyond mere interpretation and emphasizes the enactment of that very world, acknowledging that people are actively constructing and authoring the situations and events that they attempt to understand (Glynn & Watkiss, 2020; Maitlis & Christianson, 2014; Weick et al., 2005).

Both perspectives, however, were also heavily influenced by the linguistic turn toward the end of the 20th century, which had the unintended consequence that the material side of things was marginalized and objects were hidden from view (Carlile et al., 2013). Sensemaking – for example – has been characterized as "an issue of language, talk, and communication" (Weick et al., 2005, p. 409). Studies thus have primarily investigated discursive and cognitive processes, omitting actions, materials and sites essential for generating a realizable course of action for the future (Comi & Whyte, 2018; Weiser, 2020). Put differently, sensemaking research has focused on *sense* and not on *making.* While strategizing undeniably involves talking and conversing in all its forms, it is much more than "just talk" (Balogun et al., 2014, p. 176). Hence, Barad (2003, p. 801) rightfully concluded that it would be about time for a revival of materiality when they wrote: "Language matters. Discourse matters. Culture matters. There is an important sense in which the only thing that does not seem to matter anymore is matter."

Until now, materiality's vital role has been largely overlooked (Balogun et al., 2014; Carlile et al., 2013; Dameron et al., 2015; Lê & Spee, 2015; Leonardi et al., 2012; Meyer et al., 2013; Vaara & Whittington, 2012). When Orlikowski and Scott (2008) reviewed sensemaking studies in leading management journals between 1997 and 2006, they found that less than five percent explicitly addressed technology or materiality. However, with the realization that next to cognition and discourse, there is all this "stuff of strategy" (Whittington, 2007, p. 1579), several studies have increasingly included material considerations from a sensemaking perspective (Berthod & Müller-Seitz, 2018; Hultin & Mähring, 2017; Whiteman & Cooper, 2011), and a strategy as practice

perspective (Eppler & Platts, 2009; Jarzabkowski et al., 2013, 2013; Kaplan, 2011). However, studies that explicitly examine materiality in the combined approach of strategic sensemaking remain scarce. They include Weiser's (2020) investigation of substantiative action in contrast to discourse in strategizing, Garreau et al.'s (2015) case of how drawing on maps informed strategizing and Comi & Whyte's (2018) study of an architecture firm's use of material artefacts for future making.

This dissertation thus aims to enhance the research stream of strategic sensemaking with a decisively material perspective, contributing a balanced view of how interpretation *and* action enable organizations to make sense of future states that are only just emerging. A continued study of materiality's role for sensemaking in strategic contexts thus addresses the following gaps in the literature:

- First, the proactive initiation of strategic sensemaking through enactment is underexplored. Sensemaking traditionally depends on external events and cues for organizations to engage in retrospective sensemaking (Weick, 1995a). This fails to include settings where cues and events for sensemaking are proactively initiated by the organizations themselves (Sandberg & Tsoukas, 2020). This is often required in the context of strategizing, where the locus of sensemaking does not lie in the past but within potential future states. As these states do not yet exist, they must be proactively enacted. Current strategic sensemaking research situates such enactment primarily in the linguistic realm and focuses on the examination of discursive practices (Klarin & Sharmelly, 2021; Rouleau & Balogun, 2011). However, an organization's future state is not only formally discussed in management meetings, but tangibly enacted through the many activities of everyday operations (MacKay et al., 2021). Treating enactment as both a discursive and material practice thus contributes to an understanding where interpretation and action are entwined with each other. In this view, recurring actions at the frontline of the organization enact an emerging context that is then again made sense of, and elaborated through, strategizing activities. In other words, materiality no longer upholds existing structures but helps actors to transcend and imagine future events through material engagement (Hernes & Schultz, 2020). Focusing on the proactive initiation of strategic sensemaking thus answers calls for a further investigation of how discursive and material enactment contributes to the ability of actors to imagine and enact distant states that enable their engagement in strategic sensemaking (Hernes & Schultz, 2020; Mirabeau & Maguire, 2014).

- Second, materiality's understanding in empirical studies is limited and static. While the literature's interest in materiality has increased in recent years, most studies have focused on specific material practices and artefacts in isolation, leaving the interplay between practices and their role for individual and collective sensemaking out of sight (Orlikowski & Scott, 2008; Stigliani & Ravasi, 2012). In addition, they tend to consider materiality as outcomes, fixed artefacts or practitioner's tools and not as a defining element that shapes practice from the ground up (Stigliani, 2008). Hence, there are further opportunities for insight by applying the relational ontology of the sociomateriality perspective to not only acknowledge that practices are material, but to better understand how social and material practices are inextricably interwoven with each other (Barad, 2003; Orlikowski, 2007; Orlikowski & Scott, 2008). In a sociomaterial view, sensemaking is no longer seen solely as a subjective and episodic activity, but as "a ubiquitous and holistic practice in which the material environment is integral" (Hultin & Mähring, 2017, p. 567). Emphasizing sociomaterial practices thus overcomes the limited consideration that has been given to the material side of strategic sensemaking and allows for a more dynamic examination of what otherwise was treated as given or fixed.

1.3 Research question and contribution

By closely following a strategic initiative's journey from the first ideation sessions all the way to its launch as a venture and beyond, this dissertation examines strategic sensemaking in uncertain and ambiguous contexts over time. It specifically investigates material artefacts and their proactive enactment through sociomaterial practices (Barad, 2007; Orlikowski & Scott, 2008). The guiding research question of this thesis is:

> *How are abstract strategic ideas in emerging contexts crafted, collectivized and enacted to enable strategic sensemaking?*

Strategic ideas refer to the intended future states that organizations are trying to generate and achieve. However, these states are distant and elusive, at times only existing in the heads of individuals and directly influenced by the external environment. My research, therefore, aims to better understand how these future states are crafted, collectivized and enacted, not only through cognitive and discursive processes, but as sociomaterial enactments. With this approach, my research interest is not limited to artefacts and

practices in isolation, but explicitly encompasses how they mutually constitute each other and the emerging context they are embedded in.
By addressing the research question, this thesis provides relevant findings on how actors can make sense of, and in, emerging contexts to engage in collective strategizing. This ability is crucial, as it provides an essential prerequisite to solving today's wicked problems. The challenges of these problems are not necessarily limited to the context of strategic initiatives – which are investigated in this thesis – but also apply to organizations, communities and societies. A better understanding of the involved practices and their interrelation thus is of relevance for practitioners across various fields.

My research presented in this dissertation aims to advance the literature on strategic sensemaking – which builds on the strategy as practice and sensemaking perspectives – by providing three main contributions:

- First, I introduce sociomaterial prototypes as a powerful way to enact future states in the present. I do so by characterizing sociomaterial prototypes as oscillating between crystallized and liquefied states which allows them to transcend their materiality and engage in sensemaking together with other human actors.
- Second, I enhance the literature on strategic sensemaking with the notion of proactive sociomaterial enactment that leads to the initiation of sensemaking. In this dissertation, I introduce a synthesis loop whose sociomaterial practices are primarily concerned with enacting future states to overcome sensemaking's reliance on past events and instead engage with an emerging context.
- Third, I propose a view of strategizing as prototyping by introducing the integrated flow model of strategic prototyping. It consists of a prototyping loop that enables dynamic enactment through sociomaterial prototypes, a synthesis loop that revolves around iterative crafting to generate collective meaning and a resonance loop that situates enactment outside a strategic initiative to collectivize the strategic sensemaking practice. In combination, the three loops provide an in-depth investigation of how strategic ideas are crafted, enacted and collectivized through an assemblage of sociomaterial practices and prototypes.

These main contributions are further complemented by individual contributions of the prototype, synthesis and resonance loops, discussed in detail throughout this

dissertation's findings section. Together, they provide a comprehensive picture of strategizing as prototyping that enables organizations to productively engage with emerging contexts.

1.4 Dissertation structure

This dissertation' empirical case revolves around the journey of a strategic initiative as it transforms abstract ideas into a tangible product and venture. It comes in the form of a monography whose structure is visualized in figure 1. It consists of six parts, further organized in chapters and sections which are briefly summarized below.

In the introduction, I establish the case, its relevance and the underlying puzzle. In addition, I provide a brief overview of current literature and identified gaps to derive the guiding research question and intended contributions.

The second part addresses the literature constituting the dissertation's theoretical framework. In my research, I draw on the perspectives of strategy as practice, sensemaking and sociomateriality, each of which I explore in a designated chapter. In the concluding chapter of the theory section, I connect the three perspectives and establish a sociomaterial view on strategic sensemaking as the theoretical framework that defines my research approach and analysis.

The methodological approach is discussed in part three. Here, I begin at a distance with a discussion of theoretical implications, unit of analysis and research strategy to move closer to the empirical data in the following chapters. Thus, chapter 3.2 revolves around data collection and analysis as it provides an overview of empirical data. Last, I move directly into the field to introduce the strategic initiative at the core of this dissertation in chapter 3.3.

Once the theoretical framework and methodology are established, I present the empirical findings in part four. The findings are condensed into three distinct empirical foci in non-chronological order. Each empirical focus is discussed in its own chapter, which again consists of a theoretical introduction, a close description from the field, the respective findings and a closing discussion of the contributions.

Part five assembles the contributions of each empirical focus and introduces the flow model of strategic prototyping. The model is explained in detail to derive the main contributions which are then situated in the literature and discussed.

In the sixth and final part, I conclude the dissertation by providing a summary, presenting the practical implications and discussing the limitations of my research.

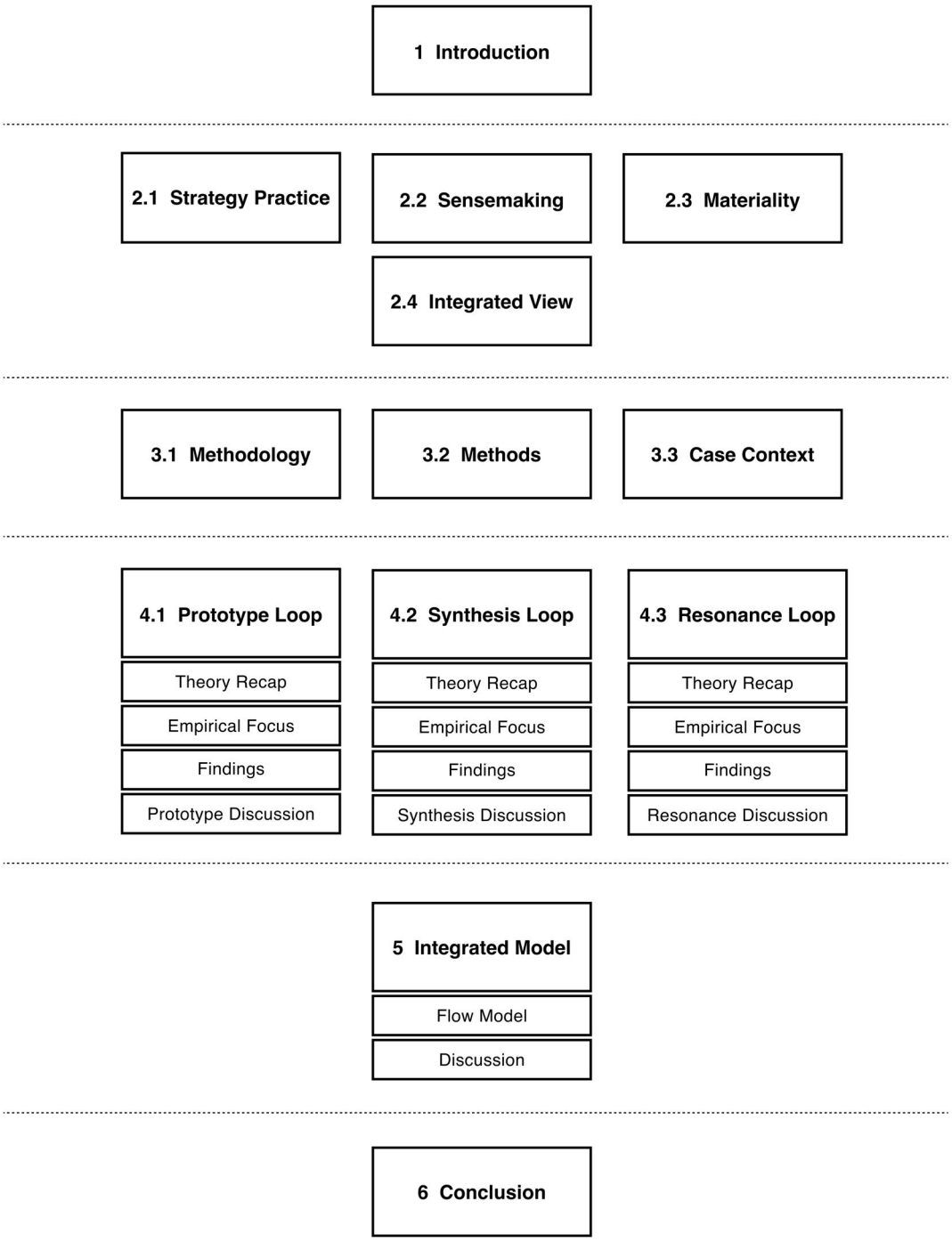


Figure 1 – Dissertation structure

2 Theoretical framework

In this section, I will introduce the defining conceptual framework of this thesis. Basing my research in strategy as practice literature, I first clarify the contextual definition of strategy in this thesis and lay out the implications of a practice perspective. I then delve further into the areas of sensemaking and materiality, which both provide valuable research on strategizing under uncertainty and ambiguity. Lastly, I perform two moves to integrate the previously discussed conceptual approaches and establish a sociomaterial perspective on strategic sensemaking.

2.1 Strategy as practice

2.1.1 Defining strategy and strategizing

Despite its importance, there are multiple definitions of strategy (Mintzberg & Lampel, 1999). When practitioners in organizations are asked directly, they will often label whatever they deem important as strategy or strategic, resulting in confusion about what strategy is and what it is not (Rüegg-Stürm & Grand, 2019). Indeed, strategy is not only what executives and organization members define as strategy, but what organizations actually do to realize strategy (Bower & Gilbert, 2005; Mintzberg & Waters, 1985). It involves both the process of strategy-making, as well as strategy content, which can be treated as a "dynamic phenomenon that evolved over time" (Burgelman et al., 2018, p. 532). Thus, to have a productive discussion about strategy, it is crucial to define it in relation to the specific empirical setting and relevant research questions (Feldman, 2015, p. 317).

In its most elemental definition, strategy determines "how an organization will move forward" (Rumelt, 2011, pp. 6–7). Rumelt's strikingly simple, but elegant definition introduces three defining aspects basic to this dissertation's underlying understanding of strategy. First, the verb "moving" implies that strategy is a dynamic process. The process of strategy work is not comprehensively characterized by prior planning or intention, but rather "unfolds through everyday practical coping actions" (Chia & Holt, 2006, p. 637). To emphasize the dynamic and constitutive nature of this process, it is common practice to use the gerund of *strategizing* to emphasize the doing, rather than static concepts or objects (Jarzabkowski & Spee, 2009; Whittington, 1996). Second, the notion of "organization" moves beyond a single actor and defines strategizing as a collective engagement. Strategizing is not a primarily cognitive activity exclusive to an organization's executive leadership; it takes place through countless small decisions throughout the organization (Jarzabkowski et al., 2007; MacKay et al., 2021). Third, the

definition directly ties strategizing to an organization's future. Strategy, in this sense, is concerned with both discovering and creating new opportunities in the firm's external environment. To stay relevant, strategy – in this context – involves identifying promising directions for the further development of the organization's value creation and clarifying which measures are necessary to achieve this (Rüegg-Stürm & Grand, 2019). Integrating these understandings, I will use the following definition of strategizing in this thesis:

> *Strategizing is a collective process that enacts an organization's future value creation and its emerging context.*

In the context of this dissertation, which follows the development of an innovative strategic initiative of two established corporations, a defining element of strategizing is its focus on the future and its ambition to create *the new*. As strategy is emerging, it is not possible to already investigate its outcomes; thus, my investigation of strategy is limited to strategizing practices. Strategizing, thereby, does not necessarily involve the organization in its entirety, but can be limited to specific strategic initiatives on which "organizations stake their future success" (Klingebiel & De Meyer, 2013, p. 133). In other words, a strategic initiative is a concentrated and collective engagement with an organization's future value creation. As an organization reaches out into the unknown, it continuously refines "an incomplete but practically sufficient comprehension" of the environment emerging through an iterative process of action and adjustment within the strategic initiative (Chia & Holt, 2009, p. 159).

2.1.2 Strategy as practice

With the aim of going "inside the process" (Brown & Duguid, 2000), the strategy field experienced a veritable practice turn in recent years, leading to a prolific discourse within strategy as practice literature (Burgelman et al., 2018; Schatzki et al., 2001; Vaara & Whittington, 2012). Strategy as practice (SAP) is concerned with "the doing of strategy; who does it, what they do, how they do it, what they use, and what implications this has for shaping strategy" (Jarzabkowski & Spee, 2009, p. 69). In this view, strategy is not something an organization has, but something an organization's members actually do (Jarzabkowski et al., 2007, p. 6). The rise of the practice lens has opened up new ways and perspectives to study organizations, uncovering a variety of valuable insights along the way and radically broadening the vision of what strategy is (Whittington, 2007, p. 1577).

Referring to the ever-present flow diagrams of organization and strategy studies, Feldman and Orlikowski (2011, p. 10) simply said that "the emphasis is on the arrows, on the relationships and performances that produce outcomes in the world." In other words, the unit of analysis is no longer the box, but the embedded nature of human agency depicted by the arrows that bring the box into existence and evolve it over time (Jarzabkowski, 2005; Vaara & Whittington, 2012).

This focus on a broad range of strategizing activities resonates especially well with the previously introduced definition of strategizing, positioning the strategy as practice perspective to provide the underlying theoretical framework of this thesis. Below, I will outline how its application influences my research by emphasizing three central properties of strategizing.

Emphasizing practices

First, strategy as practice extends existing theoretical views by explicitly focusing on the fine-grained actions and interactions that compromise activity (Jarzabkowski, 2005). The focus is on so-called strategy practices, which Vaara and Whittington (2012, p. 278) defined as "accepted ways of doing things, embodied and materially mediated, that are shared between actors and routinized over time." Practices, therefore, provide the "behavioral, cognitive, procedural, discursive and physical resources through which multiple actors are able to interact in order to socially accomplish collective activity" (Jarzabkowski et al., 2007, p. 9). They are studied as aggregations of materially mediated doings and sayings that affect daily organizing (Nicolini & Monteiro, 2017).

What identifies practices as strategic is not determined by whether they are part of indented or formal strategy formats, but to which extent they are consequential for an organization's strategic directions, outcomes and survival (Chia & Holt, 2009; Jarzabkowski et al., 2007, p. 8; Johnson et al., 2003). This appreciation of the everyday practical and non-analytical skills needed for successful strategizing leads to a better understanding of the role of strategy in the context of increased dynamism, which is by no means diminished but instead reframed and understood in more depth (Whittington et al., 2006).

In sum, strategy as practice emphasizes the close examination of strategist's doings and sayings; "the material artefacts at hand, the physical positioning in strategy episodes, the laughter, frustration, anger, excitement, anticipation, boredom, repetition and political maneuvering that are brought together as a bundle of strategy practices" (Jarzabkowski & Spee, 2009, p. 84). Strategy as practice lets us show how such local actions aggregate into a pattern of accepted practices that constitute structure, culture, organization and strategy (MacKay et al., 2021; Schatzki et al., 2001).

Emphasizing practitioners

Second, strategy as practice moves away from the notion of strategy as the outcome of decisions taken on an organization's executive level to a course produced by the ongoing interpretation and interaction of a multitude of organizational practitioners (Kaplan & Orlikowski, 2013). At the same time, it shies away from understanding strategy-making as mostly the work of individuals at top management level and situates it in a context where strategic agency takes place in a web of practices (Vaara & Whittington, 2012). While SAP does not neglect the importance of senior executives and official strategy sessions, it is increasingly concerned how the organization absorbs and influences these plans as they are translated into day-to-day practices that create strategy and change (Balogun et al., 2003, p. 199).

This interest in a broadened range of strategy practitioners is evident in several studies investigating the role of middle managers. Rouleau (2005), for example, showed how middle managers act both as interpreters and sellers of strategy at the customer interaction micro-level. Mantere and Vaara (2008) illustrated how middle managers are involved in a range of participating and non-participating strategy discourses; Rouleau and Balogun (2011) highlighted how middle managers enact the strategic roles they are allocated in an organizational change setting. Recent studies have further extended the scope to practitioners on the frontline who are directly involved with strategy realization (Azad & Zablith, 2020; Balogun et al., 2015). While middle managers' actions might not be decided at firm level, they are crucial for the organization's survival and protection of its value creation. Hence, strategy as practice identifies and researches these actors as strategists and opens a "research agenda that goes beyond top managers to studying other levels of employees as strategic actors" (Jarzabkowski et al., 2007, p. 12).

Emphasizing materiality

Third, strategy as practice recognizes practices as inherently material in nature and increasingly emphasizes the role of objects and materials for constituting practices (Kimbell, 2012; Nicolini & Monteiro, 2017). Practices, thereby, provide the links between strategy knowledge, the knowledge artefact's design and its end use (Weick, 1995a). From formulation to realization, strategy as practice provides scholars with a strong foundation to better comprehend how strategizing practices relate to the ways strategy is implemented in organizations (Leonardi, 2015).

Certain studies in the strategy as practice field are slowly moving beyond the mere recognition of materiality towards an advanced understanding that materiality permeates every aspect of strategy. Thus, scholars have increasingly put their interest in examining

the role of materiality in strategizing, including different sorts of social, material and discursive tools (Burgelman et al., 2018; Jarzabkowski & Kaplan, 2015; Kaplan, 2011; Vaara & Whittington, 2012). Studies have investigated usage of a variety of strategy tools: for example, PowerPoint (Kaplan, 2011), SWOT analysis (Dyson, 2004), maps and graphs (Jarzabkowski et al., 2013) Lego bricks (Heracleous & Jacobs, 2008) and visualizations (Eppler & Platts, 2009). These studies have paved the way for further research on materiality in strategizing that goes beyond the human usage of tools toward a recognition that "all practices are always and everywhere sociomaterial, and that this sociomateriality is constitutive, shaping the contours and possibilities of everyday organizing" (Orlikowski, 2007, p. 1444).

2.1.3 Strategizing as synthesis in uncertain and ambiguous contexts

As organizations strategize to create *the new* and engage with their emerging contexts, they encounter three conceptually distinct types of uncertainty described by Grand (2016a) as follows: first, actions and decisions that need to be taken in the face of uncertain future events or in emerging environments, second, distributed activities with unpredictable interdependencies and third, controversial evaluations among the involved actors. In some situations, such uncertainties can be reduced by simply gathering more information. However, especially in knowledge-intensive work, rational possibility is often critically limited and leads to ambiguous situations where the problem is not the imperfect understanding of the world, but the multitude of available interpretations and meanings (Alvesson, 1993; Weick, 1995a). Thus, strategizing must find ways to overcome the challenge of incomplete and emerging environments by acknowledging ongoing ambiguity (Abdallah & Langley, 2014).

Strategy as practice scholars have taken two promising avenues to better understand how organizations and their practitioners strategize amidst uncertainty and ambiguity.
First, referencing the sensemaking perspective allows the inclusion of uncertainty and ambiguity as two main drivers for sensemaking to be initiated (Weick, 1995a). When strategizing is no longer "the outcome of decisions taken by a monolithic organization", but rather the product of "ongoing interpretations and interactions of multiple organizational participants in practice over time" (Kaplan & Orlikowski, 2013, p. 990), communication and discourse have a defining role. As an organization reaches out into the unknown, it needs to actively engage not only in retrospective, but also in prospective sensemaking to create a better comprehension of the unfolding situation

(Chia & Holt, 2009). Only when an organization manages to make sense of the emerging situations it encounters, can it support effective strategizing.
Second, there has been a turn toward materiality and tool use in strategizing to cope with the challenge of uncertain and ambiguous contexts (Carlile et al., 2013; Lê & Spee, 2015; Leonardi et al., 2012; Nicolini et al., 2012). Complex ideas and situations are increasingly defined, made sense of and stabilized through visual and material artefacts that trigger responses to novel ideas in and outside organizations (Boxenbaum et al., 2018). Recent work claims that creating artefacts and using tools is an effective means of intervention that helps members of an organization "debate specific strategic challenges in a more generative fashion" (Heracleous & Jacobs, 2008, p. 310).

These avenues draw on sensemaking or materiality; they enable strategizing to depart from its traditional understanding as analytical task involving formulation and planning, toward defining strategizing as a process of synthesis (Mintzberg, 1987, 1994). Synthesis, here, can be defined as "an abductive sensemaking process of manipulating, organizing, pruning and filtering data in an effort to produce information and knowledge" (Kolko, 2010, p. 17). At its core lies the recursive shaping of a collective understanding of the emerging context, as emphasized by Whittington et al. (2006), who identified it as an important practice in strategizing and organizing.
In this dissertation, strategizing is investigated as unfolding through multiple iterations as the involved actors actively engage with the future states they intend to realize. To better understand the underpinnings of this view, sensemaking, as well as the materiality perspective, will be discussed in detail in the next chapters.

2.2 Sensemaking

2.2.1 The sensemaking perspective

Sensemaking is a fundamental activity of organizing. As an indispensable complement to decision making – which builds on clear questions and clear answers – sensemaking thrives in uncertainty and ambiguity. It leverages vague questions, broad answers and negotiated agreements to reduce confusion and create meaning (Weick, 1993). However, sensemaking goes beyond mere interpretation – which revolves around explaining what the world is – and emphasizes the enactment of that world. Thus, it clearly acknowledges that people are actively constructing and authoring situations and events that they attempt to understand (Glynn & Watkiss, 2020; Maitlis & Christianson, 2014; Weick et al., 2005). In other words, engagement with the situation is essential to generate meaning amidst uncertainty and ambiguity.

Sensemaking's origins can be traced back to the beginning of the 20th century (Dewey, 1922), with sensemaking emerging as a distinct topic in the late 1960s (Garfinkel, 1967; Weick, 1979). With Weick's (1995a) seminal work on sensemaking in organizations, previously scattered efforts in the field were summarized, put in relation and localized. Most importantly, however, this work moved the study of sensemaking "beyond the individual experience and into the realm of organizations and organizing", which inspired an ongoing wave of research (Helms Mills et al., 2010, p. 183). Its broad applicability, however, has also resulted in sensemaking often being invoked as an "umbrella construct" without clear definition (Cornelissen & Schildt, 2015; Hirsch & Levin, 1999). While some researchers reference sensemaking as a theory, others refer to it as a lens, while still others see it as a framework (Maitlis & Christianson, 2014). In a recent effort, Glynn & Watkiss (2020) went as far as positing sensemaking as fully intertwined with the process of organizing by recommending a shift from sensemaking *in* organizing to sensemaking *as* organizing.

With the aim of imposing order on chaos, Maitlis & Christianson (2014) set out to distil a definition and identified four recurring sensemaking themes. First, sensemaking is seen as a dynamic process concerned with transience, rather than constancy. This is in line with Weick (1995a), who described sensemaking as a perspective inherently occupied with process and activities, rather than achieved outcomes. In fact, he even mentions that "gerunds keep sensemaking moving" (Weick, 2020, p. 1428). Second, sensemaking is in a reciprocal relationship with the environment and sensitive to external cues that arise and can trigger a discrepancy in expectations (Maitlis, 2005; Weick, 1995a). Third, sensemaking is a fundamentally social process in which "organization members interpret their environment in and through interactions with each other, constructing accounts that allow them to comprehend the world and act collectively" (Maitlis, 2005, p. 21). Thus, sensemaking is no longer seen as primarily taking place on the individual level in the form of accessing or retrieving cognition, but as "social construction or joint accomplishment" (Cornelissen & Schildt, 2015, p. 348). Fourth, sensemaking is recursive, involving multiple cycles of action and meaning as people construct provisional understandings that they continuously enact and alter (Maitlis & Christianson, 2014). Put differently, there is no 'time out' for sensemaking; it is an ongoing process that creates "intersubjective sense of shared meaning" through repeated verbal and non-verbal interactions (Gephart et al., 2010, p. 284).

Drawing from the four themes of Maitlis & Christianson (2014, p. 67) and the work of Gephart et al. (2010), I will use the following definition of sensemaking in this dissertation to provide a clear foundation for its understanding:

> *Sensemaking refers to the ongoing social process that generates, negotiates, and sustains an intersubjective sense of shared meaning. This process is prompted by uncertainty and ambiguity in the environment. Through cycles of action and interpretation, a more ordered environment is enacted from which further cues can be drawn.*

This definition embraces the processual nature of sensemaking, while also emphasizing the recursivity of action and interpretation leading to changes in the environment. Conceptualizing sensemaking as an ongoing process also leads to a broader understanding of the types of cues that can lead to sensemaking. Hence, sensemaking no longer relies on external and event-like cues, but can be initiated by organizations themselves as they leverage constellations of uncertainty and ambiguity. This is in line with the most recent work of Sandberg and Tsoukas (2020), who reconsidered existing sensemaking research and explicitly commented that organizations no longer exclusively engage in sensemaking as their routines are altered by external events, but also purposefully engage with "deliberately created" ones (Sandberg & Tsoukas, 2020, p. 11). This understanding of proactive initiation departs from the traditional view that events happen to organizations first, with retrospective sensemaking only afterwards ensuing. Namely, it problematizes the inherent assumption that "events simply wait to happen to actors" (Hernes & Schultz, 2020, p. 6). This definition allows me to also apply sensemaking in situations where the environment is just about to emerge as a result of the organization's activities, thus overcoming reliance on past events and cues.

2.2.2 Sensemaking in uncertain and ambiguous contexts

With a progressive definition of sensemaking, it is now possible to further discuss the role of temporality and enactment, two often-overlooked core constituents of sensemaking (Sandberg & Tsoukas, 2015).

Temporality – temporal translation of distant events

Since immanent forward experience in the present and future is fleeting and less visible, it is tempting to emphasize the easier-to-observe activities of retrospective understanding as the primary site of sensemaking (Weick, 2020). Accordingly, most sensemaking research has been concerned with exploring the question of what *has*

happened after disruptive events and corresponding actions took place. It applies a retrospective lens to better understand sensemaking episodes that force actors to question their existing assumptions and think about how they should act as individuals and as organizations (Maitlis & Christianson, 2014; Weick, 1995a; Weick et al., 2005). Weick (1995a, p. 29) states that this retrospective view even holds true when making sense of the future. In that case, actors just pretend that future events have already happened and therefore make sense of them retrospectively in an exercise of "future perfect thinking". However, there has also been considerable criticism of this reliance on retrospectivity.

In their initial review of Weick's (1995a) *Sensemaking in Organizations*, Gioia and Mehra (1996) make a case for circumstances where individuals and groups cope with ambiguous situations requiring them to develop new understandings and engage in looking forward. Rather than sensemaking being triggered by past events, uncertain and ambiguous situations themselves create a need to make sense of what might be. Through imagining or creating a desirable, but ill-defined state, opportunities that have not yet happened can be made concrete and made sense of. More recently, Stigliani and Ravasi (2012) emphasize the importance of prospective cognitive work when expectations or aspirations about future states are ambiguous or unclear. In contrast to past events, such settings involve a temporal structure oriented toward what lies ahead, not in the past (Hernes & Schultz, 2020). Future-oriented or prospective sensemaking thus "seeks to construct intersubjective meanings, images, and schemes in conversation where these meanings and interpretations create or project images of future objects and phenomena" (Gephart et al., 2010, p. 285). This is closely in line with the definition of sensemaking as no longer limited to external triggers, but proactively initiated.

Recent calls have emphasized the need for the integration of temporal aspects in the concept of sensemaking (Cornelissen & Schildt, 2015; Maitlis & Christianson, 2014; Sandberg & Tsoukas, 2015, 2020). While still underexplored, several studies have provided empirical accounts of prospective sensemaking. This includes studies on the transition from individual to group-level prospective sensemaking through interrelated cycles (Stigliani & Ravasi, 2012), organizational change and its relationship to time (Wiebe, 2010), or how sensemaking in a change process tends to stick to initial anticipations (Konlechner et al., 2019). These studies show how traditional limitation on sensemaking's retrospective aspects neglected the promising research avenue of investigating its temporal embeddedness (Maitlis & Christianson, 2014).

In the context of strategizing, however, sensemaking is neither retrospective nor prospective, but occurs all at once in the immediate present, the retrospect and the future (Emirbayer & Mische, 1998; Schatzki, 2010). While the present, past and future can be treated as temporally different phenomena, they are closely intertwined and ceaselessly flow from one to another (Hernes & Schultz, 2020). As strategic initiatives aim to generate novel ways to create value, the situation often occurs where they themselves and their environment are simultaneously becoming. In such contexts, sensemaking is not triggered by events in the past, but enabled by ongoing production of anticipations about a social reality that must be continually enacted (Sandberg & Tsoukas, 2015). Sensemaking in such settings is immanent; managers and employees still press ahead with actions and make instant adjustments when needed. It is retrospective as actors deliberately introduce different probes to elicit meaningful responses and it is prospective in the sense that they anticipate how the situation will potentially unfold (Sandberg & Tsoukas, 2020).

To make sense of its ideas, services, products and strategy, a strategic initiative needs to "project" future states. Projectivity can be defined as the "imaginative generation by actors of possible future trajectories of action where received structures are reconfigured in relation to the future" (Gephart et al., 2010, p. 280). Such projection does not happen in a vacuum; instead, projection continually enacts an organization's future from past experiences using materials available in the present and combining them in new ways. The past is evoked and used to project the organization's future identity (Schultz & Hernes, 2013). Thus, sensemaking in strategic contexts is driven by anticipation, not limited to distinctive retrospective or prospective episodes. Instead, it engages in an ongoing dance across the temporal axis. In continuous cycles of action and interpretation, a strategic initiative's actors draw from the past, present and future to collectively make sense of their organization and project where it is going. To do so, actors engage in what Hernes & Schultz (2020, p. 17) call "temporal translation" to overcome the duality between present, past and future. With the concept of temporal translation, sensemaking can be investigated in a way where actors make collective sense by projecting themselves onto various temporal horizons in the past or future. By doing so, they succeed in rendering the distant as immanent in the present.

However, once we situate sensemaking practices along the full temporal axis, we uncover further shortcomings of existing research. Few studies have investigated the temporal dimension of sensemaking in strategic contexts (Jalonen et al., 2018; Kaplan & Orlikowski, 2013; Klarin & Sharmelly, 2021; Klingebiel & De Meyer, 2013; Rouleau, 2005; Stigliani & Elsbach, 2018). These studies primarily focus on the

discursive level tied to fixed events and disregard activities that proactively enact distant events in the present. In other words, studies within practice, routines, or materiality have yet to offer fully developed temporal views that show how actors address events beyond the scope of their temporal structures (Hernes & Schultz, 2020).

Enactment – material enaction of the environment

Kierkegaard (1960, p. 111) rightfully said that life can only be understood backwards, but must be lived forwards. While sensemaking traditionally emphasizes the first part of this quote, the previous subsection hints at the importance of sensemaking for also projecting what could be. Since the early days of sensemaking, Weick (1979, 1988) has included the concept of enactment in his writings, providing a way to better understand how people project and enact their ideas. In his words "enactment is to organizing as variation is to natural selection. The term enactment is preferred over variation because it captures the more active role that we presume organizational members play in creating the environments which then impose on them" (Weick, 1979, p. 132). This active role entails not only the interpretation, but also the actions that together enact an organization's environment (Glynn & Watkiss, 2020). Enactment, therefore, thrives on action and interpretation as it recurrently creates an organization's context and repeatedly interprets its success.

The relevance of enactment is aptly summarized in Weick's (1979) sensemaking recipe which states "'how can I know what I think till I see what I say?" (Wallas, 1926, p. 106). Inherent in this formula is sensemaking's awareness of the ways people are engaged in generating what they interpret (Weick, 1995a, p. 14). Only when the action of talk has occurred can other processes relate back to it. These recursive processes can also be understood as reciprocal exchanges between actors (Enactment) and their contexts (environment) that are made meaningful (selection) and preserved (retention). The processes form a sequence from environment to enactment, selection and finally retention, whereas the results of retention feed back to the prior processes again (Weick et al., 2005).

In figure 2, the "model of enactment theory" shows the causal linkages within each process (Jennings & Greenwood, 2003; Weick, 1979; Weick et al., 2005). The relationship between the environment and organization is characterized by equivocality; enactment builds on activities like noticing and bracketing to change the perceived flux of the environment into a more structured understanding. In other words, enactment defines how the environment is seen. This understanding is further processed through

selection activities that reduce the number of possible meanings and create an increasingly clear narrative. Once a topic reaches a certain level of plausibility, it is further solidified in the organizing process of retention. From this point on, it becomes part of the organizational repository and can be used as guidance for further action and interpretation (Weick et al., 2005). These preconceptions can then affect the next episode of talk and any future episodes of sensemaking (Cornelissen et al., 2014). They also can lead to self-fulfilling prophecies as the arbitrary assumptions by the organization are retained in enactment, leading to actions that shape the environment towards those assumptions again (Cornelissen & Schildt, 2015).

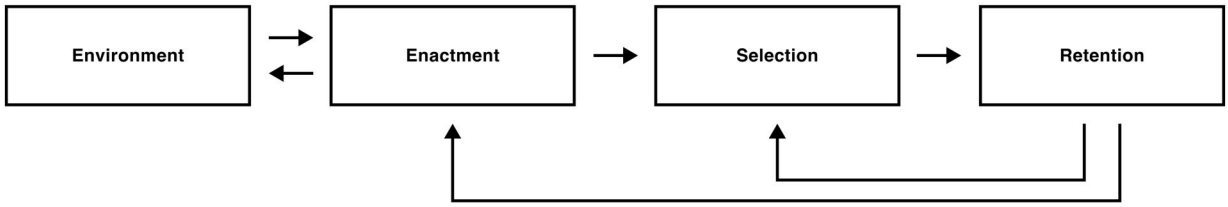


Figure 2 – The model of enactment theory (adapted from Weick et al. 2005)

While the model of enactment theory provides a convincing overview of how sensemaking unfolds under ideal conditions, the model's sequential nature and its application in empirical contexts has led to further confusion on the notion of enactment. Some studies treat enactment as a confined to a specific enactment step, while others see enactment at play throughout sensemaking (Sandberg & Tsoukas, 2015). Thompson (2007, p. 158) even went as far as proclaiming "sensemaking = enaction." Indeed, enactment has a crucial role in connecting the abstract with the concrete by making equivocal knowledge accessible and rendering it relevant to the specific situation. Doing so enacts order into chaos and manages to bring sense back into the world (Weick et al., 2005). In that sense, enactment simultaneously selects and retains a plausible understanding of the environment through its interpretation and respective action. In the end, whether enactment is confined to a designated step or situated throughout sensemaking depends on the phenomena that are investigated.

As this dissertation is interested in sensemaking in strategic contexts, the environment can generally be described as uncertain and ambiguous, to say the least. In fact, the environment is often just emerging, making it even more challenging to interpret. Therefore, an understanding that situates enactment throughout sensemaking practice emphasizes how deliberate actions construct accounts through which organizational

members can articulate and enact their emerging understandings (Glynn & Watkiss, 2020; Maitlis & Christianson, 2014). When people act in organizations, they bring new structures into existence; thus, the result of such enactment is not an accident or a by-product. Instead, it is a material and social construction that is subject to interpretations (Weick, 1988). Enactment, thereby, suggests construction as an ongoing effort to create a world where object perception, rather than interpersonal perception, is more appropriate (Swann, 1984; Weick, 1995a).

However, Weick et al. (2005) conceptualize enactment as primarily the action of talk, whereas situations and relations are talked into existence. Action in sensemaking is thus primarily seen as discursive episode, which enacts an environment by itself. This narrow understanding provides a promising opportunity to extend the sensemaking perspective through the application of a practice lens, which not only examines discursive but also material practices. Thus, it sheds light on how enactment constitutes and relates to materiality. While not applied in this sense yet, enactment has the potential to provide a promising contact point for an enhanced connection of sensemaking with materiality.

2.3 Materiality

2.3.1 The material perspective

Materiality is integral to organizing (Orlikowski, 2007). The study of materiality in organization and strategy research has taken inspiration from related fields like architecture, anthropology and sociology that focus on studying materiality as a way to understand culture and how objects are created to encode meaning and social relations (Hicks & Beaudry, 2010). Material objects have, therefore, been included in theoretical accounts of organizational phenomena since the early 1950s, when scholars like Rice (1953), Woodward (1958) and Emry (1959) discussed the role of "socio-technical systems" and how organizations need to optimize both their social and technical aspects to stay effective (Leonardi & Barley, 2010). Despite these early roots, the study of materiality moved into the background as other approaches drawing from linguistic or cultural traditions entered the scene and dominated large parts of the contemporary research agenda. While materiality has not been explicitly excluded, it has been marginalized as it was taken for granted (Carlile et al., 2013). This neglect is especially apparent in Orlikowski and Scott's (2008, p. 433) analysis of a decade's worth of published articles in leading management journals, where only five percent are found to address the role and influence of technological and material aspects in organizational life.

An explicit research interest in materiality and its entanglement with practice is needed to generate theory which clearly acknowledges materiality as a defining element and not just a given circumstance. Thus, a closer investigation of materiality not as surface, but as a process that stabilizes over time to create the effects of concreteness and tangibility that we then call matter yields high potential for future insight (Butler, 1993, p. 9). In this section I will introduce the current state of the materiality discussion in strategy as practice and provide a way towards a definition.

The opportunity for a material turn

While the rise of the practice lens in strategy and organization studies encouraged the study of discursive practices even further, it also provided a central starting point for a renaissance of materiality (Reckwitz & Rosa, 2021). Building on the practice view and acknowledging the underdeveloped research stream of materiality, calls for an increasing engagement with materiality within strategy as practice have intensified (Lê & Spee, 2015; Leonardi et al., 2012; Orlikowski, 2007; Vaara & Whittington, 2012; Whittington, 2007). Strategy research is asked to "connect to phenomena beyond language" (Balogun et al., 2014, p. 195), attributed a "new sensitivity towards materiality" (Carlile et al., 2013, p. 3), and recommended a shift "toward a better understanding of the role played by materiality in strategy work" (Dameron et al., 2015, p. 1). Most recently, Boxenbaum et al. (2018, p. 599) even discussed the advent of a "material and visual turn" in strategy and organization studies.

However, the meaning of materiality is often left undefined and remains an elusive concept that provides much room for different approaches. While this makes materiality "an exciting, but 'messy' area of research" (Dameron et al., 2015, p. 6), it also hinders a comprehensive discussion. To initiate the debate, materiality should be seen not as a label to focus the study on objects in organizations, but instead as a "new perspective that allows us to collapse categories, challenge conceptions and shake up fields" (Lê & Spee, 2015, p. 591). To have an orderly discussion, it is thus essential to establish a common understanding of what we mean when we talk about materiality.

Defining materiality

Lê and Spee (2015) describe two underlying aspects of materiality. The first aspect refers to the existence of something separate from the mind with its own properties and situated in space. It focuses on *substance*. Materiality in that sense can be defined as "the arrangement of an artefact's not only physical, but also digital materials into particular forms that endure across differences in place and time and are important to

users" (Leonardi, 2015, p. 29). The second aspect, however, introduces a far more complex view by emphasizing materiality's ability to refer to the quality of being relevant or significant. Materiality then is inseparable from the mind; it is the object of our attention. The focus is on *significance*. In this case, materiality may or may not have distinct physical properties, but primarily gains meaning based on collective attributions. How the relationship between the two aspects of *substance* and *significance* is understood – or if they even are treated as a duality – has a crucial effect on the definition of materiality.

In the context of strategy research, Dameron et al. (2015) introduce three broad views on materiality to further explore the implications of an artefact's substance and significance. The views of *object focus*, *object & subject* and *entanglement* differ from each other in the way they focus on either substance or significance and how they construct the relationship between them.

First, the *object focus* view can be described as 'weak view' and revolves around the objects themselves and how their properties impact behavior. It focuses on substance and largely neglects significance; objects are treated as relatively neutral and enduring. In this view, materiality is seen as a combination of material and form. It refers to the ways physical or digital materials are "arranged into particular forms that endure across differences in place and time" (Leonardi, 2012, p. 28). Material objects, thus, are treated as stabilized entities and often researched adopting a positivist approach that seeks cause-effect relationships or correlations.

The second view of *object and subject* – also called the 'moderate view' – considers human and non-human agency as interwoven, but not constitutively entangled. This means that while there is a mutually dependent relationship between objects and the social, they remain distinct and separable building blocks (Leonardi, 2011). Substance and significance are seen as self-contained entities whose relations among each other affect only their "nonessential properties" and do not change what they are at their core (Cecez-Kecmanovic et al., 2014, p. 813). Thanks to the stability of this pragmatic approach, this view is most commonly represented in strategy studies (Dameron et al., 2015).

Third, *entanglement* can rightfully be called the 'strong view', as it draws on a strictly relational view and treats the social and the material as equal and therefore constitutively entangled (Orlikowski & Scott, 2008). Substance and significance are essentially one as they are no longer separable. Within their entangled relationship, the social influences the material and vice versa, resulting in every organizational process being bounded

with materiality. This view states that "all practices are always and everywhere sociomaterial, and that this sociomateriality is constitutive, shaping the contours and possibilities of everyday organizing" (Orlikowski, 2007, p. 1444). In the strong view, materiality is not a "separate or static entity", but constantly becoming; it is "not a thing but a doing" (Barad, 2007, p. 151).

As this overview shows, the three views on materiality and their handling of the relation between substance and significance have direct implications for the methodological approach of research concerned with the material side of organizing and strategizing. While research in all three streams deals with materiality, it is vital to acknowledge different underlying assumptions on the relationship between substance and significance. The chosen perspective on materiality defines what is substantial and substantive in organizations and directs the attention to new areas (Lê & Spee, 2015). While the *object focus* view is helpful when attempting to look at artefacts in isolation, the *object and subject* and the *entanglement* view focus on the defining relationality between social meaning and object. This emphasis on the relationship between the social and the material positions them in the realm of the sociomateriality perspective. Sociomateriality moves beyond understanding materiality just as substance and endows it with significance. In doing so, a SWOT analysis is no longer just an arrangement of fields on a flipchart, it is enacted through a collective strategy episode. A PowerPoint deck provides more than just a means to present an idea – it is a process to generate and concretize it. An architectural model functions not only as visual gimmick, but as a discussion platform that engages a community in a debate. How such artefacts become, resonate and evolve has, therefore, a direct influence on the involved actors (Dyson, 2004; Kaplan, 2011).

2.3.2 Sociomateriality

The term sociomateriality stems from the fusion of social and material and postulates that materiality is a constitutive part of each and every phenomenon considered social (Leonardi, 2015). According to Barad (2003, p. 810) to "figure matter as merely an end product rather than an active factor in further materializations, is to cheat matter out of the fullness of its capacity." Sociomateriality, therefore, is not only concerned with humans in the social realm, but emphasizes how material objects "authorize, allow, afford, encourage, permit, suggest, influence, block, render possible, forbid and so on" (Latour, 2005, p. 72). It serves as a reminder that all social practices are material and challenges the very understanding of what materiality means. In this section, I will

further elaborate on the concept of sociomateriality, review existing studies in the field and define the sociomaterial approach of this thesis.

Relationality – from imbrication to entanglement

The importance of relationality is evident in the work of Orlikowski (2007, 2010) and Orlikowski & Scott (2008, 2015), who championed the sociomateriality perspective by drawing heavily on the writings of Barad (2003, 2007), Mol (2002) and Suchman (2007). They advance an ontological view that moves away from treating actors and objects as discrete entities that influence each other toward an understanding of the material and social as constitutively entangled and no longer separable. This shows mainly in the way objects are treated not just as material artefacts, but as non-human actors with their own agency. While this view provides an exciting reconceptualization of what materiality means for organizing and strategizing, it also introduces challenges when applied to an empirical research context. This has led to a controversial but productive debate around the epistemological and ontological implications of sociomateriality, resulting in a range of positions highlighting different aspects that are all gathered under the "umbrella term of sociomateriality" (Cecez-Kecmanovic et al., 2014; Leonardi, 2013; Orlikowski & Scott, 2008, p. 437). I will provide an overview and discuss these positions below.

The moderate view of *object & subject* sees the involved human and non-human actors as mutually dependent and affecting each other (Jones, 2014; Leonardi, 2011). However, it limits the scope of such effects mainly to the their nonessential properties, as the entities "act on" each other from the outside (Slife, 2004, p. 158). Therefore, a material object can still stand separate as its own entity and predate use by human actors (Leonardi et al., 2019). The theoretical foundation of the moderate view can be described as critical realist, which considers the material and social as separable entities that become increasingly entangled through ongoing interactions (Leonardi, 2013; Mutch, 2013). Therefore, despite ontological separation, the moderate view still recognizes that materiality acts as a constitutive element of the social world and vice versa, it just allows for the possibility that certain material properties exist before human interaction (Leonardi, 2012, p. 34).

Leonardi (2011) introduces the metaphor of imbrication to better explain the relation between the social and material. The verb "to imber" derives from the terms used for two sets of slightly different, but interlocking roof tiles in ancient Rome. In that sense, just like the so-called tegula and imbrex, the social and material have distinct contours, but come to form an integrated and functional organization structure only through their

imbrication. Therefore, social and material agencies still differ phenomenologically with respect to their intention, but only become impactful once interlocked (Leonardi, 2015). However, the social and material are not treated as equal in their mutual reciprocation, as "people have agency and technologies have agency, but ultimately, people decide how they will respond to a technology" (Leonardi, 2011, p. 151). Therefore, following the moderate view carries the risk of "reserving for humans the privilege of being the prime authors of meaning and their own subjectivity" which can result in overlooking the processes of how actors draw the resources for their actions in the first place (Hultin & Mähring, 2017, p. 570).

The strong view of *entanglement* sees materiality as integral to organizing, positing that the social and the material are constitutively entangled in everyday life (Orlikowski, 2007; Orlikowski & Scott, 2008). It does not prioritize one over the other or link them in simple two-way interactions. As the social and material are inextricably related, there is no longer a "social that is not also material, and no material that is not also social" (Orlikowski, 2007, p. 1437). According to Barad (2003, p. 822), "neither discursive practices nor material phenomena are ontologically or epistemologically prior. Neither can be explained in terms of the other. Neither has privileged status in determining the other." Thus, sociomateriality adapts a relational ontology that applies a post-humanist understanding, essentially treating human and non-human actors and their agency as equal (Barad, 2003, 2007; Hultin & Mähring, 2017).
Such a strong view on how the material and the social are enacting each other in constitutive entanglement allows for a more dynamic understanding of materiality as constantly becoming. As argued by Cecez-Kecmanovic et al. (2014, p. 820), this view is rapidly gaining in importance as we are moving towards "a life-world in which it may actually be difficult to separate the social and material, even in our everyday talk." We can, however, resort to treat material artefacts as fixed for a period of time – for our analytical and practical convenience – before they continue to evolve again (Wanda J. Orlikowski, 2000). Consequently, a strong view does not negate the existence of objects and artefacts, but rather defines such materiality as a process of materialization and becoming which stabilizes over time. The defining difference lies in the analytical focus, which is not on matter and substance alone, but the constitutive practices that create it in the first place (Orlikowski & Scott, 2015).

Given the different assumptions of the moderate and strong views, it is crucial to be specific about the chosen variant; without doing so, we are unlikely to be able to define

the contributions in more than quite general terms (Jones, 2014). The guiding principle for selecting the approach should be derived from the empirical setting and research interest. While investigating the introduction of a new technology to an organization might work well with a moderate approach, exploring how practices perform organizational realities or how emerging strategic initiatives are collaboratively constituted might resonate better with a strong view on sociomateriality. To get a better understanding of the current applications of sociomateriality, the next subsection will take a brief look at existing studies in the realm of strategy as practice research.

Sociomateriality in strategy as practice literature

While still underrepresented, SAP studies with an explicit interest in materiality have usually followed the moderate view of sociomateriality (Werle & Seidl, 2015). They rely on the notion that practices are inherently sociomaterial as "nexuses of practices and material arrangements" (Schatzki, 2005, p. 471) and do not further elaborate their ontological assumptions and implications (Introna, 2013). An early example of this work is Dyson's (2004) study on strategic planning at the University of Warwick, which suggests that material tools like SWOT-Analysis influence which strategic initiatives are selected. The agency of such tools indicates that they exert an action and can influence humans by organizing thinking, structuring information and providing possible modes of action. Whittington et al. (2006) study the production of a cardboard cube that represents an organization's new strategic direction. They observe how it is used to communicate the planned strategic change to the broader organization. Heracleous and Jacobs (2008) pickup on this interest in material artefacts, but zoom out of the artefact itself to examine how it also shapes the very process of strategizing. In their case, using tools in the form of Lego bricks allows practitioners to engage in a novel form of strategizing which, in turn, affects the overall process. Kaplan (2011) shows how the production of PowerPoint slides alters not only the content of the slides, but also shapes the outcomes of investment decisions. Lastly, through the exploration of a new strategy topic, Werle & Seidl (2015) show how the constellation of material artefacts can lead to a shift of the strategic topic itself. They provide a conceptual model that describes their dynamic interplay and its effect on the process of exploration.

These studies have made important contributions to our understanding of how materiality is involved in strategizing. They show how organizational members interact with materiality and how material artefacts are referenced and used in strategy work. While these research accounts see the material and social as interacting with each other, they advocate for an understanding of human agency as distinct and privileged in assessing and selecting the outcome of the sociomaterial interaction. This understanding

is evident in the often-used language of ‘tools’ in various research accounts, which assumes non-human actors are something used in accordance with, and defined by, human actors’ intentions. This understanding falls short in showing how materiality possesses agency that directly affects the process, its outcomes, and even the involved human actors. Czarniawska (2014) assumed that this imbalance stems from social scientists being misled by the fact that humans can talk; in contrast to ‘quiet’ non-human actors, they can easily be spokespersons, even for networks composed of mostly non-human elements.

The strong view of sociomateriality, however, is more than merely a “fascination with the ‘things’ that shape or are deployed within human action”; it is a “serious attempt to understand how human bodies, spatial arrangements, physical objects, and technologies are entangled with language, interaction and practice” (Jarzabkowski & Pinch, 2013, p. 581). Even without having a voice of their own, material artefacts can influence behavior through what is inscribed in them (Mitev et al., 2018).

Few studies have further moved their unit of analysis away from positing materiality within artefacts, objects or tools toward an explicit focus on the process of materialization and how strategizing is materially enacted in practice (Orikowski & Scott, 2014). These scattered examples include the study of Jarzabkowski, Spee & Smets (2013), who focus on observing underwriting managers and their excessive use of different materialities. They derive a typology of strategy practices to show how material artefacts are entangled in strategizing. Another example are Scott & Orlikowski (2012), whose study examines the effect of materiality in the form of online ratings on hotels’ daily operations. They especially highlight the dynamic process of algorithms filtering and compiling user-generated postings into ratings that are then again taken up by hotel management. Lastly, Pälli (2018) applies a language-based approach to the materiality of strategy when examining manager-to-manager conversations. Studying conversations, he deliberately examines how strategy is habitually spoken of as a material entity in the form of a non-human agent that makes a difference for the course of action.

These selected research efforts show how the strong view of sociomateriality – which builds on a constitutive entanglement of the material and the social – can be productively applied to empirical contexts and succeeds in providing novel perspectives and insights outside the traditional cartesian approach. Instead of examining materiality in terms of two separate entities acting on each other, the focus is on material enactment and how such materializations make a difference in practice (Orlikowski & Scott, 2014). By

doing so, sociomateriality can extend the existing practice approach by showing not only how practices are enacted, but also how they "serve to construct the phenomena they address" (Jones, 2014, p. 921).

In conclusion, differences between the moderate and strong view on sociomateriality occur primarily in two areas: first, whether the agency of human and non-human actors dominated by human-agency is treated as equal and second, whether the focus lies either in the use of such artefacts as tools within strategizing, or instead the practices that constitute the entanglement of humans and material artefacts. As both avenues of research provide promising opportunities for insight, the question is not whether research takes an exclusively moderate or strong view. Rather, it is about acknowledging the importance of an awareness of the different understandings of relationality between the material and the social. As the underlying assumptions of the moderate view might come more naturally, adapting a strong view during analysis increases the potential to unearth previously obscured aspects of an empirical context, especially when focusing on the dynamic nature of material artefacts, their becoming and their connected practices. The strong view of sociomateriality, therefore, is also the perspective that I take in this dissertation to define the understanding of materiality. In the next section, I will discuss how a pragmatic application of the strong view can be applied to artefacts in an empirical context.

2.3.3 Material artefacts as sociomaterial enactment

The social and the material both produce actors with agency that are entangled with each other through practice. To emphasize that artefacts – as well as human actors – have agency, they are commonly referred to as non-human actors. This counters sociology's obsession with the mind and the resulting obfuscation of the material (Reckwitz & Rosa, 2021). Non-human actors are not only something used and influenced by human actors, but equally have the capacity to constitute humans and make them who they are (Miller, 2010). Practices, in that sense, are no longer understood as tasks undertaken by people, but rather as processes that simultaneously constitute and organize phenomena in the first place (Scott & Orlikowski, 2013). As such, they are seen as performative, focusing attention on the ongoing, dynamic, relational enactment of the world (Orlikowski & Scott, 2014). Thus, when encountering phenomena that we would think of as matter or materiality in the form of objects and substances, it is crucial to examine them as sociomaterial practices. Artefacts are thus embedded within practices that evolve with their unfolding use (Jarzabkowski et al., 2013).

At the same time, when artefacts are constantly becoming, they become more and more difficult to analyze; they simply are too elusive to grasp. This carries the risk of neglecting non-human actors again while overpowering human actors due to their capability to actively foreground themselves in practices. Sociomateriality, therefore, must find a proficient way to deal with artefacts in a sufficiently stable manner while retaining their constitutive entanglement and becoming. Of interest are not their inherent and individual properties but how they obtain significance in relation and contrast to each other, which requires sufficient stability (Bjørn & Østerlund, 2015). Therefore, the next section provides a pragmatic way to explicitly deal with sociomaterial artefacts while keeping them grounded in practice.

Artefacts as agential cuts

According to the Oxford English Dictionary (2022), the word "artefact" stems from the Latin words *arte* (by art) and *factum* (something made). It combines art's imaginative dimension and significance with the tangibility and concreteness of a made object. In a way, the word's origin already hints at how artefacts are constituted by the social and the material. From a theoretical viewpoint, D'Adderio (2011) defines artefacts in three distinct ways that directly correspond to the three views of materiality introduced in section 2.3.1.

The first view follows the *object focus* and attributes inherent properties to stable artefacts. In this realist view, the agency of artefacts is best understood as simple cause-and-effect relationships. This view has been heavily criticized because it downplays the role of social factors in defining an artefact's properties.

The second view of *object & subject* addresses this shortcoming by emphasizing representations through different social groups and their mediating role between the material and social. Artefacts do not have objective properties, but are attributed various functions depending on the actors using or creating them. In other words, human actors benefit from artefacts' "interpretive flexibility" and adapt them to their liking (Bijker & Pinch, 1987, p. 29). In this view, absolute material constraints do not exist and everything that appears to be a constraint is a social construction.

The third view of *entanglement* sees neither the realist nor the constructivist approach as capable of explaining the intricate interactions between the material and the social. From this vantage point, "realists underestimate the power of humans (…) while constructivists underestimate the power of objects" (D'Adderio, 2011, p. 200). *Entanglement*, thus, sees an artefact's properties neither as inherent nor as socially constructed, but as relational and emergent.

The *entanglement* view of artefacts corresponds to this dissertation's sociomaterial perspective, where artefacts are "not a thing, but a doing", as they are accomplished in practice (Barad, 2007, p. 183). However, this does not mean that there are no objects that can be perceived. Rather, artefacts are a "process of materialization that stabilizes over time to produce the effect of boundary, fixity, and surface we call matter" (Butler, 1993, p. 9). As matter is not a fixed or static entity, it is reproduced through an ongoing process that is both stabilizing and destabilizing (Barad, 2007). This implies, in turn, that "every form of stabilization includes, irremediably, the presence of instabilities" (Suchman, 2007, p. 196).

Barad (2003, p. 815) introduces the concept of "agential cuts" that stabilize the ongoing sociomaterial practices by enacting a temporary separation between the social and the material. The exact line of a cut, however, does not follow pre-given entities. What is part of the cut and what is not is temporally enacted each time again as "cuts cut 'things' together and apart" (Barad, 2007, p. 179). According to Scott & Orlikowski (2012), such agential cuts are integral to the process of materiality when defining objects and subjects in a specific time and place. While the social and material remain ontologically inseparable, they allow for a distinction of humans and artefacts by the actors involved in the practices. This separation is achieved by explicitly recognizing that "these entities necessarily entail each other in practice" (Orlikowski & Scott, 2008, p. 456).

Hence, artefacts as sociomaterial entanglements are involved in inseparable and mutually constituting discursive and material constructions that become visible through agential cuts (Kautz & Plumb, 2016). These cuts enable a sociomaterial perspective to acknowledge artefacts as substantial things and treat them as temporarily stabilized enactments.

Artefacts as prototypes

While agential cuts are at play in many contexts, an insightful empirical application can be found in prototypes. According to Gengnagel et al. (2016, p. 5), the term 'prototype' is generally used to describe "a material or virtual object, or an experimental arrangement, [of] simple or more complex functionality in which an idea to be realized is manifested in different stages of development." Building prototypes serves to represent different stages of an evolving idea and is widely recognized as a defining practice in fields like design, engineering, or architecture (Houde & Hill, 1997). The latter, for example, employs particularly memorable visualizations in the form of detail-rich architectural models shared ahead of construction. However, as prototypes are used in a wide range of disciplines, there is no commonly shared definition or single defining

form of a prototype. A widespread conception of prototypes characterizes them as tangible objects that may take the form of sketches, visualizations, cardboard mockups, videos, storyboards, digital applications and functional machines. However, they can also include less tangible forms like stories, settings, arrangements and tools. Regardless of their form, fidelity ranges from crude and non-interactive to intricate simulations that cannot be distinguished from the real objects anymore (Erickson, 1995).

The critical point about prototypes concerns not their form but their purpose; they are built to answer questions (Houde & Hill, 1997; Wall et al., 1992). In stark contrast to the treatment of artefacts in culture studies – which investigate artefacts' meaning for the past – prototypes focus on what role they can play to create meaning for, and in, the future. Houde and Hill (1997) defined four underlying dimensions, each of which relates to a specific set of questions that prototypes aim to answer. *Implementation* (1) focuses on the technological feasibility of an idea, *look-and-feel* (2) is concerned with the prototype's sensory properties, while *role* (3) refers to the effect an object plays in a user's life. Lastly, *integration* (4) depicts the combination of the previous dimensions to represent the complete experience of an artefact. Gengnagel et al. (2016) reduce the sets of questions even further and only distinguish between prototypes as either generative or analytical. The latter applies a technological perspective where future implementations are validated for their functionality, while the former focuses on a more open approach to the prototype's social context. Last but not least, Menold et al. (2017) claim that prototypes answer questions about feasibility, desirability or viability. In other words, prototypes answer questions on technical functionality, provide insight on perceived value to users or prove they fit time or budget constraints.

Despite various prototype definitions that aim to introduce an underlying typology, a sociomaterial perspective does not aim to produce a definition based on what prototypes look like, or what they try to achieve, but instead on how they perform in practice. While not explicitly taking a sociomaterial approach, Lim et al. (2008, p. 7:4) describe prototypes as "filters that traverse a design space and are manifestations of design ideas that concretize and externalize conceptual ideas." In sociomaterial terms, prototypes are artefacts of investigation that are constituted through ongoing enactment that is filtered through specific agential cuts. The importance of a prototype no longer lies in its outcome but its becoming. Artefacts in the role of mediators are no longer monolithic objects but directly involved in the practices constituting them (D'Adderio, 2011).

Today, existing research on prototypes has two major limitations. On one hand, most research focuses on the resources and technical feasibility of prototypes (Menold et al., 2017). While this research provides further insight into the substance of prototypes, it fails to generate a better understanding of the significance they have for sensemaking that goes beyond their physical form. On the other hand, many studies investigated prototypes in enclosed settings of student teams (Lauff et al., 2018). While this provides valuable learnings on how to pick the best strategies to build prototypes, its value to better understand how they are embedded in organizations and their strategizing activities remains limited.

There is thus a definite need for further research applying a sociomaterial understanding to prototypes and the practices in which they are embedded. Prototypes provide an exciting field of analysis, as they are constantly becoming and – in contrast to how they are treated in current research – not limited to just their substance. Instead, they are fully entangled with the social aspects of organizations and initiatives. When embedded in practice, prototypes simultaneously recover and invent possible enactments and relate them in sensemaking (Suchman et al., 2002). Thus, material artefacts in the form of prototypes are a key research interest of this dissertation. The investigation of their interrelated becoming promises to enhance the sensemaking and strategy as practice perspectives in new and exciting ways.

2.3.4 Sociomateriality as resonance between human and non-human actors

The previous sections moved from a of broad discussion of materiality towards an increasingly strong view of sociomateriality that I will adopt in this dissertation. Sociomateriality is a fascinating theoretical perspective; on one hand, it treats everything as being in flux because it is constantly constituted in practice; on the other hand, it foregrounds temporary – but tangible – resolutions in the form of material artefacts again. This paradox where everything is moving and enacted at the same time can be better understood through the concept of resonance. Rosa (2016) describes resonance as a romantic or relational concept that does not reinforce traditional opposites, but works towards overcoming them. Resonance does not happen in between; it is within the material and the social, managing to overcome many of the strict dualities surrounding the social and material inherent in a rational understanding of the world. Instead, resonance gets all involved practices and bodies moving and resonating *with* instead of *at* each other. In a more metaphorical way, instead of sound being instantly reflected off a solid wall in the form of unchanged echo, sociomaterial actors absorb it, are moved by it and release it again in an enriched version, while sustaining their initial movement.

Relations are no longer defined by direct lines from one entity to another, but by what Rosa (2016) describes as spheres of resonance.
Hence, the focus of a sociomateriality perspective moves from observing the matter of artefacts towards a sensibility to resonance generated through mutual constitution of the material and social. There are no longer fixed entities acting on each other without changing, but rather interconnected spheres of practices and enacted artefacts resonating together in non-directional ways. Thus, when framing mutual constitution as resonance, human and non-human actors speak with their own voices to touch and transform each other in sustained resonance (Reckwitz & Rosa, 2021; Rosa, 2016).

In conclusion, a theoretical framework based on the entanglement view of sociomateriality (Orlikowski & Scott, 2008, 2014) provides three characteristics crucially enriching this thesis' theoretical framework. First, the material and the social are constitutively entangled in a resonating relationship, possibly changing and evolving over time (Barad, 2003; Orlikowski & Scott, 2008; Rosa, 2016). Second, relationality prioritizes neither the social nor the material, but is grounded in a post-humanist understanding, placing things and people on equal footing. This does not necessarily mean that they are seen as similar, but that neither is privileged in the analysis (Jones, 2013, p. 3; Orlikowski, 2007, p. 1437; Suchman, 2007). Third, materiality is enacted through the performance of sociomaterial practices and agential cuts to achieve temporary resolutions (Barad, 2003; Leonardi, 2015, p. 35; Orlikowski, 2007).

2.4 A sociomaterial view of strategic sensemaking

2.4.1 Connecting sensemaking and sociomateriality

The previous chapters on sensemaking and materiality provided an analysis of key themes, theoretical underpinnings and current debates in the context of strategy as practice. On one hand, sensemaking is introduced as a defining organizational practice. Its formerly disregarded potential as temporally situated practice is discussed, as well as the importance of the central, but similarly overlooked process of enactment. Materiality, on the other hand, is introduced as providing the required resources and practices for strategizing activities. Three different views of materiality are addressed with a specific focus on sociomateriality and its treatment of artefacts as prototypes.

While the research streams of sensemaking and materiality provide valuable contributions to how strategizing takes place in organizations, the full potential of an integrated view has not yet been explored. Most studies focus on specific material

practices and artefacts in isolation without further elaborating on the interplay between conversational and material practices in organizational sensemaking (Stigliani & Ravasi, 2012). For example, sensemaking has been primarily treated as an issue of language, talk and communication, where situations, organizations and environments are "talked into existence" (Weick et al., 2005, p. 409). Accordingly, most studies keep an inherent separation of object and subject – of matter and social – and thus imply an understanding of human agency as being in a privileged position to assess and define (Holt & Cornelissen, 2014). This research primarily describes how human actors interpret and talk about non-human actors, or decide how to use them as tools. Thus, sensemaking is treated as a social practice in which humans constitute the primary sensemaking agent; the material world becomes merely a set of objects serving as symbols, tools, or projection screens for socially constructed meanings (Hultin & Mähring, 2017). However, if sense and interpretation are seen as separate from action and creation, "the holistic and relational character of sensemaking is likely to be missed, or downgraded" (Sandberg & Tsoukas, 2015, p. 22).

In a first move, I thus aim to connect sensemaking to the materiality perspective again. My connection leverages the concept of enactment, which plays an essential role in both fields. Sensemaking and materiality both interpret enactment in their own specific ways, but still allow for a middle ground that can serve to connect both streams. In materiality, and specifically, the sociomaterial view, matter is enacted through agential cuts and the entangled engagement of human and non-human actors in practice. This harmonizes well with the understanding in the sensemaking perspective, where enactment describes the recursive process through which human actors create and interpret organizational environments. In combination, a sociomaterial view of sensemaking thus manages to overcome the prevailing separation of the social and material, as well as the inequality between action and interpretation. Instead, they are treated as inextricably intertwined through enactment.

An increasing number of studies exhibit a growing interest in examining the role of materiality in sensemaking. Material artefacts and the practices that constitute them are seen as important resources facilitating collective sensemaking (Stigliani & Ravasi, 2012). While these studies mostly rely on a moderate view of sociomateriality, the previously narrow focus on primarily discursive settings is overcome by a more materially mediated understanding (Cornelissen, 2005; Cornelissen & Clarke, 2010).

Recent studies on sensemaking in the light of sociomateriality include the work of Whiteman & Cooper (2011), who foreground the material embeddedness of sensemaking in ecological conditions and the effect they have on the involved actors. Similarly, Oborn et al. (2013) demonstrate how information technologies and other types of material artefacts work as powerful sensemaking devices, supporting the construction of meaning and constituting leadership in a policy process. Danneel's (2003) work on the apparel industry explores the implications of material enactment at the field level. By examining the firm's close interaction with customers and resulting reactions, the study provides a concise example how organizations enact environments that then constrain them. Stigliani & Ravasi (2012) focus on a design firm and investigate the role of material practices in the transition from individual to collective sensemaking by supporting the construction of shared understandings. Berthod & Müller-Seitz (2018, p. 54) apply a sociomaterial view to study the entanglement of Air France flight 447 pilots with their autopilot. Materiality, in this case, is not only a contingency to interpret, but a resource with a structuring force, which eventually could not prevent the airplane's deadly crash. Last, Hultin & Mähring's (2017) study provides one of the most radical applications of a strong sociomaterial perspective to sensemaking, helping them to better understand the mutual constitution of a health care unit and a digital planning tool that organizes their daily activities.

All these studies strengthen our understanding of how enactment in sensemaking is not just a discursive activity but one with impactful material implications. They pave the way towards an understanding where enactment is equally discursive and material as both are entangled with each other. Thus, enriching sensemaking research with a strong sociomaterial perspective provides even more potential for novel insights. No longer treating interpretation and action – or the social and material – as opposite ends, but as inextricably entwined, fosters a novel way to investigate enactment; it is no longer limited to how human actors talk about an organization's environment, but how they discursively *and* materially enact it. A sociomaterial perspective decenters human actors as the only ones in control and renders them as shaped by non-human actors as well.
My dissertation contributes to an emerging stream of research that aims to move sensemaking theory beyond a dominantly discursive and human-centric view toward a mutually constituted practice, where "every actor is not just making sense, but is also already being made sense of" (Hultin & Mähring, 2017, p. 568). A crucial implication of this view is the explicit incorporation of sociomaterial practices and artefacts in the analysis. In other words, the main activities of interpretation and action are no longer

seen as separated and analyzed in sequence, but acknowledged as entangled enactment which is recursively reified in practice. My dissertation will develop a sociomaterial view on sensemaking, treating enactment as both social and material and taking explicit interest in the temporary resolutions that represent it in tangible form.

2.4.2 Enhancing strategizing with sensemaking and sociomateriality

After connecting sensemaking with sociomateriality, my second move places sociomateriality and sensemaking in the context of strategizing. The problem with strategy in the traditional sense is not that it is formal or deliberate, but that it can be too analytical and detached. According to Whittington et al. (2006, pp. 624–625), it should be recognized again as a "creative process in which strategy and organization are closely tied, and where mastery of the practical can make a difference." Mintzberg's (1987) analogy of the strategist as a potter can be used once more to explain why enacting strategy through sociomaterial sensemaking practices is essential in ensuring an organization's future value creation. In the metaphor, strategizing is described as a constant process of testing, adapting and shaping to make strategy formulation fit its implementation and vice versa. Continuous crafting, thereby, enables strategy makers to fine-tune their expectations and objectives and ultimately figure out how to craft strategy that materializes in everyday practice (Leonardi, 2015). The pottery metaphor directs the attention away from the cognitive and analytical capacity of strategy to the intrinsically enactive nature of strategizing: the bare hands that carefully shape clay as it is turning in circles. However persuasive the pottery metaphor might be, decades after its first telling, the next step must be taken as well. Crafting strategies needs to be taken from the level of metaphor to hands-on practice in organizations by understanding "the notion of crafting as embodied recursive enactment" (Bürgi et al., 2005, p. 90).

The upcoming research stream of strategic sensemaking contributes to a better understanding of how sensemaking unfolds in the context of strategizing. Based on my definition in chapter 2.1, strategizing is understood as a collective process that enacts an organization's future value creation and its emerging context. Within this definition, the applicability of a sensemaking perspective is apparent. Only when actors can collectively make sense of the objective of strategizing, can they consecutively act toward that intended future state. Thus, strategic sensemaking is interested in the way organization members create, contest and eventually act on their shared understanding of strategic issues relevant to an organization's survival (Cornelissen & Schildt, 2015; Jalonen et al., 2018; Rouleau, 2005). In doing so, actors create a new organizational

order by making sense of structures and strategies that offer a plausible response to changes in the environment (Maitlis & Christianson, 2014).
While studies in the field of strategic sensemaking remain scarce, contributions include Rouleau's (2005) study of cognitive processes that let middle managers interpret and sell change, Roulau and Balogun's (2011) work on how middle managers strategically set the scene and conduct conversations during organizational change, Jalonen et al.'s (2018) conceptualization of strategic concepts as tools in strategizing, and Klarin & Sharmelly's (2021) investigation of strategic sensemaking and political connections in emerging environments. However, only a select group of strategic sensemaking studies has expressed an explicit interest in studying material implications. Weiser's (2020) study focuses on substantiative strategic actions in addition to interpretation, Comi & Whyte (2018) document an architecture firm's intricate use of artifacts to extend sensemaking with materially mediated future making, while Garreau et al. (2015) explore how drawing on a map informs strategizing. Hence, the strategic sensemaking discussion clearly benefits from a more integrated sociomaterial understanding to further advance the field.

A sociomaterial perspective on strategic sensemaking allows us to better understand how intended future states are recursively enacted in a sociomaterial way. The defining advantage of viewing strategic sensemaking as sociomaterial practice is its potential for a processual analysis that moves beyond isolated snapshots of behaviors or cognitions toward the ongoing enactment of the environment, actors and objects they inhabit (Cornelissen & Schildt, 2015, p. 348). At its core, strategic sensemaking is then seen as an inherently active idea where information from the environment is not just passively received and translated into internal representations, but where meaning is actively generated through transformational interactions that result in "enacting a world" (Di Paolo et al., 2010, p. 39). The sensory experience of materiality, thereby, can create a sense of social attachment to a future state and act as the means through which the past and futures are addressed and imagined (Nicolini et al., 2012; Schultz & Hernes, 2013). In fact, the sociomaterial enactment of such future states can trigger sensemaking so that the resulting sensemaking activities again shape the sociomaterial enactments (Garreau et al., 2015).

In conclusion, by no longer treating enactment as one of many sequential stages of sensemaking and placing it in the center, we can frame strategic sensemaking as an ongoing movement whose practices iteratively constitute sociomaterial enactment for

subjects and objects to engage with future states in sensible ways. With a sociomaterial view of strategic sensemaking, strategizing is no longer seen as "detached, analytical, and cerebral activity inside organizations", but as a practice that offers "passion, involvement, and discovery" (Bürgi et al., 2005, p. 92).

This final move to apply the sociomateriality perspective to strategic sensemaking marks the end of my elaboration of this dissertation's theoretical framework. The previous chapters contribute to the analysis of the empirical data, providing a framework for reflection and analysis. The sociomaterial view on strategic sensemaking situates this dissertation in the literature and will provide guidance throughout the following chapters.

3 Methodological approach

Methodology relates to choices made about how research is carried out: the knowledge paradigm and practices that underpin the study, what defines the empirical site and how the researcher will engage with it to collect and analyze the data (Cunliffe, 2015).

In the first chapter of the methodology section, I will outline the methodological approach of this thesis by discussing implications of the chosen theories, introducing the empirical case in context and stating the three pillars of my chosen research strategy. In the second chapter, the data collection methods derived from the research strategy are explained in more detail and the different steps of the analysis explained and presented. The third chapter introduces the context of the investigated strategic initiative using the gathered empirical data.

3.1 Methodology – research approach

3.1.1 Theoretical implications on methodology

Theories are not just passive written accounts, but performative in how they enact a particular view of the world. They should be conceived as a form of practice and applied in a "coherent practical package of theory *and* method" (Nicolini, 2012, p. 217). This, in turn, implies that method is not a fixed set of procedures either, but in itself performative and creative (Law, 2004). Understanding theory and methodology as a package assumes that method is not the servant of theory, but is actually what grounds theory (Jenks, 1995). Therefore, methods themselves are practices that evolve through adaption to the unfolding research process. To follow this through, I will outline the methodological implications of my chosen theoretical framework below.

Practice focus

Practice research encompasses an appreciation of all kinds of activities, which might initially be microscopic and mundane phenomena when looked at in isolation; however, they gain tremendously in importance once they are put in relation to strategy making (Burgelman et al., 2018, p. 540). The most popular approach to studying these activities in the empirical context is qualitative research, whose merits are described by Miles (1990, p. 37) as follows: "Qualitative data are sexy. They attract eager researchers who want to sniff the richness of the real world, see things in their contexts, track complex processes over time, and explain linkages among processes and their associated outcomes." While a practice approach in combination with qualitative research methods offers excellent opportunities for an in-depth understanding of the phenomena at hand, it is generally agreed that researching the *how* of strategizing is both methodologically

challenging and time-consuming (Abdallah et al., 2018; Balogun et al., 2003). There are three main implications when researching practices:

- First, practices cannot be found as such in the field. They constitute the unspoken and scarcely notable background of everyday life and need to be made visible to be turned into practices by the researcher to enter discourse (Nicolini, 2009b).
- Second, practices need to be carefully investigated at their source to enable a better understanding of isolated practices that otherwise might be misinterpreted without a contextual situation (Gobo, 2008). Social practices are situated practices and must be treated as such. Therefore, studying strategy from a practice perspective often requires a deep and close contact with the doing of strategy. It favors ethnography as it enables researchers to capture what the actors in the field themselves are often unable to articulate (Langley & Abdallah, 2011).
- Third, achieving a traceable connection from the observed activities at the micro-level to the macro organizational level is challenging, but crucial for practice research (Abdallah et al., 2018; Johnson et al., 2007; Whittington et al., 2006). The close contextuality makes assuring comparability across sites or cases difficult; sampling and generalizability are challenging (Miles, 1990). Researchers are, therefore, required to zoom in on the details of the involved artefacts, sayings and doings – only to zoom out again to trail practices and their connections in the broader scope (Nicolini, 2012).

Despite these challenges, the exploratory potential of qualitative practice research must not be suppressed by forcing it into a quantitative corset. Instead, its potential should be harnessed and developed in its own dynamic and slightly chaotic way (Cornelissen, 2017).

Extended sample

A strategy as practice approach also affects the unit of analysis, as it moves away from the notion that strategy is solely the work of top management and situates such strategizing on the field level. For example, part of this field are middle managers and lower-level employees, as well as extra-organizational actors like consultants, government officials and regulators (Abdallah et al., 2018; Burgelman et al., 2018; Whittington, 2003). This shift towards a more inclusive understanding of strategy work as a site for the interplay of the social, the material and the discursive emphasizes the embedded nature of strategy practices (Abdallah et al., 2018). It is critical to understand how strategies are created, but also how they are consumed and influenced as they are

translated into day-to-day practices by actors within the organization. After all, strategy ultimately is about what is done and what is not done (Balogun et al., 2003). Thus, choosing the right actors and artefacts to include in the analysis is difficult beforehand. Instead, the involved human and non-human actors emerge along with the research project, requiring the researcher to always look beyond the researched initiative as a way of remaining sensitive to potentially important future subjects of research.

Relationality dynamic

The perspectives of sensemaking and sociomateriality are both characterized by dynamic relations. On one hand, sensemaking is concerned with researching interactive, emergent and evolving aspects, which turns the decision on how to study this into an exercise in sensemaking in itself (Maitlis & Christianson, 2014). On the other hand, the defining ambition of the sociomateriality perspective is to overcome the duality between the material and the social, framing them as constitutively entangled (Barad, 2007; Orlikowski, 2007; Orlikowski & Scott, 2008). While there are differences to which extent existing strategy as practice research has applied a relational ontology, it still has crucial implications for methodology.

With a relational ontology, relationship stability is a collective accomplishment rather than a natural resting state of the organization; it needs to be continuously reproduced through activity (Burgelman et al., 2018; Giddens, 2013). Instead of assuming these relationships as networks that connect discrete entities, analysis should be framed in terms of practices to examine how they constitute everyday work in the first place. This way, the sociomateriality of these practices – often overlooked due to its ubiquity – can be foregrounded again. In this understanding, "practices don't just mediate work, they perform organizational realities" (Orlikowski & Scott, 2008, p. 467). Relationality's implications prove to be especially important in the context of this dissertation, whose unit of analysis in the form of a strategic initiative is continuously evolving. While a relational ontology does not entail that everything is in a constant state of flux, it appreciates and foregrounds the practices that continuously evolve the object under analysis.

3.1.2 Unit of analysis and case selection

In this section, I will elaborate my chosen unit of analysis and provide a general description of the case by situating it within the respective industry and discussing its relevance for my research.

Unit of analysis

According to Nicolini & Monteiro (2017, p. 116), "all practice approaches take organised activities (practices) as the basic unit of analysis – conceiving individuals as carriers and performers of practices." This also holds true for strategy as practice research, which more explicitly focuses on strategizing practices, but nevertheless investigates them as a "flow of activities carried out by individuals or groups within traditional organisational processes such as strategic planning, decisionmaking, resource allocation and strategic change" (Hendry et al., 2010, p. 36). While I will extensively analyze practices as part of this dissertation, the previous quotes show how a unit of analysis strictly tied to practices has the tendency to result in an investigation limited to human actors. As this dissertation aims to foreground materiality again, the unit of analysis should be able to reflect this approach as well. After all, the unit of analysis should be chosen according to what data need to be collected to support theorizing throughout the many phases of a research project (Locke, 2001). However, in the context of this dissertation, simply defining material artefacts, or involved actors, as the unit of analysis falls short as well.

For the reasons discussed in the previous paragraph, I define the strategic initiative as this thesis' unit of analysis. Putting the initiative at the center allows a continuous investigation of an otherwise constantly evolving context. Human actors come and go, material artefacts are created and disposed of and what was a project suddenly becomes a venture. Taking the strategic initiative as the unit of analysis accounts for all these dynamics and aligns with the underlying sociomaterial perspective of this dissertation. Moreover, it manages to balance the material and social elements because the non-human actors are just as involved in the recurring constitution of the strategic initiative as the human actors.

The strategic initiative in context

The case providing empirical data for this thesis revolves around *Trustlog*, a strategic initiative in the insurance industry whose becoming is followed from its inception as an initial idea in the heads of employees to the establishment of a joint venture and a nationwide rollout. The German insurance industry can be described as slow-paced, with the top four companies taking up 30% of the market share and only a moderate chance for new market entrants. While market players' specialization along specific insurance lines alleviates rivalry to a certain extent, it remains a competitive environment with customers regularly switching insurance providers (MarketLine, 2020). The competition for customers led to a veritable start-up boom in the insurance space. Recently, however, this rise has been leveling off significantly, leading to an

increase in exits and market withdrawals (Kottmann & Dördrechter, 2019). Nevertheless, digital transformation and changes in customer behavior remain a challenge for all insurers, leading them to increasingly pursue innovative internal initiatives by establishing innovation and digitalization units.

The strategic initiative constituting the empirical case of this thesis found its breeding ground in such a dedicated digital unit as well. Situated within a major German insurance company, the idea to build a digital platform and provide services to previously underserved customer segments emerged. The idea quickly gained traction within the unit and was picked up by senior management, leading to official assent and an allocated budget for pursuing the initiative. Despite a wide range of names and working titles that were used, I will call the strategic initiative and the resulting venture by its final name: *Trustlog*. For the other involved organizations, I will use pseudonyms; their official names would not add significant additional value to this research.
While the *Trustlog* platform is connected to the insurances' existing services, it further extends the offering beyond a single firm and connects previously independent and isolated stakeholders. The defining actor of the strategic initiative's early stages is an insurance company called *InsurA,* which initiated the strategic initiative. It quickly partnered up with another insurance company and competitor, *InsurB,* to not only collectively create a new product and service, but a whole new ecosystem. Both companies are regularly referred to as *parent companies* throughout this dissertation for simplicity reasons. The joint venture is supported by an external design consultancy – here called *Goodpatch* – that provides the needed additional capabilities in the design field and plays a significant role in the early phase of the project. *TechWay,* an IT-services provider who provides the technical implementation of the strategic initiative, completes the group of partners of the strategic initiative. This short introduction serves only as an initial overview; I will provide a more detailed description later in section 3.3.2.

The relevance of the case selection

The research context of the *Trustlog* initiative is of particular interest as it allows for the examination of sociomaterial practices that support strategic sensemaking in the context of an emerging strategic initiative. Next to the privileged access to the project team, three additional characteristics are of particular interest to answer this dissertation's research question:

- First, materiality and sociomaterial practices play a central role in *Trustlog's* becoming. Through the intentional application of design and product development methodologies, members of the strategic initiative engage with a variety of tools, visualizations, spaces, and artefacts to make sense and transfer the initial strategic concept into a realized digital platform. These practices can be described as sociomaterial strategizing practices and are further enhanced through the partnership with a design consultancy, which emphasizes the importance of a deliberately material approach to solve challenges under uncertainty and ambiguity.
- Second, the *Trustlog* initiative is of high strategic importance to the initiating insurance companies. This strategic relevance is evident in the significant number and scale of budgeted resources, topic visibility within senior management and scope that goes beyond a single firm and involves a joint venture that overcomes earlier competitive relationships. The *Trustlog* initiative also corresponds to the definition of strategy and strategic initiatives in section 2.1.1, as it is primarily concerned with creating a novel opportunity for future value creation.
- Third, the strategic initiative's context is characterized by uncertainty and ambiguity. While *InsurA* and *InsurB* are dominant players in the chosen insurance line, they are targeting new customer segments, which involves a considerate level of uncertainty and ambiguity. In addition, neither the collaboration model nor the emerging venture's exact needs are known at the beginning of the strategic initiative. To cope with this situation, the *Trustlog* team deliberately applies an iterative way of working, frequently validating their progress internally and with potential platform customers to inject feedback back into the strategizing process. This inclusion of external perspectives adds important additional actors to the sensemaking process but also increases its inherent ambiguity.

In sum, the chosen empirical context allows for a close examination of a challenging strategic initiative. The inherent uncertainty and ambiguity of the context result in the prolific use of sociomaterial practices to support sensemaking among the strategic initiative's various actors. Examining the case, this thesis manages to go beyond formal and institutionalized strategizing settings, observing strategy in the making, even if it is not yet recognized as such.

3.1.3 Research strategy

This dissertation applies a single site exploratory case study design to follow and examine the becoming of a strategic initiative and the involved practices. It accompanies the strategic initiative in the eventful first three years from the earliest beginnings to market launch and beyond. Case studies are a powerful way to develop theory inductively by drawing from rich empirical data collected in the field and bridging it to mainstream deductive research (Eisenhardt & Graebner, 2007). A single case study design has been chosen as the focus on one site at a time is needed to handle the richness of the empirical data generated in an ongoing in-depth analysis. It ensures a well-rounded description of the observed phenomena without having to sacrifice depth in favor of additional cases (Siggelkow, 2007).

Case studies draw on a wide range of data collection methods and typically incorporate archives, interviews, questionnaires and observations (Eisenhardt, 1989). In this thesis, I will extend this data range through the explicit inclusion of material artefacts and observation of sociomaterial practices. My research strategy for this explorative single case study builds on three main pillars, explored below.

Abductive synthesis

Research in the practice perspective often requires deep and close contact with the doing of strategy over an extended period of time, thus generating immense databases of disparate information (Langley & Abdallah, 2011). This long-term exposure can and should change how the collected data is viewed over time (Pratt, 2009). To accommodate such changes, research needs to be understood as a continuous interplay of concepts and data, where surprises can occur at any stage: beginning, middle and end, requiring multiple cycles of observation, analysis and reflection (Maanen et al., 2007; Nicolini, 2012). In this process, method is not simply a "set of procedures for reporting on a given reality", but performative in that it also produces the very realities it examines over time. Methodology re-works and re-bundles these realities and crafts new versions of the world in addition to a hinterland of already enacted realities (Law, 2004).

In line with Klag and Langley (2013), my approach to data collection and analysis can be described as abductive synthesis. It builds on the constant movement between data and theoretical concepts, which allows for a cyclical understanding of how research is conducted. Abduction thus focuses on "the interplay of experience, literature and ideas to generate new understandings and insights about the specific practices under study" (Cunliffe, 2015, p. 433). It follows the two parallel paths of imagination and discipline,

which, on one hand, enable essential creativity for the creation of new knowledge and, on the other hand, ensure that emerging ideas are grounded (Klag & Langley, 2013). Through abductive synthesis, data can be analyzed in a way that leaves room for surprising – or initially unaligned – insights, at the same time connecting them to existing theoretical perspectives. If done right, good research is not eliminative but involves multiple cycles of observation, analysis and reflection that enable the generation and creation of insights from within a context that resonate with other practical and theoretical contexts within the academic discourse (Nicolini, 2012).

Embeddedness

As researchers, we are not outside observers, but must acknowledge that we are part of the very nature that we try to understand (Barad, 2003). With the acknowledgement of research methods as practices that affect the empirical context, one needs to be especially clear about one's position in the field (Pratt, 2009). Learning about the world requires "embarking on an inquiry which entails intervening in the world and giving it a chance of biting back at us, our presuppositions, and our inquiry tools" (Nicolini, 2012, p. 216). Therefore, a critical philosophical characteristic of most qualitative research is the explicit acknowledgement of the role researchers play in research outcomes (Bansal & Corley, 2012). However, rather than trying to minimize this influence, the aim should be to improve the way the human researcher can be "a marvelously smart, adaptable, flexible, instrument who can respond to situations with skill, tact, and understanding" (Seidman, 2013, p. 23). My analysis is thus not distant and objective, but entangled in, and performed through, my own practice (Hultin & Mähring, 2017).

My role as a researcher and my methodological practices both play a critical part in enacting analytical differences in the empirical context. In the vein of Golsorkhi et al. (2015), who describe practice as a special concept allowing researchers to engage in a direct dialogue with practitioners, I take the opportunity for recurring interaction, exchange and co-creation within the designated research context. While the initial phase can be described by an active participation in the strategic initiative as a consultant, my role quickly mutated into that of a passive accompanier of the initiative. Even now, I have fruitful exchanges with participants in the strategic initiative; they have clearly expressed their commitment to the research to better understand and reflect on their own practice. This willingness is vital for successful management and strategy research but often neglected, as it regularly comes with significant demands for time allocation on both sides (Balogun et al., 2003). Thankfully, both are given in the context of the *Trustlog* initiative.

Establishing this relationship was achieved through close collaboration on the subject matter, allowing me to learn the language of the field. Once my role moved from an active to a more passive one, the relationship was maintained by offering an ongoing and valuable reflection with the research participants. It is in the nature of longitudinal, micro-level research to place researchers in ideal positions where they can offer research-based feedback and include the response again in the research project (Balogun & Johnson, 1998). Collaborative settings with actors inside the organization thus allow for a better research quality and are seen as an essential part of moving the strategizing agenda forward (Balogun et al., 2003). Despite calls for more collaboration with managers in research settings, few studies have applied such an approach, possibly because of the need for researchers to allow a more dialogical and reflective relationship, as well as the unclear effects such a relationship can have on the nature of the studied case (Abdallah et al., 2018). Nevertheless, being part of an empirical context is one of the most powerful ways to see below the surface of what is going on and especially said. This understanding is in line with Dameron, Lê and LeBaron (2015, p. 9), who state that "rather than act as distant observers, ethnographers may choose to be more entangled in the tangible and tactile experience of strategy work."

Being entangled in a research context, however, also requires subsequent untangling. Doing so is only possible through an active awareness of the research context and the type of collaboration the researcher has entered. By triangulating the different types of collected data, continually reflecting on my own role in the research project and collectively reflecting with the research participants, I managed to ensure needed data validity, while maintaining productive access to the field. These activities simultaneously generated new empirical data and ensured the needed distance. Learning from the field, therefore, necessarily entails upholding both distance and involvement. The two dimensions should not be understood as opposites, but as mutually applicable throughout the research process (Anteby, 2013).

Materiality

Materially mediated doing and saying is key to understanding organizational and social phenomena, as all practices are inherently material in nature (Nicolini & Monteiro, 2017). In a promising approach by Feldman and Orlikowski (2011, p. 7), material objects are framed as material artefacts "whose operation and outcomes are neither fixed nor given a priori, but always temporally emergent through interaction with humans in practice." In this thesis, I aim to understand material artefacts as embedded in

constitutive practices, rather than just the artefacts themselves. This ambition is in line with a relational ontology – the defining characteristic of sociomateriality – and treats both the material and the social as equal and mutually articulated (Barad, 2003; Orlikowski, 2007; Orlikowski & Scott, 2008).

While materiality is understood as constantly becoming, a focus on objects and artefacts encourages the detailed investigation of practices that bring processes to a fragile halt when they are materialized and become briefly concrete. The sociomateriality perspective allows enacting such temporary local resolutions within the social and the material in the form of an "agential cut" (Barad, 2003, p. 815). In this dissertation, I will apply a range of agential cuts to achieve local stability allowing for the analysis of material artefacts, while always recognizing that the social and material necessarily entail each other in practice (Orlikowski & Scott, 2008). Similarly, practitioners in the field also apply their own agential cuts as they interact with material artefacts; these agential cuts and the practices that constitute them are thus a fascinating research topic. Through my research, I aim to find the right balance between appreciating the dynamic of the material artefacts at hand, while utilizing a pragmatic approach to document and study them in temporarily stabilized form. Weick (1995b, p. 390) aptly summarized the challenge by stating that "the ultimate tradeoff is the one between process and product, between theorizing and theory, between doing it and freezing it."

3.2 Methods – data collection and analysis

3.2.1 Data collection

A variety of data collection methods are used in this dissertation in accordance with its theoretical framework, specific case context and dedicated research strategy. In this section, I will present and explain the various data collection methods in further detail to clarify this study's handling of empirical data.

As strategy as practice research is concerned with how strategy comes into being and is performed, the chosen methods need to capture not only the openly observable micro-practices, but also the tacit knowledge held by strategist that potentially influences their actions. Therefore, only through engaging in longitudinal, in-depth fieldwork and using multiple methods and forms of data collection, can the emergent and fluid nature of strategizing be illustrated and explained (Cunliffe, 2015). In this dissertation, I had the opportunity to closely follow a strategic initiative for almost 3 consecutive years, which allowed me to not only investigate particular events, but their recursive nature over a fairly long time frame (Langley & Abdallah, 2011).

Data collection covers three areas: following material artefacts, ethnographic observations and interviews. While not always in sequence, my data collection is often inspired by artefacts of interest – analyzed in their becoming – and how they are embedded in practices. I then observe the settings and sites in which these artefacts are crafted, interpreted and communicated in direct and indirect ways to make sense of the context. As a next step, I conduct interviews to learn more about the practitioner's interpretations, objectives and activities that I have observed. This materiality-driven approach has been deliberately chosen to foreground non-human actors and includes human actors once the analytical frame has been set. It provides a possible way to ease the imbalance of research accounts that overwhelmingly focus on human actors and their interpretations.

Material artefacts

As determined in the research strategy, artefacts are treated not only as mere matter, but primarily as the sociomaterial practices that constitute them. To analyze them in temporary separation and stability, I either refer to my own analytical agential cuts or reference the cuts made by actors in the empirical context. With such cuts, it is possible to collect types of artefacts available in the research context, including documents, visualizations, prototypes, tools, code and eventually the platform itself. It is important to note that the presented tables list material artefacts and prototypes as they are identified by the actors in the field. The real names of the artefacts have occasionally been altered to conceal their origin, but nevertheless retain their essence.

Table 1 provides a comprehensive overview of the collected material artefacts. Many are defined by their dynamic nature; they are continuously evolving, repurposed and reinterpreted. When possible, I captured as many snapshots of their becoming as possible to trace their development over time. However, by documenting and stopping the ongoing observation, it is crucial to be aware that I already start "thingifying" the constitutive practices I observe (Introna, 2013, p. 339). Another limitation is the fact that most artefacts are in German. I mainly reference the original artefacts and will provide selected translations where they provide clarity.

Artefacts	Use	Description
Sketch	Single use	Quick sketches during materializing to concretize and externalize individual ideas
Map	Ongoing use and update	Large contextual maps of processes, environments, project plans and technical architectures
Capture Boards	Single use, reference	Collections and aggregations of specific topics that are generated through brainstorming, brainwriting, and other generative practices
Idea Napkin	Single use, reference	Focused sketches of a particular value proposition, feature, direction or process with explanatory text
Persona	Ongoing use	Aggregated visual representations of future customers derived from interviews and observations
Rapid Prototype	Single use	Situated arrangement of complex ideas and processes. Usually drawing from sketches to put them into relation
Testing Prototype	Ongoing use and update	Prototype designated for user testing which includes detailed user journeys and experiments
Vision Prototype	Ongoing use and update	Extended prototype including strategic directions and opportunities beyond the launch version that serves as a collective vision artefact
Platform Prototype	Ongoing use and update	Prioritized prototype of the full platform representing the current direction of the project for market launch
Partial Prototype	Ongoing use	Limited prototype of specific functions or user groups mainly used to enhance the existing platform
Video	Single use	Conceptual videos to get buy-in from internal and external stakeholders
User Story	Single use	Written description of functionalities of the prototype to enable technical implementation
User Story Map	Ongoing use	Visual representation of the different elements of the platform and corresponding user stories to enable prioritization and strategizing
Vision Cone	Ongoing use	Visual sensemaking tool to map different future trajectories of the venture
Research Recording	Single use	Audio recordings and screen captures of user research sessions and customer contacts
Slide Deck	Single use	PowerPoint presentations used for communication within the organization
PDF Documentation	Single use	Reports on focused prototyping sessions, user testings, decision meetings
Documentation Tool	Ongoing use and update	Web-based documentation platform used to store all relevant project data, meetings and documentations
Process Diagram	Ongoing use	Translation of prototype functionalities into technical diagrams to conceptualize system functionality
Development Boards	Ongoing use and update	Digital project management boards that organize the development of the platform through prioritizing, assigning, and tracking tasks
Sites	Ongoing use	Physical sites like the venture office that provide a physical representation of the strategic initiative and act as meeting place
Landing Page	Single use	Website of the venture and platform that explains the main value proposition and serves as an entry point to the platform
Trustlog Platform	Ongoing use and update	The final outcome of the strategic initiative that is functional, connected to the organizations and used by customers

Table 1 – List of material artefacts

Prototype Name	Date	Scope	Screens	Views	Viewers	Notes
Prototype 1.0	28.03.19	Full	25	33	21	45
Prototype 2.0	18.04.19	Full	29	50	29	4
Prototype 2.1	18.04.19	Full	36	13	8	7
Prototype 3.0	07.05.19	Full	38	38	11	15
Prototype 4.0	23.05.19	Full	63	34	10	21
Guarantee360 User Testing	05.08.19	Full	99	61	17	20
Guarantee360 Vision 1	19.08.19	Full	52	22	10	42
Guarantee360 Vision 2	03.09.19	Full	52	90	46	117
Guarantee360 Guarantor	04.09.19	Partial	10	16	11	9
Prototype 5.0 User Testing	16.09.19	Full	75	198	118	119
Guarantee360 MLP	17.09.19	Full	99	1	1	0
Prototype 6.0	18.02.20	Full	75	149	78	0
Prototype 6.1	20.02.20	Full	77	0	0	0
Sponsor View 1	03.05.20	Partial	27	19	14	0
Sponsor View 2	03.05.20	Partial	23	39	21	3
BSP Final MLP	07.05.20	Full	128	182	47	23
MLP admin	23.07.20	Full	183	20	12	0
Hybrid view 00	10.01.21	Full	43			
Contracts 1	16.01.21	Partial	31			
Hybrid view 01	05.02.21	Full	42			
Contracts 2	11.02.21	Partial	59			
Contracts 3	09.03.21	Partial	147			
Contracts Testing	15.04.21	Full	42			
Projects 1	29.04.21	Partial	56			
Projects 2	15.05.21	Partial	76			
Hybrid & Contracts 00	10.06.21	Partial	16			
Onboarding Testing	25.06.21	Full	104			
Projects Testing 03	28.06.21	Partial	45			
Hybrid & Contract 01	24.07.21	Partial	19			
Hybrid & Contract 02	20.09.21	Full	189			
Prototype Sponsor W	21.09.21	Partial	63			
Prototype Sponsor E	25.10.21	Partial	32			

Table 2 – List of prototypes (names are anonymized)

Among this empirical context's many material artefacts, various versions of the *Trustlog* platform prototype play a central role. However, a prototype cannot be treated as a single and stable artefact; it must be seen as a continually evolving materialization of the current strategy and vision of the project. Over time, this vision is translated into the actual digital platform, as the designs are implemented and coded.

Table 2 shows a chronological list of prototypes created over the duration of the project. While there are already 32 distinctive versions of the prototype, each snapshot must be seen as a separate aggregation of additional iterations. The number of screens is an indication of the complexity of the prototype; the assortment starts at 10 screens and reaches a maximum of 189 screens in a later-stage prototype, depending on scope and complexity. The table also shows engagement data through number of views, unique viewers and digital notes that were added to the prototype. These numbers are retrieved from the digital tool used to make them available to internal and external stakeholders. The collection of usage data stopped in 2021, as the development of prototypes had been migrated to a new tool that no longer tracked usage. Nevertheless, the usage data from the 2019 and 2020 already confirms the importance of prototypes in the strategic initiative.
The collected prototypes and corresponding screen number and engagement data show interesting prototype usage patterns of the strategic initiative members.

- First, the chart shows how prototypes keep becoming more and more complex as further screens are added, whereas versions with lower screen numbers are early prototypes that explore only a single assumption or strategic direction. Eventually, the insights collected with such experiments are then again incorporated in the aggregated prototype. Thus, prototyping involves both partial and complete versions of the intended future state.
- Second, there are active and less active phases of prototype development. Stable phases supersede highly dynamic phases and vice versa. Figure 3 shows a visualization of the prototypes and their corresponding number of screens from mid 2019 to late 2021. For example, the initial phase of the project shows a steady stream of new prototype iterations. This continuous iteration is brought to a brief halt by testing activities, where the prototypes remained relatively stable. After the testing phase, prototyping practices gain in intensity again, with September 2019 seeing new versions on a weekly basis. It is also visible how activity in 2020 mainly focused on platform development and how strategic prototype

activities picked up again shortly before the market launch in spring 2021. These cycles of dynamic and stable phases are an important characteristic of the *Trustlog* prototyping practice.

- Third, prototype engagement is very high in the early phases, with more people accessing the prototypes than were initially part of the strategic initiative. This is an indicator of how the prototype travels beyond the strategic initiative. Unfortunately, it is not possible to track in detail who accessed the prototype to tell if these engagements were on purpose, or if interest in the prototype started spreading within the organization without explicit team intention.
- Fourth, direct interaction with the prototype in the form of commenting on specific details is a common practice at the beginning of the prototyping activities. However, comments start to decline towards zero after September 2019 because so-called design reviews were established where the feedback was collected, rendering the comment function redundant.

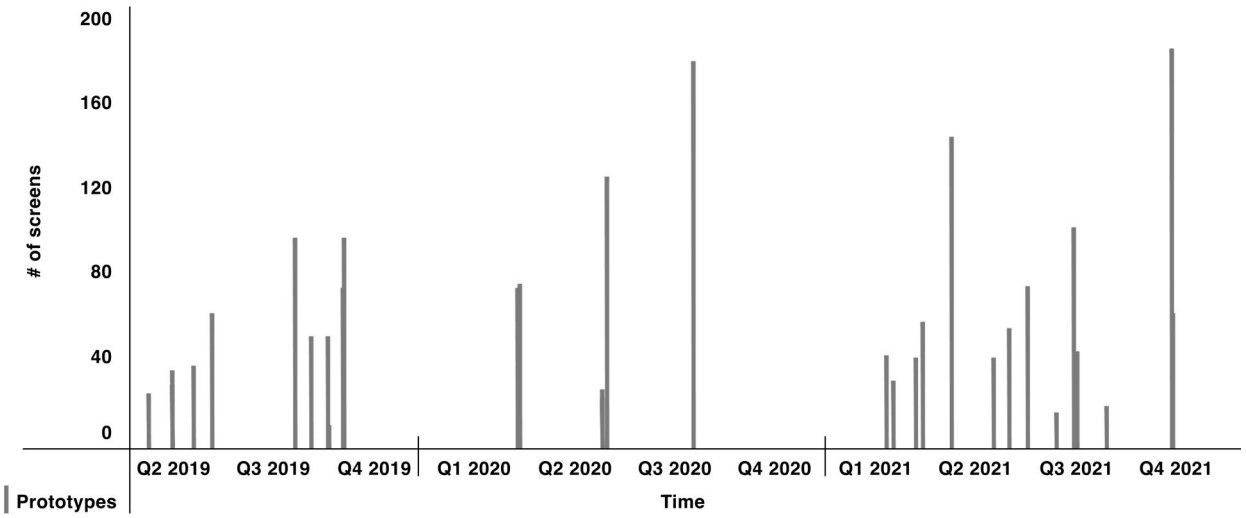


Figure 3 – Prototype activities

In conclusion, the tables provide a sense of the important role material artefacts played for the becoming of the strategic initiative. They also foreground prototypes as a special type of material artefact existing in multiple iterations. Lastly, the creation of prototypes is briefly analyzed over the course of the project to exemplify the existence of intensive and quiet prototyping phases. Together, these artefacts and prototypes constitute the materiality of the strategic initiative.

Observations

While investigation of material artefacts is undoubtedly promising, only studying the daily activities, interactions and practices of human and non-human actors in their everyday context allows us to fully grasp the complexity, intricacy and mundanity of organizational life (Cunliffe, 2015). Field observations are a highly useful addition to the study of material artefacts. Studying sociomaterial practices can be achieved through observing practices that envelop and constitute the material artefacts by following intermediaries like people and artefacts wherever they go (Nicolini, 2009b). Observation must be sensitive to both the activities and implications of materiality, as it is crucial to explicitly focus on the constitutive entanglement between human and non-human actors (Moura & Bispo, 2019).

My embeddedness in the case allowed for close observation of the many activities unfolding at different sites and formats within the strategic initiative. Understanding social practices as situated practices foregrounds the importance of observing them in context (Gobo, 2008). It is thus crucial to study human and non-human actors in their naturally occurring settings over time to discover how meanings, actions, practices and organizing emerge. Such observation in context prevents misinterpretations that could arise when focusing solely on the raw collected data (Cunliffe, 2015).
This thesis, therefore, includes multiple on-site and virtual observations of work processes and designated meetings. Table 3 provides a list of field observations in which I engaged and subsequently documented with field notes. In total, I spent 41 days in the field, carrying out both active and passive engagements with the strategic initiative. In addition to these work sessions, there were multiple meeting routines in place that were repeated on a weekly or bi-weekly basis. A selection of these routine meetings is also listed in the table, as I selectively joined the sessions as an observer. Observations of work sessions and routine meetings are complemented by numerous informal interactions happening on a regular basis; talks at the watercooler, quick phone calls, email exchanges and recreational activities. Listing the myriad of work meetings and informal encounters in respective tables would be of little value and out of scope for this study, but the collected experiences are nevertheless valid and indirectly affect the field constitution.

Work Sessions	Description	Location	Duration	Interaction
Kick-off Designathon	First session of InsurA and Goodpatch	onsite	5 days	active
Product Designathon	Refinement of first prototype and initial testing	onsite	5 days	active
Berlin Designathon	Joint session of InsurA and InsurB to define prototype	onsite	4 days	active
Business Model	Joint creation of the platform business model	onsite	2 days	passive
Synthesis Designathon	Collective user research synthesis and prioritization	onsite	5 days	passive
MLP Definition	Definition of the MLP prototype an alignment	onsite	3 days	passive
Venture Designathon	Setting up venturing activities in relation to the prototype	onsite	4 days	active
Kick-off I	Onboarding and introduction of new members	virtual	1 day	passive
Kick-off II	Starting the development process with TechWay	virtual	1 day	passive
Prototype Walkthrough	In-depth review of the platform prototype	virtual	1 day	passive
Roles	Defining the various roles in the venturing activities	virtual	1 days	passive
User story mapping I	Prioritizing the user stories based on the prototype	virtual	1 days	passive
User story mapping II	Prioritizing the user stories based on the prototype	virtual	1 days	passive
Naming & Brand	Defining the name of the platform and characteristics	onsite	2 days	active
Future Partnerships	Including further partners on the platform	onsite	2 days	active
Vision & Handover	Making sense of the future state of the platform	onsite	3 days	active
Future Features	Cross-disciplinary discussion of future functionalities	virtual	bi-weekly 60min	passive & selected
Review	Assessment and sharing of the achieved work	virtual	bi-weekly 60min	passive & selected
Refinement	Technical discussion of the implementation	virtual	weekly 120min	passive & selected
Retrospective	Assessment of past work processes and collaboration	virtual	bi-weekly 60min	passive & selected
Design review	Feedback towards the design team	virtual	bi-weekly 60min	passive & selected

Table 3 – List of selected field observations

Documenting field observations was a standardized process of jotting down field notes within 48 hours to aggregate them into detailed descriptions at a later stage. Transforming what happens in the field to recorded field notes followed the approach of Van Maanen (1988), who describes field notes as an ongoing stream of consciousness and commentary on what was encountered in the field, including observation as well as a simultaneous analysis. These loosely structured notes contain whatever impressions occurred to me, observations I deemed meaningful and ad-hoc interpretations that came to mind on the go. I made sure to approach note-taking as suggested by Eisenhardt (1989), trying to refrain from sifting out information beforehand, using them as a reactive tool to everything that I could process in the field.

These field notes – while too unstructured and extensive to lead directly to a fruitful analysis – provided the base to generate detailed 'thick' descriptions and vignettes of selected observations. The research practice of thick description refers to the inclusion of sufficient detail of an event, setting, or interaction to capture a "nuanced portrait of cultural layers" (Yanow & Schwartz-Shea, 2006, p. 101). In this study, nuance is achieved through emphasizing the setting, thoughts, feelings, relationships, material engagements and meanings, both explicit and hidden, that allow the transformation of field experiences into transferable research accounts (Mills et al., 2010). Thick description is about process and not fixity, as it allows for a certain level of chaos and stays away from superficial definitions when boundaries are not clear (Langley, 1999). This is crucial, as a researcher encounters a multiplicity of complex conceptual structures, rarely explicit, but usually knit into each other in intricate ways. Only through engaging in thick description, can a researcher eventually manage to make sense of such structures (Geertz, 1973). Accordingly, I too used the practice of thick description as a sensemaking strategy to reproduce and manage the ambiguity I encountered in the field. What started out as mere descriptions was turned into thicker and more focused portraits of the field. Thus, each step presents another cycle of reference as it further transforms the data from the field into a research account that can be used for theorizing.

Interviews

Extensive conversations with human actors serve as a third source of this dissertation's data collection and complement its focus on material artefacts and sociomaterial practices. Interviews allow creating a space of reflection where human actors can share their intentions, ideas and thoughts. However, traditional interview techniques are restricted in their ability to capture essential sociomaterial aspects, as they overwhelmingly focus on the discursive narrative produced by human actors and largely

neglect the role of materiality. This results in an inability to fully capture the dynamic aspects and complexity of the empirical context (Moura & Bispo, 2019).
To overcome this shortcoming, I specifically set up the interviews in this dissertation to capture sociomaterial practices. They are not simple one-directional interrogations following a strict questionnaire, but semi-structured conversations that mostly follow the interviewee's lead and topics that emerge. As conversations are the main mode of knowledge production in our societies, they should also be used as the main model for interviews (Kvale, 1996). To explicitly ensure a focus on the everyday practices and their sociomaterial entanglement, I apply two distinctive techniques during when interviewing.

- To better understand the mundane practices in which the interviewee engages and to make sure the conversation moves from an abstract to a concrete level, I follow Nicolini's (2009a, p. 196) suggestions to apply the "interview of the double". With this technique, the researcher asks the interviewee to explain their daily tasks as if they were training him or her to substitute for them. This allows the interviewer to understand how materiality affects the practice by directly interacting with the human participants (Moura & Bispo, 2019).
- By specifically inducing collected material artefacts and vignettes from my research, these artefacts serve as a starting point for in-depth discussions that are focused and concrete. This "testing approach" – as I like to call it – allows for collaborative development of the artefact descriptions, vignettes and conversation topics. The material artefacts are thus brought directly into the conversation and provide a base for further interaction.

Throughout this research project, multiple interviews were conducted with actors connected to the strategic initiative. During those sessions, interviewees would engage with me as the researcher in an iterative reflective practice on their everyday activities. The various interviews are listed in table 4 and typically lasted from 60 to 90 minutes. They were captured as audio recordings when conducted on site and as screen recordings when taking place virtually. In the end, 28 interviews were conducted, resulting in a total duration of research recordings of a little under 36 hours. Due to the pandemic, only the interviews conducted during 2019 could take place in on-site settings, with the remaining conversations held via videoconferencing software. However, thanks to the previously gained trust between the participants and me as the researcher, the negative effects of a virtual setting could be successfully mitigated.

Phase	Association	Year	Duration
Project Lead I	InsurA	2019	01:02:30
Project Lead II	InsurA	2019	00:51:36
Co-Project Owner	InsurA	2019	01:44:45
Digital Expert A I	InsurA	2019	01:03:46
Digital Expert B	InsurA	2019	01:15:07
Designer A	Goodpatch	2019	00:58.02
Designer B	Goodpatch	2019	01:04:11
Managing Director I	Trustlog	2020	00:21:14
Managing Director II	Trustlog	2020	01:43:11
Product Owner I	Trustlog	2020	01:46:26
Design Strategist I	Goodpatch	2020	01:26:06
Designer C	Goodpatch	2020	01:19:28
Managing Director III	Trustlog	2021	01:34:22
Product Owner II	Trustlog	2021	01:23:10
Director	InsurB	2021	01:25:12
Topic Expert	InsurB / Trustlog	2021	01:37:15
Director	InsurA	2021	00:47:00
Head of Department A	InsurA	2021	01:54:54
Head of Department B	InsurA	2021	01:39:59
Digital Expert A II	InsurA / Trustlog	2021	01:12:38
Legal Expert	InsurA / Trustlog	2021	01:48:30
Project Lead III	InsurA / Trustlog	2021	01:47:33
Technical Project Manager I	TechWay	2021	00:22:38
Technical Project Manager II	TechWay	2021	01:13:16
SCRUM Master	TechWay	2021	01:11:40
Design Strategist II	Goodpatch	2021	00:55:53
Design Strategist III	Goodpatch	2021	01:46:02
Legal Expert II	InsurA	2022	01:23:02
Summary			**35:41:24**

Table 4 – Interview participants

All interviews followed a loose guideline which ensured that no crucial topics were missed; the conversations regularly involved and discussed the current artefacts and prototypes within the strategic initiative. An initial debriefing was conducted right after the interview, followed by a transcription of the interview in a second step. As most interviews were conducted in German, the quotes presented in this dissertation are paraphrased translations of the original verbatim transcription. To ensure the anonymity of the interviewees, their names, positions and affiliations are withheld. In cases where their position is essential for the contextual understanding of a statement, I will provide the additional information. This is mostly the case when distinguishing between directly involved strategic initiative members and senior management within the parent organizations.

3.2.2 Analysis

The previous section presented a variety of empirical data and explains how it was collected. However, the challenge is to find promising ways to analyze this data and present it as a meaningful research account. This dissertation's research strategy – entailing how data collection and analysis are approached and conducted – has already been comprehensively discussed in section 3.1.3. In this section, I will outline two specific analysis practices resulting from this research strategy and present an overview of the identified practices. First, the research practice of zooming in and zooming out aptly describes the iterative process I applied to analyze the data in continuous cycles. Second, situational analysis was used to capture an overall understanding of the research context in visualized form, along with the cyclical movement of the analysis. In combination, both methods critically contributed to generating findings and ensuring that they were grounded in the conceptual framework.

Zooming in and zooming out

Nicolini (2009b) suggests understanding empirical research as a practice in itself, involving the movement of zooming in and zooming out of practice by switching theoretical lenses and following the connections between practices. In line with this, I follow the same underlying movements during this study's ongoing analysis of empirical data.

- First, I zoom in on the details and local accomplishments in the empirical context. The importance is in the sayings and doings, interactional order and involved artefacts. The latter play a crucial role, as zooming in on practices includes "investigating the active contribution of all other artefacts, as well as the ways in

which these artefacts re-establish relationships between practices" (Nicolini, 2012, p. 224). Zooming in is not only achieved by simply putting the practice under a microscope, but by expanding the set of tools and perspectives that are used to analyze it in its fullness (Nicolini, 2012). In this thesis, that includes the data collection methods introduced in Chapter 3.2.1, the theoretical underpinnings of chapter 2 and the use of analytical tools like situational analysis (Clarke, 2003), thick descriptions (Geertz, 1973) and vignettes (Miles, 1990).

- Second, understanding practice also requires the appreciation of connectedness; practices never happen in isolation. Instead, they are "always immersed in a thick texture of interconnections" (Nicolini, 2009b, p. 1407). Thus, zooming out of practice requires moving between the practice itself and the texture connecting the specific practice to others. In this study, I further expand the scope of observation and analysis, following the connection trails between practices and their materiality. Practices play a crucial role in constituting material artefacts and must be analyzed as "involved in a variety of relationships and associations that extend in both space and time, and forming a gigantic, intricate, and evolving texture of dependencies and references" (Nicolini, 2012, p. 229).

This movement between zooming in and zooming out ends once I can provide a convincing and defensible account of practices and their effects. In other words, the iterative research process continues until the resulting connection of practices and their wider picture can be transformed into presentable form (Nicolini, 2012).

Situational analysis

Visual methods of analysis provide a powerful tool to support the orientation and discovery of previously unattended relationships generated through iterative movements of zooming in and zooming out of practice. Langley & Ravasi (2019, p. 174) speak of the "generative role of visual artefacts" as tools for analysis and theorizing and how they are not only used to present findings, but generating them in the first place.

Accordingly, visual methods also played a major role in the research practice of this dissertation. I created countless maps, diagrams, and other drawings to bring order into chaos. An important guideline was Clarke's (2005) situational analysis as a method of grounded theory mapping. Situational mapping draws together different kinds of data about a particular phenomenon; it is especially helpful to connect the human and non-human actors and situate them with their embedded practices. Situational analysis enables the study of their mutual constitutions and how their practices affect interactions within the situation (Clarke et al., 2015). The explicit inclusion of non-human actors in

the analysis provides a crucial extension to other qualitative research methodologies like the method by Gioia et al. (2013), who tend to foreground human actors.
I apply situational analysis to my research by mapping the human and non-human actors and explicitly including the practices and sites where they take place. To connect situational analysis with the practice of zooming in and zooming out, I draw on two related – but intentionally different – situational maps and analyses out of Clarke's (2003, 2005) repertoire to support my abductive synthesis process:

- The *situational map* is a strategy to articulate the human and non-human elements in a situation and examine their intricate relations (Clarke, 2005). It is created at an early stage of a research project and stays close to the original data as it is encountered in the field, depicting the empirical case as it is understood at the current moment without applying further theoretical concepts and frameworks. An early situational map also provides a guideline for the ongoing data collection, uncovering areas that have been previously neglected and need further research. With further iterations, situational maps answer more and more refined questions about relationships and move the researcher directly into the analysis. A situational map thus functions as a visual way to identify first order concepts.
- The *social worlds/arena map* is a more refined cartography of "collective commitments, relations, and sites of action" (Clarke, 2005, p. 86). It moves away from the initial situational map's single entities and groups them in meaningful clusters, providing a first step in theory building. This process again involves a synthesis-driven approach to data analysis, where the researcher repeatedly reconfigures the arenas until a constellation emerges that allows a narrative to shine through, material artefacts to be visualized and practices to be situated within relations. It is in this step that empirical data is infused with theoretical concepts to derive categories and areas in line with the conceptual framework. Hence, the *social worlds / arena map* contributes to the identification of second order themes and resulting aggregate dimensions.

The creation of increasingly organized situational, social worlds or arena maps closely resembles the grounded theory process, where researchers move from first order concepts inspired by the field to theoretically infused second order themes and eventually aggregate dimensions (Gioia et al., 2013). As situational maps are intended to "open up" the data and are not necessarily "final analytic products" (Clarke, 2005, p. 83), I have decided not to directly include them in the dissertation. It is simply

impossible to transfer a digital whiteboard with a virtually unlimited canvas to a paper sheet format. Nevertheless, the practice of situational mapping was defining in the empirical data analysis, especially in its combination with an ongoing movement of zooming in and out.

Presentation of data structure

To provide a better overview of identified practices and their reference to empirical observations and quotes, figure 4 presents the data structure in a way that references the well-known data structure introduced by Corley & Gioia (2004). While I draw from the visual style of the Gioia method to present the identified practices, it is crucial to point out that the analytical process was strictly driven by situational analysis; structuring categories relate to situational analysis. The choice to present the data in this way is based solely on its exceptional clarity and familiarity within the research community.

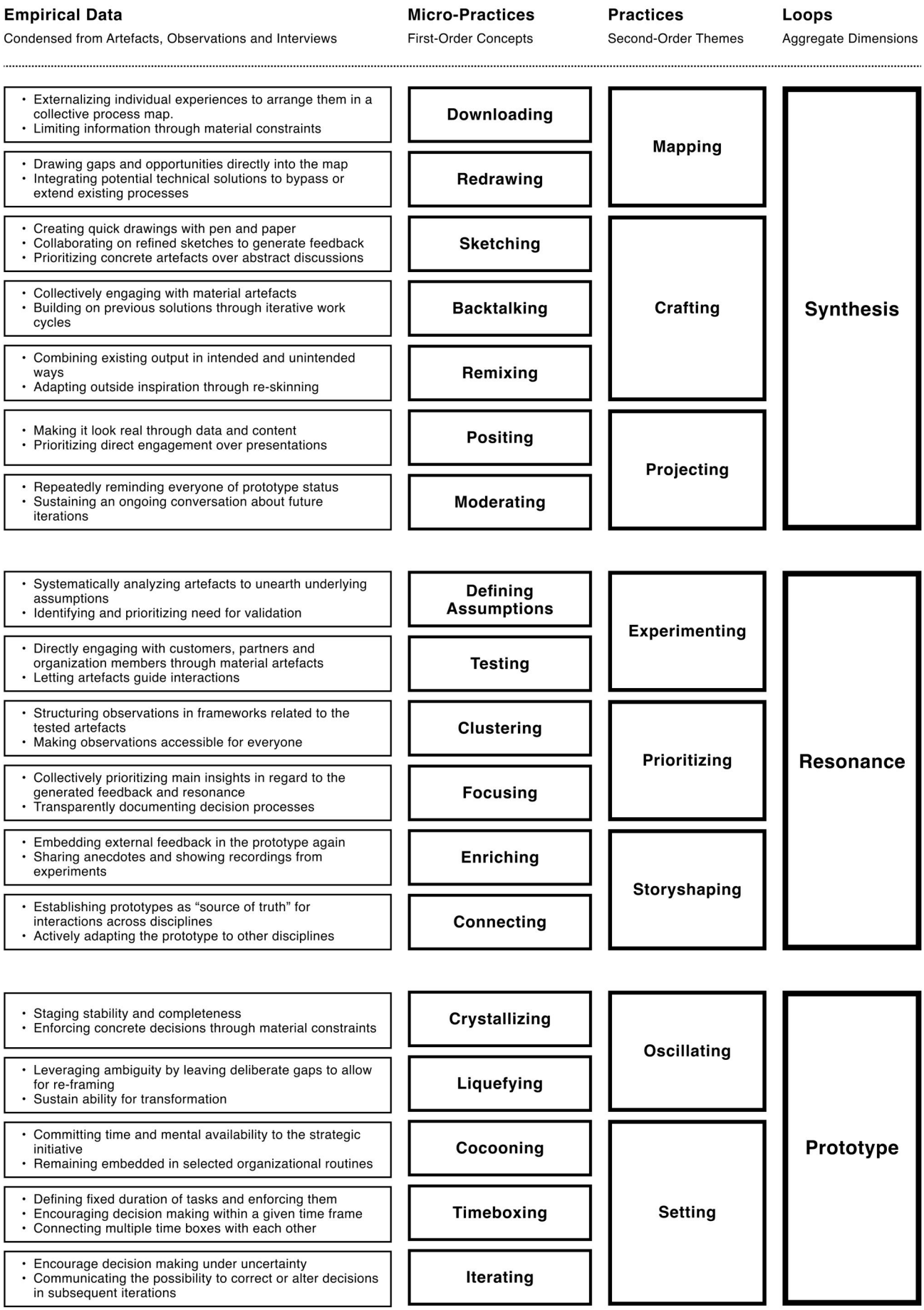


Figure 4 – Presentation of the data structure

3.3 Introducing the context of the strategic initiative

3.3.1 Trustlog

In this section, I will introduce the strategic initiative in context. According to Pettigrew (1987, 2012), it is crucial to not rely solely on analyzing the content and process of strategizing, but also to acknowledge how context constrains strategizing, even as it is simultaneously shaped by it. Thus, the outer context entails the social, economic, political and competitive environment, while the inner context refers to the corporate culture and structures. I will achieve this description by drawing on materials from the field while giving room to the involved actors, using their words to explain the environment, the *Trustlog* platform and the internal setting. This description thus differs from section 3.1.2, where I took a primarily theoretical perspective to exemplify the case's relevance and potential for insight.

Market - the outer context

To fully understand the strategic initiative and *Trustlog*, it is crucial to have a rudimentary understanding of the surety bond and guarantee market. Practitioners in the field use the visualization of a triangle to explain the complex relations and dependencies within the market, which they simply call "the bond market". I will follow suit and use their terminology; a simplified version of this triangle that can be seen in figure 5. The detailed mechanisms of this complex insurance product are not central for this dissertation. What matters, however, is a basic understanding of the involved actors and their relationships in the bond market.

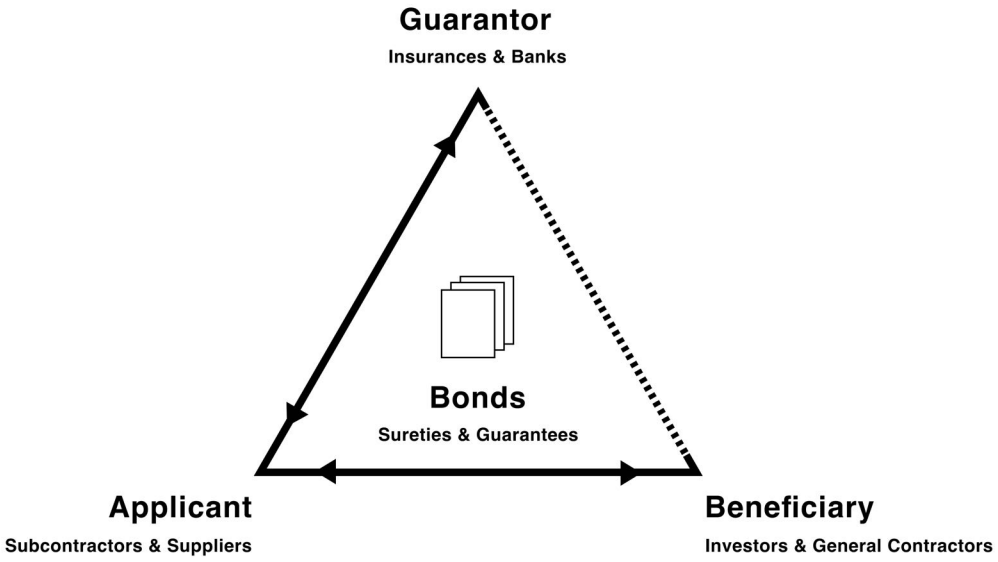


Figure 5 – Surety bond and guarantee triangle

Surety bonds and guarantees are extensively used in the construction industry to increase the liquidity of subcontractors and suppliers who are required to guarantee the quality of their work by committing a percentual share of their construction contracts. This amount can be kept in by beneficiaries for a designated amount of time. Beneficiaries can be large general contractors, government agencies, or investors like hotel chains. With surety bonds and guarantees, however, subcontractors – or applicants, as they are referred to in the triangle – will receive the total sum of the contract; an insurer or bank guarantees the remaining amount for a beneficiary. The bond market thus consists of three main actors, shown in the triangle. Applicants request a bond to increase their liquidity. Guarantors are in a contractual relationship with the applicants and issue the bonds, effectively guaranteeing the applicant's liquidity. As a third actor, beneficiaries receive the bond and can claim the insured sum in case of compensation.
In the middle of the triangle, the surety bonds and guarantees – simply called "bonds" by the practitioners – orchestrate the relationship between the different actors. Before the launch of *Trustlog*, however, these bonds were only available and legally valid in paper form. This required applicants to request a bond from a guarantor, which was sent back to them so that they could send it via paper mail again to the beneficiary. The beneficiary would then store the paper document in a vault and discard it after its expiration date. In the case of an insurance claim, however, the whole chain would repeat itself in the opposite direction again. The beneficiary would contact the applicant with the bond, who would then check back with the guarantor and try to settle the claim. In sum, processes within the bond market not only sound complicated; they are indeed tedious and prone to errors.

The members of *Trustlog* clearly expressed how they see their own industry and what it means to be part of an innovative strategic initiative in the field:

> *"For insurers, absolutely everything revolves around risk. This focus affects the DNA of all insurance employees. In everything they do, they will always first see the risk and show the tendency to hedge these risks as well as possible."*

The insurance industry is perceived to be driven by risk averseness, rather than the ambition to actively engage in uncertain contexts. The parent organizations of *Trustlog* are both in a leading position in the surety bond and guarantee market, a small but highly profitable area within the insurance business. However, when the first startups entered this field, work on the strategic initiative intensified tremendously as the market share came under threat for three main reasons:

- First, while there is not much movement in the market, aggregated sums are substantial and resulting margins significantly higher than in other insurance lines, making it interesting for new entrants.
- Second, guarantors in the market overwhelmingly focused on applicants who had been buying the insurance products directly from them. Interestingly, the powerful beneficiaries who request these guarantees in the first place were not part of consideration. Interactions with them were limited to the event when guarantors had to issue expensive compensation, which they naturally tried to avoid. This neglect left potential market entrants with a vital point of interaction by targeting underserved beneficiaries.
- Third, the processes within the market had remained largely untouched by digital transformation efforts. All interactions were paper-based, leading to a substantial overhead for involved parties handling the documents. The processes worked, but there was a definite potential for a digital solution.

In response to these threats, the decision was taken by senior management within *InsurA* and *InsurB* to proactively utilize these market challenges and launch a strategic initiative with the objective of creating a joint venture to solve the existing inefficiencies and shortcomings.

Product – the content of the strategic initiative

What, or who, is *Trustlog*? While the strategic initiative has had many different names during its becoming, *Trustlog* is the official name of both the venture and the corresponding platform. Indeed, both are closely intertwined; one member stated that *"The whole venture emerged around the product. Everything revolves around the platform."* While the platform development and venture formation were treated as different streams within the strategic initiative, they are closely tied together; one leads to the other and vice versa.

The *Trustlog* initiative aims to solve the previously described challenges within the bond market through the introduction of a fully digital platform that achieves three crucial improvements. First, it introduces digital bonds as a new standard to the bond market, rendering paper documents and their distribution via postal mail obsolete. Second, it connects previously isolated actors on one platform, simplifying the interactions needed for issuing and claiming bonds. Third, it directly connects insurance companies – in the role of guarantors – to beneficiaries. This connection was missing previously, clearly

seen in the dotted line in the triangle in figure 5. Beneficiaries, who were in uncharted territory before the advent of the platform, can now engage in a direct exchange with guarantors, greatly simplifying their administrative processes.

To give a more tangible sense of what the *Trustlog* platform looks like, I have included a screenshot of the current version of the platform's home screen in figure 6. The platform is currently available only in German; I added English translations for selected elements on the left side. The platform is targeted at beneficiaries and consists of a central work area and a left-hand navigation bar. In the work area, the different bonds are listed with their respective amounts and possible activities and tasks. More interesting for this dissertation, however, is the navigation on the left; it gives a direct indication about which fields of operation are of importance for the strategic initiative. The navigation bar is split into a workstation with current tasks, a way to organize bonds in projects and multiple ways to adapt the platform to specific beneficiary needs.
At this point, it is helpful to return to the opening quote of this subsection. The venture of *Trustlog* developed *around* the platform, which existed even before the venture hired its first employees. All functions and roles are, in some way, tied to the platform. This will most likely further evolve; however, at this stage, it is important to emphasize the importance of the product for the venture's identity.

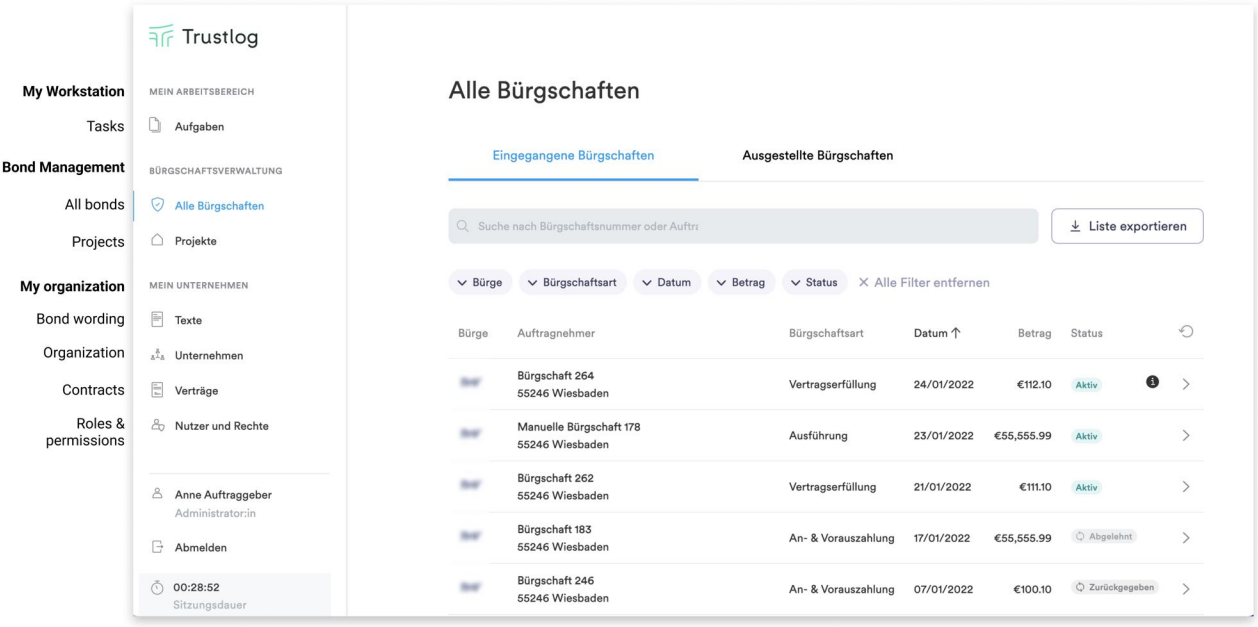


Figure 6 – Trustlog home screen

Setting – the inner context

In the case of *Trustlog*, the setting allowing for the engagement with intended future states results from deliberate and prescient action. Such a setting's creation is not

triggered by external events, but proactively induced by the decisions of the initiative members and senior management. To discuss the internal setting of the strategic initiative, I will highlight its organizational structure, its sites and workspaces and its practices that organize daily work.

When investigating *Trustlog's* organizational structure, it quickly becomes clear that the setting is not defined primarily by the organizational chart. While its members' various backgrounds indeed have an impact on the initiative's culture and routines, the initiative itself changed too much throughout its becoming to attribute special significance to the organizational setup. In the sense of Garud & Karnøe (2003), actors' constitution was not stable; some left, as others became involved, which led to varying inclusion levels throughout the existence of the strategic initiative. In the beginning, for example, *Trustlog* was only a project and not yet its own organization; it remained staffed with members of *InsurA*, *InsurB* and service providers. Only once the platform was already being implemented did the venture start actively hiring employees to supplement the managing director.

Physical sites and workspaces also had only a minor effect on the setting. Initially, furnishing a dedicated project room was one of the first things strategic initiative members accomplished. After its founding, *Trustlog* even moved into a temporary office space despite the pandemic beginning. By now, the venture is headquartered in a representative office with ample space to grow. All three spaces clearly distinguish themselves from offices typically found in the parent companies, offering an abundance of post-it notes, lounge seating and other creative furnishings. However, with the pandemic relegating everyone to home office, physical sites quickly lost their effect on the setting as well. While working on-site remains vital for retaining a shared identity at Trustlog, the home office setup showed how the effect of physical spaces on the strategic initiatives setting was of low significance.

This leaves us with *setting* practices as the only remaining contributor to the internal setting of the strategic initiative. A setting that allows actors to enact strategic ideas about the future collectively follows a set of practices and directives differing significantly from the daily routines at insurance corporations. At *Trustlog*, three connected micro-practices constitute the inner context.

- **Cocooning** – A major difference of the strategic initiative leading to *Trustlog* in comparison with other projects is the 100% commitment of many of its members. Instead of *"juggling five balls at one time"*, as one member calls it, the initiative's members can focus solely on advancing *Trustlog.* The term *cocooning* best describes the way the initiative's setting is distinct from daily operational activities within the insurance. While the initiative is not fully shielded off or completely taken out of the inner workings of the insurance companies, senior management ensures sufficient time and space for the members of the initiative and provides the cocoon that enables them to focus. A senior manager describes it as follows:

  "It is my job to make sure that people are not pulled back into the organization again. I clearly set times when we will exchange again, but in between I make sure the team has sufficient time to focus"

  In sum, *cocooning* describes activities conducted by the direct initiative members and adjacent organizational actors to enable allocation of sufficient time and mental resources. This is achieved by deliberately taking actors out of ordinary business cycles. *Cocooning*, however, is not achieved by solely relocating actors to a different physical space, but by carefully selecting and adapting their remaining organizational routines. As a result, they can concentrate on the strategic initiative while special care is given to keeping certain ties with the parent organization in place.

- **Timeboxing** – To remain effective, setting also utilizes the micro-practice of *timeboxing*, which imposes clearly defined and strictly-enforced durations on a wide range of activities. On one hand, this limitation ensures that generative activities do not result in an even more prolific output that would be challenging to digest in the given time. On the other hand, it shortens potentially extensive discussions on decisions that must be taken to close activities. While *timeboxing* is, at times, frustrating for strategic initiative members due to the inherent uncertainty that makes it challenging to come to decisions within a short time, they have adapted to the strict timeboxing practice and agreed to make decisions that might not be perfect. These temporary decisions now provide a more concrete starting point for following explorations and contribute to their understanding of the context.

Timeboxing sets constraints so that decisions must be made despite uncertainty and thus cannot be left undefined for a prolonged time. Consequently, it enables actors to act and posit strategic ideas by reducing the risk of a potential lock-in. *Timeboxing* is a crucial *setting* practice; it enables strategies to take form by forcing a myriad of small decisions to be made.

- **Iterating –** Establishing a recursive process is another key practice of *Trustlog's* setting. *Iterating* moves away from a sequential "waterfall approach" – a linear process that encompasses strict hierarchies and planning – consisting instead of multiple cycles. These cycles enable the team to make decisions under uncertainty, enact future states, evaluate their resonance and adapt their activities if needed. Therefore, *iterating* encourages decisions; they can still be amended later in the process. *Trustlog* members are liberated by the opportunity to not just analyze and then make a single binding decision, but to have the chance to experiment, learn and synthesize their collective understanding again. In that sense, the technical project manager of the platform described it as a *"continuous process of enlightenment."*

  The micro-practice of *iterating*, thereby, must be actively encouraged and managed. It improves decision-making capability in the present about uncertain futures by contributing to them taking form, one small decision or position at a time. *Iterating* allows actors to engage with decisions collectively once a new state has been enacted, is made sense of and eventually altered again.

The three micro-practices of *cocooning*, *timeboxing* and *iterating* constitute the overall *setting* practice that proactively establishes the basis for strategic sensemaking. Without *cocooning*, strategizing is threatened to remain superficial and be diluted by ordinary business activities. Without clear *timeboxing*, there is an increased chance of open-ended discussion, which may involve various perspectives, but fails to lead to the enactment of a novel position allowing for sensemaking. Moreover, without *iterating* and the possibility to adapt to learnings 'after the fact', it is much more challenging to instill a willingness to posit a particular strategic way forward.

3.3.2 Partners

The strategic initiative and its manifestation at a later stage in the form of *Trustlog* are driven by a group of organizational actors, each of whom brings own organizational

structures, methodologies and capabilities to the table. This subsection will briefly introduce the additional partners involved in the strategic initiative.

InsurA

InsurA is one of the biggest insurance companies in Germany. An ongoing renewal process – which aims for the organization to become more digital and customer-focused – started to show first results as an employee confirms:

> *"I always saw InsurA as notoriously conservative. But lately, I have to say, I get the feeling that there is more of a concept behind it, a sustainable concept. We have a distributed form of enterprise, which eases the pressure and lets us take things a bit slower, but we can approach them more sustainably and with more power."*

Within this strategic renewal process, the department that developed *Trustlog* plays a critical role. As InsurA in its entirety is too large an organization to be described here, I will focus on that department alone. While it accounts for only a small share of the company's total revenue, it operates in one of the most profitable business areas. This financial strength and resource availability, combined with an entrepreneurially minded department manager and a rather young employee structure allowed the department to develop as a breeding ground for innovative strategic initiatives. One member of the unit described the circumstances as follows:

> *"From the beginning, the other members of the organization saw us as the fun unit, or let's say the kindergarten of the department. But on the other side, everyone wanted a unit like that. It's just that it often didn't work out in their own departments."*

Interestingly, the department was not a digital innovation unit by design, but rather a group of actors functioning as a bridge between the technology and operational units of the organization. In this position at the interface, the department members are regularly required to deviate from established processes and find alternative ways to connect the pieces. This experience and position were crucial factors in the initial positioning of the *Trustlog* initiative within this unit.

InsurB

The second founding partner of *Trustlog* is fellow insurance company *InsurB*, which competes with *InsurA* in the very market they are now jointly approaching through the platform they have founded. *InsurB* is considerably smaller, but well-positioned in the

relevant market segment and has an advantage through the high digital maturity of its processes.

While *InsurB* is an equal founding partner of the venture, the organization's designated team joined the ongoing strategic initiative at a later project stage. The partnership of both organizations had been decided at the top management level, leaving the teams with the task of setting up collaboration among the organizations within the project setting. Initially, the later arrival of *InsurB* put its employees in a position of reacting to existing concepts, artefacts and strategic decisions, rather than shaping them from the ground up. This dynamic, however, has changed since as a senior manager of InsurB states:

> *"The perspectives were not the same from the beginning. It was a process where both organizations had to find each other. After all, we used to be competitors. But it all worked out in a very harmonic way. At the end of the day, we were really good at finding the needed compromises."*

The successful collaboration, however, does not imply that *InsurA* and *InsurB* are fully aligned. For example, the setup within *InsurB* is very different, with the strategic initiative being one of many initiatives pursued by the team. This setting led to a more project-based approach, which favors the completion of milestones over the further progress of the venture. Nevertheless, the members of *InsurB* are fully integrated in Trustlog, representing an indispensable part of the core team.

Goodpatch

The external design partner of *InsurA* joined the strategic initiative to support the translation of abstract concepts into more concrete artefacts; these could be used to make sense of the strategy of the platform to be built. *Goodpatch* is a global design consultancy specializing in the conception, design and development of digital products and services. A global company, it is headquartered in Tokyo, with a local team operating from two offices in Germany. *Goodpatch* has been present throughout the project with a range of strategically-oriented design consultants and more craft-driven designers who create, maintain and evolve the strategic initiative's material artefacts.

Goodpatch's key contribution lies not in providing industry knowledge and insight, but rather in introducing and embedding new ways of working. Generally, the applied methods can be described as grounded in a human centered design approach (Gruber et al., 2015; Liedtka, 2020), where a variety of materializing and visualizing practices are used to synthesize new and imaginative ways to solve problems. These problems have

been previously identified in close interactions with existing and prospective customers, hence the name. Design, in this understanding, is not seen as an outcome – as a noun – but as a process, which emphasizes designing as a verb. In this view, the better designing of products, organizations and strategies holds the key to unlocking potential of the design practice for business (Liedtka & Mintzberg, 2010). *Goodpatch's* reliance on design methodologies also put its members in an ideal position to act as a neutralizing element within the assemblage of actors who brought their parent organizations' agendas with them. This contribution is explicitly acknowledged by a senior manager:

> *"Goodpatch had one of the most important roles in the partnership; it acted as a neutral element. From the beginning, it had a strictly customer-driven perspective and managed to communicate this to the other members of the strategic initiative as well. There was a lot of trust."*

This way of working marked a departure from the established processes within InsurA and InsurB and served as a blueprint for the emerging practices at *Trustlog*.

TechWay

Despite being the last partner to join the initiative, *TechWay* quickly took up a defining role in the project's technical implementation. Its expertise lies in the technological development of complex information technology (IT) projects, where it has achieved a strong market position in the IT-consulting market. *TechWay* ensures that the prototype is realized and implemented functionally. At the same time, they are bringing in their own way of work into the strategic initiative, as an employee of *InsurA* explains:

> *"We have always been trying to do agile. And maybe we kind of got it right. But it is so important to finally have TechWay as the professionals here who can show us hands-on how it is done. They need to show us the framework that we should apply."*

Championing agile ways of working within the *Nova* venture is challenging, as it collides with *TechWay*'s frequent exchanges with the IT-departments of *InsurA* and *InsurB*. Both departments function in a more traditional work mode than *TechWay*, creating a paradoxical situation where the developers of *TechWay* must balance two opposing ways of working. Connecting both, however, is crucial, as the venture's technological architecture must be integrated with the initiating organizations' systems. *TechWay* achieves this important task by providing the largest team of external members to Trustlog and consequently has an important impact on the venture itself.

3.3.3 Phases

In this section, I will structure the process of the strategic initiative that resulted in the founding of *Trustlog* in five phases. While each phase does not have a definite start and end point, organizing the initiative in phases allows us to capture the overarching theme of a certain timespan. In line with Langley (1999), the phases can be understood as a form of temporal bracketing that encompasses a timespan with a certain continuity in activities increasingly discontinued at the interface to the consecutive phase. The phases do not aim to possess theoretical significance; instead, they simply structure event descriptions in phases drawn directly from field conceptualizations or those that emerged during the analysis. Toward the end of the section, I will visualize the phases as a map, which serves as a summary: a visual table of contents of the extensive three-year research timeframe.

- **Phase 1 – Analyzing (2017-2018):** The project can be characterized as a slow fade-in over multiple years, as ideas were exchanged and discussed between *InsurA* employees. In the late summer of 2018, however, senior management gave in to external market movements and officially assigned a team with allocated time and budget resources to analyze the potential of a strategic initiative in the field. According to an early member of the strategic initiative, the main direction they gave was *"lock yourselves in for three to four months and work on the topic from beginning to end to provide us the best option of how we can deal with it."* Accordingly, the assigned team set out to extend its reach to previously untapped customer segments by developing a new digital platform. First informal customer contacts took place while the team systematically analyzed the market; results and recommendations were subsequently condensed into a comprehensive slide deck and an explanatory video. At the same time, senior management at InsurA evaluated potential partners for the strategic initiative and eventually settled on *InsurB*. Finally, with a successful presentation to the board, a considerable budget was allocated to continue the initiative and conclude the first phase.

- **Phase 2 – Transitioning (2019):** After the initial funding was secured, the project did not pick up speed as expected, but first experienced a slow-down due to considerable uncertainty, abstract strategic directives and ambiguity on what the future platform might entail. Eventually, the team decided to actively approach the apparent uncertainty by materializing and validating its ideas in a series of focused work sessions. At this point, design partner *Goodpatch* joined the initiative to

support the creation of material artefacts and prototypes. The transition phase lasted for around 6 weeks and was characterized by hands-on design work to synthesize early insights from interviews, defining the design space of the future platform and simultaneous further negotiation of the setup and scope with *InsurB* as designated joint venture partner.

- **Phase 3 – Experimenting (2019):** With the team of InsurB fully joining after negotiations on the senior management level had been completed, the strategic initiative picked up further dynamic. The initial stages of the partnership were characterized by uncertainty and ambiguity on both sides, as neither team knew how to collaborate with those they had always known as competitors. Further complicating this was the challenge that the insurance companies were not yet aligned on what the result of this collaboration would look like in detail. With the facilitation of *Goodpatch*, however, both teams adapted to each other's cultures and ways of working through collectively crafting their aligned vision of the future platform. For four months, prototypes were built, validated with external and internal stakeholders in experimental settings and iterated again. The end of the experimentation phase was characterized by the creation of a fully aligned prototype – the so called minimum lovable prototype (MLP) – which was again used to get buy-in from top management to fund the venture and move on with developing the platform. Frequent customer interactions were key elements of this phase; the evoked resonance generated insights that were again used to further align the strategic initiative team. Concepts were iteratively synthesized from the resonance gained in customer testing, where the ideas were presented and discussed in a co-creation setting. It can truly be said that the *Trustlog* platform took its future form during the experimenting phase.

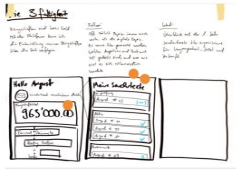
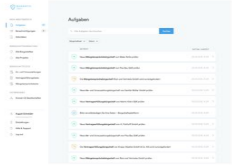
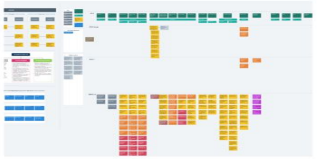
- **Phase 4 – Implementing (2020-2021):** With the legal founding of *Trustlog*, the initiative entered a new stage. The strategic initiative was now a venture with a managing director as its first employee and the initial prototypes were joined by their functional counterparts in the form of the digital platform that constituted the venture's core product. Despite now being its own legal entity, *Trustlog* remained closely interlinked with *InsurA* and *InsurB*. Most members of the venture were not directly employed by the venture, but were instead sent in the form of a secondment by the parent organizations. The team was further complemented by a development team of *TechWay,* who took the leading role in the platform development and

technical interfaces with the parent organizations. In this phase, the focus of the involved actors shifted away from a relatively long-term and visionary view toward a more pragmatic focus on the coming weeks. Hence, achieving the functional implementation of the platform and market launch drove this phase.

- **Phase 5 – Venturing (2021-current):** After a successful market launch, the strategic initiative entered another new chapter that has lasted until the time this dissertation was written. The original platform prototypes became obsolete; they had been fully implemented in the real platform. This led to a resurgence of prototyping activities again, focused on enacting potential future states of new platform parts. The venture was now caught between running and operating functions and continuing to develop its future trajectory. For the parent organizations of *InsurA* and *InsurB*, *Trustlog the project* had been completed with the market launch. For *Trustlog the venture*, however, organizational work instead intensified significantly. Today, the platform is successively joined by further guarantors, more and more beneficiaries are brought on board and the venture is growing; it is no surprise that this introduces new and interesting strategic challenges. At this point, one can no longer call *Trustlog* a strategic initiative; it has become a venture with 13 employees whose platform handled over 1200 bonds of 130 different beneficiaries in the second half of 2021 alone. While this phase is no longer part of this dissertation, it is a fascinating and eventful development.

All five phases are depicted on the visual map in figure 7, mapping the phases through the years and highlighting important milestones. It also provides a selected overview of general activities in each phase and pinpoints strategic sensemaking activities, crucial for the following findings chapter. The map also provides a selected list of human and non-human actors. The human actors were already discussed in section 3.3.2. and are shown as they are more and less involved through the different phases. The same is true for the non-human actors in the form of material artefacts and prototypes, already listed in tables 1 and 2 in section 3.2.1. The visual map situates them in the phase they appeared for the first time, although they often stay relevant across multiple phases. The map also defines empirical contexts, which provide the source for findings in the following section; thus, the visual map serves both as a summary of the strategic initiative and starting point for further analysis of the findings.

Figure 7 – Project phases

	Phase 1 – Analyzing	Phase 2 – Transitioning	Phase 3 – Experimenting	Phase 4 – Implementing	Phase 5 – Venturing
Years	2018	2019		2020	2021
Milestones	• First workshops • Assignment of designated Team • Partnership decision	• Investment decision • Start Designathon workshops • First meeting InsurA & InsurB project teams	• Customer testings • MD joins • MLP prototype defined • Antitrust approval	• Founding of venture • Start implementation • Pilot launch • 1st office	• Vision workshops • Market launch • New guarantors • 2nd office in Hamburg • End of secondment
Research Focus		Empirical Focus 2	Empirical Focus 3	Empirical Focus 1	
Main Activities	• Conducting desk research on market and competitor landscape • Calculating first business case • Negotiating potential partnerships • Assembling project team • Negotiating venture budget and timeline	• Creating the form of the future platform • Aligning team experience and knowledge • Defining key customers • Defining first platform prototype • Benchmarking competing solutions • Onboarding joint venture partner	• Engaging directly with potential customers & partners • Aligning stakeholders within the organization • Legally founding the venture • Recalculating business case based on newly generated data	• Implementing the platform based on the prototype and process diagrams • Acquiring pilot customers and partners • Aligning with host organizations on timelines and strategic directives	• Building the venture and hiring new members • Evolving the existing platform according to customer feedback • Scaling customer base to prove viability • Onboarding new sponsors and partners to the platform to increasing self-sufficiency
Strategic Sensemaking Activities	• Enacting the current environment and urgency • Identifying new opportunities in relation to existing business operations • Selecting potential venture partners	• Mapping individual anticipations and experiences to create common understanding • Crafting future interactions • Projecting the future desired state of the venture through prototyping	• Enabling resonance through experimenting with potential stakeholders • Refining the value proposition through prioritizing • Defining and communicating minimum lovable product (MLP) for the market launch	• Observing first real interactions of early customers on enacted state of the platform • Re-prioritizing value proposition according to feasibility • Balancing current and future state of the platform in stakeholder interactions	• Mapping future processes that emerged since launch date • Crafting solutions for parts of the platform • Projecting the desired state beyond market launch to internal team, organizational stakeholders & customers
Examples of Sociomaterial Artefacts	 Management slide deck	 Rapid prototypes & sketches	 Platform MLP prototype	 User story map	 Launched platform and website
Non-Human Actors	Management slide deck Video Big picture Personas Service & stakeholder maps Boards Sketches Rapid prototypes Vision prototype Testing prototype	Research report Research Recordings Platform prototype	Digital documentation tool User story map Partial prototypes	Sales & investor slide deck Vision cone Product development board & user stories Platform prototype Digital Trustlog platform	
Human Actors	InsurA Project Team InsurA Senior Management InsurB Sr. MGMT	InsurA Senior Management InsurB Project Team InsurB Senior Management Goodpatch — Design Consultancy	InsurA Sr. MGMT Trustlog Managing Director TechWay – Technical Consultancy	Trustlog MD & Trustlog Team	

4 Findings

Witnessing the journey of a strategic initiative from its inception as a sticky note all the way to market launch yields an enormous depth of observations, artefacts, exchanges, relationships and experiences. While such rich data from the field is all a researcher can ask, the challenge lies in whether this often chaotic and interrelated data can be transformed into linear, more accessible form without losing its depth and authenticity. The findings consist of three chapters, each revolving around a designated empirical focus. This allows me to condense three years of research into meaningful chapters, each contributing one element to the overall picture. In chapter 4.1, I investigate the defining role of material artefacts in strategizing to introduce the concept of sociomaterial prototypes. In chapter 4.2, I recount the very moment when abstract strategic ideas take form to foreground the practices that enable human and non-human actors to synthesize potential future states. In chapter 4.3, I show how resonance provides a crucial way to collectivize strategizing and engage actors within the strategic initiative and its emerging context.

To present the findings in an approachable way, each chapter follows a predefined structure. It includes an introduction where the underlying topic is briefly situated in the theoretical framework, a close-up description of the empirical case, a more distanced analysis of the observed phenomena to derive the findings and a discussion of the proposed model in the literature.

4.1 The prototype loop – enacting future states

4.1.1 Reintroduction to materiality

Strategy as practice literature sees strategy not as "something that an organization has, but something its members do" (Jarzabkowski et al., 2007, p. 6). To reference Feldman & Orlikowski's (2011, p. 1249) metaphor of a box and arrow diagram once more, the "emphasis is on the arrows, on the relationships and performances that produce outcomes in the world." Thus, performances and relationships that constitute the arrows are commonly attributed to human agency, while materiality remains confined to the static form of boxes. This tendency to overemphasize the social, while taking the material for granted, has been criticized by an increasing number of scholars (Kimbell, 2012, p. 142; Nicolini & Monteiro, 2017, p. 5; Whittington, 2007). They point out that the investigation of strategizing should not be limited to human agency, but should also appreciate its inherently material nature.

While materiality can be understood as confined to the substance of its outcomes, a sociomateriality perspective moves away from a sequential understanding where arrows lead to boxes. Instead, it offers the opportunity to conceptualize boxes and arrows as entangled with each other. In this sense, Orlikowski (2007, p. 1444) remarks that "all practices are always and everywhere sociomaterial, and this sociomateriality is constitutive, shaping the contours and possibilities of everyday organizing." The social and material thus constitute each other in practice. While human agency influences material artefacts, their material agency, in turn, influences human actors as well. Strategizing becomes a decisively sociomaterial practice involving both human and non-human actors on equal footing as artefacts, objects, and other materialities become vital participants of practice (Reckwitz & Rosa, 2021).

I have already discussed the wide-ranging implications of a strong sociomaterial perspective in detail in chapter 2.3. At this stage, I want to resort to highlighting two important elements once again because they contribute to the core of the theoretical framework grounding this chapter.

- First, as the social and material are mutually constituting each other, it becomes increasingly challenging to understand what is happening in the field. The more arrows and boxes are intertwined with each other, the more challenging it becomes to differentiate them. Therefore, Barad's (2003, p. 815) concept of "agential cuts" is crucial to make a sociomaterial understanding actionable in the field for both researchers and participants. Through agential cuts, temporary resolutions are enacted allowing actors to further relate to these enactments (Barad, 2007; Orlikowski & Scott, 2008). Using agential cuts, I will highlight the material side of these enactments to balance the literature's earlier overexposure of discursive and cognitive aspects again.
- Second, I will focus my analysis on a special type of artefact, the so-called prototype. Prototyping is well-known as a central practice in designing and a powerful way to synthesize a common understanding in uncertain and ambiguous contexts (Elsbach & Stigliani, 2018; Houde & Hill, 1997). According to Suchman et al. (2002), prototypes should be studied as performative artefacts whose embeddedness with dynamic social assemblages enables them to move beyond their material form and impact the social as well. Prototypes, therefore, are not just material artefacts, but function as enactment, rendering them important sensemaking devices. Their becoming is of interest, as well as the agency they exhibit once they are enacted.

This chapter aims to create a better understanding of the defining material artefacts that were part of the strategic initiative over the years. It specifically examines how ordinary artefacts become impactful prototypes that directly contribute to engaging in strategic sensemaking.

4.1.2 Empirical focus I – the platform prototypes

From early ideas to the moment when the platform was launched, the strategic initiative that would eventually result in the founding of *Trustlog* was characterized by a continuous involvement of material artefacts and practices. For three years, dozens of artefacts had been created, discussed, and evolved. Sketches were drawn, visual maps created, slide decks compiled and whole walls in the office covered in sticky notes to trace customer journeys within the future platform and beyond (see table 1 in section 3.2.1 for a comprehensive overview). Often, the process of crafting turned out to be more important than the artefacts themselves; many were quickly abolished again once they were documented.

One specific type of material artefact, however, stood out because it managed to stay relevant throughout multiple project phases, evolving with the team as the initiative unfolded. The prototype of the platform had become a defining material artefact of the strategic initiative, as the following statement of one of its members wholeheartedly confirms:

> *"The prototype is the heart that we all share. It's the central element that everything else revolves around. And it's where we are together as a team, as all our collective work found its way into it."*

To better understand material artefacts' decisive role in the strategic initiative, this empirical focus will center on the platform prototype. In a first subsection, I will introduce the prototype to give a sense of its materiality. This is challenging, as it does not exist as a single artefact, but aggregates countless iterations and versions. As the platform prototype in its late versions consisted of close to 200 screens interlinked in a complex range of interactive flows, I will focus more closely on the description of a specific section within the prototype. Zooming in on the so-called project view, the second subsection will describe the prototype's evolution and agency. This focus is of particular interest, as it sets the stage for an interesting engagement where the prototype's agency directly affected the initiative's strategizing, a controversy I will describe in the last subsection.

Introducing the prototype

Initially introduced by the design consultancy, the platform prototype quickly became a key materiality of the strategic initiative. When its members mentioned "the prototype", it was clear to what they referred; they had accepted it as an indispensable part of the strategic initiative. In essence, it was their way to show what they were planning to achieve.

A version of the prototype home screen is displayed in figure 8. This initial screen served as a starting point for the exploration of various different aspects within the strategic initiative. Some aspects could be accessed through the navigation bar on the left, while the most significant interactions were also shown directly as tasks in the main work area. Therefore, the prototype clearly defined the parts of the value proposition and their respective relevance. Once users interacted with the different options, the prototype would independently guide them along a predefined journey to give the impression of a final product. In that sense, it enacted an ideal state of the future platform and made it accessible to actors of all kinds. This ability to immerse actors in the future state was the reason why the prototype was well known even beyond the core team of the strategic initiative.

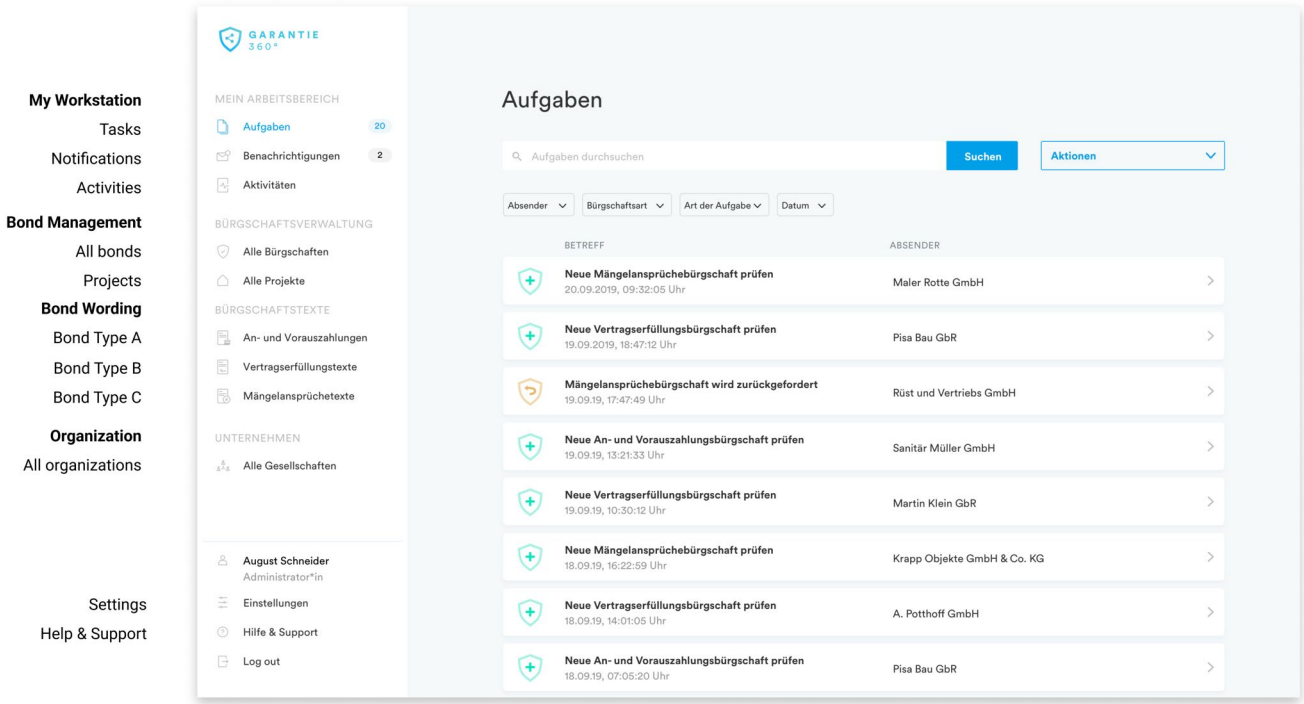


Figure 8 – One iteration of the platform prototype home screen (partially translated)

Indeed, the prototype possessed an unrivaled ability to represent the objectives of the strategic initiative in simple and tangible form. Its enactment of the future state was broadly accepted, as most early members of the strategic initiative were directly involved in its synthesis. Collective involvement thus happened to an extent to which actors were no longer able to identify their individual contributions. In fact, the loss of clearly assignable output resulted in an even stronger identification. The prototype functioned as an increasingly important artefact to achieve a collective identity within the strategic initiative, as one member of *Trustlog* describes:

> *"You get the feeling that you have the finished product in front of you, even though it is not realized yet. This leads to a strong identification with what we are doing. Everyone is now regularly giving feedback to shape it even further. Not just talking, but shaping concrete elements of it."*

The statement shows how the prototype enacted an intended future state and so provided a sense of a common vision or understanding, fusing the individual contributions into a collective enactment of the future. By projecting an ideal outcome, the prototype managed to align and motivate venture members and stakeholders. A project lead of *Trustlog* described the phenomenon as follows:

> *"The prototype really is our main way of saying what's going on in our heads. To go beyond slides and to understand for ourselves, does this really make sense? Is this what we want to do? I can even share this with other teams. It's very fast. I can explain interfaces, processes and visions to them and they will understand right away."*

According to the quote, the prototype's relevance extended beyond its mere materiality. Indeed, the prototype supported strategic sensemaking, encompassing aspects like processes, visions and value propositions. It did so by providing an efficient way to include actors across the parent organizations in the sensemaking process.

However, while the practitioners in the field would refer to "the prototype" as a single artefact, there never was that one prototype as a fixed material artefact. Rather, the prototype consisted of numerous continuously updated versions. Sometimes, these updates spread over the whole prototype; sometimes only specific areas were iterated. What came to be referred to as "the prototype" was, indeed, an assemblage of various related prototypes of different low- and high-fidelity phases. The next subsection, therefore, zooms in on a particular aspect of the prototype.

Developing the project view

As already outlined in section 3.3.1, constructing buildings is complex endeavor. A host of craftspeople, planners, suppliers and site managers collaborate to build a structure that lasts. As only time will tell if they truly succeeded, surety bonds and guarantees play an important role. They allow beneficiaries to hold involved subcontractors (applicants) accountable for many years after a project's completion in case their work did not live up to the promised quality. The only thing they are required to do is keep every single paper bond filed in a safe space and making sure they can find it for any eventual insurance claim. This is challenging; there are, at times, thousands of bonds to be stored.

Once the team started its work on the *Trustlog* platform, they increasingly put the beneficiaries in the center. As they conducted interviews, mapped their findings, crafted prototypes and projected potential versions of the future platform, they generated an increasingly proficient understanding of beneficiaries' behavior. They realized – for example – that in contrast to guarantors, who tie bonds to applicants, beneficiaries organize their guarantees per project. What might seem like a minor difference in processes had major implications for the platform. The team realized that their understanding of an ideal triangle with a beneficiary, applicant and guarantor was flawed and oversimplified (see figure 5 in chapter 3.3.1 for a visualization). Through taking a project-based view, they learned how many beneficiaries are often also applicants and thus act in a hybrid role. Interestingly, this hybrid of beneficiary and applicant had not been an explicit part of high-level strategic considerations at the beginning of the strategic initiative.

How did the team come to these insights? A driving factor was its direct engagement with the prototype and its becoming. Figure 9 shows a sequence of four iterations, each of which build on each other. Starting with sketches, the drawings were linked, made interactive and further elevated to evoke a sense of the final platform. Already in the first iteration at the top left (1), a 'object view' can be identified. While it might look like a minor change, it introduced an entirely new way of structuring the platform business processes, resulting in a novel approach to exchanging with customers. In the last iteration at the bottom right (4), the project view is extended with a full-fledged hybrid view iteratively developed in the process.

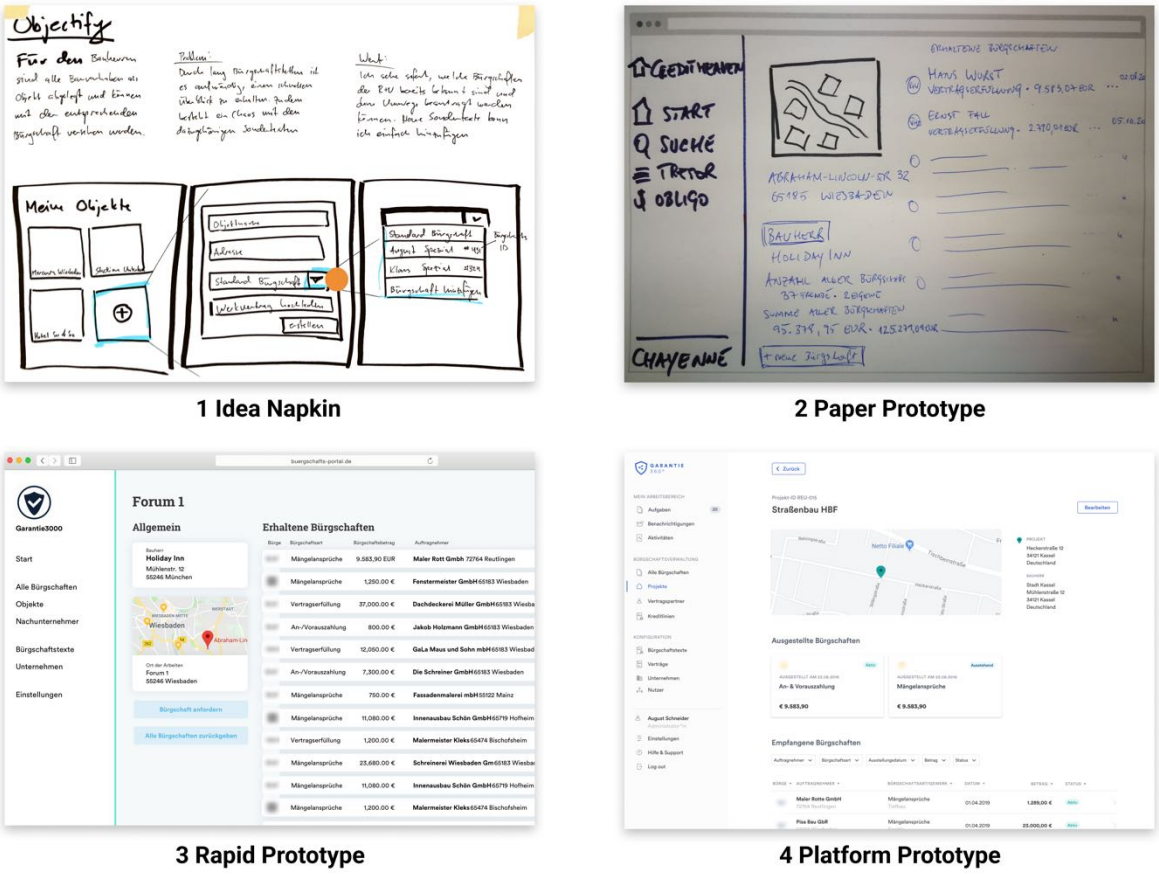


Figure 9 – Prototype iterations of the project view

This sequence is just one example of the many similar crafting processes that eventually constituted the prototypes. While materializing in the early stages often came in the form of quick sketches and scribbles, the drafts were incorporated into increasingly detailed models that already provided a dynamic representation of intended actions. This process further iterated the prototype which resulted in unearthing previously unexpected insights about novel customer groups. Thus, the team's shared understanding kept evolving and was continuously incorporated into the next iterations of the prototype again.

A button to start a controversy

Through their ongoing engagement with the topic, the importance and value of the project view for the *Trustlog* platform was undisputed among the direct strategic initiative members. In a routine consultation to discuss the next steps with the parent organizations of *InsurA* and *InsurB*, the prototype was the center of discussion once again. However, once the prototype was shown in the meeting, the tides suddenly turned as one senior manager describes:

> *"We said, wait, wait, wait! This is going in a very different strategic direction now! That's not what we had in the initial plan. We wanted the platform to focus on beneficiaries, not also applicants, how are we changing this now? I believe that suddenly the ongoing work on the platform had turned into a strategic decision that had to be taken on the senior management level. It's good to have these proposals by the team, but we need to be involved in the decision"*

With the future state enacted by the prototype, the potential strategic implications of the *Trustlog* platform became clear in an instant. A controversy was sparked through the addition of a single button related to the project view. The detailed contents of these discussions will not be disclosed at this point, as they do not matter for the analysis of strategic sensemaking practices. What is of interest, however, is the audacity the enactment in material form created. As the prototype functioned as a powerful way to enact the future in the present, the strategic implications became very clear even for actors who were not involved with the strategic initiative daily.
Figure 10 shows one of the instances within the prototype where the button appeared. For clarity, I have marked the button with an arrow and added an English translation.

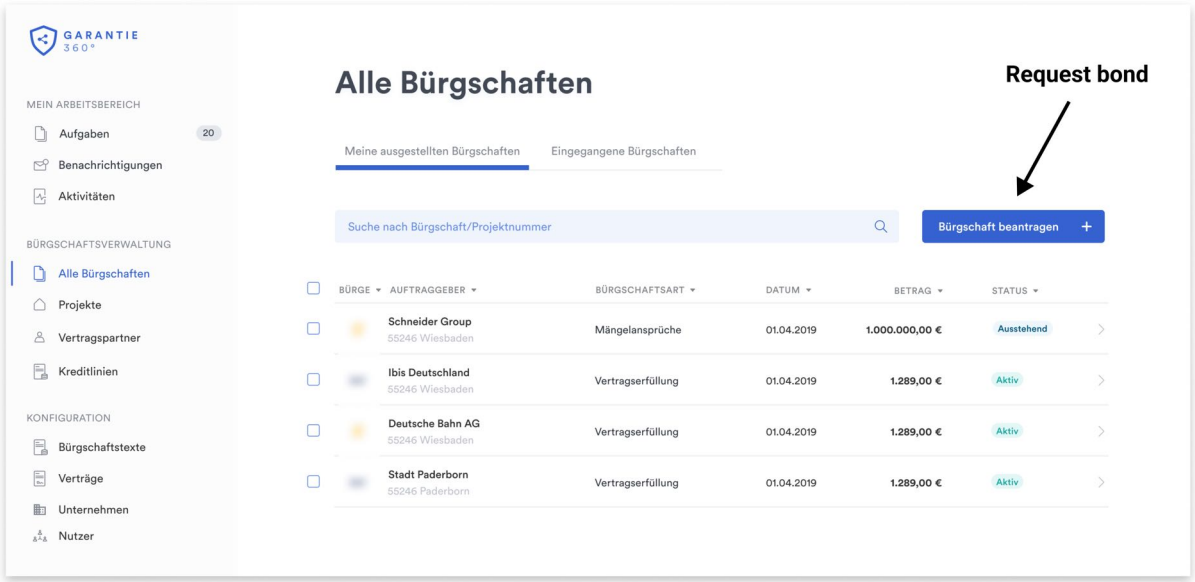


Figure 10 – Strategic relevance of a button within the prototype (arrow for emphasis)

Looking at the prototype screen, it might be surprising that a single blue button had such an effect, especially as its underlying ideas can be traced back to early prototypes and sketches. However, its addition to the prototype tangibly enacted a future state of the platform; it was very clear to the involved actors that ongoing strategizing had evolved from their initial plans. With the addition of the button, the prior conceptualizations

about main users and customers of the platform were expanded, leading to the platform addressing additional markets, beyond the initial scope. While this extension of the platform's strategic direction happened naturally over the course of numerous iterations, only its explicit enactment triggered intensive strategic sensemaking again.

To overcome these misconceptions, one could think that the prototype would have been put aside because it caused such upheaval in the first place. However, while there were further documents, explanations and arguments brought into the process, the prototype remained the defining artefact in finding a solution. It was further iterated to better explain the intended changes and incorporate senior management feedback, as well as that of future customers. The involved actors had to collectively make sense of the evolving strategic direction again that had emerged through the ongoing engagement of the strategic initiative's members with the future context and potential customers.
How the prototype helped everyone to strategize collectively is made clear in the following three quotes, each representing a distinctive perspective involved in the strategic sensemaking activities. The first quote is by a direct member of *Trustlog*:

> *"It was a workshop setting. We tried to better explain what we mean with the project and hybrid view. We also referenced previous iterations of the prototype to show that it had been evolving for a while, that we have had aligned everyone already way back in our process."*

Using the prototype to guide the workshop was not only suggested by the members of *Trustlog,* but actively requested by parent organization senior management as well:

> *"I asked them to build a prototype to show the look and feel. So that our board and top management can understand the idea behind it. And maybe, to even show that it not only helps the clients, but also the organizations themselves."*

Another senior manager explored why the prototyping practice was crucial for strategizing at *Trustlog*:

> *"The prototype is not the origin of the strategy, but it helps in coming to a decision. It helped us a lot to see the interactions in detail and understand that we are not losing potential clients. They would first go up, then right, then see the selection, and so on (points in all directions while referencing the prototype). It took away the fear we had because it made it clear that it will be handled in a fair way."*

When summarizing the quotes, it becomes clear how the prototype provided two main tasks in these critical discussions during the workshop. First, it enacted a future state in a material and therefore relatable form so that discussions were grounded on a common base. By showing in detail how a future implementation could look, it decreased inherent uncertainty and ambiguity. Second, it enriched the discussion by encompassing previous iterations, as well as feedback from future customers. In other words, it possessed enough flexibility to adapt to the unfolding situation. Both functions are as well picked up by a senior manager when reflecting on the defining episode:

> *Yes, that button that was added threw us into one of the most intense discussions in the past years. It seems like it was not clear to everyone what an effect such a small change could have on the strategy and therefore the senior management. What's interesting when looking back is how the strategy further evolved through the operationalization. I wouldn't call it a change, but an addition to our initial plan."*

In conclusion, this empirical excurse shows how, at times, the strategy of an entire industry can be boiled down to a button. It becomes a placeholder for the overarching strategic direction encompassing much more than the button itself. However, through an ongoing engagement with the enacted future state, diverse groups of actors can achieve common sense again and update their initial strategic directives. As much as prototypes can result in potentially controversial enactments, they also play a crucial role in aligning the involved actors in making sense of them again.

4.1.3 Sociomaterial prototypes and prototyping practices

The previous empirical excurse introduced prototypes as a defining material artefact of strategic initiatives. Focusing on a controversy during their development, it foregrounded the agency that material artefacts have within strategic sensemaking. They are not just static outcomes or tools, but actively participate in shaping strategizing activities.

In this section, I first show how prototypes possess strategic relevance in the observed empirical context. Second, I define prototypes as sociomaterial enactments whose significance extends beyond their physical materiality as they reference future and past states in the present. Then, I show how prototypes are not fixed, but constantly becoming, as they are enacted through an ongoing oscillation between crystallizing and liquefying practices.

Relevance for strategizing

Prototypes perform two important functions for strategizing in emerging contexts. First, they enable actors to blend strategy formation and implementation by enabling a temporary enactment of future states. In doing so, they provide an evolving reference point for strategizing. Second, as highly relatable enactments of the future strategic direction, their relevance transcends the direct materiality of their substance and extends into adjacent areas as well. Hence, prototypes anchor strategizing in areas like resources, processes, legal matters and customer value propositions. Below, I will provide a brief selection of quotes from the field to substantiate prototypes' relevance for strategic sensemaking.

A prototype functions as a main driver to interlace strategy formulation and implementation as it manages to represent an intended future state by simultaneously enacting it in the immanent present. In other words, while it is formulating a strategic direction, it is already implementing it in a prototypical way. This entanglement is described by one of the project leaders at *Trustlog*:

> *"There is not really a difference between strategy and operation anymore. The decisions within the project team are generally more grounded in the actual circumstances of the project than the directions of senior management. We create an answer for an issue through prototyping, get feedback from the outside, iterate again and then connect this to our overall vision and strategy."*

This entangled view is not limited to the direct members of the strategic initiative but extends into the parent organization's senior management. As the initiative progressed, a senior manager reflected on the prototype's strategic relevance:

> *"We have now seen how separating strategy and operations is in fact difficult, very difficult. I mean we can't prohibit it. That's exactly what happened with the new functions of the platform. It is indeed the underlying strategy that developed while we were closely working on the platform. It somewhat flipped the initial plan."*

As strategy formulation and implementation are increasingly intertwined in practice, the daily doing in relation to the prototype also gains in importance. What is added to the prototype – or taken away – has the potential to alter strategic direction, as a leading member of *Trustlog* points out:

> *"The prototype currently plays a crucial role. It shows our vision, where we want to go. We don't have another concept or written strategy. The prototype is our only way to communicate and align everyone to show the different strategic decisions we have taken regarding our offering. Of course, there are many more decisions that need to be taken, but I think if we had just written a concept, we would never have come so far."*

In addition to confirming the strategic relevance of the prototype, the quote also hints at ways that explain its advantages for strategizing. Because a prototype is not a detailed plan, it manages to keep a certain degree of ambiguity. In doing so, it enables collective sensemaking of the parallel formulation and prototypical implementation of strategic ideas. Thus, strategizing becomes a deliberately iterative practice as a design consultant points out:

> *"Our strategy is our iterative approach. How we iteratively craft the prototype to understand the substantial features of the platform. We started with a visionary prototype and iterated until we ended up with an MLP, which depicts the version that we want to build until launch. Especially after the second testing, we were quite sure that this is a version that works in the market. This continuous evolution is our strategy."*

The quote shows that while a prototype is not a fixed plan, it is not in constant flux either. Prototypes enact intended future states in a way that keeps them stable enough to serve as reference, but also ensure their malleability to enable recursive strategizing. This allows the members of a strategic initiative to concretize the abstract strategic directives they start with, without the immediate requirement to fully commit to them.

To conclude, the case of *Trustlog* demonstrates how prototypes play a significant role in constituting a venture's strategizing. While prototypes' dynamic materiality provides common reference and orientation, their relevance goes beyond their substance and directly impacts adjacent processes. The next section thus takes a closer look at prototypes as sociomaterial enactments.

Sociomaterial enactment

To the members of the strategic initiative, prototypes are more than just material objects. They aggregate months of continuous labor, while simultaneously representing all the work that still needs to take place. In an intriguing way, prototypes manifest both past

learnings and future anticipation in the present. In other words, they achieve sociomaterial enactment to make ongoing strategizing more accessible.

Prototypes achieve sociomaterial enactment through agential cuts that entangle interpretation and action in a temporarily stable form. The process of actors collectively agreeing on these cuts contributes substantially to a prototype's significance. While the in-depth discussion of seemingly minor details of a prototype might appear irrelevant for a strategic initiative's direction, findings show how allegedly mundane elements have significant implications for strategizing. A particular example was presented in the previous section, where the addition of a button to the prototype led to an impactful sensemaking engagement. The materiality of the button was not disputed, but more important was the significance it had on the social world it constitutes. A project lead of *Trustlog* reflects this in the following quote:

> *"We were not talking about the button, if it's green, blue or red. What we saw in that button was the pivotal discussion on what this platform is about. What is a digital bond, and how does this change the way we are providing bonds as an organization? It was our vision to establish a new digital market standard. With the prototype, it became suddenly clear how this also transforms the business of the parent organizations."*

If prototypes are understood as sociomaterial enactments, they inquire how an enacted future state affects the relations between human and non-human actors. A prototype thus not only revolves around its own materiality but serves as a starting point to discuss further social processes and practices connected to it. This includes – but is not limited to – the organizational design, routines, which resources are needed, how the organization communicates, what value propositions are central and which partnerships are needed. At *Trustlog*, for example, development resource estimations, comprehensive legal contracts and assumptions about the future customer value are all derived from a variety of prototypes.

Understanding prototypes as sociomaterial enactment emphasizes their ability to transcend their material substance and have an impact on social processes and connected practices. In this view, prototypes are no longer limited to the functional validation of a solution but manage to pursue a social and more generative inquiry of future states, meaning that the relevance of their enactment extends beyond the material to include the social as well. I will, therefore, refer to prototypes as sociomaterial enactments or

sociomaterial prototypes from now on. In doing so, I aim to clearly distinguish them from ordinary material artefacts whose relevance remains within their fixed momentary substance.

Crystallizing and liquefying

Based on the findings, sociomaterial prototypes can be defined by focusing on a set of two interrelated practices. *Crystallizing* allows prototypes to achieve stable enactment of intended future states, while *liquifying* opens and destabilizes these states again. These terms are inspired by the work of Boland et al. (2008) with architect Frank Gehry, who used them to describe organizations as "enactments that continue to shift between liquid and crystal states, in a dialectic between crystallization and liquidity created by both applying doubt and engaging in action (…) over and over again." The metaphorical qualities of *crystallizing* and *liquefying* also apply to sociomaterial prototypes, implying that enactment achieved through prototypes crafts clarity, although it remains fragile and is easily dissolved again into further iterations. How sociomaterial prototypes perform the practices of *crystallizing* and *liquefying* is elaborated below:

- **Crystallizing** – Prototypes are dynamic artefacts that enact future states. Enactment is achieved through *crystallizing*, as human and non-human actors collaboratively answer the ongoing stream of small questions that come up during the creation process. These answers are again incorporated into the prototype to create a temporary resolution that is actionable and relatable. Thus, through *crystallizing*, prototypes provide a reference point for further development and detailing by actors that relate to them. In their stabilized form, prototypes can be used to communicate the process and direction of strategic initiatives. Due to the uncertainty inherent in strategizing, actors rely on the use of prototypes and other material artefacts to streamline their interactions and quickly communicate their core concerns, as a member of *Trustlog* explains:

  > *"The prototype is the core element. We use it as a starting point for discussions about legal topics, technical alignment and so on. It helps us to explain highly complex dependencies in the shortest amount of time."*

  or from the perspective of senior management:

  > *"If you are too broad when interacting with other senior managers, you will not get a decision, as they are overwhelmed by uncertainty. That's why I make sure*

to always bring something tangible. It used to be costly, but now it has become much more accessible. A visualization shows so much more than words."

When uncertainty and ambiguity levels are high, the involved actors first need to create local resolutions that enable them to collectively make sense. These resolutions may not last long, but they provide the required tangibility for action. *Crystallizing*, therefore, makes strategic ideas actionable and relatable for a broader range of actors. Without *crystallizing*, actors would not be able to make sense of potential future states. Thus, it enables the successful enactment of sociomaterial prototypes, which collectivize the sensemaking process to include actors outside the strategic initiative.

- **Liquefying** – A sociomaterial prototype that achieves stability through *crystallizing*, however, also has its drawbacks. The concreteness of the prototype – required to emphasize and communicate effectively – needs to be *liquefied* again to achieve malleability and retain the required openness for further iterations. Thus, projecting future states with prototypes that seem real and finite can lead to a reaction where the process is understood as already completed. As a result, external actors take things for granted as it is described by a member of the strategic initiative:

  "We had one top-level manager, who said, 'well this is great, now we just need to plug it in.' He thought it was basically done. But it was nowhere yet!"

  Accordingly, a disadvantage of prototypes lies in the range of expectations they evoke through successful *crystallizing*. Human actors involved in the creation of a prototype no longer have full control over how this enactment is perceived by external actors. For example, senior management can misinterpret the progress of the initiative as being much more advanced, while potential customers may take early ideas as given and expect them to be implemented. A prototype's capacity to dilute enactment again is thus crucial. *Liquifying* is achieved in various ways as explained by a design consultant:

  "Sometimes, it is really helpful to leave certain parts deliberately rough or open. To leave gaps in the prototypes. This gives a chance to improvise once the prototype is in action. Or people even fill in the gaps themselves."

  Prototypes, therefore, deliberately work towards an unfinished or rough appearance allowing them to further evolve if needed. This openness enables actors to

repeatedly engage in shaping the prototypes in practice. *Liquefying* thus contributes to recursive sociomaterial enactment, enabling sociomaterial prototypes to evolve in multiple iterations. Without *liquefying*, sociomaterial prototypes would quickly become obsolete if they failed to remain relevant to a continuously evolving strategic initiative.

Crystallizing and *liquefying* are crucial practices that constitute sociomaterial enactment. When sociomaterial prototypes oscillate between *crystallizing* and *liquefying* future states, they are not just shaped by human actors, but also exert their own agency. As they directly constitute the enactments of potential future states of a strategic initiative, they affect the involved human actors as much as they are affected by them. Through this constitutive entanglement, prototypes can be treated not only as tools or artefacts, but as non-human actors. When human actors are making sense through enacting potential future states, prototypes provide answers to their questions and, at the same time, ask back. In other words, they actively negotiate the many small, and sometimes more significant decisions, taken within a strategic initiative every day.

In conclusion, sociomaterial enactment – as it is achieved through prototyping – is a key element of strategic sensemaking in emerging contexts. Prototypes are sociomaterial as their relevance encompasses both their material substance and their social significance. Unlike ordinary material artefacts, this allows them to transcend temporal structures and enact future states in the present. They achieve this through oscillating between the interrelated practices of *crystallizing* and *liquefying*. While the former manages to bring ongoing enactment processes to a halt and structure them in an accessible way, the latter works the opposite way and introduces flux again to ensure the possibility for further iteration. This crucial role in enactment processes, therefore, renders prototypes as impactful non-human actors directly engaging with their human counterparts.

4.1.4 Introducing the prototype loop

Following the empirical case, the previous section introduced prototypes as sociomaterial enactments playing a decisive role in strategizing through their ability to crystallize and liquefy enactment.

In this section, I will propose a generalized definition of sociomaterial prototypes as they are used in strategic sensemaking. This definition will be visualized and integrated in a loop, put in relation to other definitions and situated within this dissertation's theoretical framework.

Defining sociomaterial prototypes

Prototypes are material artefacts, but not all material artefacts are prototypes. In contrast to the investigation of artefacts through culture studies – which solely focuses on their meaning for the past – sociomaterial prototypes leverage their agency to create meaning for, and in, the future instead. This inquiry takes place in the present and involves both their substance and significance. Sociomaterial prototypes, therefore, achieve enactment where the social and the material are closely entangled and no longer separable.

A definition clearly benefits by drawing from a sociomateriality perspective, treating prototypes as artefacts of investigation that exist through the ongoing enactment of particular agential cuts (Barad, 2003). Which cuts are enacted is not solely in the agency of the involved human actors but concerns the specific material practices through which they are constituted (Barad, 2007, p. 272). Agential cuts are deliberately kept light to protect prototypes' inherent precarity, allowing them to continually evolve and retain a certain level of ambiguity. This encourages all involved actors to repeatedly question and reaffirm the lines they have enacted, as the prototype meanders as a "marginal object with no definite place and shape (Turkle, 2005, p. 34). Thus, sociomaterial prototypes are constantly becoming; they are enacted through agential cuts to provide temporary resolutions of an ongoing strategizing practice.
Sociomaterial prototypes and prototyping exhibit four defining characteristics to enable successful strategic sensemaking:

- **Generative Inquiry** – sociomaterial prototypes are generative in the sense that they aim to answer open questions and decrease uncertainty through testing. This inquiry is sociomaterial in a way not limited to the prototypes' substance, but instead emphasizing their significance towards other actors and their context. Therefore, prototypes are required to regularly engage with other actors; otherwise they remain simple ideas (Camburn et al., 2017). This engagement, however, is not about proving solutions' validity, but leveraging prototypes as a means of generative inquiry (Lim et al., 2008). Thus, a prototype functions as a "reflexive probe" into practical materializations that constitute emerging contexts (Suchman et al., 2002, p. 175).

- **Temporal enactment** – Sociomaterial prototypes enact past learnings and future states in the present. This ability to enact future states in the present compromises the strategic relevance of prototypes and prototyping. Hence, enactment must be understood as condensed interpretations from the past and desirable states from the

future enacted in the present. In the sense of Hernes and Schulz' (2020) concept of temporal translation, sociomaterial prototypes traverse temporal structures to translate distant events into the present and make them accessible for sensemaking. They function as temporal enactments.

- **Oscillating** – Sociomaterial prototypes are dynamic artefacts oscillating between crystallized and liquefied states. They recurrently negotiate the agential cuts that define what is part of their enactment and what is not. Thus, their significance lies as much in what they encompass, as in what they omit (Lim et al., 2008). Doing so, sociomaterial prototypes function as tangible, as well as provisional artefacts, reconfiguring material and discursive practices through enacting agential cuts.

- **Non-human agency** – Enactment is not just achieved by human actors creating prototypes, but equally constituted by the inherent agency of sociomaterial prototypes. They act as non-human actors whose agency reaches beyond their mere substance and has a direct effect on their significance within the social world. While this agency is not necessarily the same as the agency of human actors, it must be treated as equal. As actors, sociomaterial prototypes possess the ability to intentionally – or unintentionally – influence the enactment of future states (Lauff et al., 2018).

When all four characteristics are met, sociomaterial prototypes successfully achieve the enactment of strategic ideas and their emerging contexts. This, in turn, results in continuously generated learnings. In a nutshell, sociomaterial prototypes are non-human actors that traverse temporal structures to crystallize and liquefy the enactment of future states to make them accessible for strategic sensemaking.

Assembling the prototype loop

As mentioned above, sociomaterial prototypes are continuously becoming and therefore constantly enacted through prototyping. The visualization in figure11 builds on this finding and specifically emphasizes prototypes' dynamic natures through the form of a loop as they – as a whole or in parts –move between stable and malleable states. This loop is constituted by the two practices of *crystallizing* and *liquefying*.

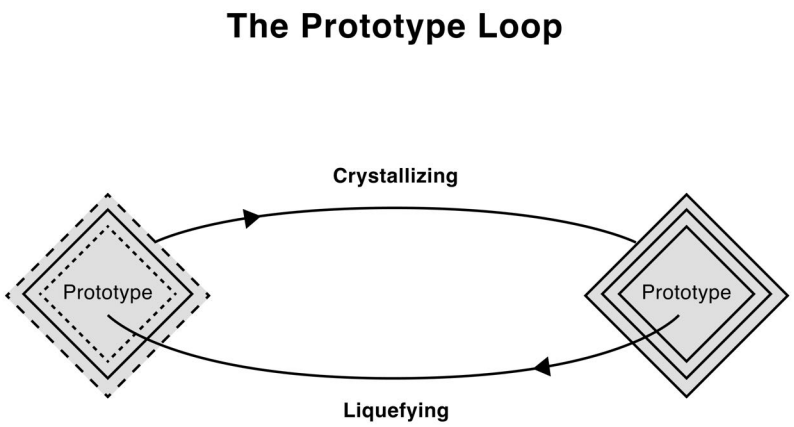


Figure 11 – Prototype loop

The visualization shows two iterations of a prototype as they are linked to each other in an ongoing prototyping loop, despite their varying degrees of stability. For visual clarity, only two iterations are shown as simple diamond shapes which, again, consist of multiple layers. These layers signify that often only parts of a prototype are liquefied, while others are kept stable to ensure continued enactment.

When understood as being in a continuous loop, sociomaterial prototypes can be stable and dynamic at the same time. An effective way to imagine what seems to be a contradiction is to establish prototypes as consisting of multiple layers moving at different paces. As one layer provides stability, another layer's malleability is used to generate new insights. This understanding is inspired by Brand's (1995) work on *How Buildings Learn*, which introduces buildings as constituted of stable and moving layers that shear against each other as they continue to evolve after their construction. In contrast to his conceptualization, however, the layers of prototypes do not have predefined levels of stability. Instead, they can take crystallized or liquefied form according to the current needs of a strategic initiative.
The layer's various levels of stability are visualized in the prototype loop as dotted and solid lines. Therefore, the prototype is displayed in its liquefied form with multiple malleable layers on the left, while its iteration on the right portrays a more crystallized and stable form of enactment.

In conclusion, the prototype loop explains how sociomaterial prototypes crystallize and liquefy future states in various iterations, which themselves can consist of more stable

and malleable layers. It is important to point out that sociomaterial prototypes and prototyping encompass the full loop, made up of multiple iterations. An artefact not embedded in a loop remains an ordinary artefact without fulfilling the four characteristics of generative inquiry, temporal enactment, oscillation and non-human agency that define sociomaterial prototypes.
In isolation, however, the prototype loop remains limited. For now, it focuses on the sociomaterial prototypes alone, omitting the crucial practices in which they are embedded. While these practices will be added in the following chapters, the prototype loop itself already provides a valuable conceptualization of how sociomaterial prototypes achieve enactment of simultaneously both stable and malleable future states.

Discussion & contributions

The definition of sociomaterial prototypes and the resulting prototype loop provide the first building block of the flow model of strategic prototyping that I assemble throughout the findings section. The prototype loop thus condenses the findings that relate to sociomaterial prototypes and specifically emphasizes the micro-practices of *crystallizing* and *liquefying*. It leverages agential cuts to reference the temporarily stabilized states sociomaterial prototypes take within the loop. The findings represented by the prototyping loop provide three contributions to the sensemaking and strategy as practice literature. I discuss them below:

First, introducing an oscillating movement between *crystallizing* and *liquefying* as a defining aspect of sociomaterial prototypes improves our ability to grasp these artefacts in their complexity and dynamic. Existing definitions tend to organize prototypes in taxonomies by either emphasizing specific attributes or the applied methodologies (Lauff et al., 2018; Lim et al., 2008). A typical example of this is a definition based on prototype fidelity. Low-fidelity prototypes are seen as rough and cheap, while the creation of high-fidelity prototypes is resource-intensive. However, what these definitions miss is that there are, indeed, many instances where a prototype consists of both high definition and low definition parts (Lim et al., 2008). Understanding prototypes as a revolving loop overcomes the need for fixed taxonomies and emphasizes the inherent practices of prototypes and their authorship as non-human actors instead. Thus, the presented definition simplifies the discussion of prototypes by establishing the presence of various states and levels of stability as defining characteristic of sociomaterial prototypes.

Second, emphasizing how prototypes are sociomaterial artefacts collectively enacted by human and non-human actors through agential cuts adds to the growing field of studies that go beyond a mere fascination for 'things' and further study how they are entangled and enacted in practice (Jarzabkowski & Pinch, 2013, p. 581). In addition to the investigation of algorithms (Scott & Orlikowski, 2012), ecological conditions (Whiteman & Cooper, 2011), autopilots (Berthod & Müller-Seitz, 2018) and hospital boards (Hultin & Mähring, 2017), the study of prototypes provides interesting opportunities for further research. While all objects are sociomaterial in nature, few exhibit an equally dynamic and observable enactment through agential cuts. Grounding our understanding of prototypes in sociomateriality further emphasizes their entanglement with matters that reach beyond their substance in the present and reference their significance within the social realm. In that sense, the prototype loop extends our understanding of how material artefacts are capable of enacting distant states in the present, especially when they are treated as sociomaterial prototypes.

Third, regarding the strategic sensemaking discussion, sociomaterial prototypes further extend our understanding of materiality's role in strategizing. Going beyond artefacts as mere tools and outcomes, sociomaterial prototypes must be seen as an integral part of strategizing that directly contributes to enactment. Enactment, therefore, no longer happens in a primarily cognitive or discursive manner (Jalonen et al., 2018; Rouleau & Balogun, 2011; Weick et al., 2005), but is equally constituted by materiality as well. In other words, sociomaterial prototypes show how "artifacts embody the ways in which specific agencies understand and organize their world" (D'Adderio, 2011, p. 220). Doing so, they extend existing research on boundary objects (Bechky, 2003; Spee & Jarzabkowski, 2009), epistemic objects (Ewenstein & Whyte, 2009; Werle & Seidl, 2015) and strategy tools (Jarzabkowski & Kaplan, 2015). While sociomaterial prototypes share many of their characteristics, they add nuance by overcoming the concreteness and communication imperative of boundary objects, the deliberate abstractness of epistemic objects and the privileged position of human agency in tool usage. Lastly, situating sociomaterial prototypes in a recursive loop also overcomes the prevalent dichotomous subject-object relationships of all three research streams.

4.2 The synthesis loop – temporal enactment as strategic sensemaking

4.2.1 Reintroduction to synthesis

One of the driving questions of this dissertation is how organizations make sense of what is not there yet. The quick answer would be, they just do it. However, while this might work on an individual level, organizational reality often presents itself to actors as complex and interrelated. Anyone who was once embedded in a modern organization has most likely experienced how hard it is to 'just do' things. Beyond these personal experiences, there is also widespread evidence in literature that organizational decisions entail an intricate sensemaking process; organizing and sensemaking are constituting each other (Glynn & Watkiss, 2020; Weick et al., 2005).

In section 2.2, I have already laid out how the sensemaking perspective provided great insight through investigating how actors make sense once external events or cues led their well-coordinated routines to break down. However, this view of sensemaking as episodic and retrospective has been criticized as limiting our understanding of an organization's challenges to make sense of the future (Gephart et al., 2010; Stigliani & Ravasi, 2012). Actors do not just make sense by cognitively interpreting what has happened in the past, they also enact their way into meaning (Bruner, 1990). In other words, when Weick et al. (2005, p. 412) postulate that the first question of sensemaking is about figuring out "what's going on here?" to then decide what to do next, we must instead start with the question "what should be going on here?"

According to Sandberg & Tsoukas (2015, p. 15), however, most sensemaking studies (84 percent) define sensemaking as largely synonymous with interpretation processes, focusing on understanding what has happened. Consequently, Colville et al. (2016) suggest a recalibration of the existing sensemaking model by rebalancing the relationship between interpretation and action. Specifically, they urge researchers to bring immanent action back into the spotlight again to ease the dominance of retrospective interpretation.

This rebalancing is critical when investigating strategic sensemaking in settings like the strategic initiative around *Trustlog,* whose outcomes are only just emerging. In consequence, strategic sensemaking research must again move beyond interpretation and decisively acknowledge that people are actively constructing and authoring the situations and events they attempt to understand, especially when they are yet to happen (Maitlis & Christianson, 2014). Put differently, when the locus of sensemaking is just emerging, it is not yet accessible for interpretation. In a strategizing context, therefore,

it is crucial to treat sensemaking as driven by enactment, which treats interpretation and action as inextricably interwoven (Sandberg & Tsoukas, 2015, p. 19). This enactment is thus not limited to a reenactment of existing events, but explicitly includes the synthesis of emerging events and future states through recursive cycles of action and interpretation. As Mintzberg (2007, p. 375) states, "strategy is about synthesis" and cannot emerge from interpretation and analysis alone.

Hernes & Schultz' (2020) concept of "temporal translation" provides an insightful concept to tie action and interpretation closer together again in the context of strategic sensemaking. In their view, actors engage in temporal translation to "overcome the duality between present and past or future that tends to be assumed in several areas of organizational research" (Hernes & Schultz, 2020, p. 17). Through the concept of temporal translation, sensemaking can be investigated in a way where actors make collective sense by projecting themselves onto various temporal horizons in the past or future. Actors produce discursive accounts (Rouleau & Balogun, 2011) and material artefacts (Balogun & Johnson, 2005; Rouleau, 2005) to enact a "virtual world" (Liedtka, 2000, p. 14) which enables them make sense of distant events collectively. Doing so, they manage to enact the distant as immanent in the present. However, further investigation is needed to better understand the practices, settings and artefacts involved in enacting such distant events. Hence, the focus of this chapter lies less in showing *that* temporal translation takes place, but more on investigating *how* it is achieved through the enactment of future states that enable strategic sensemaking.

The next section, therefore, provides an empirical excurse to elaborate the practices at play when such distant events are enacted at *Trustlog*. Focusing on the very first weeks of designing the platform, the empirical focus provides an insightful context to observe how a strategic initiative comes to live in the present as it is enacted.

4.2.2 Empirical focus II – the Designathon work sessions

With the successful completion of the first phase of the *Trustlog* initiative – where the market potential and the corresponding internal capabilities were analyzed – designated funding through the boards of directors at *InsurA* and *InsurB* was allocated. At the time, the involved actors considered the strategic direction to be clear: the problem to solve had been identified, the partnership process was progressing and the project team was being assembled. Everything was ready. However, shortly after the managerial

commitment, the initiative suffered from starting difficulties as it had to *"leap from PowerPoint into the real world"* as one member of *InsurA* called it.

In this empirical focus, I examine the transitioning phase, where abstract strategic ideas were analyzed in the context of early customer interviews and subsequently turned into sociomaterial prototypes. While this phase consisted of a multitude of workshops and activities, my analysis will zoom in on one representative work session.

Setting the scene

In spring 2019, a group of nine people met on the top floor of a building not far from the representative campus of *InsurA*. As the fog started to lighten, the bright corner office offered views of the city glistening in the morning sun. Despite the large windows and stellar views, the building was in stark contrast to the polished and strikingly modern headquarters a few hundred meters up the street. What had been a representative office building more than a decade ago now functioned as a space where the routines and processes of the organization seemed to be less enforced. A diverse group of employees was busily working in grey-carpeted offices with functional, but bland furniture. In the rooms enclosed by white-painted brick walls, posters and sticky notes plastered everywhere seemed like an attempt to lighten up the sterile space. And it worked. While the building emitted an ambiance of the good old days when business was stoically moving on as usual, an energy for change shone through. The building was somewhat 'hanging in the air' between those old days and an upcoming renovation; the creative arrangements of the furnishings, makeshift solutions and paintings taken off the wall and left sitting on the ground only added to this.

The reason for the gathering was the ambitious attempt to reframe the surety bond and guarantee business of *InsurA*, its soon-to-be partner *InsurB* and, eventually, the whole insurance industry. By launching a platform that would connect previously dispersed actors, the strategic initiative hoped to ensure the parent organization's continued business success in the space. Eventually, most of the session participants would end up dedicating the following years to the initiative, some even going so far as moving to a new city to join the venture. However, on that Monday morning in March, what now is a successfully established company called *Trustlog* was only a strategic idea captured inside a slide deck and an explanatory video.



Figure 12 – Video still of the initial presentation

Figure 12 shows a still image taken from the video, which provided a visual explanation of the intended platform. The still image introduces some of the human and non-human stakeholders in the project. It depicts an insurance employee and a representative of a construction company connected by what looks like a digital platform, a successfully checked document and a screen with a vault. The video had been created to tangibly explain the rather complex processes inherent in the surety bond and guarantee business. While it arguably reached its goal to convince senior management, it also shows how abstract the strategic initiative was at this stage.

Other early artefacts were more detailed. Figure 13 shows an excerpt of a PowerPoint presentation, where the platform operation is depicted in an early-stage visualization. Again, the different user groups were represented within a platform mockup to summarize their perceived needs. While providing more detail, the slide deck also remained a static display of the platform's future elements without further elaborating the wide range of potential interactions. Having the idea documented in a slide deck was an easy and quick way to document the abstract strategic ideas at the time, but it did not make the platform appear in the present.

Both examples clearly show that while there was a common starting point, there was still a long way to go from a slide to a launched product, or venture. However, artefacts like these composed the materials that strategic initiative members would draw from as the work session started, setting the scene for the ensuing synthesis.

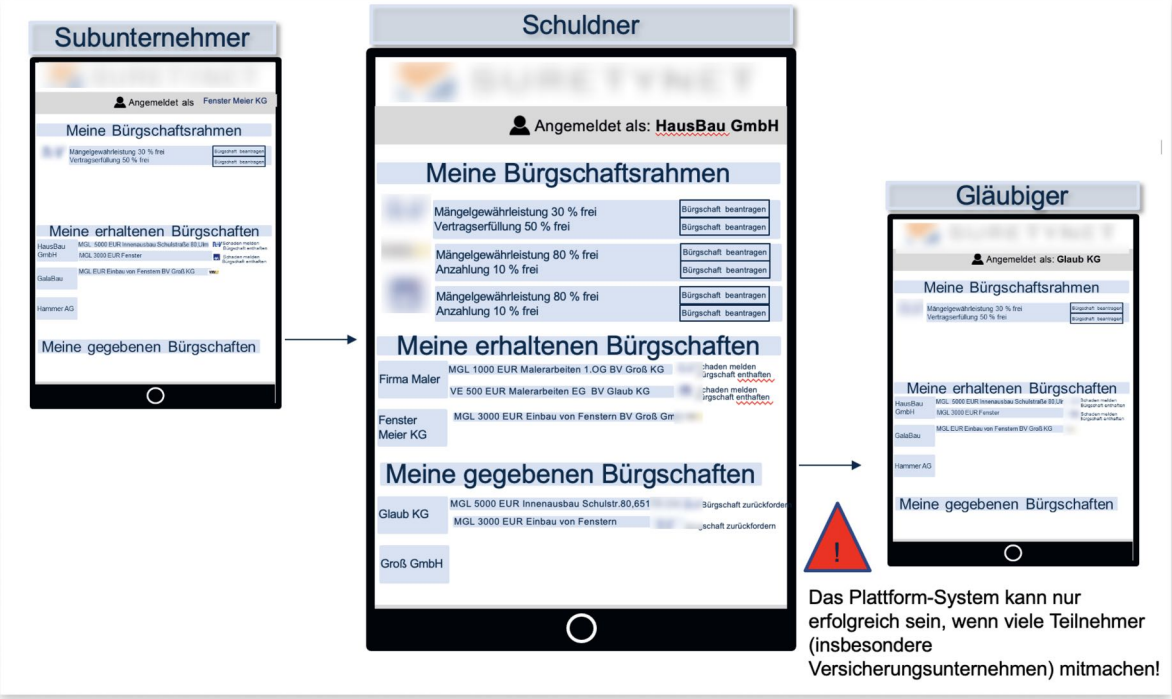


Figure 13 – Slide deck excerpt (in German)

The prototyping work session – making it real

Transferring these abstract ideas from the flatness of the slide deck into the thickness of the real world was the primary aim of the working session. With methodological support and facilitation of two design consultants, a setting was established where the various understandings of the initial strategic direction were collected and then condensed into a collective state. Doing so, however, did not come naturally to participants; their organizations normally required them to work in more ordered ways. One member of *InsurA* shared her feelings at the start of the session:

> *"I was quite nervous when it became clear that some of the phases will be chaotic. I am a very structured person, and I can't deal well with chaos. That's why I thought oh my god, oh my god, oh my god. But then I realized that yes, there are chaotic moments where many people generate ideas in various areas, and you can lose your head in the amount of information. But I also learned that we always brought it together again. Now, I am baffled by the amount of output we created. We have not just built a prototype, we also explored so many other directions. I was completely wrecked after the four days."*

Figure 14 shows how the facilitators mitigated these fears with a clear outline of the first work session, which lasted four days. Each day corresponded to an overarching process step; red and blue cones indicated whether the activity was supposed to generate opportunities or encourage decisions.

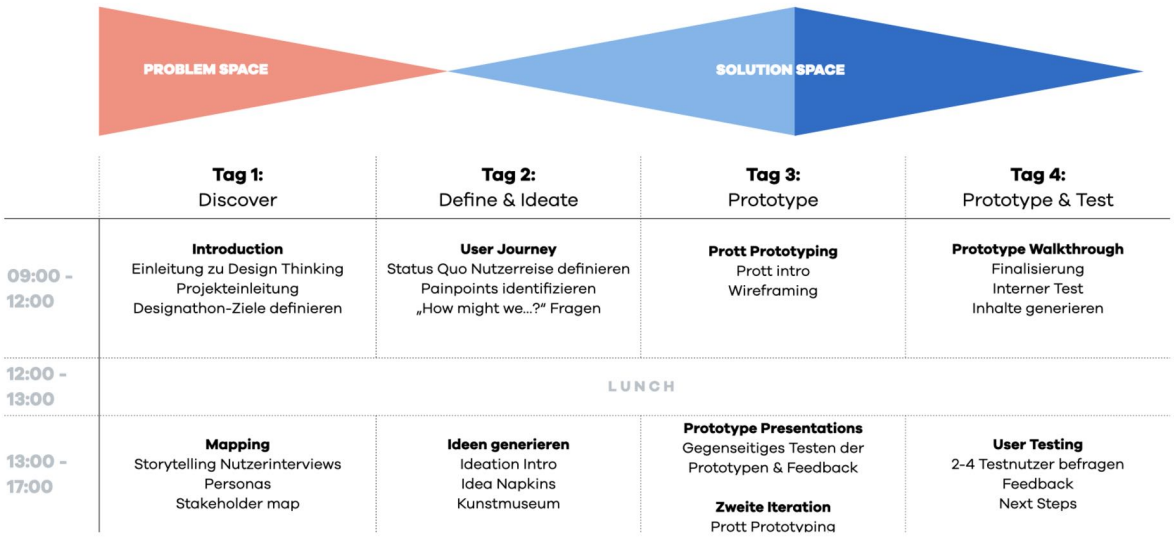


Figure 14 – Liquid agenda overview (in German)

On the first day, the focus was on understanding and externalizing the status quo to establish a level playing field for all participants. This was essential, as the team consisted of people with a variety of backgrounds and organizational roles; only a select few had already participated in the preliminary interviews with potential customers.
On the second day, existing processes, products, and insights were brought in relation to each other, the status quo and, most importantly, the future platform. This was achieved through a variety of mapping activities. Based on these, ideas were then generated and remixed to generate strategic directions. As it can be seen in the agenda, the second day also served as transition from the problem to the solution space: or, in other words, from the existing environment to potential future states.
The third day was dedicated to further prototyping the future platform within these directions, moving from a larger number of rough prototypes to more refined and integrated ones. All participants were involved in creating these prototypes, leading to a situation where they could no longer trace their individual contributions. During that day, the future platform emerged from the activities and presented itself as a potential future state to the participating actors for the first time.

On the fourth day, the aim was to align the necessary strategic decisions. At this point, senior management was involved again to actively test the developed concepts. In addition, further actors were invited to provide feedback on the projected platform. On this last day of the work session, it suddenly became clear to all involved actors, that the team had managed to fully enact a future state of the intended platform in the present. One participant said the following:

> *"I can remember the first Designathon very well. It was the moment when the platform came to life the first time. When I saw how it could be after we had been thinking about it for so long. That we would get there within a week was mind-blowing to me."*

This quote is especially insightful, as it shows how actors clearly distinguish between the previous abstract strategic ideas and the tangible enactment once these ideas come to life through the prototype. Through synthesizing the future state in the form of a sociomaterial prototype, loose ends suddenly connected and previously uninvolved actors could provide feedback as if the platform came to life in the immanent present.

4.2.3 Synthesis practices

The previous empirical focus retelling the moments when *Trustlog* emerged for the first time during the transition phase shows how a structured approach allowed strategic initiative members to move from abstract strategic ideas to a more accessible enactment of the future. In doing so, actors connect the status quo with the intended strategy, collectivize prior knowledge and experiences, enact potential future states in the present and extend the group of involved actors to collect early feedback and continuously refine their understanding. In short, the team proactively synthesizes distant events one step at a time to enact them in the present and make sense of them. Such synthesized enactment, thereby, is not limited to a discursive level of talk and discussion, but leverages sociomaterial prototypes to collectively reference past and future states. Only through these prototypes, a collective engagement becomes possible, as one member of *InsurA* describes:

> *"All in all, it was a translation process. We had to get the ideas in our heads and turn them into something tangible. We had to start scribbling, creating, and crafting (...) to make sure we understand each other. We then linked those sketches into prototypes, presented them, and discussed them to integrate the feedback again."*

In other words, the members of the strategic initiative had to pick up their pens and papers to start generating material artefacts. These rudimentary but concrete prototypes anchor early engagements and enable a *"discussion on the object and not in thin air",* as a *Trustlog* member called it.

During synthesis, actors leverage a prototype's liquefied state to enable immanent *crafting,* as well as its crystallized state to stabilize the temporary understandings the group has reached. In chapter 4.1, I have already described this oscillating movement of sociomaterial prototypes and pointed out that they are always embedded in practices. I will thus highlight three crucial practices that constitute what I call the synthesis loop and can be observed throughout the transition phase. *Mapping* allows actors to externalize their implicit knowledge, describe the status quo and create opportunities for future developments. *Crafting* concretizes the identified opportunity areas through immanent and materially-driven sensemaking. As actors are in constant interplay with the constraints and opportunities presented by the materiality at hand, they make sense as they are engaging with it. Once a temporary enactment has been achieved, *projecting* solidifies the intended future state and generates the opportunity for feedback and – at the same time – retains an openness for further iterations.

Mapping – connecting temporalities

Having a reliable reference point proved to be especially important given the strategic initiative's apparent uncertainty and ambiguity, which made it impossible for the team to rely on an already existing common understanding. *Mapping* is a practice where actors collectively build extensive representations of processes, relationships and interactions as they are engaging with an emerging map. At *Trustlog* – for example – one of the maps spanned the length of a five-meter window-front, as seen in figure 15.

Mapping connects past experiences and learning with future states through a collective practice taking place in the immanent present. It is a sensemaking exercise in itself; human actors recurrently create and interpret the evolving map. At the same time, they are also directly entwined in the emerging materiality of the map and its agency. The two micro practices of *downloading* and *redrawing* describe these recursive and interrelated processes in more detail. The former is oriented towards the past and leans towards human actors, while the latter translates future states into the present by leveraging the agency of non-human actors. I will zoom in on day two of the work session described in the empirical focus to describe both micro-practices in detail as they unfold in the field.



Figure 15 – Mapping the processes of the platform

- **Downloading** – The micro-practice of *downloading* – as it is referred to by the practitioners themselves – makes tacit knowledge accessible beyond a single actor in a more explicit form. Guided by a map's structuring materiality, human actors externalize their beliefs, experiences and learnings about the process under investigation. Actors first situate individual ideas in relation to the map's structure and then collectively amend both the ideas and the map they are embedded in it. Hence, *downloading* involves a mix of individual and collective work visually organized by a dynamic map that evolves over time. The following observation exemplifies the process in more detail:

  > Once everyone had gathered around the empty window front, the process of creating the map was started. The participants started with individually writing down the essential process steps when handling surety bonds and guarantees. Some started writing right away, ripping off note after note from the little booklet and sticking it onto the desk in front of them. Others remained quiet, staring outside the window, seemingly digging deep within their minds. Looming outside the window, one could see the adjunct building where the soon-to-be-digitalized processes were still handled by hand. This served as a powerful and intimidating reminder of what the venture was about to change.

After ten minutes, the team members added their steps to the window front one by one, making sure to build on the previous steps. This process took more than two hours, but it ensured that no steps were forgotten and that the result would be truly collaborative. The individual steps had to be put in sequence, which resulted in a focused discussion on steps that did not match the previous ones and deviated from what the team thought was their shared understanding. Step by step, the group managed to identify further actors and layers. Defining them, however, was not straightforward; the participants had to repeatedly align their definitions and balance human and non-human actors. Once completed, the map depicted a collective representation of the status quo and previously tacit knowledge.

The description shows how actors are simultaneously constrained and enabled by materiality as they externalize their individual ideas and assumptions. For example, sticky notes require actors to provide focused descriptions of steps and activities. At the same time, their flexibility enables actors to change and recontextualize the decisions they are making. Over time, keeping individual inputs brief and flexible enables the creation of a collective enactment of the process at hand. The same holds for the map structure; on one hand, it enables actors to externalize their ideas in a sequential way and on the other, this structure also requires them to depart from the complexity of their daily practice and simplify the underlying mechanisms.
Downloading, therefore, is an important micro-practice that makes tacit and individual knowledge accessible to a wider group of actors. It externalizes this information in the structured and relational way of a map. The map's agency, thereby, enables and constrains human actors to constantly refine their inputs and condense them in a collectively accepted way. Thus, the practice of *downloading* eventually leads to the enactment of a status quo in a collectively accessible and efficient form.

- **Redrawing** – Once a common understanding of the status quo is established in the form of a map, the temporal orientation changes. The micro-practice of *redrawing* is no longer limited to current and past processes, but primarily revolves around how these processes should unfold in the context of a potential future state. As the map emerges, actors are required to continuously adapt to its changing shape, making it necessary to recurrently reposition its elements. They also successively alter the map

to include new processes and the intended future state. This change is exemplified in the second part of the observation.

> Once a relatively clear picture of the status quo and its processes was hanging on the window, the group decided to redraw it to include the future platform. With the future platform in sight, the whole artefact started changing form again. Suddenly, full parts or processes were bypassed or critically altered. In addition, the design consultants – who had been mostly unfamiliar with the topic – contributed further input to the process. Their suggestions crucially extended the limited time frame the insurance employees had already mapped. This input was well-received and led to a change of perspective in the whole team. It opened the discussion even further, extending it from single concrete steps to questions about the market and positioning, as well as how the platform would be situated within the insurance organization. Constantly keeping the steps in view, the team engaged in a discussion about the platform and strategy they should follow to successfully provide value for their future customers. The involved internal processes of the insurance company were intensively discussed, with people repeatedly referring out of the window to the other building on the insurance campus, where these processes were physically handled. Through their direct engagement with the map, the involved actors managed to enact the strategic initiative's future state. Until then, such an overview had only been partially achieved, or remained limited to the cognition of individual actors. With the map, however, the group used this enactment to identify so-called opportunity areas that would serve as important points of departure for the following investigations.

The vignette shows how the introduction of the future state in the form of a non-human actor urges participants to reference various temporalities to achieve collective enactment. While actors evolve the map in the present, they need to reference the past only to juxtapose it with the anticipated future again. On the map, non-human actors are treated the same way as human actors; they occupy their own 'swim lane' from where they exercise their agency. Indeed, the platform was treated as the defining actor which would alter relations within the status quo through its existence.

The practice of *redrawing* can be best described as an ongoing conversation with the materiality that results in an ongoing adaption. Actors draw heavily on collective settlements and agreements represented by material artefact to collectively discuss

and enact a strategic initiative's future value creation. As they make sense, they sketch the role of potential non-human actors within the existing maps to capture their current understanding. The resulting tensions between the status quo and the developed future state are then either found, or actively created by the actors. Once such gaps are identified, the areas are marked specifically to serve as reference and structuring element for further discussions.

The synthesis practice of *mapping* introduces structure while, at the same time, keeping an openness that continuously adapts as a common understanding is enacted. Doing so, it consolidates individual ideas and experiences into a collectively accessible form, translates various temporalities into a present state and identifies opportunities and tensions. A map's ability to balance structure and malleability – or in other words liquid and crystallized states – enables actors to synthesize a more profound enactment and sensemaking of future states. Maps, therefore, fulfil all defining traits of sociomaterial prototypes; they enable generative inquiry, enact various temporalities, oscillate between fixed and malleable states and directly engage with actors. The *mapping* practice thus plays an important role for strategic sensemaking as a prerequisite for referencing the past with potential futures in the present. It can take various forms, but involves the creation of a material artefact, whereas actors build on top of individual outputs, reference various temporalities and non-human actors to synthesize the enactment of a strategic initiative's future state.

Crafting – engaging with materiality

While *mapping* is an important step of translating strategic ideas into the real world, a map still maintains the abstract quality through which it gained its value in the first place. A map in the fullest detail would simply fail to fulfil its defining purpose of providing simplified orientation and reference. Thus, only through the *crafting* practice can the concreteness of a strategic initiative be further enhanced. Once common ground is established, *Trustlog* members quickly begin to craft sociomaterial prototypes. This practice does not follow a concise plan. Rather, an increasingly improved understanding unfolds through crafting, as one *Trustlog* member describes:

> *"Crafting a prototype ensures that you understand what the topic is. What is my project, where is my business model? What does all of this look like? Prototyping should accompany you from the very first day until launch day and beyond."*

Or in the words of another member:

> *"Our initial ideas were good, but they were on a meta-level. The prototype really helped us to get concrete about it, to really understand it. What are the consequences of this? What does this mean for the organization? How do we need to change the processes? How do we act with this project in the future?"*

Both quotes point out that *crafting* does not require a finalized plan or perfect knowledge at the beginning. Instead, it directly supports actors in making sense not only of the prototype itself, but a multitude of processes connected to it. Hence, successful crafting generates artefacts whose significance extends beyond the material to the social, qualifying them as sociomaterial prototypes. Thus, not only the outcome – in the form of prototypes – but especially their immanent crafting process enables actors to make sense.

Crafting entails the multitude of hands-on decisions that need to be taken as actors cope with uncertainty and ambiguity when interacting with an emerging artefact. However, making sense through crafting does not happen solely on the individual level. The translation into material prototypes encourages and enables the engagement with different emerging understandings among the group of actors. Therefore, crafting is described by a leading member of the initiative as a *"collective effort that aligned the whole team."*
To better understand the *crafting* practice, it is helpful to take a closer look at the three micro-practices of *sketching*, *backtalking*, and *remixing* that constitute it.

- **Sketching** – In essence, *sketching* describes the micro-practice of quickly producing roughly outlined output with the idea that it can be either easily changed or rejected. It leverages both the speed and relatively low need for resources of the act of sketching. In other words, *sketching* thrives on the subtleness of making a call without really making one. The fragility of a sketch can be seen in the examples in figure 16. The displayed "napkin sketches" are a combination of visual and textual elements created by individual actors and meant to be shared in plenum.



Figure 16 – Napkin sketches of the future platform (in German)

As the context of a strategic initiative is just emerging, it is not possible to already take fully fixed positions and analyze potential future effects in detail. On the contrary, the context must first be enacted. Therefore, *sketching* certain aspects of future states enables actors to explore unexpected consequences beyond their current expectations and reflect on potential reasons for, or against them. The outcomes of *sketching* are not limited to pencil drawings, but include all types of material artefacts like diagrams, roleplays, mockups, communication materials and stories. Once their significance goes beyond their mere material form and leverages their meaning for strategizing, *sketching* successfully contributes to enacting future states.

- **Backtalking** – An important driver of *crafting* is the interactive dialogue that human actors enter once they have made a first stroke and negotiate their next stroke with the non-human actor in the form of the emerging sketch. From that moment on, all their future actions are related to the materiality they have created. The micro-practice of *backtalking* draws on the ability of sociomaterial prototypes to 'talk back' and impact human actors who take notice of them. This interaction with materiality is one of the reasons that the creation of prototypes usually accelerates once the first iterations have been completed, as actors build on existing materiality and their ideas, moving away from rational and analytical thinking and letting their pen and the artefact lead the way in a state of flow.
  Backtalking engages otherwise static artefacts in a more dynamic relationship where they are shaped, but also actively shape the outcomes of their engagements. As sociomaterial prototypes, they become influental actors themselves. The left picture in figure 17 shows members of *Trustlog backtalking* with an early sequence of prototypes, directly pointing at different elements under reconstruction. Eventually,

this recursive backtalk between human and non-human actors has the potential to create previously unintended enactments derived solely from immanent engagement.



Figure 17 – Crafting practices of human and non-human actors

- **Remixing** – Last, *remixing* crafts new combinations by drawing on two major sources. First, collectively produced sketches are clustered and recombined, taking elements of one to complement another and vice versa. When *remixing*, existing materiality provides guidance; there is no intention to generate additional elements. Instead, the novel combinations – some on purpose and some by chance – provide a new context for sensemaking. The right picture in figure 17 shows how a *Trustlog* member is integrating ideas on sticky notes from an earlier session directly into an existing product, roughly sticking them where they might make sense. Second, *remixing* also incorporates external references and benchmarks into the prototypes. These benchmarks can be other products or services, but also business models that are 'reskinned' to make them fit the emerging enactment. Through this process, these external inputs are fully absorbed in the sociomaterial prototypes and no longer identifiable. At the same time, they have the potential to break up dominant conceptions and add an element of serendipity and play.
  Remixing melds individual contributions into a collective enactment through both planned and playful ways. Unintended combinations are encouraged by the involved actors to creatively make sense of previously unforeseen states and possibilities. At the same time, *remixing* also iteratively collectivizes individual contributions into integrated sociomaterial prototypes.

The three micro-practices of *sketching*, *backtalking*, and *remixing* show how human actors recursively interact with non-human actors in an ongoing *crafting* practice. In

other words, *crafting* is an ongoing engagement with the materiality at hand. Sometimes this engagement is bilateral; at other times, it is held in plenum, but it always relates to sociomaterial enactment. This understanding is in line with Schön's (1983) description of materials and situations talking back to the people designing them, leading to unintended consequences that provide radically new insights. As human actors are *crafting* sociomaterial prototypes, the sketches, maps, and prototypes generated provide answers to their questions. At the same time, these non-human actors ask back, introducing previously neglected combinations, questions and concerns stemming from their enactment. It is precisely this interactive engagement during *crafting* that renders material artefacts as sociomaterial prototypes.

The practice of *crafting* allows actors to concretize their strategic ideas and enact future states. It does not rely on analyzing the status quo, but leverages synthesizing potential future states and enacting them in the immanent present. *Crafting* moves beyond the mere implementation of pre-defined plans from past experiences and favors *sketching*, *backtalking*, and *remixing* materiality as it is unfolding. Thus, each concretization needed to craft a sociomaterial prototype raises additional questions that must be answered on the spot. The artefact or non-human actor, therefore, actively negotiates the many small, sometimes more significant decisions that are taken at the frontline of a strategic initiative every day. *Crafting* is a crucial strategic sensemaking practice allowing the synthesis of new strategic insights through interaction and conversation with material artefacts in the form of sociomaterial prototypes.

Projecting – making it real

In addition to *mapping* – which relates strategic opportunity areas – and *crafting* – which focuses on the immanent engagement with sociomaterial prototype – the practice of *projecting* revolves around how sociomaterial prototypes are synthesized to depict a sufficiently stable collective enactment of a strategic initiative's future state. *Projecting* brings the recursive dynamic of the *mapping* and *crafting* practices to a temporary halt and transforms their process into crystallized enactments. By doing so, enactment becomes actionable and referenceable for adjacent actors, so they can contribute to synthesis as well. Through projecting, future states are successfully enacted and translated into the present as they come to life.

In the *Trustlog* context, the practice of *projecting* leverages prototypes to represent possible strategic directions. The properties that allow sociomaterial prototypes to support concretization of high-level ideas and transform results into a quickly

communicable form make them an indispensable addition to the strategic initiative's team. Entwined with the practice of *projecting*, prototypes take up the role of orientation and sensemaking devices by providing an open and ongoing materialization of the initiative's current understanding and its vision. *Projecting* thus utilizes the two micro-practices of *positing* and *moderating* to successfully achieve the enactment of future states while retaining the openness necessary to ensure recursivity.

- **Positing –** The successful projection of distant future events demands a certain level of stability and finiteness of sociomaterial prototypes. Actors involved in their oftentimes messy creation must come up with a clarified and shared position that stabilizes their current understanding of a future state. *Positing*, therefore, describes the consolidation of the many iterations that occur during synthesis into a crystallized state. If done successfully, the resulting crystallized version of a sociomaterial prototype can function as anchor point for further relations and ensure the approachability of emerging states that are normally in flux.

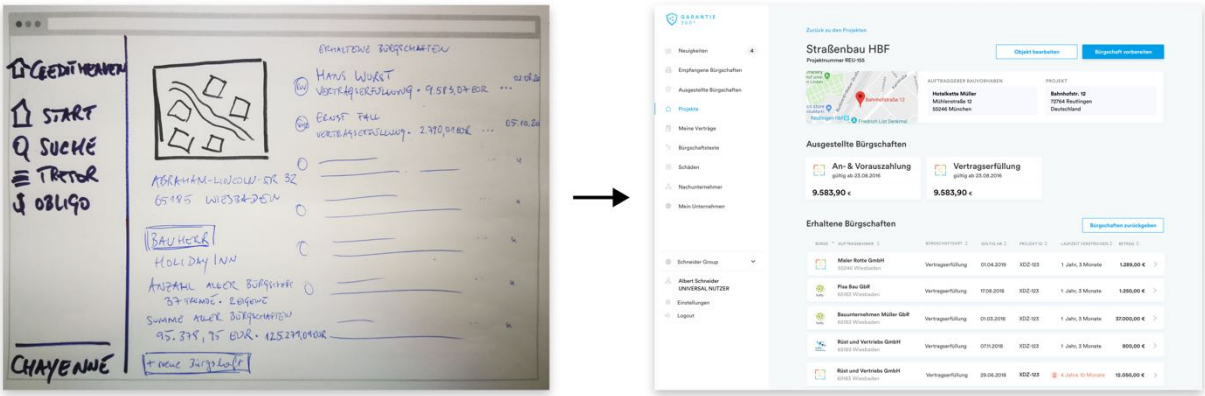


Figure 18 – From rapid prototype to projection

Positing elevates the prototypical artefact from a deliberately sketchy look and feel to a state that resembles its final form, even though it does yet not answer all open questions. Such a transformation can be seen in figure 18, where a rough and rapid prototype is turned into an increasingly stable rendition. While the overall content remains identical, the prototype can hardly be recognized as one, as it is further enhanced with real data, numbers, and names. Thus, the involved actors posit a seemingly real state by letting the materiality speak for itself. They are not explaining the matter at hand, but delegate this to the non-human actor in the form of a prototype, as one member describes:

"If I tell them my ideas, they will create their own images in their head. But when I can show a prototype, I unpack my head and can make others see exactly that without having to tell them."

This handover of agency from human to non-human actors is especially interesting. Rather than *giving* sense, prototypes are used to enable adjacent actors to *make* sense on their own. All with the hopes, of course, that they will end up with a similar conclusion.

- **Moderating –** Stability and finiteness, however, are not only helpful for ongoing synthesis within a strategic initiative. Its members also engage in *moderating* to constantly remind the involved actors what the projected prototype actually is: a vision, not yet a final instantiation. Otherwise, expectation management becomes highly challenging, as the prototype's materiality suggests a finite state. For example, communicating a future state that seems real can lead to a reaction where the process is understood as already completed because the artefact is understood as finite. According to a leading member, this also happened at *Trustlog*:

  "One disadvantage of the prototype is that senior management and some people within the organization don't have the full picture of the complexity involved. When shown the prototype, it makes them think everything is done already. This makes expectation management very difficult as there is an incredible amount of work from the prototype to the completion of the platform's technical implementation."

  The quote shows how a successful enactment of future states clearly has its downturns. Therefore, just as *positing* consolidates the core of what is projected by emphasizing a prototype's ability to crystallize, *moderating* leverages its ability to liquefy. *Moderating* coordinates these contrasting movements by reminding the involved actors of a prototype's transience. Members of the strategic initiative thus cautiously balance the concreteness of the prototype – which they emphasize to communicate effectively – with their need to keep a certain degree of openness. *Moderating* also has a crucial effect on other synthesis practices; only when actors can rely on the opportunity to iterate unsuitable decisions at a later stage, are they empowered to craft and make decisions under uncertainty. In that sense, *moderating* ensures that synthesis takes place iteratively.

In conclusion, the practice of *projecting* complements the *mapping* and *crafting* practices as it enacts distant states of a future product or service into the present and makes their seemingly real form accessible to a wider range of stakeholders. It projects an immersive image of a future state by striking a balance between the highly dynamic crafting processes and their potentially fixed outputs. *Projecting* provides the needed clarity for collective sensemaking while retaining a certain level of openness that allows for incorporating collected feedback again. Hence, *projecting* is essential in the organizational context; it is an important prerequisite in communicating the strategic initiative vision to stakeholders outside the initiative's core team and retaining the capability for iterative synthesis.

4.2.4 Introducing the synthesis loop

The findings of eventful weeks, as a strategic initiative takes form and evolves from the flatness of a slide deck into the richness of the world, provide valuable insight.

- First, they introduce synthesis as a set of practices enabling the enactment of distant states in the present. The previous section showed how the three practices of *mapping*, *crafting*, and *projecting* play an important role in this process. With synthesis, the emphasis no longer lies on analysis and interpretation of past events and cues, but on how future states are actively synthesized by iteratively enacting elements from the past and future in the present. Thus, instead of an external environment that provides cues or disruptive events, the triggers for sensemaking are proactively synthesized to enable strategic sensemaking about potential future states.
- Second, the observed practices are not limited to the discursive realm, but have material processes, outcomes, and agency. In other words, they are held together by the advent of material artefacts that function as sociomaterial prototypes of the enacted future states. These prototypes are fully entangled with the synthesis practices through their ability to crystallize and liquefy. The practices of *mapping*, *crafting,* and *projecting* embed ordinary material artefacts and enhance them as meaningful sociomaterial prototypes that transcend their substantial meaning and enable strategic sensemaking.

In this section, I will integrate the identified practices into a synthesis loop, relate it to the existing literature and outline the contributions of synthesis for strategic sensemaking.

Assembling the synthesis loop

The synthesis loop in figure 19 depicts how the practices of *mapping*, *crafting,* and *projecting* synthesize future contexts for strategizing in a recursive loop. The practices are constantly moving as they reference multiple temporal contexts and contribute to the enactment of future states as sociomaterial prototypes.
The model partially integrates the concept of the prototype loop derived in section 4.1. While this loop was previously missing the respective practices, its integration with the synthesis loop now serves as a first step toward the final integrated model.

At the heart of the synthesis loop, sociomaterial prototypes anchor practices that simultaneously embed them in a relationship best be described as entanglement. The constant evolvement and resulting malleability of the prototypes are visualized by a dashed line, emphasizing that agential cuts are continuously re-enacted. This is especially common within the synthesis loop, as the sociomaterial prototypes are often crafted for the first time and rapidly evolved. While the model displays just a single prototype, synthesis involves various sociomaterial prototypes, which again exist in various versions or iterations. However, through taking form, they leverage their material significance to ground the practices within which they are embedded, so that temporal references do not strictly refer to the present, past, or future, but all temporalities simultaneously. Thus, sociomaterial prototypes provide an important reference point for synthesis and function as a catalyst for collective strategizing.

Sociomaterial prototypes are embedded in three synthesis practices. *Mapping* synthesizes the context of the artefact through a structured download of individual experiences, learnings and anticipations. Displayed in a collectively accessible form, the map's relationships and entities are then redrawn to better accommodate the intended future state and related human and non-human actors. Building on the map, *crafting* synthesizes future states through ongoing sketching, backtalking and remixing, so that the crafted sociomaterial prototypes are both shaped – and shaping – the enactment of these future states in conversation with human actors. *Projecting* further synthesizes a more stable version of the prototypes, positing an immersive visualization to render the future states actionable for adjacent actors. At the same time, *projecting* also moderates this stance to retain fragility and the opportunity to re-engage in synthesizing practices.

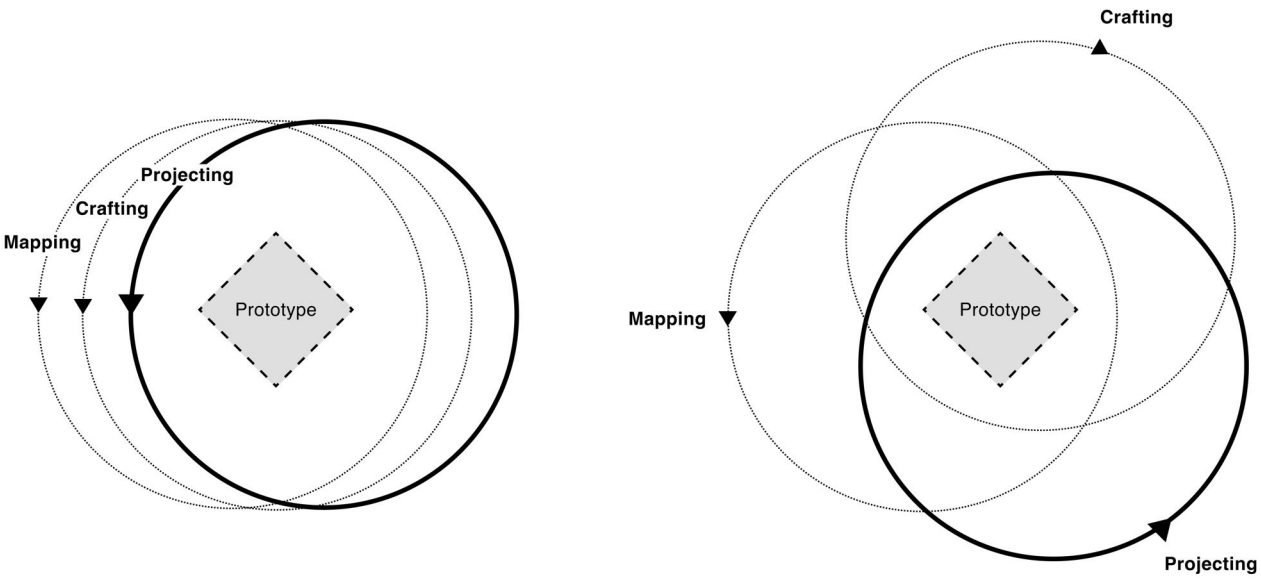


Figure 19 – Stable and dynamic view of the synthesis loop

Mapping, *crafting,* and *projecting* are closely interrelated with each other and often take place simultaneously. For this reason, they are not shown in sequence, but visualized as three continuously revolving cycles. For a successful synthesis loop, all three practices are needed. Without *mapping*, synthesis fails to connect to the status quo and gain relevance. Without *crafting*, future states remain on a subjective and abstract level and fail to generate new insights within emerging contexts. Ultimately, without *projecting,* synthesis risks remaining stuck in a multitude of prototypes, relationships and opportunities. While they are crucial for successful synthesis, they need to be crystallized to become accessible to actors unable to be directly involved in the synthesis loop.

The visualization of the synthesis loop also shows how practices remain connected to the sociomaterial prototypes which travel with them, providing a reference point to tie the various practices together. Prototypes' important function is depicted to the right in figure 19, where the practices' regular ellipses are found in a disordered constellation, a more accurate depiction of how they unfold in real life. Only through sociomaterial prototypes, do they retain their ability to jointly contribute to the synthesis loop. Without such an anchor, there is a chance that the synthesis loop fails to achieve collective enactment; it becomes overwhelmed with complexity. Maps can no longer be

referenced, sketches and prototypes are crafted in isolation and projection fails to achieve a credible rendition of the intended future state because it can no longer reference previous iterations.

In conclusion, the synthesis loop connects the three practices of *mapping*, *crafting* and *projecting* to sociomaterial prototypes in recursive cycles. In doing so, it describes how future states can be proactively enacted and made accessible for strategic sensemaking, serving as the second building block for a model of strategic prototyping. While it is difficult to capture real world flux in linear form on paper, the model aims to emphasize the recurring nature of the practices and processes with a conjunctive visualization, without losing its function as a reference and lens for other empirical contexts. Proactively enacting future states through enactment of sociomaterial prototypes provides an important addition to our understanding of how strategizing unfolds: not only in boardrooms, but also at the frontline of organizations. All three practices contribute to synthesis, crucial to achieving enactment. In other words, the practices show what happens before actors know what they are acting on. Together, they fuel the synthesis of potential futures, again resulting in a temporal translation of distant events into the present as sociomaterial enactments.

Discussion & contributions

The introduction of the synthesis loop enhances existing literature on sensemaking and strategy as practice. Its findings mainly contribute to our understanding of temporality and enactment, while taking a decisively sociomaterial perspective. I will elaborate the three contributions of the synthesis loop below:

First, the synthesis loop provides a detailed understanding of how strategic sensemaking is triggered proactively through the enactment of desirable future states in the present. While the opportunity for sensemaking to take place as a deliberately induced activity has recently been mentioned in Sandberg & Tsoukas' (2020) reconsideration of sensemaking, the authors refrain from providing further detail on how this is accomplished. One study by Stiglinani & Ravasi (2012, p. 1253) points to materiality's role, as it describes how the material embodiment of cues is an important way to detach sensemaking from individual actors and the "fleeting nature of conversation". The resulting artefacts can then serve as external repositories to support further engagement. However, sensemaking is not just about discovery, but involves the creation and invention of new opportunities as well (Garud & Karnøe, 2003; Weick, 1979). Another helpful avenue is Hernes & Schultz' (2020) concept of temporal translation, which

allows organizations and their members to transcend existing temporal structures by enacting distant events in the present. Thus, in contrast to externally appearing events, strategic sensemaking already begins with the creation of the future states that lead to later enactments. In the synthesis loop, the existence of such future states generates the opportunity for sensemaking. However, until now, little was known about how these future events and states are enacted.

The synthesis loop contributes an interrelated description of practices that achieve proactive enactment of future states. Building on Hernes & Schultz's (2020) concept of temporal translation, it extends their conceptualization with an emphasis on how distant events need to be sociomaterially enacted to become the object of sensemaking processes. Situated within a loop, the practices enable the prototype's significance to transcend its present substance and reference distant temporalities. The ability of the sensemaking loop to enact the locus of strategic sensemaking about the future provides the core of its relevance for strategizing.

Second, the definition of *mapping*, *crafting* and *projecting* practices extends the literature's understanding of how strategies are enacted in a collective and sociomaterial manner. Existing strategy as practice research has focused on discursive practices through which strategic initiatives emerge. They are simply deemed as being strategic as organizational actors attempt to persuade their colleagues of their view or try to talk events into existence (Mirabeau & Maguire, 2014, p. 1206). This view has been extended by Stigliani & Ravasi (2012), whose analysis strictly differentiates between discursive and material practices. In conclusion, however, they state that a dichotomy in material and discursive practices cannot prevail as they are always entwined with each other. One stream of studies that tries to overcome this duality builds on Lévi-Strauss' (1966) concept of "bricolage" which describes how an actor engages in unplanned and undogmatic interactions with the available materiality and inputs. Bricolage has been applied to organization studies (Duymedjian & Rüling, 2010), strategizing in the form of practical coping (Chia & Holt, 2006) and resource theory (Busch & Barkema, 2021). What unites all these applications is an understanding of bricolage as being practiced out of necessity, mostly unguided and relying on individual actors.

The synthesis loop, however, describes purposeful and targeted sociomaterial enactment. While outcomes are not predefined or planned, the activities leading towards them are. They are not resorted to because of sheer necessity or resource constraints, but deliberately practiced to leverage sociomaterial practices and enable strategic

sensemaking. Materiality thus allows for complex cognitive considerations to be collectivized and become the center of sensemaking about future states, providing a conceptualization of how emergent strategy takes form, which has been missing previously (Mirabeau & Maguire, 2014).

Third, the synthesis loop shows how sociomaterial prototypes anchor the revolving practices. Only through their entanglement with these practices, can ordinary material artefacts gain significance beyond their immediate substance and become sociomaterial prototypes. A growing research stream within strategy as practice literature has expressed an interest in material artefacts. Among others, material artefacts are investigated as outcomes (Whittington et al., 2006), strategizing tools (Kaplan, 2011; Spee & Jarzabkowski, 2009; Wright et al., 2013), epistemic objects (Werle & Seidl, 2015) and nonverbal symbolic resources (Balogun & Johnson, 2005; Rouleau, 2005). However, most studies fall short of capturing instances where the material artefacts are more than just tools, outcomes, and communication devices. What happens when artefacts are understood as non-human actors both shaped by, and shaping, human actors to provide an actionable enactment for sensemaking? Or, in other words, of interest is the moment when an artefact's significance becomes the locus of sensemaking as it serves as a "common referent" for actor's further action and interpretation (Stigliani & Ravasi, 2012, p. 1254). In that case, actors become embedded in the enactment that they have contributed to in the first place (Garud & Karnøe, 2003).
The synthesis loop alone can only provide a partial answer in extension to the previously introduced prototyping loop. It further exemplifies the important role of prototypes in relating various practices to each other. As the synthesis loop departs from a strictly sequential understanding, the importance of other means of reference increases. Putting sociomaterial prototypes at the center achieves both the required stability and dynamic openness. Without a sufficiently crystallized state, practices fail to connect to each other. Without the option to also liquify the sociomaterial prototype to which they refer, they fail to contribute to an iteratively improved enactment of future states. Thus, the synthesis loop's dynamic appreciates how sociomaterial prototypes are closely entangled with the practices that constitute them.

4.3 The resonance loop – material agency at the interface

4.3.1 Reintroduction to resonance

When possible future states materialize themselves in the present as sociomaterial prototypes this does not happen in a vacuum; they have a direct effect on their context. While the previous chapter explored the practices involved in synthesizing sociomaterial prototypes, this chapter investigates the practices that contribute to the resonance they evoke. It presents findings that lead to a better understanding of how the enactment of future states resonates in the present and how this resonance is again translated back into the sociomaterial prototypes themselves.

With the completion of the transition phase, the strategic initiative was no longer an abstract idea, but had taken concrete form. The future anticipation of what *Trustlog* could and should be had been synthesized into sociomaterial prototypes that enacted the future state in a way that made it seem real. In the words of the *Trustlog* members, the platform *"came to life"* through it as the prototypes were often mistaken for the final product. At the same time, actors involved in synthesis had also realized that with every step they took and answer they found, more unsettled questions waited just around the corner: questions regarding functionality, the business model and – most importantly – customers and partners who would use it in the end. While sociomaterial prototypes had been kept in a controllable safe space during synthesis, it soon became clear that for the prototypes to evolve and stay alive, they had to be taken out of the protected environment and brought into contact with customers, stakeholders and even competitors. In other words, the prototypes had to be exposed to their context and put to the test.

How enactment is informs interpretations and meaning is central to the sensemaking perspective (Sandberg & Tsoukas, 2015; Schildt et al., 2020; Weick, 1988). According to Weick (1979, p. 149), however, many actors shy away from proactively putting their achieved enactment to the test within the organization's environment again. Instead, they prefer to follow their existing understanding of the environment without repeatedly validating their assumptions. Based on what he calls "avoided tests", these imagined barriers become prominent constraints, turning the existing knowledge level into the only portion that organizations retain. Put differently, despite sensemaking's ideal process of repeated enactment, selection, and retention, the organizational reality oftentimes sees actors refrain from actively seeking resonance beyond spheres of their control. Instead, fictional constraints are set up to protect retained meaning.

The analysis of the *Trustlog* case adds nuance to this gridlocked situation. Instead of "avoided tests", a diametrically opposite behavior of favoring the transparent exposition of achieved enactments could be observed in the case of *Trustlog*. Putting the initial prototype to the test for validation was an outspoken demand not only of the directly involved members of the strategic initiative but also a binding requirement by senior management. Thus, the case expands our understanding of how sociomaterial prototypes develop agency to function as learning devices that deliberately create resonance outside the control of human actors. Thereby, the goal was not to prove that something is right, but to generate resonance.

Resonance describes the relationship between subject and object not as causal link, but as a vibrating system through which both sides stimulate each other. In doing so, it overcomes the duality of a subject-object relationship and defines it as a resonance system. In section 2.3.4, I have situated Rosa's (2016) concept in the context of the underlying sociomaterial approach of this dissertation. A key element of resonance is the understanding that it goes beyond mere echo or causality and instead involves the capacity of all involved actors to speak with their own voices. Thus, they create a resonance sphere where all elements are entangled and able to transform each other. For resonance to occur, however, the human and non-human actors must be sufficiently consistent and at the same time also open enough to be reachable and malleable (Rosa, 2016). Through resonance, therefore, human actors become increasingly interwoven with emerging non-human actors that they shape in real time. In other words, the generative impulses of human actors are "shaped by the very inputs that they offered" (Garud & Karnøe, 2003, p. 281).

At *Trustlog,* members deliberately created situations based on trial and error: not to prove that they were right, but to embrace the learning opportunity in case they were wrong. In that sense, they showed a tolerance for setbacks which created situations in which "out-of-the-ordinary behavior can result in visible, out-of-the-ordinary results" (Baker & Nelson, 2005, p. 354). Conducted experiments, thereby, function as learning opportunities that create the resonance that enables actors to identify potential weaknesses of the prototype and address them again during synthesis. An unsuccessful test, in that sense, does not conclude that the prototype as a whole does not work, but its resonance is instead used to evolve the enactment of the future state (Cartel & Boxenbaum, 2019; Garud & Karnøe, 2003).

In this chapter, I will introduce the third empirical focus which explores how resonance was achieved within the emerging context of *Trustlog*. Building on this observation, I derive three distinct resonance practices. *Experimenting* involves leveraging material artefacts to generate reactions and ideally resonance with actors outside the strategic initiative. *Prioritizing* crafts clarity in the observed behaviors, engaging a wide range of actors in a collective sensemaking process. *Storyshaping* sustains the evoked resonance by engraining it in the sociomaterial prototype again and making it accessible for adjacent actors. Finally, I will put the practices in relation to each other and the sociomaterial prototype again by introducing the so-called resonance loop.

4.3.2 Empirical focus III – the user testings

At *Trustlog*, sociomaterial prototypes were embedded in numerous relations with the direct strategic initiative members. From early on, however, prototypes were also deliberately shown to actors outside the core of the strategic initiative to evoke resonance. By taking them out of the door and testing them, crucial learnings could be generated. This early exposure was directly requested by members of the strategic initiative, as well as senior management within the parent organizations. One senior manager provided the following reasoning:

> *"User testing is extremely important. We are not doing this because we think we are the best and know everything. No, we need our customers to really like and see value in the platform. In the end, they are working with it. We don't know much about their daily work. And then, they also talk to each other, so they act as important multiplicators for our product."*

At *Trustlog*, there had been early and ongoing interactions with a so-called "pilot community", consisting of investors, general contractors and government agencies who could become future customers. As these interactions played a vital role in the development of the platform, I will use this section to closely follow one of these engagements. The vignette below retells how one of the many direct engagements with members of the pilot community unfolded. It sets the scene, provides a short conversation that took place during the testing and wraps up the observations.

Setting the scene

It was a cloudy, but surprisingly warm August day when the three members of *Trustlog* finally all met in a mid-sized city like so many that sprawl out along Germany's main arteries between regional capitals. It had taken them all morning by train from their

hometowns to come meet the representatives of *Hausbau Holding* – as I shall the call company here – in person. The appointment was special, as due to the Covid-19 pandemic, most previous encounters with customers had taken place virtually. Today, however, everyone was meant to meet in person again. As the first wave of the pandemic had just been easing, most people had no idea about the pandemic waves yet to come.

The headquarter of *Hausbau Holding* was situated at the city outskirts, surrounded by wide streets, a car dealership and surprisingly many trees and bushes. The team – consisting of an insurance expert, product manager and design consultant – gathered on the big parking lot outside the building. With meticulous preparation, the design consultant had assembled a detailed user testing guide, consisting of a linear walkthrough of the platform prototype, including all assumptions he had collected with colleagues back at *Trustlog*. The open questions were listed and arranged in what the design consultant called a "testing journey". As prototypes are not fully functional and limited to specific interactions, this pre-defined journey had to be prepared in close collaboration with the designers, developers and subject matter experts. On this morning, however, work on the prototype had been halted for the testing to take place. The three members went together through the testing plan, which included an introduction, prototype testing and a designated exploration of potential names for the platform. The roles were clear; two members of *Trustlog* would introduce the platform and then hand responsibility over to the design consultant to lead the testing.

Testing and engagement

Once the team had entered the headquarters and gone through the check-in procedure, they were quickly brought to the designated meeting room. Inside, they found grey carpets and useful wooden desks with wheels, complemented by black cantilever chairs. The *Trustlog* team was joined by two employees of *Hausbau Holding,* who were managing the company's surety bonds and guarantees. Everyone took a seat at a safe distance; the testing could start.

As previously agreed, the two *Trustlog* members started by providing an overview of the platform. At this stage, the testing appeared to be just like any other sales meeting. While earlier introductions had been conducted with the help of a slide deck, by now the team had resorted to mainly using the prototype to pitch their product. The benefits of the platform were laid out in a well-coordinated back and forth; the design consultant described it as follows:

"At the beginning of most testings, they try to sell the prototype. I fully understand it, as it is also a chance to convince potential customers. It is also in their DNA as they have been doing this for a long time. But they also learned to take themselves back and let the prototype speak. After this, I would usually take the lead in running the test, and they would even ask me first to allow them to explain certain aspects in more detail."

Half an hour into the conversation, the guiding principle of the meeting changed. The *Trustlog* team deliberately handed over the control of the prototype to the two members of *Hausbau Holding*. The transition started with the design consultant requesting the members of the pilot community to take over:

- I think this is a good moment where we can start with the testing now. Can I ask you to grab the mouse and log yourself into the platform?
- Yes, can I type in my email? What would my password be?
- Unfortunately, this is just a prototype, so not everything works just yet. You can just click on Login and we can start.
- Okay, so here I am on the start page. Oh interesting, I can already see all my sureties here?
- Yes, that's great that you already found your way. There's one last thing I wanted to tell you. We are testing the prototype and not you, so please don't hesitate to tell us what's on your mind while you are exploring the platform. It helps us a lot.
- Of course. Can I click on this? What happens if I click there?
- Go ahead. What would you expect to happen?

The testing then went on from here and covered all relevant areas of the prototype, with the *Trustlog* team carefully noting down their observations and asking clarifying questions.

Right after the meeting, the three members of *Trustlog* came together once again to quickly debrief their main learnings. This method was used throughout the testings to capture the non-verbal impressions from the sessions and verify whether everyone's sentiment was similar, or not. In addition to the quick debrief, the design consultant recorded an audio transcript and a screen capture. This data was then complemented with pictures taken throughout the session.

Wrap up

While the vignette only captures a small part of the whole engagement, the conversation during the testing exhibits three defining aspects of the testing setting. First, the *Trustlog* team made sure to repeatedly clarify that it was a prototype, despite its appearance resembling the final platform. However, as managing sureties involves large monetary sums, *Hausbau Holding* employees were very careful and handled it as if it were a real product. Second, the lead was handed over as the participants took control of the mouse, keyboard and consequently the prototype. At this point, they were deciding themselves where the testing was going; *Trustlog* members had to let go and observe. Third, the lead was not only given away to the testing participants, but also to the material artefact: the prototype. Questions regarding its functionality remained unanswered and were mirrored back, leaving the users to figure out the way forward, drawing on the materiality. This worked exceptionally well as a member of *Trustlog* recalled:

> *"It was unbelievable how this person just sat in front of the prototype, grabbed the mouse, and used our platform as if she had done so every single day. Just like that. She understood exactly what it was about. This was an amazing feeling, to see that this way of working, all these iterations we did with the prototype were worth it. It's not just something designers say, the customers really profit from it."*



Figure 20 – Onsite prototype testing in action

The testing that day lasted for more than two hours, taking the involved actors on an extended journey that started with the processes of *Hausbau Holding* and more general conversations about how they would be affected in the future. With the prototype testing, however, the group started to collectively explore and shape the prototype as their direct engagement led to resonance that encompassed the prototype, as well as the participants. Figure 20 shows how the prototype was live on the participants' laptops, with them regularly turning around to discuss and share ideas that came up in the process. Despite the length of the testing, the mood in the room changed from a rather formal sales meeting into a collaborative session. Guided by the prototype, all actors engaged in a lively discussion, pondering the effects a roll-out of the platform would have for *Hausbau Holding*, which processes would be involved and what the strategic relevance of this could be.

4.3.3 Resonance practices

The testing at *Hausbau Holding* serves as an exemplary experiment where members of the strategic initiative use the sociomaterial prototype to deliberately create resonance with actors in the emerging context. Dozens of testings like this were conducted over the course of three years as resonance with customers and users played a crucial role in the development of the strategic initiative. The case of *Trustlog* thus shows how a deliberate exposure of strategic ideas to their emerging context evokes resonance that contributes to the strategic initiative's further iterative development.

Generating resonance by leveraging enactments of future states through sociomaterial prototypes is a key practice of the strategic initiative. Resonance thus involves a tuned set of practices enabling sociomaterial prototypes to actively engage with their context and let external actors engage with them. These resonance practices fully apply – but are not limited to – customer interactions as described in the empirical focus. In addition, they are also at play in engagements with organizational actors, senior management, adjacent units, partner organizations and – as the initiative grows in complexity – even members within the core team of strategic initiatives. Together, the practices contribute to the creation, interpretation, and retention of resonance between human actors and non-human actors that depict future states of a strategic initiative.

The three identified resonance practices are *experimenting*, *prioritizing*, and *storyshaping*. *Experimenting* encompasses the intentional trial of future states to not only validate their underlying assumptions, but primarily generate new insights.

Prioritizing describes the collective effort to make sense of the generated resonance. The qualitative nature of most interactions does not allow for a solely cognitive analysis; it requires collective reflection. *Storyshaping,* finally, retains achieved collective meaning by sharing learnings, insights, and stories from the field across the strategic initiative and its adjacent actors. It also inscribes the generated learning in the prototype again. Below, I will describe all three practices in detail.

Experimenting – letting it go

The practice of *experimenting* describes how sociomaterial prototypes deliberately create resonance to generate novel insight about the future emerging context of a strategic initiative. The practice plays an important role in elevating sociomaterial prototypes from ordinary material artefacts to objects of inquiry. Sociomaterial prototypes thus function as sufficiently concrete assumptions in meaningful and materialized form that evoke resonance from external actors engaging with them. Hence, if a strategic initiative's sociomaterial prototypes are not capable of resonating with other human and non-human actors, they most likely have failed to enact an intended future state in a sufficiently crystallized way. At the same time, if an initiative's enactment of future states exists only in the form of fixed outcomes, *experimenting* fails as well; the generated learnings cannot be incorporated again. However, if *experimenting* is practiced successfully, the resonance of sociomaterial prototypes and external actors provides a powerful way to align teams, include additional stakeholders and ensure a great swath of novel insights leading to further strategizing. The importance of *experimenting* is affirmed by the following quote of a *Trustlog* member:

> *"The sessions with future customers played a crucial role. We would show the prototype and closely observe how they reacted to it, what they said, and what ideas they came up with. We made sure to identify the key aspects and built them into the prototypes again. We did this after every round of testings to make sure we really understood how the environment looks like with the new service."*

The quote describes how the intention of *experimenting* lies not in proving that a particular solution is correct, but in generating further learnings about its performance in practice. While ambiguity often forces involved actors to resort to assumptions, resonance overcomes this limitation and enables them to learn from evoking real experiences. Resonance under real circumstances is a crucial driver for strategic initiatives to progress and further refine the enactment of future states. However, without a sociomaterial prototype that enables resonance in the first place, *experimenting* risks getting lost in the vagueness of discursive exchanges. *Experimenting,* therefore, embeds

sociomaterial prototypes through the two interrelated micro-practices of *defining assumptions* and *testing*.

- **Defining assumptions** – As sociomaterial prototypes are enacted through temporary materializations of collective and immanent synthesis processes, it is crucial that the implicit assumptions engrained within them are uncovered and made visible again. During synthesis, many immanent decisions are taken on both the individual and collective level. While some of these are insignificant, others have the potential for wide-ranging effects on the platform and encompassing strategy. The ongoing projection of sociomaterial prototypes, however, often conceals the missing validation of the underlying assumptions. Thus, when *experimenting*, assumptions must be made explicit, put to the test and assessed as a member of *Trustlog* describes:

  > *"We quickly got to a common understanding while building the prototype. It was not about one person getting only their perspective through. It was always about getting the best solution, even if this involved us going back and forth. This sometimes made it hard to track back why we had taken a certain decision. If we remained unsure about something, we then always decided to take it into testing and have it decided there."*

  Thus, the micro-practice of *defining assumptions* externalizes the underlying assumptions engrained in sociomaterial prototypes again. Doing so, it structures them according to their strategic impact and level of uncertainty. The inquiry of the effect they have on external actors and their context becomes the explicit objective within *experimenting*. Accordingly, prototypes are optimized to ensure they succeed in generating sufficient resonance during a possible engagement.

- **Testing** – A deliberate involvement of internal and external actors with sociomaterial prototypes is achieved through the *testing* micro-practice. Involvement goes beyond sales pitches and explanatory brochures, encouraging actors to directly engage with the sociomaterial prototypes themselves. Through this process, human and non-human actors create resonance as they influence each other in practice. *Testing* thus leverages sociomaterial prototypes to allow enactments of future states to circulate among stakeholders within and outside the strategic initiative, letting sociomaterial prototypes constitute and explore an emerging context through generative inquiry. This context is enacted in close engagement with actors within the emerging context. Therefore, direct strategic initiative members retain only

limited power over its actual emergence. How the context of strategic initiatives is enacted through resonance of sociomaterial prototypes and human actors is described in the following statement by a project lead of *Trustlog*:

> *"Usually, you have nothing to hold on to when you talk to people outside the core team. But with the prototype, they can hold onto something. They had their keyboard, their monitor, and we just observed them as they went through the prototype and shared their thoughts. Suddenly, they were acting as if the platform was already real. I wouldn't know if we could have talked about certain things without them having it in front of their eyes, using it for the first time. Completely new situations came up in the testing. Our results would have been very different without having a prototype."*

Testing, therefore, allows members of strategic initiatives to not only show static snapshots of their process, but make it available through immersive materializations which add depth and relationality. This is possible through sociomaterial prototypes that enact complex concepts without requiring further explanation. With the increasing complexity of the platform, the multitude of underlying assumptions and the growing strategic relevance, the prototype is deliberately leveraged to facilitate a common understanding among actors outside the initiative's core team and enable them to provide detailed feedback.

The resonance practice of *experimenting* ensures ongoing strategic sensemaking within a strategic initiative by *defining assumptions* that need to be validated through *testing*. When *testing*, the sociomateriality of prototypes is especially apparent as the strategic initiative members deliberately step back and observe, letting the prototypes 'speak' directly. This direct engagement of prototypes and external actors creates resonance that contributes to the emerging context, encompassing novel ideas, products, or services. At the same time, it has a considerable effect on the members of the strategic initiative as well, as their involvement in *experimenting* affects their own sensemaking practice. This effect is described by a senior manager who had observed numerous engagements:

> *"It was really important for me to be part of it, especially when we visited bigger customers. Being there and seeing the enthusiasm of the participants has drastically changed how I see the opportunities of this initiative. I had instant feedback, not in a written form, I was part of it. I felt it."*

As this quote shows, *experimenting* creates impactful resonance not only in the emerging context outside a strategic initiative, but also with the internal actors that compose it. They harness the resulting momentum to further evolve the collective understanding achieved through strategic sensemaking. The next subsection, therefore, further explores how resonance is processed and made actionable within a strategic initiative again.

Prioritizing – making sense of sociomaterial resonance

Prioritizing is a practice closely interwoven with *experimenting* as it builds on generated observations. When experiments are conducted, the resulting resonance and depth of feedback can overwhelm the involved actors; the challenge is to separate signal from noise. To include the experiment's observations in strategizing, resonance must be rendered actionable for a wide range of actors. Defining what matters is collectively negotiated as it has a direct impact on strategizing. To deal with extensive resonance and feedback, strategic initiative members thus continuously engage in collective sensemaking to craft clarity and interpret the observed behaviors and interactions. Doing so, they create a common understanding of the emerging context that is increasingly enacted by the prototype they are crafting. However, such a common understanding is not guaranteed when a strategic initiative starts out, as a member of *Trustlog* describes:

> *"No, we did not share the same views in the beginning. I think it was an ongoing process through which we got closer and closer as we discussed what we had seen in the testings. Both organizations conducted testings with five to ten customers and that really helped us to understand what really matters and works, how our environment functions."*

Collectively making sense of the observed resonance is especially important because not all involved actors can always – and everywhere – take part in the experiments. A leading member of *Trustlog* was also very clear that they could not directly take up what they had seen in the field, but first needed to make sense of the underlying meaning of their observations and the feedback they had collected:

> *"Especially when you only talk with few customers, it doesn't mean that what one person wants applies to everyone and fits our business. You cannot just take these insights unfiltered because you'll lose focus on what really matters. You need to really make sure you reflect on what it means for the platform."*

Prioritizing thus involves both generating a collectivized understanding of what has been observed and ensuring an ensuing focus on what matters most in the strategic initiative's context.
To better understand the *prioritizing* practice, it is helpful to zoom in on the micro-practices of *clustering* and *focusing*. The former describes how actors structure their observations along the sociomaterial prototypes that were part of the observed resonance, while the latter revolves around the ensuing interpretation and identification activities.

- **Clustering** – To collectivize individual observations and enable sensemaking, *clustering* structures the resonance of sociomaterial prototypes and human actors in emerging contexts with the help of meaningful frameworks. Thereby, potential frameworks that lead to the creation of clusters are detached from specific engagements and instead re-fixed on common observations, recurring interactions or the involved prototypes to create a more objective overview. In the case of *Trustlog*, observations were carefully clustered along the different prototype elements. While *clustering* is more efficient in small groups, there are considerable advantages to turning it into a collective practice instead. The design consultant guiding the *clustering* practice points this out, while openly acknowledging the challenge it involves:

  > *„I know this was crazy, but it was important for us to do the summarizing session from the testing with everyone. It really helped to get objectivity back into the process when everyone experiences what we learned in the field as closely as possible. It helps everyone to understand why we take certain decisions."*

  Figure 21 shows how material artefacts in the form of prototypes are used to align members across organizations and provide a common framework for discussion. Sticky notes with observations and direct quotes are added to printouts of prototype elements; data from the experiments with external actors is clustered along the prototype. Due to the limited space, the picture shows how even windows are covered with notes, resulting in the whole room being plastered in resonance from the experiments.



Figure 21 – Collective clustering session

By grounding their arguments in the observed resonance of the prototype and the external actors, the team creates a common ground allowing for decision-making, even in contexts of uncertainty and ambiguity. This "neutral turf" provided by the prototype is crucial, as one leading member of *Trustlog* pointed out:

> *"The prototype neutralizes the personal opinions and interpretations in the teams. There is the challenge that InsurA and InsurB are competitors, but then even within one organization itself there are very diverse views as well. That's why it helps us to have a neutral discussion. And it focuses our discussion on the matter at hand and not political matters."*

The micro practice of *clustering* thus contributes an important prerequisite for strategic sensemaking by establishing a collectivized understanding of observed resonance from the direct engagements with the emerging context. Referencing the involved sociomaterial prototypes, learnings are clustered in thematic groups, making them accessible for all actors within the strategic initiative and, potentially, beyond.

- **Focusing** – While the result of *clustering* enables diverse actors to interact with observations on an objective level, it does not yet necessarily enact sense. To derive actionable insights from the generated resonance, *focusing* describes how the

resonance of stakeholders and the sociomaterial prototype is defined and interpreted in a collective effort. As this resonance is rarely uniform, but characterized by equivocality, strategic initiative members assess clustered experiment outcomes to condense them into a common understanding. This activity is crucial for strategizing; it directly influences sensemaking within and beyond the strategic initiative. This is described by a member of *Trustlog:*

> *"There are constantly changes in the vision and the strategy as we keep having changes in the prototype. As we continue to experiment and create, we generate so many new topics and learn new things that potentially change our course. It really is the elaborate art of focusing, to really define what is in our MLP, in our first focused version of the platform."*

Or in similar words by a leading member of *Trustlog*:

> *"We prioritize with our experiences from the user testing. Of course, technical and business factors matter as well, we need to make money after all. But thanks to reflecting on these testings afterwards, we are usually able to legitimize and argue our decisions with the other members and senior management."*

As the two quotes show, actors continuously try to create a fit with their existing understanding and strategizing. In addition to adapting to the resonance they observed, they also need to balance requirements from technological, organizational, or business constraints.

However, as *focusing* takes place in relation to the sociomaterial prototype, decisions are clearly structured and transparently documented, making them accessible to a wide range of actors. The strategic initiative, therefore, manages to communicate in a shared language that does not favor one actor over another. This is crucial, as decisions are deliberately taken from a customer standpoint, which is naturally more ambiguous than a solely cognitive analysis. While technological and business-related factors still play a role in this process, the customer is deliberately put at the center.

Focusing, therefore, enables a strategic initiative to interpret generated resonance and make it actionable for strategizing. In iterative cycles, actors enact an updated version of their understanding as they make sense in relation to the sociomaterial prototypes. This connection to sociomaterial prototypes and their resonance renders the resulting prioritization more transparent and accessible for direct members, senior management, partners and even potential customers.

In conclusion, *prioritizing* incorporates *clustering* and *focusing* to enable strategic sensemaking activities to process the resonance that is created through *experimenting*. Through engaging with the feedback from material enactments and structuring this resonance with the help of the available sociomaterial prototypes, actors of a strategic initiative can collectively foreground and structure their main insights. Establishing this as a collective practice embedded with material artefacts allows actors to achieve common ground. However, such common ground must not be mistaken as consensus. When *prioritizing*, common ground rather provides what Jalonen et al. (2018, p. 2818) call an "agreement on the vocabulary and basic assumptions from which arguments can be constructed." A member of Trustlog describes this difference in his own words:

> *I don't need everyone to have the same view as me. It's already very powerful if we have ways to exchange and see if we can find a shared meaning. Not the smallest possible compromise, but if we can identify what is our future objective. Once we define those, we can make them concrete and discuss if they are even feasible. But first we need to agree what is important and what is not.*

On this basis, the enacted meaning of resonance is collectively negotiated, which involves leaving out certain information and reinforcing other statements to create a concise and shareable collective understanding. This enables the strategic initiative to prioritize its activities. Therefore, *prioritizing* differs from a more traditional analytical approach, as it leverages common ground generated through the reflection on sociomaterial prototypes and their resonance. Thus, *prioritizing* is driven by the observed resonance with external actors, and at the same time must be validated with them again.

Storyshaping – collectivizing agency

Storyshaping is the practice of capturing and retaining resonance in sociomaterial prototypes: generated through *experimenting* and interpreted and aligned with actors engaging in *prioritizing*. As resonance is created through the engagement of human and non-human actors, it is not necessarily accessible for sensemaking by default. Sometimes, resonance only lasts for the duration of an engagement, as it relates to a future state only materialized in that very moment. At other times, it excludes certain actors that were not part of the initial engagement. Members of a strategic initiative must thus find ways to document and translate resonance in ways that it can travel beyond the point of its direct origin.

At *Trustlog*, this is achieved in several ways. First, experiments, testings and discussions are recorded and documented within an organizational database; pictures and reports are filed in the corresponding folder structure as it is done in most organizations. In addition, however, the members of *Trustlog* also sustain parts of the generated resonance by continuously evolving the involved sociomaterial prototypes. They enrich prototypes with stories from the field and make sure they are accessible to actors adjacent to the strategic initiative. Due to increasing complexity, strategic initiative members resort to prototypes and other material artefacts to streamline their interactions and quickly communicate their core concerns. This is explained by a member of *Trustlog*:

> *"We had so many ideas already last year, and the great thing now with the prototype is that we always said we have this vision, but we need to concentrate on what really matters. I find it so interesting to see, how we get a better and better understanding of what really matters. We really gained a better focus through our iterations."*

Actors outside the daily practices of the strategic initiative are carefully kept in the loop on the evolving strategizing at the interface. This involves regular meetings with senior management, organizational units and customers, where the progress of the initiative is presented. Interestingly, these meetings are not limited to the format of a classic presentation or report, but frequently evolve into a collaborative setting where involved actors are collaboratively interacting with the sociomaterial prototypes, as a senior manager describes:

> *"I had regular meetings with the team and was closely involved in the progress at Trustlog. Other people here at the insurance were also involved, so that they felt as part of the process. They did not just say, well, this is how it will be but included us directly, asking for feedback and our takes. They would usually show the prototype or parts of it, so that we could get a feeling of what we are actually doing here. We have learned a lot from past mistakes when this was done in secrecy and once it got out there was huge resistance."*

How this involvement was mediated by sociomaterial prototypes is explained in further detail by a member of *Trustlog*:

> *"I believe that our conversations with senior management were completely different, as we would always bring something tangible with us. We caught a good time at the organization, as more and more people there were fed up with*

long reports and open towards new ways for collaboration. We would not drown them in slides but take the prototype to directly work it out with them. This way, we had more of a dialogue and could focus on the strategic topics. The prototype prevented us from getting lost in the details."

Storyshaping, therefore, revolves around how sociomaterial prototypes are leveraged to engage in open discussions and potential collaborations with adjacent actors. This engagement, however, does not take place without constraints; some of these lie in the materiality itself, others are purposefully engrained in the presented storytelling artefacts. Thus, the practice is called *storyshaping*, as the story is shaped through the interactions, but also brought into shape beforehand. *Storyshaping* builds on crystallizing, which reduces the openness of the sociomaterial prototype to make it transportable and accountable, while still allowing for liquefying to a certain degree and welcoming further iteration. These mechanisms can be further described with the help of the micro-practices of *enriching* and *connecting*.

- **Enriching** – In addition to a prototype's substantial materiality, *enriching* further equips it with the resonance from past engagements with actors. The stories from *experimenting* and the meaning enacted during *prioritizing* are directly engrained in the prototype itself. Through purposeful *enriching*, sociomaterial prototypes become more than just their visual appearance or substance. They are an aggregation of months of continuous synthesis and resonance leading up to their ability to provide enactment. Lacking written concepts –commonplace in other projects – the prototype is a central piece of documentation at *Trustlog*. It crystallizes the ongoing processes and renders them approachable for internal and external stakeholders. A design consultant directly involved in the micro-practice said the following:

  "The prototype is our most comprehensive way to document. It can easily show how it all works. It is our source of truth that we can always relate to, no matter if we are talking to legal, the developers or the board. We learned that we don't know what we are talking about without having interactive artefacts to support our common understanding"

  Or in the words of a *Trustlog* member:

  "What's most valuable to me is what is behind the prototype. We can use it for legal questions, to define our business model, define our operations, how far the

platform goes and how all of this affects our processes. It's a tremendous help to already have thought about this when we built the prototypes."

The evolution of the prototype as it is enriched with resonance is evident – for example – in the term MLP, which is used by the *Trustlog* team to refer to the platform prototype and is an abbreviation of "minimum lovable product". This term, in turn, is a reference to the more common MVP or minimum viable product (Ries, 2011). The term MLP quickly became a part of the active and shared vocabulary within the strategic initiative and encompassed the customer-driven decision process, projecting a platform version optimized for the customer's needs and value propositions. Enhancing sociomaterial prototypes with resonance from customer engagement provides what a *Trustlog* member called a *"knockout argument"* as customer centricity is a key characteristic of the high-level strategy of the strategic initiative and its parent organizations. Through the micro-practice of *enriching*, strategizing and its unfolding direction can be legitimized through embedding past resonance within sociomaterial prototypes. Doing so broadens and elevates the meaning of the enactment of a future state. As the significance of sociomaterial prototypes extends beyond their materiality, it further enables strategic sensemaking among direct and ancillary actors of a strategic initiative.

- **Connecting** – Once a prototype is enriched with learnings generated by resonance, the second micro-practice of *connecting* ensures that this information can be retrieved again by the involved actors. It ensures that sociomaterial prototypes can function as a reference point for further development and detailing through related disciplines. Thus, the prototype's agency ideally renders an explicit explanation by direct members of the strategic initiative obsolete. Instead, ongoing strategizing is made accessible through leveraging sociomaterial prototypes. This tremendously increases the speed at which actors uninvolved in the daily strategizing activities can learn about the strategic direction. According to a *Trustlog* member, the approachability of the prototype is deliberately leveraged by the members of the strategic initiative to create momentum:

  "We always say we can turn anyone into an enthusiast about our – actually – quite dry topic. And we do that only thanks to the prototype because it is so approachable and easy to understand. I mean, how else could we even explain our complex platform in another way? Impossible!"

Connecting increases a prototype's approachability; actors use it to connect different disciplines. For example, the development team works with excerpts from the prototype to derive written "user stories", that are then turned into lines of code. The legal department further specifies contractual agreements in its own specific language while referencing the prototype. Organizational actors connect the prototype to their existing practice to make sense of how it might change their own processes.

Connecting extends the agency of sociomaterial prototypes beyond the direct actors of a strategic initiative involved in their synthesis. In organizations, sociomaterial prototypes eventually manage to involve a wide range of new actors – from implementors to marketing and legal personnel – as a strategic initiative evolves from an abstract idea into a fully implemented organizational reality. Thus, *connecting* ensures that the accumulated knowledge remains shared among these actors.

S*toryshaping* practice encompasses how sociomaterial prototypes evolve to embrace actors not directly exposed to the synthesis loop or the evoked resonance. This is achieved by *enriching* sociomaterial prototypes with the generated resonance, shaping them accordingly and retelling the stories behind the decisions made. The enriched prototype is then again made accessible through *connecting*, which democratizes its use and the way people can interact with it. The impact of successful *storyshaping* is visible in the following quote by a senior manager:

> *"I know them [the prototypes] all. I really know them all. I have regularly shown the prototype to other managers. Even the board when I had to report there. I took even the early prototypes and just showed them. And it is gigantic what kind of resonance this generates."*

In conclusion, s*toryshaping* makes the resonance of a strategic initiative accessible to a wider range of actors through leveraging the ability of sociomaterial prototypes to crystallize complex topics and facilitate interaction. As a result, it enables the crucial exchange that ensures that learnings derived from resonance find their ways into strategic sensemaking processes again.

4.3.4 Introducing the resonance loop

The previous section introduced resonance and its connected practices to explain how strategic initiatives purposefully interact with their emerging context to collectivize the

future states they aim to establish. To do so, temporary enactments are transferred from within the strategic initiative into its emerging context, where they are exposed to the real world. The findings from the empirical context extend our understanding of this strategic sensemaking process in two ways.

- First, they lead to the identification of *experimenting*, *prioritizing*, and *storyshaping* practices that explain how resonance is created and sustained in the context of strategic initiatives. The outcome of strategic sensemaking processes no longer needs to be retained at all costs; instead, it is used to generate further learnings. Actors seeking resonance in sensemaking thus do not intend to impose meaning on external actors and defend what has been enacted, but instead exhibit an openness toward failure, seeing it as a chance to increase their opportunities for learning.
- Second, resonance overcomes the one-directional understanding of actors making sense of an external environment. Instead, the agency of external actors situated in the emerging context is deliberately leveraged as well, resulting in a resonance sphere of mutual interference and constitution. External actors are not just presented with finite accounts, but directly engaged in shaping a strategic initiatives' proposed enactment in the form of sociomaterial prototypes. This engagement, in turn, advances sensemaking within the strategic initiative again, as it generates further learning about the context of the intended future state.

In this section, I will connect the identified practices in a resonance loop, relate it to the existing literature and outline the contributions of resonance for strategic sensemaking.

Assembling the resonance loop

The distinct practices of *experimenting*, *prioritizing* and *storyshaping* are combined to form the resonance loop, depicted in figure 22. Within the loop, practices are constantly moving; they do not take place sequentially, but in recurring iterations. While there can be a dominant practice at times, this does not imply that the remaining ones have stopped completely. On the contrary, they are still running in the background to support the primary practice.

The resonance loop is complementary to the prototype loop discussed in section 4.1 and the synthesis loop in section 4.2. While the latter focuses on how future states in uncertain contexts are enacted in the first place, the resonance loop revolves around how these enactments are further collectivized through resonance among a strategic initiative's interdependent relationships with human and non-human actors.

The resonance loop shows how all three practices revolve around sociomaterial prototypes as reference point, keeping them anchored in stable and dynamic contexts. Resonance relies on both human and non-human actors to possess sufficiently concrete form; it cannot emerge from vague positions. Through their enactment, sociomaterial prototypes crystallize ongoing processes and provide the stability needed to evoke resonance. While sociomaterial prototypes tend to come in a more crystallized state than in the synthesis loop, this does not mean that either the prototypes or the practices are dominant. Instead, the practices constitute and are constituted by the sociomaterial prototypes and vice versa as they are inextricably interwoven.

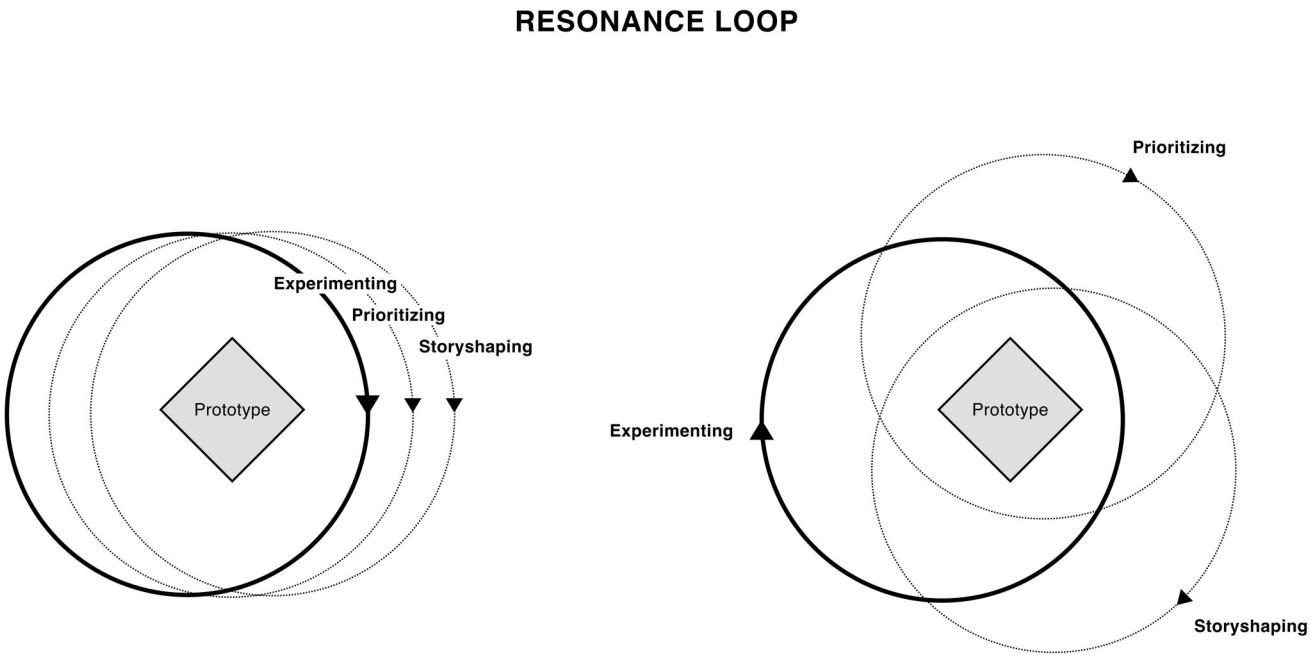


Figure 22 – Stable and dynamic view of the resonance loop

This mutual constitution is apparent when we take a closer look at the practices. *Experimenting* collects underlying assumptions that underpin the prototype projection to engage in generative inquiry and sensemaking. This takes place repeatedly through testing where the sociomaterial prototype – as non-human actor – directly engages with human actors outside the strategic initiative's direct focus. The focus thus lies on the interactions and not the artefact itself; the latter is primarily used to evoke resonance. Together, the agency of human and non-human actors creates resonance that further contributes to the emerging context. *Prioritizing* assesses the generated resonance, clustering it in meaningful frameworks to create a common ground and understanding. Based on these clusters, involved actors focus on relevant insights and relate them to the

enacted future state. In doing so, the generated resonance is made meaningful and retained. *Storyshaping* ensures the sustained accessibility of the generated resonance by leveraging sociomaterial prototypes again. It enriches them with the observed resonance and, at the same time, keeps them approachable for a wide range of stakeholders. *Storyshaping* draws much of its effectiveness from the ability of sociomaterial prototypes to efficiently condense complex deliberations into readily accessible form.

A crucial element of the resonance loop is the emerging external context of a strategic initiative. While not explicitly depicted in the visualization, all three practices are oriented toward the external context; they are entangled with it through engagement, sensemaking and communication. In contrast to the synthesis loop, where the orientation of the practices gravitates toward sociomaterial prototypes, the resonance loop practices flow from the sociomaterial prototype towards the emerging context in which it is embedded, meaning that actors within the emerging context are mutually engaged as well. They make sense of the enacted future states proposed by sociomaterial prototypes, while simultaneously shaping them in return. Thus, the resonance generated through such engagements is a crucial driver of a context's recursive emergence.

Last, the resonance loop is displayed as a circle for very particular reasons. Resonance encourages recursivity; it generates new insights that must be incorporated again. A strategic initiative, therefore, is not kept in a laboratory – or similar safe space – but brought into contact with a wide range of actors to jointly resonate and generate emerging contexts. Resonance draws from the relations of a strategic initiative and requires human actors willing to interact with non-human actors to depict potential future states and their context. Only through this interaction can future events be collectivized and further enacted in the present. Without resonance, a strategic initiative remains documented by an artefact that depicts a static outcome. With resonance, however, this artefact becomes a prototype that serves to enact the future context in the present. Therefore, prototypes are not used to force a future state on involved actors, but rather enable collectivized engagement to further refine it through interaction, interpretation and iteration.

Discussion & contributions

The resonance loop advances our understanding of how sensemaking within strategic initiatives engages and relates to the environment. Actors are no longer seen as making sense *of* the external environment, but instead are making sense *with* the environment. What Weick et al. (2005) portrayed as actors engaging in a sequence of enactment,

selection and retention triggered by external cues from the environment is reframed as deliberate and ongoing resonance between human and non-human actors. This leads to two contributions to the current discussion of strategic sensemaking:

First, the resonance loop enables the direct engagement of human and non-human actors within an emerging context to further refine the enactment of future states. Enactment is thus not limited to strategic initiative members, but deliberately collectivized through resonance. The traditional sensemaking view already emphasizes the importance of an organization's external environment; it plays a defining role as a source of cues that result in sensemaking episodes (Weick, 1995a). Thereby, the environment is not just given as an external entity, but actively talked into existence by organizational actors (Cornelissen & Schildt, 2015; Weick et al., 2005).

This understanding, however, cannot fully explain how enactment unfolds in contexts where the external environment is emerging only once it is enacted at the same time. In that case, sensemaking – and particularly strategic sensemaking – does not relate to past events but revolves around future states whose enactment requires significantly more action than interpretation to be functional. To better understand sensemaking in such contexts, Gioa & Chittipeddi (1991) introduced the concept of sensegiving, where actors attempt to impose previously retained meaning on the environment. Similarly, Jalonen et al. (2018) identified "meaning-making" and "legitimation" as distinct sensemaking processes to explain how emerging environments are directly determined by actors involved in sensemaking.

The resonance loop, however, does not unilaterally impose meaning decided by actors involved in sensemaking onto an external environment. Rather, resonance leverages enactment through engaging actors within the emerging context in reciprocal ways to generate further learning and insight. This mutual resonance is achieved with the support of sociomaterial prototypes; their oscillation between liquid and crystallized states enables internal and external actors to collectively shape them and further refine the enactment of the desired future state. Such collaborative engagement is essential; work is increasingly accomplished, not on the individual level, but through specialized actors' collaboration on a collective level (Hargadon & Bechky, 2006). The same is true for emerging contexts of strategic initiatives. Only through resonance can a comprehensive enactment of the emerging context be generated together with customers, partners, competitors and the sociomaterial prototypes.

In summary, the conscious application of sociomaterial prototypes to engage actors and create resonance within an emerging context is a key contribution of the resonance loop.

Enactment is no longer defensively retained, but deliberately iterated in close engagement with actors in the emerging context.

Second, the resonance loop and its practices contribute to a better understanding of strategizing at the interface of organizations and their context. Resonance encourages sensemaking beyond the core of a strategic initiative, involving adjacent actors from the emerging context like customers, partners and competitors. This involvement further reduces the traditional separation between organizations developing and customers using products and services (Faraj & Azad, 2012; Leonardi, 2011).

Strategy as practice literature has similarly argued that the focus on strategizing – which has traditionally been attributed to leadership functions situated at the center of an organization – has been too narrow and misses the chance for important observations at the periphery (Vaara & Whittington, 2012). The uncertainty and ambiguity inherent in emerging contexts transforms strategizing into "something in which more people are involved, more often, than ever before" (Johnson et al., 2003, p. 5). Insightful studies include the work of Daneels (2003, p. 561), who shows how enactment emphasizes the reciprocal and self-reinforcing link between customer behavior and the organization, Rouleau's (2005) study on how managers at the frontline interpret and sell strategic change at the organizational interface and Azad & Zablith's (2020) investigation of how digital visualizations and frontline employees reciprocally reinforce each other in influencing strategy realization. However, despite these recent developments, "how everyday operational activities feed into strategic priorities, and hence, how an organization's strategy can emerge from its operational strength, remains largely unexamined" (MacKay et al., 2021, p. 1344).

The resonance loop provides a set of practices that explain how strategizing takes place at the interface of a strategic initiative with its context. *Experimenting*, *prioritizing* and *storyshaping* all revolve around how sociomaterial prototypes engage actors of the emerging context in resonance. It describes how the enactment of future states is purposefully put to the test, how generated resonance is interpreted and how learnings are incorporated into strategizing again. Doing so situates strategizing not only within a leadership team or a strategic initiative, but extends it to the emerging context and its actors as well.

5 Towards an integrated model of strategic prototyping

Intended strategies often have unintended outcomes (Balogun & Johnson, 2005). Making sense of emerging future contexts is challenging, requiring actors to be in a constant conversation with what they are creating. Thus, there is no move that has only the intended effects; on the contrary, the materials talk back and let actors apprehend previously unanticipated problems and potentials (Schön, 1983). It is this very interplay that is at the core of the research question I introduced in section 1.3:

> *How are abstract strategic ideas in emerging contexts crafted, collectivized and enacted to enable strategic sensemaking?*

In the previous section, I presented and analyzed empirical findings generated during a longitudinal study of how a strategic idea turned into an initiative and, eventually, an operational organization. Where there was nothing, there now is a venture that handles thousands of contracts, employs over a dozen people and continues to grow. The accompaniment and analysis of this remarkable development led to the identification of three crucial elements, each of which contributes to answering a part of the research question.

The first findings chapter 4.1 introduced prototypes as a sociomaterial enactment of strategic ideas about a desired future state. Sociomaterial prototypes are not just objects, but non-human actors with their own agency that participate in strategizing. Through an ongoing prototype loop, they crystallize and liquefy the enactment of future states that a strategic initiative wants to achieve. Chapter 4.2 embedded sociomaterial prototypes in the practices that constitute them. With the help of the synthesis loop, a prototype's becoming is explained with the practices of *mapping*, *crafting*, and *projecting*. By introducing the resonance loop, chapter 4.3 took sociomaterial prototypes out of the direct vicinity of strategic initiatives and made them collectively available to actors in their emerging context. The practices of *experimenting*, *prioritizing* and *storyshaping* all contribute to a better understanding of how resonance in an emerging context is created, made sense of and sustained.

With all the pieces laid out and available, I will use the following two chapters to integrate them into the flow model of prototyping strategy and outline the summarized theoretical contributions of this dissertation.

5.1 Assembling the flow model of strategic prototyping

Some decisions in strategizing can be made after a thorough analysis of the available data. By drawing on reports, market data, and often, the personal experience of the involved decision makers, strategies are formulated and implemented. However, this ordered course of action no longer applies once organizations aim to evolve their future value creation and face ambiguity and uncertainty (Mintzberg, 1994). When strategizing revolves around ideas about desirable future states or events with no reliable past data available, sensemaking practice changes significantly. In emerging contexts, strategic sensemaking is no longer initiated by external cues from past events. Instead, the very context that must be made sense of is just emerging as actors try to make sense of it. In addition to analysis, therefore, strategizing thrives on synthesis and the ability to iteratively enact potential future states and make sense of them. While the first activity resembles the analytical rationality popular with most managerial disciplines, the latter points to a distinct way of engaging with the environment and the task (Stigliani & Ravasi, 2018).

The flow model of strategic prototyping contributes to a better understanding of strategizing under uncertainty and ambiguity, where the analysis of retrospective data no longer suffices. Strategizing is understood as a sociomaterial practice where future states are crafted, enacted and collectivized to enable strategic sensemaking. Enactment, thereby, is not limited to discursive practices, but explicitly also leverages materiality to posit substance and significance. In other words, enactment intertwines discursive and material practices to incorporate interpretations of the past and future actions into sociomaterial prototypes.

Strategic prototyping consists of three interrelated loops. The *prototype*, *synthesis* and *resonance loops* each come with a designated set of practices discussed in detail in chapters 4.1, 4.2, and 4.3. To develop the loops, each chapter starts from the depth of the field to produce an increasingly linear and concise argument that manages to depict and explain the observed mechanisms. However, while introducing order and linearity into analysis helps to identify and communicate key elements, the inevitably resulting compartmentalization fails to provide a better understanding of how the elements are related to each other in practice. In the field, the loops and their practices are indeed tightly interwoven with each other, making it difficult to isolate them in the way necessary for analysis. Thus, the proposed flow model of strategic prototyping departs from a linear conceptualization and adopts a more dynamic and integrated view.

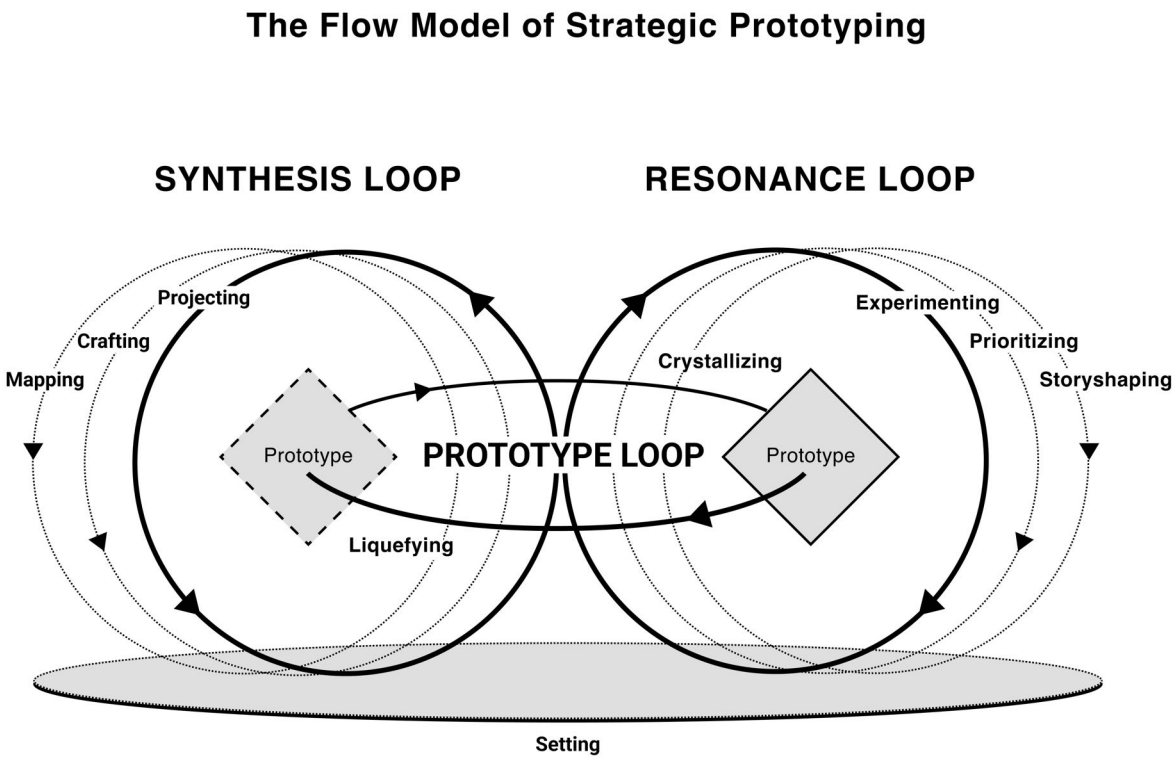


Figure 23 – The flow model of strategic prototyping

I will assemble the flow model of prototyping strategy – shown in its entirety in figure 23 – in three steps. In step one, I explain its underlying mechanisms and setting. In a second step, I situate the prototype loop in the model to embed the sociomaterial prototypes in practice. Lastly, I connect the synthesis loop and the resonance loop with each other to complete the model.

First, the flow model of strategic prototyping has no designated beginning or end. It evolves from the linear or recursive diagrams of process research to follow what Cloutier & Langley (2020, p. 14) call a "conjunctive style" of process theorizing. This style aims to transcend dualisms depicted by boxes and arrows and formal propositions. Instead, the model adopts a flow perspective (Csikszentmihalyi, 2014). As the social and the material are entangled in recursive practices, the concept of flow is helpful in two ways. On one hand, it characterizes everything as being in constant flux without a specified beginning and end. On the other hand, the distance between practitioners and their activities is minimized in flow conditions as the social and the material become one through constant tuning (Csikszentmihalyi, 2014; Sandberg & Tsoukas, 2020). While the strategic prototyping flow is highly dynamic, it is situated within a setting that structures the unfolding of a strategic initiative into ongoing iterations. These iterations

render the ongoing flux actionable for the involved actors. Recursivity, therefore, is a crucial underlying trait of an initiative's strategic prototyping.

Second, the crucial role of sociomaterial prototypes is highlighted by placing the prototype loop at the core of the model. What might be mistaken for two boxes connected by arrows is indeed a conjunctive cycle as well, where the prototype as a whole, or some of its parts, take crystallized or liquefied forms. This ability to be stable and dynamic at the same time is a defining element of sociomaterial prototyping. As discussed in section 4.1, there are four characteristics of sociomaterial prototypes. First, they are objects of generative inquiry as they produce learnings about future states within emerging contexts. Second, they traverse temporal structures by enacting distant states in the present. Third, they oscillate between crystallized and liquefied states to enable strategic sensemaking. And fourth, they are not just objects but non-human actors with their own agency that directly engage and collaborate with human actors. Sociomaterial prototypes, therefore, are more than ordinary material artefacts. The significance of their enactment transcends their material substance once they engage in strategic sensemaking. Therefore, the prototype loop shows how strategic ideas about potential future states of a strategic initiative are temporarily enacted in a meaningful form.

Third, the synthesis and resonance practices are organized in two connected loops. Both revolve around iterations of sociomaterial prototypes within the previously introduced prototype loop. Thereby, they simultaneously reference and constitute these prototypes. While the synthesis and the resonance loop both engage with crystallized and liquefied states, there are overarching tendencies that I will outline below.
On the left, the synthesis loop consists of three practices that primarily leverage the liquefied state of prototypes to further shape and enrich enactment. *Mapping* materially enacts past and future learnings in the present, externalizes them and renders them accessible for collective sensemaking. *Crafting* describes the ongoing conversation among human and non-human actors as they are shaping and influencing each other. Rather than having a previously determined plan, they leverage immanent sensemaking as meaning unfolds through practice. Lastly, *projecting* ensures that the enactment of a future state in the form of a sociomaterial prototype is accessible to actors in- and outside the synthesis loop. While it gives shape to distant events, it also continuously verifies that it is just a projection and not a fixed entity. Through merging interpretation and action, it represents temporally synthesized collective enactment. Therefore, *projecting*

also plays a vital role in bridging the synthesis and resonance loops which is emphasized through the increased thickness of its circle in the model. The combined synthesis loop thus iteratively crafts sociomaterial prototypes to enact strategic ideas about future states.

On the right, the resonance loop consists of three practices as well. However, these practices tend to mainly leverage the crystallized state of sociomaterial prototypes. Put differently, they build on the projected enactment generated through the synthesis loop. The resonance loop thus deliberately moves beyond the boundaries of a strategic initiative. In contrast to the synthesis loop – which mainly takes place internally – the resonance loop primarily relates to an initiative's emerging context. To do so, the *testing* practice takes the projected future states and exposes them to a broader range of actors to create resonance. Its aim is not to prove the worthiness of a proposed solution, but to create further insights and uncover previously unknown facets. The resulting resonance is organized through *prioritizing,* which rearranges the observations into meaningful clusters to collectively select the most relevant ones. This common understanding is then again made more accessible through *storyshaping*, which enriches sociomaterial prototypes with learnings derived from resonance and ensures that a wide range of actors can connect and relate to them. Through the resonance loop, strategic ideas are collectivized and made accessible beyond the directly involved actors. This enables them to become part of the sensemaking process as their resonance eventually leads into another cycle of the synthesis loop.

Together, the three loops constitute the flow model of strategic prototyping. While the loops can be examined in isolation, they are only functional in relation to the other loops. Enactment is crafted through synthesis, enacted in the form of sociomaterial prototypes and collectivized through resonance. The model outlines the various dynamics at play during strategic prototyping. Its purpose lies in explaining how actors within organizations collectively engage in strategic sensemaking to find answers to today's multifaceted problems in uncertain and ambiguous contexts. While not all prototyping is strategic, nor must all strategizing involve prototyping, the flow model of strategic prototyping provides a powerful way to identify and inform a strategizing approach driven by prototyping.

While the model summarizes and reflects the findings, it also contributes to existing literature and the perspectives on sensemaking, sociomateriality and strategy as practice. In the next section, I will discuss these contributions.

5.2 Contributions – strategizing as prototyping

In this section, I will situate the model of strategic prototyping in the literature and summarize the theoretical contributions. As each chapter in the findings section already discusses the contributions of each loop individually (see sections 4.1.4, 4.2.4 and 4.3.4), I will focus this discussion on the integrated view presented through the flow model of strategic prototyping.

5.2.1 Introducing sociomaterial prototypes to strategy as practice research

The first contribution consists of the introduction of sociomaterial prototypes, thus enhancing the sociomaterial perspective within strategy as practice research. While the existing literature has already acknowledged the importance of materiality for sensemaking and strategizing, calls for a more in-depth investigation of the material side of sensemaking and strategy as practice have remained plentiful (Balogun et al., 2014; Boxenbaum et al., 2018; Carlile et al., 2013; Dameron et al., 2015; Hernes & Schultz, 2020; Lê & Spee, 2015; Leonardi et al., 2012; Vaara & Whittington, 2012). Existing studies have shown *that* the material and the social are interwoven. However, Boxenbaum et al. (2018, p. 601) point out that there still is a research frontier in "detailing *how* the social realm and the material realm become intertwined, and what effects these processes have for organizational practice." Hence, it has been the main research interest of this dissertation to further extend the predominantly discursive perspective of strategy as practice research with a decisively sociomaterial one.

My research enriches the strategy as practice literature by applying a strong relational understanding of sociomateriality to the observed phenomena. It not only describes the social and the material as entwined with one other, but provides an integrated view of how they constitute each other in practice. With the definition of sociomaterial prototypes, I introduce a dynamic material artefact to the discussion which possesses enough stability to have agency and is constantly becoming at the same time. Sociomaterial prototypes are defined by generative inquiry, their ability to traverse temporal structures as they oscillate between crystallized and liquefied states and their agency as non-human actors. Sociomaterial prototyping, therefore, is understood as a cycle where multiple iterations of various levels of stability are enacted. This ongoing movement allows prototyping to instill meaning in otherwise limited material artefacts. As a result, they transcend their substance and unfold in sociomaterial practice. In other words, sociomaterial prototypes are not just tools or outcomes, but impactful non-human actors that directly engage in strategizing.

5.2.2 Proactive sociomaterial enactment as enabler of sensemaking

The second contribution of my research is concerned with the sensemaking perspective and the often overlooked core constituents of temporality and enactment (Sandberg & Tsoukas, 2015). Sensemaking is a fundamental activity of collective strategizing. It centers around the process through which organization members interpret their environment through constructing accounts that allow them to comprehend the world and act collectively (Gioia & Chittipeddi, 1991; Maitlis, 2005). However, two important questions remain unanswered when sensemaking is studied in the context of strategizing. First, the retrospective orientation of sensemaking is widely challenged as researchers ask how members of an organization can manage to move beyond themselves as they try to make sense of their future (Hernes & Schultz, 2020). Second, strategic sensemaking rightfully requires the enactment of these future states as sense is made of them. However, the understanding of enactment in sensemaking literature remains notoriously slippery; it is unclear whether it only applies to a specific step within sensemaking, or encompasses the whole process (Sandberg & Tsoukas, 2015).

This dissertation's flow model of strategic prototyping contributes to clarifying these open issues. The model moves from a sequential understanding of sensemaking and enactment (Weick, 1988, 1995a) to a conjunctive understanding of different processes taking place simultaneously and in multiple cycles (Glynn & Watkiss, 2020; Weick et al., 2005). Action and talk are not viewed as a sequence but treated as cycles; either one can become "the starting point to the destination" (Weick et al., 2005, p. 412). The model shows that it is no longer necessary to clearly assign enactment, selection and retention to specific steps of a process, as they occur instead throughout each identified practice of strategic prototyping. Thereby, enactment becomes the primary driver of strategic sensemaking as it incorporates selection and retention processes to enact future states.

While an external environment never just exists but is always talked into existence (Weick, 1995a), the proposed model takes the understanding of enactment even further by introducing ways how its initiation is no longer dependent on external cues or events or limited to discursive aspects. It overcomes the need for external cues which are retrospectively made sense of and opens the process to start from within. Future states – or distant events as Hernes & Schultz (2020) would prefer to call them – can be proactively enacted in the form of sociomaterial prototypes through the synthesis loop.

This synthesis is not limited to discursive or material practices but enacts future states through intertwined sociomaterial practices.
In other words, the model explains how organizations can leverage sociomaterial prototypes and practices to proactively make sense of their future value creation without it having materialized yet. Thus, the synthesis and resonance of sociomaterial prototypes enable organizations to deliberately enact future states in the present and make them actionable for collective sensemaking.

5.2.3 Strategic sensemaking as sociomaterial prototyping

As a third contribution, my research adds to studies exploring and advancing literature on strategic sensemaking (Cornelissen & Schildt, 2015; Gioia & Chittipeddi, 1991; Maitlis & Christianson, 2014). According to this dissertation's initial definition, strategizing is understood as an ongoing, collective and future-oriented practice. While not all sensemaking processes are necessarily strategic, strategizing under uncertainty and ambiguity must be understood as collective sensemaking; otherwise, it remains limited to the cognitive musings of individual actors. Most research has investigated strategic sensemaking as primarily taking place on the discursive level and by doing so, it replicates strategy research's tendency to overemphasize interpretation and language (Jalonen et al., 2018; Klarin & Sharmelly, 2021; Rouleau & Balogun, 2011). However, how action and interpretation interrelate in an organization's everyday operational activities remains largely underexamined (MacKay et al., 2021). I have thus paid particular attention to expanding my analysis beyond discursive towards sociomaterial practices, including actions and artefacts of strategizing. My research further adds to the upcoming stream of strategic sensemaking studies that aim to overcome the prevailing emphasis on interpretation and treat action as equal (Comi & Whyte, 2018; Garreau et al., 2015; Weiser, 2020).

The flow model of strategic prototyping provides an integrated view of how strategic ideas are synthesized, enacted in the form of sociomaterial prototypes and brought to resonate in collective engagement with human and non-human actors. It introduces sociomaterial prototyping as strategic sensemaking practice where interpretation and action are fully intertwined with each other. When the model's prototype, synthesis, and resonance loops are combined, strategic prototyping is able to enact, craft, and collectivize strategic ideas to engage in strategic sensemaking. While all loops involve both action and interpretation, their main objective is to sustain and evolve enactment of a collectively refined future state. Thus, the flow model of strategic prototyping

shows how strategic sensemaking unfolds in interrelated loops across a strategic initiative and its emerging context.

Strategizing as daily activity has been described in literature before as emergent strategy-making (Mintzberg & Waters, 1985), strategy as practical coping (Chia & Holt, 2006), or strategy as doings and sayings (Whittington, 1996). However, while these approaches acknowledge the importance of action in strategizing, they situate such action primarily within the daily strategy practice of managers, omitting the actions performed by a wide range of actors at the frontline of organizations. In addition, they revolve around the immanent present and, thus, struggle to connect the investigated strategizing practice to macro-level outcomes (MacKay et al., 2021).
The flow model of prototyping strategy, instead, does not limit strategizing to management practitioners. In contrast, one of the main objectives of its resonance loop is to involve not only internal but also external actors within the emerging context in strategic sensemaking. Thus, strategic prototyping deliberately involves internal and external actors in strategic sensemaking at the interface of an initiative or organization where action and interpretation are thoroughly intertwined. While the resulting enactment from such engagements cannot be treated as a final strategic outcome, it, nevertheless, provides temporary resolutions in the form of sociomaterial prototypes that act as such outcomes. As a result, strategic prototyping incorporates both immanent crafting in the present and the reference of future states and their resonance. It provides a promising way to better understand how strategic sensemaking connects micro-level strategizing with potential macro-level outcomes through recursive enactment and resonance.

6 Conclusion

In this final section, I will briefly summarize my research, outline the practical implications and discuss its limitations and opportunities for future research.

6.1 Summary

This dissertation introduces strategic prototyping as a defining strategic sensemaking practice. It presents the findings of my accompaniment of a strategic initiative's journey from the first abstract ideas to its successful establishment as a fully operational venture over the course of three years. As the initiative and its context were just emerging, its strategizing practice could not solely rely on the analysis of past data. Instead, it needed to leverage synthesis to enact its future context; one small decision at a time. Given the number of actors of different backgrounds involved in the process, the ever-evolving context and the inherent uncertainty, it can certainly be said that the strategic initiative was dealing with "wicked problems" (Rittel & Webber, 1973). Finding answers for this type of challenge requires an approach that goes beyond mere analysis, leveraging ways how the problem itself, its context and its potential solution can be synthesized iteratively.

The strategic initiative that led to the founding of *Trustlog* provided a prolific empirical case to answer the guiding research question of my dissertation:

> *How are abstract strategic ideas in emerging contexts crafted, collectivized and enacted to enable strategic sensemaking?*

The research question introduces strategic sensemaking as the focus of this dissertation. However, it is important to point out that this question aims not only at investigating how sensemaking takes place, but also how it is initially enabled through sociomaterial enactment. By applying a practice view (Schatzki et al., 2001; Vaara & Whittington, 2012) and enhancing it with a sociomaterial perspective (Barad, 2003; Orlikowski, 2007), this thesis examines the doings and sayings of the involved human actors, enhances the definition of which actors engage in strategizing and – most importantly – foregrounds materiality and non-human actors in the sensemaking process again. In doing so, this research complements existing research that investigates the material side of sensemaking (Berthod & Müller-Seitz, 2018; Hultin & Mähring, 2017; Stigliani & Ravasi, 2012) and particularly the sub-stream of strategic sensemaking (Comi & Whyte, 2018; Garreau et al., 2015; Jalonen et al., 2018; Rouleau, 2005; Rouleau & Balogun, 2011; Weiser, 2020).

In this dissertation, I propose prototyping as a key constituent of strategic sensemaking under uncertainty by assembling the flow model of prototyping strategy. The model combines the three loops discussed in detail throughout part 4, leading to the integrated model in part 5. First, I begin by highlighting the crucial role of material artefacts, and specifically sociomaterial prototypes. I define them as sociomaterial enactments that serve generative inquiry, traverse temporal structures, oscillate between *crystallizing* and *liquefying* and possess their own agency as non-human actors. With the resulting prototype loop, I show how agential cuts play a crucial role in enacting sociomaterial prototypes and enactment in general. With the second step, I shift my focus towards the practices that constitute these sociomaterial artefacts. I introduce the synthesis loop, which consists of a range of practices that leverage prototypes to map, craft and project collective enactment. Accordingly, the synthesis loop consists of *mapping*, *crafting* and *projecting* practices. Third, by introducing the resonance loop, I show how the agency of sociomaterial prototypes is deliberately used as a stimulus to evoke engagement among human and non-human actors in emerging contexts. The practices that compose the resonance loop include *testing*, *prioritizing* and *storyshaping*.

This study's concept of strategic prototyping emphasizes an understanding of strategizing that is not primarily analytic but engages in a variety of practices that enact sociomaterial prototypes, synthesize enactment and observe the resulting resonance. In that sense, strategizing allows for the creation of islands of artificial stabilities or social entities, that provide the raw material for generating and sustaining social reality by "bundling and coordinating selective aspects of an ever-flowing ultimate reality" (MacKay et al., 2021, p. 20). Hence, strategizing is understood as prototyping practice that renders it a dynamic and creative sensemaking process enabling collectives of actors to make sense in emerging uncertain contexts.

6.2 Practical implications

In addition to theoretical contributions to sensemaking and strategy as practice literature, this dissertation is of relevance for practitioners in the field as well; it aims to answer Pettigrew's (2012, p. 25) call to conduct issue-based research that is able to "not just codify patterns in the world, but also better understand how to change the world." My research provides three main insights that enable organizations and practitioners to adopt a prototyping-driven approach to strategizing.

First, the flow model of strategic prototyping provides a guiding framework for how abstract strategic ideas can be crafted, collectivized and enacted. It serves as valuable reference in an otherwise often chaotic process. It retains the openness needed to avoid being misunderstood as a recipe with fixed steps. Instead, it organizes different practices in loops and clarifies relations between various activities, thus supporting practitioners in assessing and reflecting on their process, contributing to a better process awareness and ability to collectively make sense under uncertainty.

Second, by directly connecting strategic sensemaking to resonance and its generation, the understanding of strategizing is critically expanded. While strategy as practice literature no longer distinguishes between strategy formulation and implementation, this dichotomy is still common with practitioners in the field who tend to separate strategizing into the activities of formulation and implementation. However, through strategic prototyping, action and interpretation gain an experimental quality that elevates prototypical implementation to a form of strategizing. To learn from emerging contexts, it does not suffice to simply analyze existing data; strategizing must strive to actively generate new data and insights through synthesis and resonance. Strategic prototyping empowers managers and strategic initiative members alike to engage with the emerging context and its actors in an experimental way that favors insight generation over a final proof of a strategic idea. What matters primarily is the observation of resonance which can enable – but is not limited to – the validation of strategic ideas.

Third, with the understanding of strategizing as prototyping to make sense of future contexts, strategizing activities' location is no longer limited to board rooms and corner offices, but increasingly spread across the interface of the organization with its environment. Strategizing occurs where the organization is in contact with its current and emerging context. By leveraging the accessibility and actionable enactment of sociomaterial prototypes, organizations can collectivize strategizing across internal and external actors. The resonance of this engagement generates building blocks for ongoing strategizing. In that sense, strategizing takes place as an iterative loop that leverages prototypes' ability to enable decision-making under uncertainty. Practitioners are empowered to explore strategic directions, not in the safety of their office, but amidst the chaotic nature of an emerging context by making temporary decisions to advance their understanding.

6.3 Limitations & future research

As is the case for most research, this dissertation is also subject to limitations. In this section, I will briefly discuss three limiting factors and show ways how they can be turned into promising avenues for future research.

First, the notion of a sociomaterial prototype has mainly been investigated in the form of a digital prototype depicting the future platform. Prototypes, however, can take many forms, as I have outlined earlier. While the platform prototype with its many iterations provided a prolific and extensive research opportunity, there are other prototypical objects, arrangements and practices that can take up similar roles in strategic sensemaking. An important avenue for future research thus lies in the identification of other sociomaterial prototypes with the capacity to crystallize and liquefy to enact distant states that enable collective sensemaking. Particular attention should be given to the specific implications that a sociomaterial perspective has for investigating such prototypes; it provides the opportunity for novel perspectives on how enactment is simultaneously discursive and material.

Second, longitudinal research inevitably leads to the formation of strong relationships and bonds with practitioners in the field. While trustful relationships greatly improve the depth of insight a researcher can achieve, they also come with certain challenges. One difficulty lies in maintaining an adequate distance for analysis; one can become an integral part of the empirical context. While this does not necessarily entail that I, as a researcher, was actively contributing to the strategic initiative operations, just the mere existence of a research setup has a significant impact on an organization. What is collectively reflected through regular exchanges between the researcher and the practitioners finds its way into the workings of the organization sooner or later, leading to practices evolving in reaction to the ongoing research. This is, of course, beneficial and a welcome outcome of a research partnership, however, it needs to be actively addressed and considered.

Third, even as this dissertation is being written, the empirical context continues to evolve. This research will always thus only provide a snapshot of the multilayered activities taking place within the organization. While my research activities also cover the more recent developments of the venture, many of the newer insights are still of sensitive strategic relevance and cannot yet be published in the form of a dissertation. It is the nature of strategy research that only after the realization of the observed

strategizing activities can they become available for analysis and public discussion. This is also the reason why this dissertation focuses primarily on strategizing, not the resulting strategy. The time frame to analyze the latter was simply too short. Therefore, an ongoing research effort is needed to accompany strategic initiatives when their enactment as prototypes turns into the actual product or service.

6.4 Concluding remarks

With these final words, I must slowly let go of a prototype that grew very close to my heart. Over the years, this document has been my way of continuously enacting what I observed, learned, reflected and created. I engaged in synthesizing just by writing ahead, putting sentence after sentence. Sometimes this resulted in success, more often in a clear need for further iteration. I crafted numerous visual models: from sequences to circles to infinite eights, all with the intention to structure my thoughts and generate new perspectives on what I was observing. And finally, I put my enactment to the test; at conferences, with my fellow members at the institute, at retreats in the Swiss alps and eventually my defense, always with the goal to generate resonance and learn more.

Over the past months, however, my dissertation – which was heavily liquefied at times – has increasingly taken crystallized form. With opportunities for further iteration diminishing, I am left with the hope that my dissertation may contribute to that time when crafting strategy is no longer simply a compelling metaphor, but instead a valuable approach through which today's wicked problems can be proactively addressed through strategic prototyping.

I hope that you're the one
If not, you are the prototype
(Outkast, 2003)

7 Literature

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