**Aalto University
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Business Model Sensemaking in Early Stage Knowledge-Intensive Firms

Marketing

Master's thesis

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Abstract

The business model has a notable presence in both academic and popular business literature and consensus is growing with regards to many of its underlying topics. However, a first-hand managerial perspective has the potential to add valuable insights to the ongoing discussion. In particular, there exists a theoretical gap in how managers in general and founders of early-stage knowledge-intensive firms in particular make sense of their ventures' business models. The aim of this thesis is to help close that gap.

The presented theoretical framework is derived from an extensive analysis of two prominent literature streams: business models (with a particular focus on the nature on its components & definitions, relationship to other business aspects and business model development of early stage ventures) and sensemaking (including the role of mental models and entrepreneurial sensemaking).

A qualitative research methodology was utilized to arrive at an answer to the posed research problem. Data was collected from six semi-structured interviews with founders of global early-stage knowledge intensive ventures in Germany. A deductive content analysis procedure was developed via a synthesis of prominent methodology literature and applied to the study's raw dataset.

The study is among the first to apply a content analysis methodology in the study of the sensemaking perspective. Its main theoretical contribution is a six-part model of managerial sensemaking in the context of early stage knowledge-intensive firms. The framework consists of the following subcomponents: a customer-centricity schema, a business model schema, confirmation-seeking behaviour, own higher purpose schema, framing through known objects, and stakeholder management. The identified categories of sensemaking build on extant literature and advance the current understanding of the dynamics of sensemaking in the entrepreneurial context. A discussion of the limitations and possible new research avenues within sensemaking complements the main findings.

Keywords Sensemaking, business model, managerial cognition, schema, entrepreneur

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Part 1. Introduction

The topic of business models has garnered much attention from both practitioner and academic circles. As the forces of disruption, globalization, exponential technological development, and economic slowdown have swept across the business landscape, the 'business model' has grown to prominence as an instrument to simultaneously enable and manage these forces. While varied and still contested, one of the chief reasons for its spotlight is clear: business models are a means of modeling, managing, and designing the value creation-logic of a firm (Wirtz et al., 2015).

The continued transformation of today's society into a knowledge and information-based one is having an impact on the business environment. Indeed, throughout history, knowledge has arguably been the major catalyst of economic, business, political, and social change. And management thinkers have already taken notice decades earlier: in 1992, writing for *Harvard Business Review*, Peter Drucker extolled the "shift to a knowledge society" (Wartzman, 2014). Today's practitioners are witnessing an undeniably persistent trend: the amount of knowledge produced and consumed has been on an upward curve. In fact, as Kevin Kelly argues, "world-wide information has been increasing at the rate of 66% per year for many decades" referencing data prepared by Hal Varian, an economist at Google (Kelly, 2008).

This expansion of complexity poses challenges on multiple fronts. The realm of mental processes of decision-makers at the various "life-stages" of the ventures they are tasked with leading is no exception. At no point in a venture's lifetime is the aforementioned more pressing than at the early formative period. The literature on managerial and entrepreneurial cognition, mental models and decision-making has acknowledged this point and has sought to provide insight into these areas as well as developing practical applications for recommendations.

And while the importance of "successful" entrepreneurship is well-recognized (e.g. new ventures have a substantial impact on economic growth in industrialized nations" (Sternberg & Wennekers, 2005) and a multitude of business model studies have focused on startup firms, few studies have explored the founders' and early managers' sensemaking at the early development stage of their ventures. Indeed, the design of a business model is a complex, social, and unpredictable task, one with the potential to influence the long-term trajectory, successful or otherwise, of a new company. Therefore, there is theoretical and practical value to be gained from studying how the fundamental and overarching element of a new business - the business model - is impacted by founders' and early managers' sensemaking.

1.1 Research Objectives

1.1.1 Research Gap

A sizable number of studies about business models have been conducted over the past couple of decades. While they vary considerably in their objectives, scope, and precise area of focus, the majority fall into the areas of business model definitions & scope, forms & components, actors & interactions, innovation, implementation, as well as change & evolution (Wirtz et al., 2015).

At the same time, a complementary research stream aimed at understanding process of making sense and its effects on firm performance has made a prominent mark in academic business literature. For example, previous work exploring differences in entrepreneurial' cognition of low and high-profit business models (Malmström et al., 2014), examining how counterfactual thinking and mental heuristics may be utilized to guide market opportunity (Gaglio, 2004), and establishing the presence of a distinct cross-cultural entrepreneurial thinking (Mitchell et. al., 2002).

However, there exists a gap in the understanding of the sensemaking dimension of business model development, which is related, yet distinct from mere thinking or cognition. More precisely, few - if any - studies have put the lens on the key individuals – founders and early managers of new ventures - and investigated the mental mechanisms and processes underlying sensemaking of ventures' business models.

1.1.2 Research Problem

The research problem is as follows:

In a knowledge intensive firm, what is the founder's sensemaking process of the venture's business model like during the early formative period?

For the purpose of greater clarity, it's worth adding several notes regarding the precise wording of the research question. While the interpretation of "early formative" period has different interpretations across industries, in the context of this thesis this will refer to a period of half a year to several years following firm inception and/or market entry (i.e the offering of a product or service public). Knowledge-intensive encompasses firms operate in dynamic, complex, rapidly changing, new or technology-intensive markets. The use of the word "founder-managers" conveys that young firms are typically lead by the founder or a group of co-founders who simultaneously act as founders (before professional managers are brought on board) and managers. This group of individuals share the burden of leading the company as well as designing and adapting the business model.

Part 2. Literature Review

2.1 Business Models

The following section will review the main academic research themes related to entrepreneurial sensemaking and the business model concept.

2.1.1 The Business Model Concept

Although the term *business model* has had multiple interpretations over the last several decades as a significant number of researchers have presented their conceptualizations of this term, in general terms a company's business model provides a "bird's eye view" of the component structure of an organization, one that reveals how a firm operates within the existing market, intends to differentiate itself and aims to achieve sustainability and profitability.

Inherent to their nature, business models span various aspects of the organization. For example, Shi et al. (2015) argue that business models have implications for the new product development activities of the company. They conclude that "*the context of new product development (NPD) in today's market has been changed dramatically by the introduction of new business models.*" In particular, the scholars assert that the business model with which the company chooses to launch a new product is among the multitude of factors that influence the venture's ultimate commercial potential.

Linking technology and business model design, Baden-Fuller & Haefliger (2013) argue that business models can mediate the relationship between technological innovation, venture formation and growth. In particular, they may serve as a link between technology and firm performance. New technology can enable the introduction of new business models (while influencing business model possibilities) and vice versa (though new technology is not a requirement for business model innovation).

In arguably one of the more recent and exhaustive meta-studies in the area of business models, Wirtz et al. (2015), propose a comprehensive business model definition - that of a simplified and aggregated representation of the relevant activities of a company, which describes how marketable information, products and/or services are generated by means of a company's value-added component. It's worth highlighting the following key excerpt, in which the researches aim to capture the essence of this term:

"*In addition to the **architecture of value creation**, **strategic** as well as **customer** and **market components** are taken into consideration, in order to achieve the superordinate goal of generating, or rather, securing the **competitive advantage**. To fulfill this latter purpose, a current business model*

*should always be critically regarded from a **dynamic perspective**, thus within the consciousness that there may be the need for **business model evolution** or business model **innovation**, due to internal or external **changes** over time.*"

Wirtz and colleagues also presented the origin, development, and future research perspectives of the business model concept. Highlighting the importance of their study, the scholars recount that business models are both a mechanism for securing and expanding competitive advantage and a structured management tool. More importantly, the authors emphasize that a "converging business model understanding" has begun to take shape in more recent publications: these works incorporate previously "siloed" perspectives (product, business-unit, and company-level), see the business model as a representation of the company and distinguish it from the concepts of strategy and process management.

However, a sensemaking perspective is currently lacking in extant business model literature as identified by this study's literature review. Therefore, it is worth inquiring how practitioners view the business model, how they make sense of it, and what mental models they may bring to the table, and whether there is in fact a converging understanding with respect to the concept.

Addressing the need to develop a comprehensive way of depicting how organizations create goods and services and, in a general sense, conduct business, Osterwalder (2004) put forward a rather comprehensive framework grounded in a synthesis and integration of previous research in the field. The first feature of Osterwalder's the business model framework is a representation of an organization's operations through four key areas: *Product* (representing what the firm offer(s) on a macro level), *Customer interface* (characterizing the company's target customer and the means of value delivery), *Infrastructure management* (depicting how the firm's infrastructure, logistics, and networks are arranged to create value), and *Financial aspects* (outlining the organization's revenue and cost models).

The second essential element is a further breakdown of these four building blocks into nine constituent elements:

First, the *value proposition* (the bundle of products and services - and their benefits aimed at one or more of the firm's target customers capturing the way a firm differentiates itself from its competitors and highlighting the reason why customers buy from a certain firm and not from another); second, *the target customer* (the segment(s) at which the firm directs its value proposition(s)); third, the *distribution channel* - the means of value delivery to a target customer (or segment); fourth, *relationships* (the means of customer retention); fifth, the *capabilities* or *activities* (a set of repeatable actions and

firm resources that are core to value creation and delivery); sixth, the *value configuration* or *key re-sources* (the deliberate arrangement of the firm's capabilities, activities, and processes that result in value creation); seventh, *partnerships* (the joint coordination of capabilities and resources with external market actors); eighth, the *revenue model* (the company's revenue stream(s) and the means for translating value delivery into revenue streams (e.g. selling, lending or licensing); nine, the *cost structure model* (the costs incurred through value creation and delivery (*"a price tag on all the resources, assets, activities and partner network relationships and exchanges"*).

The aforementioned components are by no means exhaustive. For instance, the value chain, team, and values could arguably be placed within the business model framework. One need to go far to find an example: Lindgardt et al. (2009) from the Boston Consulting Group depict the business model as consisting of two key components, a value proposition and an operating model. Therein lies, in part, the challenge inherent in making sense of this business model concept.

2.1.2 Focus Areas of Business Model Literature

Ventures' business models are a prime target area for managerial sensemaking – as will be demonstrated in the following sections. In response to the need for practitioners to make sense of their organizations' business models, a number of studies have emerged to fill this gap. For example, authors have put forward various best practices suited to particular contexts, such as particular types of innovation, industries, or company types.

A prime example is the study by Lubik and Garnsey (2012) with focus on scientific spin-outs in such areas as advanced materials and biotechnology. The authors argue that "*new business models must be created and adapted to suit the specific challenges these spin-outs face.*" The complexity and uncertainty of that particular environment require that business models of such ventures not be conceived in advance and that instead, "learning by doing" may be the preferred approach. Similarly, the business models that were designed to commercialize previous generations of technologies are unlikely to be suitable for new startups according the scholars.

A subset of academic works has focused on the change and implementation of specific aspects of business models. For example, shedding light onto the means of business model design from an organizational perspective, Simmons and colleagues (2013) suggest that business model design and implementation is not a deterministic and rational process, but rather one that is evolutionary in nature, "influenced by and influencing the context within which it is set, with often "messy" social interactions and negotiations." The following is suggested as a part recommendation, part inevitability for

managers: the "*soothing tensions and conflicts by means of value inscription on business model in-novations, alignment of interests and overcoming of tensions and disagreements arising from the practice of business modelling.*"

One particular exception to the case-specific business model literature is the 2007 work of Zott and Amit who explored the link between business model design and the performance of entrepreneurial firms. Specifically, their study examined two rather broad categories of business models: "novelty-centered" business models (i.e. those aimed at introducing "new ways of conducting economic ex-changes among various participants") and efficiency-centered business models (i.e. models aimed at "achieving transaction efficiency and lowering transaction costs for all participants in the value ex-change). The scholars did find support for the proposition that *"the more novelty centered an entre-preneurial firm's business model design, the higher the firm's performance.*" Among a number of rele-vant conclusions, Zott and Amit highlight that business model is "*a crucial task for entrepreneurs, and as a source of innovation.*"

It's worth underscoring that although many studies are oriented towards practitioners (Klang et al., 2014), the first-hand practitioner view on the possible components of the business model is has the potential to contribute further to existing academic literature. In addition, a number of complementary key questions remain unanswered as highlighted by Wirtz et al. (2016), which although worthy of fur-ther study, will not be the at the central focus of this thesis. These include, but are not limited to: the success factors of business models (it remains unclear what are the essential determinants of a good and/or flexible business model), the means of determining business models design success (i.e. what approaches are and tools are suitable for measuring, explaining, modeling, and predicting the "good-ness" of business models) and the design of business models (i.e. what is the process for developing new business models and which aspects of established entrepreneurship and organizational man-agement literature are relevant and irrelevant in this regard).

2.2 Sensemaking

2.2.1 The Sensemaking Perspective

The literature on what can be broadly described as sensemaking and managerial cognition has grown over the past two decades. Although the two are distinct, they are inextricably interwoven. And such interest is well-justified: managers often perceive and make sense of their business environments differently (Tripsas and Gavetti, 2000) and the intangible "cognitive constructs" at the heart of business organizations act as key enablers or barriers for individual and collective action (Rydén et al., 2015).

Indeed, founder-manager cognition plays a key role in the development stage of ventures: as Lubik and Garnsey (2012) highlight, the evolution of the business models in university spin-outs appears to be considerably impacted by how "*entrepreneurs' perception evolves, both of the external environment and in terms of understanding how value creation must be shared among necessary players.*" In a similar vein, Baden-Fuller and Haefliger (2013) noted that "*the business model frames managers, entrepreneurs, and developers hold in their heads also determine the way in which technology gets developed and that these connections are capable of being very powerful.*"

2.2.2 Sensemaking: Key Constructs

To engage in sensemaking is to engage in an effort to "understand novel, unexpected, or confusing events (Maitlis and Christianson, 2014). Sensemaking, which is yet to acquire a definitive, can be summarized as "the process through which people work to understand issues or events that are novel, ambiguous, confusing, or in some other way violate expectations" (Maitlis and Christianson, 2014).

Sensemaking is a central activity in organizations, which encompasses a lot of the challenges that founders and managers may face in their effort to steer the development of the business models of their organizations. Indeed, sensemaking is said to be triggered by situations and events with ambiguous meanings and outcomes - precisely the type of environment that startups inhabit. The saying that *"no business plan survives first contact with a customer"* (Blank, 2010) has firmly ingrained itself into the modern entrepreneurship narrative. The clashing of "objective" reality and founder-managers' views and expectations fits perfectly the established cause of sensemaking - a trigger is typically a great and important enough difference between what is expected and what is experienced, a state that is said to spur individual or a group action aimed at inquiring what is going on and what the next course of action should be.

As follows, the constant challenging of expectations is one of the defining features of early venture formation. And one can identify specific sources of cues that shift sensemaking into full-gear: environmental jolts (technological advances, changes in the regulatory environment), organizational change (shifts in vision, startup "pivots", downsizing) and the resulting threats to individual and organizational identity.

Action and the closely-related concept of enactment play a central role in sensemaking literature. There are a number of reasons for this. First, action is viewed as a core component of sensemaking in that through action, individuals or groups enact the results of the more cognitive component of sensemaking (for example, the understanding that was developed through preceding sensemaking). Second, action generates new cues and raw material for further sensemaking, shaping the environment and, in the process, changing the very conditions that prompted sensemaking. In fact, this interaction between action and interpretation is what is said to distinguish sensemaking from mere cognitive work.

An understanding of sensemaking provides insight in areas that are relevant for organizational aspects that are relevant for young, entrepreneurial ventures. In particular, strategic change areas that can be better understood through a deeper insight into the process sensemaking. In fact, as Maitlis and Christianson (2014) point out, earlier works (e.g. Haas, 2006) on sensemaking pointed out that teams that operate in ambiguous and knowledge-intensive environments had higher performance when their sensemaking capabilities were enhanced (for example, through specific measures as slack time and autonomy).

2.2.3 Weick's "Sensemaking in Organizations"

A discussion of the sensemaking perspective would not be complete without an analysis of Karl Weick's definitive treatise on the subject.

Weick (1995) begins his treatise by providing a definition of sensemaking, which he tackles from multiple directions: as a "set of ideas with explanatory possibilities", a "frame of mind about frames of minds", a "set of heuristics." Regardless, sensemaking is defined as the "the making of sense" and should be understood literally. It is both "action oriented and cognitive."

In Weick's conceptualization, sensemaking is concerned with how individuals create meaning, why they construct it, and how those processes affect the meaning creators. "Sensemaking is about the way people generate what they interpret" according to Weick.

Weick emphasizes that sensemaking is unique in the sense that it may be demarcated from interpretation because it is concerned with a wider array of issues, including how people notice what they interpret in their environment, how they take resulting action and deal with its consequences, and in Weick's own words how they engage in "authoring" (vs. mere interpretation) and "invention" (vs. mere discovery). The end-goal of individual sensemaking is sense, "order, clarity, and rationality."

2.2.3.1 Properties of Sensemaking

Weick put forward seven properties of sensemaking that put sensemaking in relation to other cognitive activities. The properties are as follows: grounded in identity construction, retrospective, enactive of social environments, social, ongoing, focused on and by extracted cues, driven by plausibility rather than accuracy. These seven properties serve as the foundation for inquiry into sensemaking and will now be discussed in more detail.

Property 1: Grounded in identity construction

A core tenant of sensemaking is that individuals have multiple "selves". This dynamic nature of personal identity serves a number of goals, including "the need for self-enhancement", "the self-efficacy motive", and "the need for self-consistency." In other words, the preservation of a consistent and positive self-image underlies sensemaking.

Furthermore, sensemaking is grounded in identity construction in the sense that a lack of confirmation to one's "self" is said to trigger episodes of sensemaking and that people perceive their identities by enacting them onto the environment. Another points worth highlighting has to do with the dynamic and self-referential aspect of identity and sensemaking:

"*What the situation will have meant is dictated by the identity I adopt in dealing with it. And that choice, in turn, is affected by what I think is occurring. What the situation means is defined by who I become while dealing with it or what and who I represent. I derive cues as to what the situation means from the self that feels most appropriate to deal with it, and much less from what is going on out there.*"

Property 2: Retrospective

Core to the understanding of sensemaking is the notion that individuals can ascertain their actions only after they've been completed. In the process of understanding, attention is said to be cast backwards from the present moment in time, the present context will affect what is "discovered", and anything that impacts the "remembering process" will have an effect on what is remembered.

Other important concepts of retrospective sensemaking include the notion that retrospection excludes many details, favors a deterministic view of history, that individuals are faced more of the problem of equivocality (i.e. too many possible interpretations) rather than too few possible meanings, and that the theories of "contingency planning, strategic planning, and other magical probes into the future" are "wasteful and misleading if they are decoupled from reflective action and history."

Property 3: Enactive of Social Environments

The view of enactive sensemaking captures the idea that individuals first create (or enact) part of the environment that they encounter. People are seen as part of that environment which then constraints their possible future actions – creating those individuals, in a manner of speaking. Perhaps the subtleties of the concept of enactment is best captured through these phrases:

- "We are neither the master nor the slave of our environment."
- "I never react to you but to you-plus-me; or to be more accurate, it is I-plus-you reacting to you-plus-me."
- "People discover their own intensions."
- "Enactment is first and foremost about action in the world, and not about conceptual pictures of that world."

Thus, a principal tenant of enaction is that past outcomes of sensemaking impact future acts of sensemaking: "the enacted world…has its "origin" in mental models of casually connected categories that were part of the strategizing that carved out artifacts in the first place."

Property 4: Social

The social property of sensemaking states that interpreting and social life are inextricably intertwined: the thoughts, feelings, and behaviors of others is said to be impacted by the "actual, imagined, or implied presence of others." The social nature of sensemaking is underscored by individuals' dependence on others in organizational settings (for example for managerial approval) and anticipation of others actions (for example, due to the need to follow social norms and uphold expectations).

Property 5: Ongoing

The persist flow of reality – the continuous and dynamic nature of the world governs sensemaking theory. When people pause to reflect or make sense of certain issues, they are in effect "chopping moments out of continuous flows and extract cues from those moments." The idea of interruption is also important in this context: re-curring stimuli in the form of events that spark sensemaking, such as regulations, competitor actions, takeovers, re-ogranization, help produce the ongoing state of sensemaking in organizational settings.

Property 6: Focused on and Extracted by Cues

The seventh property of sensemaking draws attention to the case that individuals "notice, extract cues, and embellish" through specific processes. Weick defines cues as "simple, familiar structures that are seeds from which people develop a larger sense of what may be occurring." The role of context with respect to this sixth property of sensemaking is significant: it affects which cues are noticed as well as how they are processed and interpreted.

Property 7: Driven by plausibility rather than accuracy

As the title of the last of seven properties of sensemaking suggests, sensemaking theory places greater importance on coherence and plausibility over accuracy of perception. The fact that individuals engage in distortion and filtering, amplify individual cues and connect them to more general concepts, do not have the opportunity to engage in extensive probing in organizational settings that value speed, deal with interpersonal social settings, prefer stimuli that enable an effective and prompt response, and have trouble assessing the objective accuracy of observation in the moment stands in favor of the notion that "reasonableness" is preferred over accuracy.

In summary, it would be appropriate to reference the following excerpt from Weick's treatise on the subject that captures the essence of these 7 properties:

"*Once people beging to act (enactment), they generate tangible outcomes (cues) in some context (social), and this helps them discover (retrospect) what is occurring (onging), what needs to be explained (plausibility), and what should be done next (identity enhancement). Managers keep forgetting that it is what they do, not what they plan, that explains their success.*"

2.2.3.2 The Unique Aspects of Organizational Sensemaking

Weick sets organizational sensemaking apart from "everyday" sensemaking. However, he does not demarcate the precise lines that set organizational and day-to-day sensemaking apart, instead claiming that "organizing and sensemaking have much in common and that "both organizations and sensemaking processes are made from the same cloth."

Regardless, it's important to underscore the precise definition of an organization that Weick selects. Out of the many possible definitions of and organization, one that makes sense in light of sensemaking theory is that of "an open system…" "…defined by coalitions of shifting interest groups that develop goals by negotiation" where "the structure of the coalition, its activities, and its outcomes are strongly influenced by environmental factors." The sharing of beliefs, values, and meanings as well as the presence of interlocking routines, habituated action, and continuous communication activity

that reinforces "mutually-reinforcing interpretations" of the acts of organizational members and those of others underlie organizational sensemaking.

2.2.3.3 Occasions for Sensemaking

One of the key questions in sensemaking is when do individuals engage in sensemaking. What are the occasions that prompt this type of activity? Weick puts forward the following antecedents of sensemaking:

- When individuals experience events that are not expected as well as when what is expected does not occur.
- When something is perceived as being unusual, novel, unfamiliar, previously unknown.
- When an individual experiences a shock or set of shocks of varying severity, for example, due to unexpected failure.
- Information load ("a complex mixture of the quantity, quality, and variety of information that people are forced to processes").
- Increase in complexity ("the mix of complex technology and limited experience makes for incomprehensible events").
- Turbulence ("combination of instability (frequency of change) and randomness (frequency and direction of change)").

Looked at from a slightly different perspective, the two forces of ambiguity and uncertainty are conceptualized as the two essential forces that spur sensemaking into action. The former is the result of equivocality (the presence of a large number of possible interpretations) while the latter is a consequence of a lack of any interpretations.

The following are the occasions that enable ambiguity in organizations, which Weick cites from McCaskey (1982):

1. The nature of the problem is not clear
2. The amount and reliability of information is problematic
3. There are multiple possibly conflicting interpretations
4. The presence of conflicting value orientations spurring politic clashes
5. The presence of unclear of conflicting goals
6. A shortage of time, resources, or attention
7. The presence of contradictions and paradoxes
8. Vagueness of responsibilities and roles
9. A lack of measures of success

10. Poor understanding of cause-effect relationships

11. Fluidity in decision-making

12. Use of metaphors and symbols over concrete definitions and arguments.

With respect the possible cause of uncertainty, Weick references Frances Milliken (1987), who identified the following:

- State uncertainty: a lack of understanding of how certain components of the environments are changing

- Effect uncertainty: a lack of understanding of how the environmental changes are impact the organization

- Response uncertainty: a lack of understanding of what response options individual possess.

2.2.3.4 Substance for Sensemaking

Weick introduces the concept of a frame (or framework) that enables cues to be interpreted, utilized, and made sense of and facilitates the process of locating, perceiving, identifying, and labeling the events that take place in the world. Connections enable the "linking" of frames (which reflect past socialization) and cues (which are "present moments of experience) and the three establish a unit of meaning. Going one step further, Weick argues for the relevance of six types of "connections."

The fist is ideology, a set of shared beliefs, values, and norms that help individuals grasp relevant cause-effect relationships, steer them towards a preference for certain outcomes, and identify appropriate behavior. There are several sources and level of ideology, from the transnational (such as faith in science) to the organizational (a preference for a certain kind of selling).

Another source of meaning is the "third order controls" or the "vocabularies of organization" which refer to the assumptions and definitions that individuals perceive "as is" and utilize as part of their decision making. Weick postulates that premises and "unobtrusive control" are close to emotionally charged beliefs and affect decision making at an early stage. They also enable the "transfer" organizational ideologies into action.

Paradigms are another embodiment of meaning similar yet different from the last two in that they are "…self-contained systems" that affect "what a person perceives, conceives, and enacts" (Martin & Meyerson, 1988, p.63)" and serve to illustrate "how theories of action are applied conceptually, observationally, and instrumentally." Ideologies that are more comparable to cultures rather than systems of meaning.

Theories of action, which are metalevel systems that "tie stimuli to response", traditions – patterns, image, beliefs that were transmitted across generations, and stories (i.e. organizational narratives)

that serve as "guides to conduct" are other important units of meaning in sensemaking theory. In summary, it's worthwhile to reference this quote from Weick's discourse, which aptly summarizes the connection between cues, frames, and connections:

"*Students of sensemaking need to understand ideologies, third-order control, paradigms, theories of action, traditions, and stories because their content pervades organizations and colors interpretations. All of these contents are in play all the time. Moments of meaning occur when any two of them become connected in a meaningful way. These meanings vary as a function of the content and the connection.*"

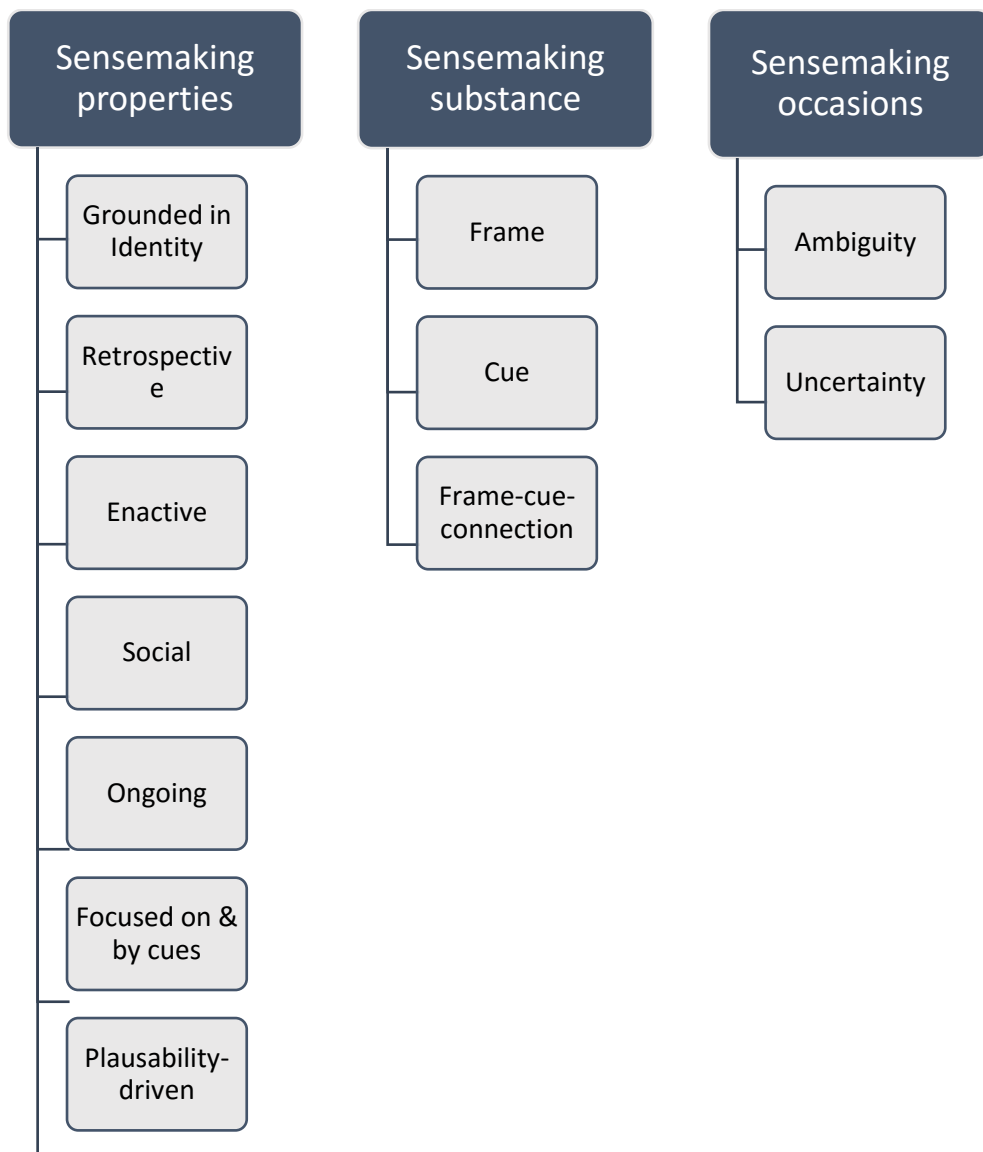Weick's formalization of sensemaking is summarized in the following figure:

Sensemaking properties	Sensemaking substance	Sensemaking occasions
Grounded in Identity	Frame	Ambiguity
Retrospective	Cue	Uncertainty
Enactive	Frame-cue-connection	
Social		
Ongoing		
Focused on & by cues		
Plausability-driven		

Figure 1: Sensemaking in Organizations (adapted from Weick, 1995)

2.2.4 Cognitive Sensemaking Literature

One stream of sensemaking is predominantly cognitive in orientation, a stream that gained prominence in the 1989s when topics like how "violated expectations trigger sensemaking", "how stimuli from the environment were noticed, interpreted, and incorporated", and why "some cues received more attention than others" were examined by researchers (Sandberg & Tsoukas, 2015. In fact, the stance of Starbuck and Milliken (1988), whose work Weick cites generously in his treatise was in line with this lens – according to the scholars, "sensemaking has many distinct aspects—comprehending, understanding, explaining, attributing, extrapolating, and predicting [. . .] What is common to these processes is that they involve putting stimuli into frameworks (or schemata) that make sense of the stimuli." Hill and Levenhagen (1995) who are also cited extensively by Weick, view "sensemaking in terms of how people "develop a 'vision' or mental model of how the environment works."

Thus, the cognitive lens is one of the two dominant streams of sensemaking literature. Joining the concepts of schema and mental models, it emphasizes the role of cognitive frameworks, belief structures, and mental representations in giving meaning to experience.

This thesis builds upon this theory stream of sensemaking research. One reason for this is the emphasis that this perspective has on the link between cognition and organizational performance. For example, as Thomas et al. (1993) state, "*one way organizations compete is by acquiring superior strategic information via decision makers' effective scanning of the internal and external organizational environment and interpreting that information into a form they can use to implement appropriate actions that will lead to effective performance.*"

Another reason is that a business model is inherently a mental concept that resides in the mind. In fact, Tikkanen et al. (2005) recall that a number of studies suggest that business models are a reflection of manager's mental models. The scholars conceptualize business models as consisting of the objective structures that manifest themselves in organizational structure (for example, the business processes) as well as "cognitive meaning structures" consisting of "systematic meaning structures or the belief system of a company." This cognitive manifestation of the business model provides guidelines for appropriate action in the form of rules, beliefs, and values as well as act as a filter between the internal managerial context and the external. Quoting Doz & Kosonen (2010) on the subject, Tikkanen et al. highlight that "business models stand as cognitive structures…."

2.2.5 Mental Models and Sensemaking

Sensemaking theory often includes notions of mental models. Mental representations, mental models, and schemas are synonymous, though some scholars prefer one over the other. They are "*cognitive structures that represent knowledge about a concept or type of stimulus, including its attributes and the relations among attributes*" (Fiske and Taylor, 1991:98)." In practice, schemas encompass both the theories and the concepts about pertinent aspects of the world, including simple and abstract objects and events. A mental model acts like a "gatekeeper" that both includes and excludes certain information from its holder. In fact, "*everything we think, say, or do as human beings is influenced by mental processes - by the cognitive mechanisms through which we acquire information, enter it into storage, transform it, and use it to accomplish a wide range of tasks*" according to Baron (2004).

According to Martins et al. (2015), one of their key functions is to offer their holders *fames* through which to interpret incoming information. Their structure is simple and consist of "(1) attributes, which are called 'slots', and can take on various values called 'fillers' which themselves can be subschemas; and (2) relations among them that organize or structure the slots and the interactions among them (Gureckis and Goldstone, 2010; Wisniewski, 1997b)." In addition, an individual may have any number of mental models in "circulation" and at his/her disposal at any given time, each providing "a certain perspective or lens that guides individuals' sensemaking" (Rydén et al, 2015).

Mental models have direct applications in the management of ventures. For example, they may affect how managers represent competitive advantage as Day and Nedungadi (1994) showed in their four-part model. The scholars emphasized that managers employ cognitive frameworks or schemata to "reduce or absorb environmental uncertainty to make decision (Pfeffer and Salancik 1978)". These schemata help them "select and actively modify experience in order to arrive at coherent, unified, expectation-confirming and knowledge-consistent representations of experience." Through their study, Day and Nedungadi established the presence of four managerial orientation type: a self-centered, a competitor-centered, a customer-oriented, and a market-driven group - each characterized by a unique competitive advantage representation and its degree of customer and competitor focus.

In an early study on the topic, Hill and Levenhagen (1995) explored how mental models (equated to "visions") and the use of tools of language helped entrepreneurs engage in frequent sensemaking and sensegiving. The scholars emphasize that the mental models serve a number of key functions, including providing a means of "creating and sharing understanding", and form the backbone of the "systems on which formal analysis, policies, and procedures are based." Their paper emphasizes the now well-understood point that innovation and entrepreneurial activity take place in significantly un-

certain and ambiguous environments, placing the individuals who instigate and manage such environments under unique cognitive strain. The use of metaphors is then put forward and explored as one of the central tools for communicating, clarifying, and establishing mental models effectively.

Bogner and Barr (2000) emphasize that mental models and cognitive frameworks underlie how individuals make sense of and act within their environments. In particular, cognitive frameworks impact what individuals notice, which rules and relationships they use as part of "input interpretation" and how they formulate corresponding responses. For example, a cognitive map may aid in guiding managers through the competitive environment. The constructs that make up that map may, in turn, be anchored in specific beliefs about that particular industry, developed over time and influenced by the multitude of interactions individuals have had with others. The formation of cognitive maps is understood at some level: according to Thomas et al. (1993) an important element is the inflow of oftentimes ambiguous information, and its labeling and classification into groups of objects and events with similar perceived attributes.

2.2.6 Sensemaking and Business Performance

Mental models, decision rules, and firm performance are unique interlinked. For example, in a recent study, Rydén et al. (2015) found the existence of distinct mental models of "business-customer interactions" which had a direct and tangible impact on how managers employed social media in the pursuit of organizational objectives. The scholars underscored a number of key findings, including that the introduction of new technologies must be accompanied with an "update" of managerial mental models in order for new strategic insights and ways of interacting with customers to manifest. In the words of the authors, one of their key insights was that "*managers disregarded the possibilities offered by a new technology, unless they happened to be located within a mental model that resonated with the opportunities offered.*" One may draw several parallels for the design, implementation, and change of organizational business models, arguably a more complex and comprehensive business element than application of social media technologies.

Gary and Wood (2011) "operationalized" two frequently occurring concepts in sensemaking literature: mental models and decision rules. Mental models were defined as "simplified knowledge structures or cognitive representations" while decision rules - as "satisficing rules of thumb and heuristics" that individuals rely upon as part of their decision-making. The study's key relevant findings were as follows. First, the scholars demonstrated that that varying degrees of managers' mental model accuracy lead to the adoption of different decision rules, which, as a consequence, resulted in substantial variations in performance. Second, the researchers "did not find a positive link between mental model complexity and performance" and suggested that "an accurate understanding of the key principles" of

a business landscape is more important than "high accuracy." Finally, Gary and Wood called for "additional research on how to develop reflection tools to help managers question and reframe their own mental models and decision rules" (Rydén et al., 2015).

2.2.7 Entrepreneurial Sensemaking

Mitchell et al. (2002) accentuate that entrepreneurial cognitions - defined as "processes by which sensory input is transformed, reduced, elaborated, stored, recovered, and used" - help explain key phenomena in the realm of global entrepreneurship. Through their study of 990 respondents in several diverse cultures, the scholars found that entrepreneurs' ways of thinking differ from those of "other business people." In particular, the study provided evidence in support of the presence of differences in the cognitive scripts that guide entrepreneurs in their endeavors (in addition, with pertinent differences between "professional" entrepreneurs and business non-entrepreneurs as well as between country-level cultures).

In a similar vein, Baron shows how the three "why?" questions of entrepreneurship can be answered with the help of cognitive theory in this theoretical aper. In particular, reduced perceptions of risk, prospect theory (overweighing of small probabilities), and greater susceptibility to various biases help explain why some individuals but not others choose to become entrepreneurs. Basic perceptual processes (e.g. proficiency at pattern or object recognition), signal detection theory, regulatory focus theory, and alertness schemata can provide the backdrop for answering the question of why some individuals but not others perceive opportunities. Finally, the smart utilization of counterfactual thinking, processing styles, and reduced susceptibility to certain cognitive biases may aid in revealing why some entrepreneurs are more successful than others.

Furthermore, Baron posits that entrepreneurial cognition has unique features. In particular, it was suggested that entrepreneurs are more prone to cognitive errors and biases due to the fact that the nature of their work exposes them to much higher number of situations and conditions that amplify such errors and biases. Baron puts forward five cognitive mechanisms that are likely to be more prominent in individuals who are engaged in entrepreneurial activities: a. counter-factual thinking (the practice of imagining what might have occurred), b. affect infusion (the process by which personal states "produced by one source influence judgments and decisions about other, unrelated sources"), c. distributional styles (the tendency to ascribe positive outcomes to internal causes and to do the opposite with negative outcomes), d. planning fallacy (the inclination to underestimate the time a project requires for completion), and e. escalation of commitment (the disposition to persist in investing resource in sub-optimal courses of action due to an initial commitment to that course of action).

Entrepreneurial sensemaking is affected by a number of unique factors. For example, Gatewood et al. (1995) demonstrated that entrepreneurs' persistence with their venture is affected by their reason for starting the business and their belief about personal efficacy. The scholars found an interesting albeit rather context-specific finding: that male founders with external and stable reasons (e.g. identifying a market need) were more likely to start a business that generated sales whereas females who had more pronounced internal and stable reasons (e.g. wanting autonomy and independence through self-employment) were more likely to found successful ventures.

Dispositional optimism, a generalized expectation of positive results, is another factor. Hmieleski and Baron (2009) studied the effect of dispositional optimism on the performance (represented by revenue and/or employee growth) of new ventures. The researchers found that "entrepreneurs' level of dispositional optimism is negatively related to the performance of their new ventures", that the relationship "is more negative for those with high, as opposed to low, entrepreneurial experience" and that that the relationship between entrepreneurs' level of dispositional optimism and the performance of new ventures "is more negative for those leading their firms within dynamic, as opposed to stable, industry environments. In light of these findings Hmieleski and Baron caution, however, that the relationship between dispositional optimism and new venture performance may be more complex. In particular, venture performance may improve at moderate-to-moderately high levels of optimism, but performance may decrease as further rises in optimism spur company founders to "fail to assess potential opportunities carefully, show a strong preference for heuristic decision making (a procedure that is often ineffective in dynamic environments [Sarmany, 1992]), and come to experience high levels of overconfidence."

The summary of the theoretical framework as well as a summary of the extant literature that serves as the theoretical backbone and inspiration for this thesis are presented below in turn:
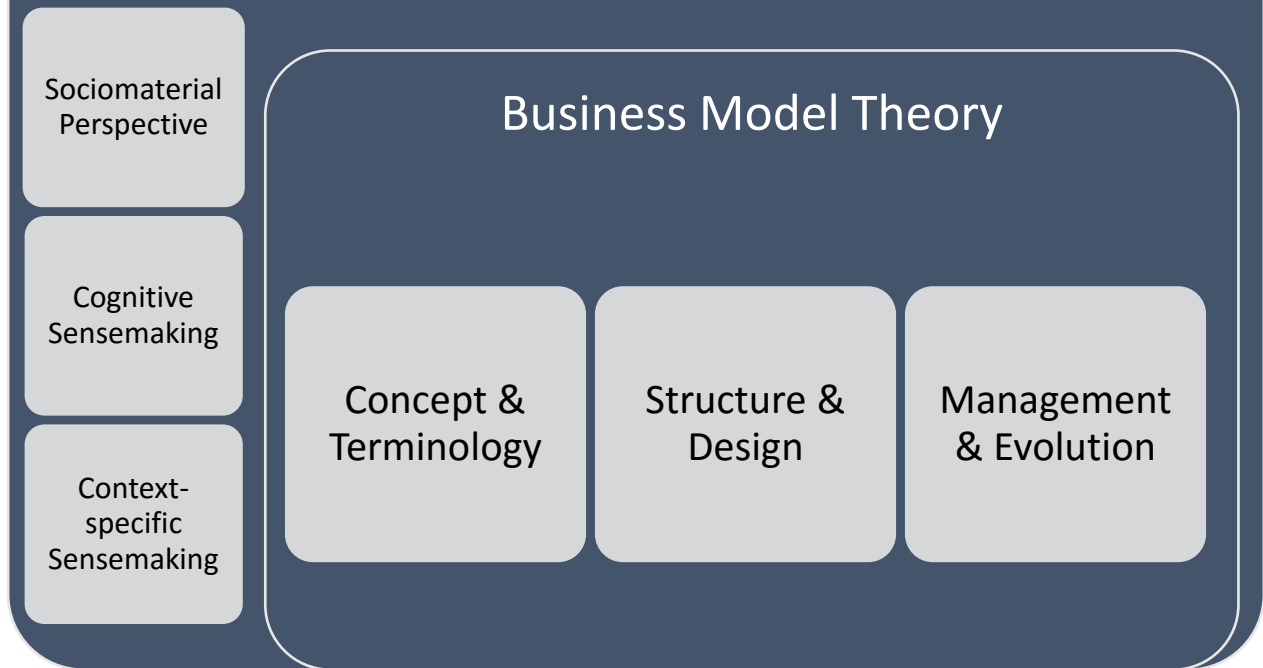
Figure 2: The Summary of the Theoretical Framework

Author(s)	Title	Key Contribution
BW Wirtz, A Pistoia, S Ullrich, V Göttel (2016).	Business Models: Origin, Development and Future Research Perspectives.	Meta-study that presents the definition and components of a business model in an integrated framework. Identifies the key trends in business model research and puts forward key areas for future research.
Alex Osterwalder (2004).	The Business Model Ontology: A Proposition in a Design Science Approach.	Proposes a business model ontology consisting of nine main elements. A key work that inspired brought business model research forward and brought business model research into the popular business literature.
Karl E. Weick (1995).	Sensemaking in Organizations.	Presents a comprehensive treatise on sensemaking and its applications in organizations. Inspired continued research in the field.
S Maitlis, M Christianson (2014).	Sensemaking in organizations: Taking stock and moving forward.	Summarizes in a comprehensive way the contributions of multiple authors over the past couple of decades that have advanced or applied the sensemaking perspective.
GS Day, P Nedungadi (1994).	Managerial representations of competitive advantage.	Established four different types of mental models or representations of competitive advantage. Connects research into psychology and cognition with practical organizational theory.
P Rydén, T Ringberg, R Wilke (2015).	How Managers' Shared Mental Models of Business–Customer Interactions Create Different Sensemaking of Social Media by Rydén, Ringberg and Wilke (2015).	Identifies four mental models of business–customer interactions and demonstrates how each affects managers' conceptualization and use of social media. Connects mental model theory to business outcomes.
C Zott, R Amit (2007).	Business model design and the performance of entrepreneurial firms.	Presents the impact of efficiency-centered and novelty-centered business model design on the performance of entrepreneurial firms. One of the first studies to connect business model design to business outcomes.
MS Gary, RE Wood (2011).	Mental models, decision rules, and performance heterogeneity.	Through a management simulation, links differences in mental models to differences in decision rules and performance. Links the three concepts in a novel way.

Figure 3: Key Literature in the Theoretical Framework

3. Research Methodology

3.1 Research Paradigm and Philosophy

The thesis is qualitative in nature and adopts Van Maanen's (1983) definition of such research as an "an array of interpretative techniques that seek to describe, decode, translate and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena [in the social world]" (Madureira, 2007).

A research paradigm is the "underlying basis that is used to construct scientific investigation" (Krauss, 2005) or more simply, a "basic belief system or worldview that guides the investigator" (Guba and Lincoln, 1994). There is no "objective" justification for selecting for selecting a particular paradigm - "each paradigm is "rational" within its own constructed logic (Lincoln and Guba, 1985)" (Sobh, 2006).

And while business researchers often adopt either one of two theoretical frameworks - positivism or interpretivism/constructivism, another paradigm - critical realism - that has elements of both positivism and constructivism (Krauss, 2005) has emerged as an alternative research paradigm, one that is particularly well-suited for the content analysis data collection method. It will thus be the underlying paradigm of this thesis.

On a general level, critical realism aims to provide explanation, elucidate reality, and uncover causal structures that govern specific events. Critical realism is a relatively new orientation and although it is "being taken up in many disciplines" according to Geoff Easton (2010), only dearth of papers "have offered clear guidance for applying this philosophy to actual research methodologies" according to Wynn and Williams (2012).

As any established research philosophy, critical realism may be explored through the dimensions (or philosophical layers) of ontology and epistemology. The other two components of a research paradigm, methodology and methods, although inextricably intertwined with the former, will be dealt with in turn.

The following table presents the ontological focus of this thesis and compares it with the other two dominant research paradigms of academic research:

Critical Realism	Positivism	Interpretivism
Ontological Basis		
A world exists that is independent of the researcher(s) and scientific theories reflect real features of the world. An "objective" and certain understanding of the world is unattainable and alternative accounts of phenomenon are sought after.	Reality consists of observable elements that interact in an observable, deterministic manner. The researcher and research subject are independent. Social actors, phenomena, and their meanings have an independent existence.	Reality is subjective and is a construct of the human mind. "Reality" is a result of the interaction of human intelligence with real-world experiences. The view that meaning resides within the world independently of consciousness is rejected.
Phenomenological Basis		
An understanding of the world that results from multiple individual perspectives and interpretations. A single "correct" understanding is not possible to attain.	The researcher is seen as independent from the study and only factual and "value-free" knowledge gained through observation and measurement is seen as trustworthy.	Knowledge is generated via access to social constructions, including language, consciousness, and (shared) meanings.

Figure 4: Philosophical Underpinning of the Methodology

3.2 Research Method

The study will employ a qualitative content analysis process, a method for interpreting meaning from the content of text data (Hsieh and Shannon, 2005) and developing a model or conceptual system that provides a broad understanding of the phenomenon. (Elo & Kyngäs, 2008).

Krippendorf (2004) positions content analysis as among "the most important research techniques in the social sciences" and defines this research methodology as "*a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use*". Among the reasons for content analysis' significance in academic research lies in its ability to provide new insights and understanding of certain relevant phenomena. Modern content analysis has a number of qualities that make it so, including that it:

1. Is an "empirically grounded method" that "can handle unstructured matter as data."

2. It goes beyond "traditional notions of symbols, content, and intents."

3. Has its own developed methodology.

A number of assumptions and implementation-oriented recommendations lie at the heart of content analysis as a practice:

a. Since individuals differ in how they interpret texts, content is not a given to communication.

b. The primary motivation for engaging in content analysis is to infer phenomena from texts that cannot be ascertained without it at the time of research.

c. Texts which are scrutinized by analysts are not seen as having a single meaning (i.e. one cannot claim to have found *the* content of a particular material) and those that are found need not be shared among people.

d. Textual data acquire meaning primarily in relation to specific "contexts, discourses, problems, or purposes." According to Krippendorff (2004), "the analyst must, in effect, construct a world in which the texts make sense and can answer the analyst's research questions." For example, the research analyst may want to **"**conceptualize the realities of certain individuals or groups."

e. The making of inferences from textual data to unobserved/non-manifest phenomena via an explicit chosen context is a core tenant of the application of this research method. The fact that one cannot successfully apply direct observation is a distinguishable sign that content analysis may be utilized.

f. A conceptual framework must underlie any content analysis which consists of: 1. a body of text that will undergo analysis; 2. a research question that will be answered through the analysis; 3. a context through which the text will be analyzed; 4. a set of analytical constructs that makes evident what is known about that context; 5. inferences (the results of the content analysis); 6. validating evidence.

3.2.1 Qualitative Content Analysis

According to Elo and Kyngas (2007), the goal of qualitative content analysis is to "attain a condensed and broad description of the phenomenon" with the empirical outcome of concepts or categories that serve as the basis for a conceptual system or map of some sort which describes a particular phenomenon.

Elo and Kyngas (2007) also highlight that the qualitative analysis method has been criticized from authorities operating in both the qualitative and quantitative research fields. This stance is evident in the work of K, whose stance on qualitative content analysis is worth acknowledging. For example, the

scholar questions the "validity and usefulness" of distinguishing between the two streams of quantitative analysis. Nevertheless, he contends that "qualitative analyses can be systematic, reliable, and valid as well", that "verbal data acquired through means of answers to open-ended interview questions" in a worthy source of data and that all qualitative content analyses have a number of commonalities, including that they:

1. Entail a "close reading of relatively small amounts of textual matter."

2. Involve the interpretation of texts into new narratives "accepted within particular scholarly communities that are sometimes opposed to positivist traditions of inquiry."

3. Constitute working "within hermeneutic circles in which their own socially or culturally conditioned understandings constitutively participate."

Krippendorff (2004) also emphasizes the importance of the chosen context for a specific application of content analysis. In light of this, it's worth emphasizing that the context of this research is the interrelationships between two theoretical areas, sensmaking and business models. The literature review as well as the identified research gap set the general frame around which the content analysis is operationalized. The more "hands-on" components of this work's analysis, such as categories and coding scheme are all derived from extant literature. This will be discussed in more detail in the following sections of this thesis.

3.2.1.1 Data Sampling

The study's research question demanded that a specific type of respondent take part in the study. As a result, convenience sampling was utilized since the participants had to fit certain criteria as well as volunteer to participate in the study.

In order to find the participants, several English-language blogs websites covering the German startup scene were read systematically. http://theheureka.com/, a popular English-language blog that covers the main startup news in Germany and abroad was the primary website that was read with the purpose of select the ventures. Companies that fit the profile explored in the research problem section (i.e. those currently in their formative stage and operating in a knowledge-intensive industry) were identified and organized in an Excel sheet. The content of the articles about the ventures was used to infer this information. Points, such as the venture's age, the number of financing rounds raised as well as the backgrounds of the founders were used to this end.

 The information of the founders was inferred and a cold-approach email was sent to each venture's founder. The template of the email is as follows:

> *"Hi "Name",*
>
> *My name is Igor and I'm reaching out to you regarding my thesis research at Aalto University (formerly the Helsinki School of Economics) on the topic of business model design in innovative ventures.*
>
> *Quick personal intro: I'm currently based in Berlin and working in the area of adtech, though my thesis is not directly tied to my job or this particular industry.*
>
> *I'm wondering if you would be open to an interview. I read about {Company Name} while researching startups in Germany and I'd appreciate the opportunity to ask you or one of the co-founders several questions for my thesis in-person or online (e.g. via Skype/Hangouts).*
>
> *I look forward to hearing back from you, but I understand if you're too busy given your key role at the company.*
>
> *Thanks in advance.*
>
> *Best regards,*
> *Igor Khrupa"*

In total about 45-50 emails were sent, resulting in 9 live interviews, out of which 6 were recorded, one was a trial interview and 2 were not recorded due to technical problems. Three participants agreed to send in their responses via email. Although all six interviewees are co-founders and leaders of their respective ventures, they represent a mix of backgrounds, roles, and industry experience, which should aid this study in generating a valid theoretical contribution to sensemaking and business model literature. The following is a more in-depth overview of the study's participants' backgrounds and reasons for selection:

1. Martin Ramsin

Martin Ramsin is one of the co-founders of CareerFoundry, an online mentor-based platform for learning web and mobile development. He has extensive international experience, holds a technical degree, has had a number of technical and product-related roles in Nokia as well as several smaller companies in Europe. He's been in his current role at CareerFoundry for just over 3 years covering a number of areas, such as product management, people management, and marketing.

The online programming and development space has grown in prominence, popularity, and competition over the past couple of years, fueled by demand by both students and potential employers. As a first time founder operating in such an industry, his perspective will aid the process of answering the study's research question.

2. Emil Lamprecht

Emil Lamprecht served as CareerFoundry's advisor, Chief Marketing Officer, Creative Director, but has since move onto other ventures. With an education background in Marketing, he has a very extensive and broad background: from roles at Google, advisory roles to "hundreds of startups" across various locations in Europe and the US to founder roles in his own ventures. Currently he is the director of Growth Mechanics, a builder of accelerators and growth consultants for companies of various sizes. His perspective should be valuable in the effort to provide an answer to this study's research question.

3. Eugene Danilkis

Eugene Danilkis is a first time co-founder of Mambu, a SaaS financial software provider, a position he has now held for close to 6 years. He has a background in computer science and experience from a number of professional industry roles in software development, project management, and research across in high-tech organizations in North America.

Finance is currently an industry undergoing disruption, with so-called Fintech players like Mambu playing a significant role in that trend. As someone who operates in the field in a leadership role, Eugene fits that description of a founder operating in knowledge-intensive venture.

4. Kevin Valdek

Kevin Valdek is the CTO and first-time co-founder of High-Mobility, a startup operating in the emerging and disruptive space of automobile and Internet of Things (IoT). He has a technical background and previous experience in a number of development and a leadership role as a chairman of a consulting agency that focused on the automotive industry.

As someone operating in a new, complex, competitive, and technologically-intense space, his contribution should be of help in answering the study' research question

5. Mirko Caspar

Mirko Caspra is currently the MD responsible for sales and marketing in MisterSpex, and e-commerce subscription eyewear venture based in Berlin. He has an extensive professional business background as a result of his role in as well as a founder of 3 consulting ventures.

E-commerce continues to be a rapidly growing space, with more and more products and services being sold and offered online. Mirko's perspective should make a considerable contribution to this study.

6. Laurent Kaestli

Laurent Kaestli is the sole founder of Kukimi, a weight-loss and health focused food delivery service operating primarily in Germany. He has held a broad set of roles in executive, business development, and project management positions in various mid-sized and large IT and e-commerce players across Europe. As the founder of a venture operating across several competitive industries (health & fitness and food delivery), Laurent's interview should help answer the study's research question.

3.2.1.2 Data Acquisition

A set of six (40-60 minute) semi-structured interviews were conducted. The number of interviews that is both manageable within the scope of the thesis and is sufficient for reaching data saturation. In addition, three questionnaires were answered by respondents who did not agree to take part in a semi-structured interview processes. The list of interview questions can be found in the appendix and the interview transcripts are available upon request from the researcher. Interviews were consistent in their format, length, and structure. Given the relevance of the topic to the participant's day-to-day work, the interviewees expressed their willingness to respond to the questions posed to them.

Overall, the interview protocol was uniform though sensitive to the specifics of each case: the pre-formed list of questions served as a guide, and the overall flow of the conversation was one of an active dialogue.

Each interviewee followed a 3-step structure. First, an introduction by the researcher with a background to the research, including the selection of the interviewees as participants, the area of research, and the future use of the data (consent was requested for the interview to be recorded and anonymity of data offered) was presented. Next, the participant was asked to provide an overview of his or her background and the history of the venture. The most appropriate follow-up questions were then selected. In the closing of each interview, each individual was thanked for his participation and the use of the data as part of the research was reiterated. Upon completion of the interviews, each interview was transcribed verbatim. Although errors in language use were corrected, this was not a major impediment to the research as all the participants were able to express themselves with ease and clarity. Thus, the participants' background and interview format is summarized the table above (Figure 5).

Company	Website	Name	Format	Industry	Firm Age
CareerFoundry	www.careerfoundry.com	Martin Ramsin	In-Person	EdTech	3 years
CareerFoundry	www.careerfoundry.com	Emil Lamprecht	Via Skype	Edtech	3 years
Mambu	www.mambu.com	Eugene Danilkis	In-Person	Banking	5 years
High-Mobility	www.high-mobility.com	Kevin Valdek	In-Person	Auto, IOT	3 years
Mister-Spex	www.misterspex.de	Mirko Caspar	Via Skype	Prescription Eye-wear	9 years
Kukimki	www.kukimi.de	Laurent Kaestli	Via Skype	Weight Loss	3-4 years

Figure 5: Summary of Interview Participants and Format

3.2.1.3. Research Process

According to Schilling (2006), there is uncertainty in academic research regarding the practical use of qualitative research methods with issues stemming from "vague and abstract" recommendations for achieving methodological rigor, and the bundling of multiple research traditions under one term. In addition, qualitative research naturally defies its presentation as a linear process. Other researchers have voiced similar opinions: for example, Elo & Kyngas (2007) write that "even if qualitative content analysis is generally used in nursing studies little has been published on how to apply the method."

With the objective of helping tackle some of these challenges, Schilling proposes a methodology for conducting qualitative content analysis, which he defines by citing Mayring (2000) as "an approach of empirical, methodological controlled analysis of texts within their context of communication, following content analytic rules and step by step models, without rash quantification," Schilling recounts earlier calls by reporting (Bachiochi & Weiner, 2002; Creswell, 1998) for greater adherence on the part of content analyst to a transparent and systematic approach to data collection, analysis, and reporting. In light of the systematic approach proposed by the research - a five-level hierarchical "spiral" model of qualitative content analysis – Schilling's methodology is applied in this thesis and summarized in the following table:

Level	Recommendations	Application in Current Work
Level 1: "From Tapes to Raw Data"	1. Specific decisions should be made with respect to data recording and transcription: - Whether "the dialects or slips of the tongue be preserved, ignored, or respectively corrected (content-focused)." - Whether "observations during the interview (as recorded in a written protocol), sounds (like "uhs" or "ers") as well as audible behavior (like coughing or drumming of the fingers) be transferred or not (speech-focused)." - Whether "all questions of the interviewer or only the main questions from the interview guideline (answer-focused) be transcribed." 2. A coding scheme should be developed.	1. Although not significant in their extent, dialects or slips of the tongue were preserved, though glaring grammatical errors were corrected as this did not impede data analysis. Sounds, though not audible behaviors were transferred to the transcripts in order to produce an authentic "feel" for the interviewees response. All questions were transcribed due to the theoretical focus of the research (i.e. sensemaking). 2. A coding scheme was developed and presented.
Level 2: "From Raw Data to Condensed Records	1. Specific points should be referenced as part of the research, including:	1. The situation of text production is described in the data collection section sub-section. The research adhered to the recommendation for

	- A comprehensive description of the situation of text production.	analysis description and unitization is described in its respective section.
	- Analysis direction: the researcher's interest must be primarily focused on the topic, the communicator, his/her sociocultural background, and "the situation of text Production.	2. The research did not adhere precisely to this step considering the manageable size of the dataset, the benefits it provides (i.e. frequency counts) and the necessary time & effort investment it entails.
	- Defining the units of analysis (i.e. unitization), including the smallest and biggest text component to be categorized and choosing the text order analysis.	3. The material was generalized, and presented; coded sections are separated from the rest of the text and "less relevant" data was moved the background.
	2. The material should be *condensed.*	
	3. The material should be *generalized* and *reduced*.	
Level 3: From Condensed Protocols to a Preliminary Category System	Engage in *structuring content analysis*: the text units from the previous step are attached to predefined categories and new dimensions and categories from the data are generated if appropriate.	The preliminary theoretical model and resulting coding scheme was made explicit and structured content analysis was undertaken.
Level 4: From a Preliminary Category System to Coded Protocols	1. Ensure that the categories are exhaustive, "reflect the purpose of the research" and are mutually exclusive.	1. Categories were made as exhaustive and mutually exclusive as was possible in light of sensemaking theory.
	2. Apply a rigorous coding procedure (described in more detail below).	2. A rigorous coding procedure was applied to the available data.
Level 5: Concluding Analyses and Interpretation	1. To "fracture the data, rearrange it to facilitate the comparison of objects within and between categories (Maxwell, 1998), and to draw and verify conclusions."	2. Data was coded, separated, and moved interactively in light of the coding scheme, initial categories, and emergent insights.
	2. To report the results in a visually appealing format (e.g. through the utilization of frequency analysis and application of visual maps).	2. Results were summarized in a framework and presented in a systematic manner.

Figure 5: Application of A Framework for Content Analysis Design

3.2.1.4 Application of Sensemaking Theory to Content Analysis

Given that the research question of this thesis is about sensemaking and the type of data that is available is one of semi-structured interview data, it would not be erroneous to frame the available data as one of the respondents' narratives in the form of language. Looking at it from such a perspective, it's would be fair to say that the data represents the cognitive dimension of sensemaking.

As a result, given that content analysis is the chosen methodology, I would posit that in order to answer the research question – and investigate sensemaking with methodological rigor -sensemaking theory would need to be applied very selectively for the purpose of applying content analysis as the study's methodology. In light of this, this study's data analysis efforts will utilize the least contested high-level concepts from sensemaking, such as "action", "substance", "identity", and "retrospect" as well as focus one's data analysis efforts on the cognitive manifestations of sensemaking (such as cues and schemas) as well as the action-driven sensemaking.

Thus, the category scheme utilized as part of the content analysis are primarily derived from Weick's seminal work on the topic of sensemaking. There are several reasons why this such an approach is constructive within the scope of this research. First, Weick's work is the de-facto authority on the topic of sensemaking, serving as the "launchpad" for a notable number of subsequent studies in organizational research (it's worth noting that Google Scholar counts 18157 citations to the publication). Second, Weick outlines an overarching lens through which to view sensemaking through the eight chapter of his "Sensmaking in Organizations." In particular, the seven properties of sensemaking (the "what"), the occasions for sensemaking (the "when?"), the substance of sensemaking and the procecesses of sensemaking (the "how") serve as the core of sensemaking theory.

With these considerations in mind, the previously sensemaking dimensions will therefore serve as the initial context for the categories formation and the the coding scheme employed in this study, which will be discussed in more detail in the sections to follow.

3.2.2.2 Coding Scheme

The following coding scheme resulting from the theoretical framework, the identified categories for the deductive component, and the content analysis methodology, will be applied:

Number	Category	Used When	Coding Label	Empirical Grounding
1	Identity	An interviewee brings up any element of personal identity (for example, professional background) other than a mental model/schema relating to the business model.	ID	Theoretical framework
2	Action	An interview brings up specific actions taken personally by him or herself directed at achieving a specific goal in the context of the study.	AC	Theoretical framework
3	Schema / Mental Model / Sense-making Substance	An interviewee remarks on a schema/frame/mental model (including individual "attributes" or "slots") about an aspect of the wider environment in the context of the study.	MM	Theoretical framework

Figure 6: Coding Scheme

The logic behind the coding scheme was already explained in part in section. However, it's important to reiterate a few key points. First, the three codes are formed with the objective of having exhaustive categories that are consistent with the study's theoretical frame as well as replicable by independent researchers. Indeed, the first category (identity) is to be applied to text that encompasses interviewees' elements of individual identity, such as personal history, professional background, and elements of various components of self. As its wording implies, the action category is intended to capture instances of goal-directed behavior. The third category is a catch-all one for all units of sensemaking substance – elements of schemas, mental models, or frames that interviewees describe.

Second, the current scheme is the result of multiple iterations of schemes that were developed, tested on a several interview transcripts, and adjusted based on the challenges that made themselves known as part of their application. Some of the most common issues occurred as a result of the overlapping

and conflicting nature of categories. For example, although they were initially conceptualized as part of the coding scheme, the following categories were removed after a first round of coding: retrospective quality, ongoing, and plausibility driven, which were all derived from the features of sensemaking. The reason for this decision was the conceptualization of sensemaking by Weick as having these qualities by default. In other words, since sensemaking cannot *not* have these features, it was more appropriate to remove these codes from the coding scheme. Another coding element, C1, which stood for the "focused on and by extracted cues" was also removed to avoid duplicate coding with codes ID and MM, which already captured the essence of the that property.

3.2.2.3. Coding and Data Analysis Procedure

Elo & Kyngas (2007) assert that content analysis may be applied in an inductive or deductive way. The presence of sufficient former knowledge about a particular phenomenon warrants the use of the latter while the reverse is true for the former. Citing Burns & Grove (2005) and Chinn & Kramer (1999) Elo & Kyngas (2007) suggest that an inductive approach prepossess knowledge constructive "from the specific to the general" while a deductive one entails a move "from the general to the specific."

With that said, Schilling (2006) simultaneously argues that in inductive content analysis, "the researcher does not start from scratch but rather has a rough category system (derived from theory and/or prior research on the topic) that he wants to test and refine." As a result, a deductive and inductive research approach can be combined for the purpose of development of a category system. This is the approach that is taken in this thesis. There are several reasons why that is the case. First, the principles of sensemaking is at the forefront of this work's research question, while business models are the secondary component. Second, while both sensemaking and business models are areas where theory building is still ongoing, sensemaking has an arguably longer and riche empricial background.

In practice, there will two parallel processes for deductive-inductive theory building, with deductive theory building steps taking precedence. In such a research design, an essential step in transitioning from a-priori category construction to coding and data analysis is the construction of categorization matrix, which can be of two kinds – unconstrained or structured. This thesis will adapt an unconstrained categorization matrix in that the coding relies on the three categories identified above, but new concepts in the form of sub-categories found from the data. Thus, this study's content analysis is primarily deductive in the sense that theory from sensemaking is applied to a particular context (business models and the context of young and knowledge intensive firms, but inductive in the sense that new theoretical concepts emerge as a result of an application of an unconstrained categorization scheme and the study of a specific setting (i.e. business model sensemaking).

3.2.2.4 Deductive Content Analysis Procedure

Referencing Mayring (2000) Schilling (2006) points out that "the exact step of deductive category application, that is connecting a category system with the object of research, is often poorly described." With that said, both Elo & Kyngas (2007) and Schilling (2006) provide guidelines for following such a research design. Synthesizing their recommendations, one can formulate the following steps for a deductive content analysis procedure:

1. Define main categories and provide anchor examples

2. Develop an analysis matrix

3. Formulate a coding scheme

4. Code data coding according to the categories & coding scheme

5. Perform correspondance analysis & "hypothesis testing"

6. Collect data not attributed to the categorization matrix
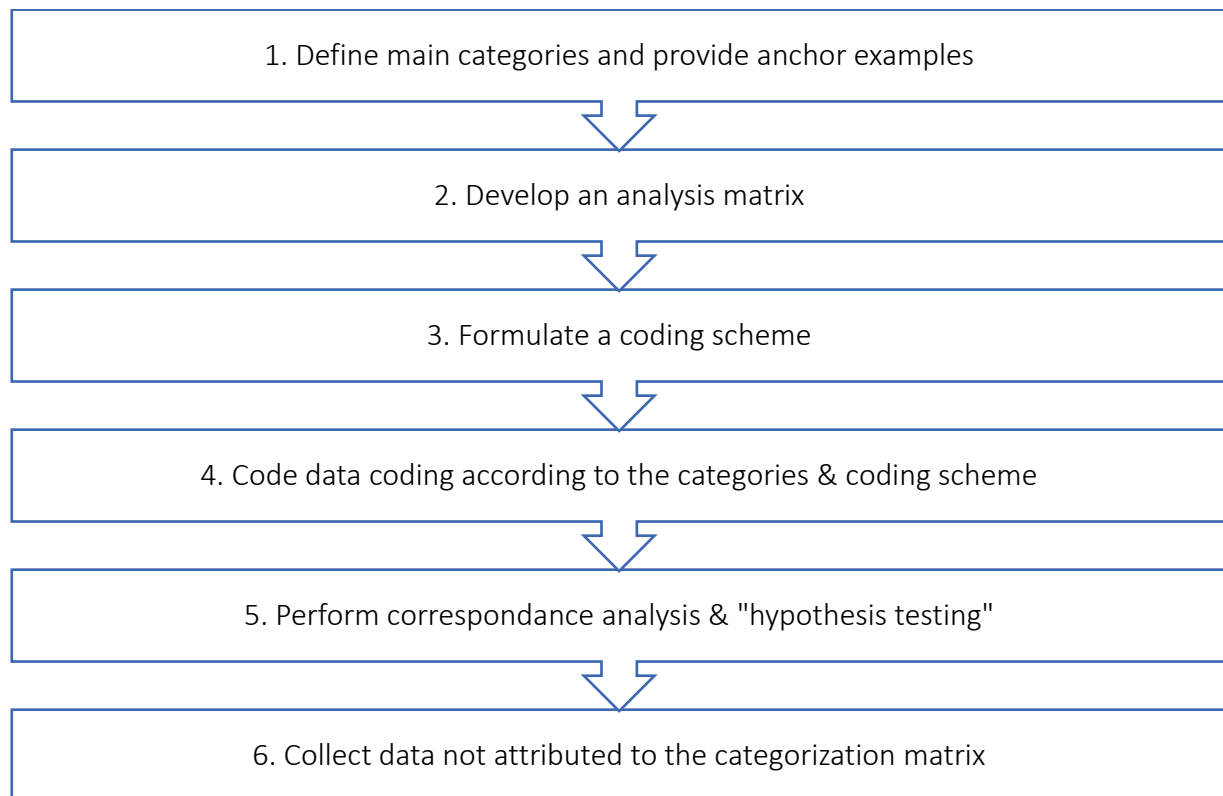
Steps 1-3 were already described in the previous sections (the categories and coding scheme are described in the preceding sections of this study). The fourth step entailed the coding of data in Microsoft Word. Codes were added via the program's "Add Comment", which made the code assignment processes easy to manage from a speed and visual perspective. Coded transcripts in electronic form may be easily shared with and reviewed by outside parties, which would not have been possible had the transcripts been coded by hand. For example, this is how a coded portion of the text looked after the appropriate codes were assigned:

Figure 7: Screenshot of the application of coding to the interview data

Next, the coded sections were transferred into a 3-column Microsoft Excel sheet, each corresponding to one of the three categories defined earlier in the coding scheme. Step 5 entailed a re-reading of the material in each column and categorization of data based on thematic and meaning similarities. Color were used for the purpose of distinguishing the different emergent themes (or sub-categories). The screenshot below shows the beginning of the formation of the first theme/sub-category:

Identity Schema	Other Schema - Mental Model	Action
But our vision is still to help people in their career	had noticed that a lot of people had difficulties imagining what the next step in their career would be	we started talking about what could we do as a service to help them take their next step and it was kind of hard to imagine what that would be, but then we sort of came to courses as sort of being one of the things we could work on
But it's not the only end-goal for us to do courses…that's one of the things we want to do	and doing this Codecademy	we were basically iterating on that concept and trying to figure out whether to do two-week courses or one-month courses and iterate quickly with a mentor and see where the value was in that interaction and we tried to
I think we know quite a lot about our customers	and a little bit like GeneralAssemb.ly	so we kind of pivoted towards doing online courses instead
so I'd say we know a lot about our customers and we've been good so far at offering them one service	online would be interesting for people because they are more and more people who study on their own hours and don't need to travel to a school and sit there all day so online was a feeling	experimented with doing a mix of the online and offline
and you want to get going because you want to move but sometimes it can be faster to go slower in the beginning because you're not done and you don't yet understand	there was also this sort of gap back then because most of the online courses were without mentors	but we put quite a lot of work to have a good profile of them
but to me personally it's been an amazing journey of learning…two years almost 3 years of constant learning of new things…it's been pretty cool…almost addicting	is we really focused on UX (user experience design)…trying to be very UX-driven as a company…so we have ux-design in every team…so everything that we do in terms of platform development and course-development is always with a UX designer so with that helps with is it makes sure that we do things that customers actually want and not just because we think that we are intelligent people	No, we don't have a physical representation, I don't think. But we talk a lot about our mentor-model as being the business model
Personally…I have children…that helps…they are exactly the same way…they change constantly…in the beginning at least…the first years…they are not the same person as they	And, then, generally, having founders that complete each other was really important. Rafaella, my co-founder, is really good at the business side and also on the investor side and	so we picked apart what that was and what needed to be done to constrain that decision in a way that we could control and constrain and add some predictability to that

Figure 8: Step 5 in the Deductive Content Analysis Procedure

Once all the possible coded chunks were assigned to a category, they were moved into a new work-sheet for each of the colors (or sub-themes): The 3-part column structure was preserved in order to provide additional context for the content of each new emergent theme and text that was not assigned to any theme was reviewed for possible omissions of meaning:

3.3 Trustworthiness, validity, and reliability

As an interpretive method, content analysis differs from positivist research in terms of its fundamental assumptions. Indeed, validity and reliability are criteria that are inherited" from the positivist orientation, a point that should be taken into account when evaluating qualitative content analysis research.

Alternative measures, such as credibility - "the adequate representation of the constructions of the social world" (Bradley, 1993)" Zhang and Wildemuth (2009) have been proposed to evaluate the quality of research. Activities such as prolonged engagement, persistent observation can aid in producing categories that cover the data in a credible manner. Reliability can be increased through a clear demonstration of the link between results and data. Overall, a thorough description of the analysis process in as much detail as possible as well as a detailing of the context surrounding data collection and the characteristics of the participants are some of the necessary pre-conditions for reaching reliability, validity, and trustworthiness of the research.

Lincoln and Guba highlight that a qualitative research study should be trustworthy, which, in turn, may be established through credibility, transferability, dependability, and confirmability. The following section summarizes how the current work has adhered to these four antecedents of trustworthiness.

Credibility is defined by Lincoln and Guba as "confidence in the "truth" of the findings, and can be achieved through a set of means, including prolonged engagement, persistent observation, triangulation, peer debriefing, negative case analysis, referential adequacy, and member-checking. Transferability refers to the applicability of the findings to other contexts, dependability indicates consistency and replicability of the findings while confirmability the degree of neutrality of the study's findings.

The study was designed as well as its presentation in this paper had the underlying aim of achieving trustworthiness in the context of the various limitation (time, resources, and access to data). The following table presents the sub-component of trustworthiness as proposed to Lincoln and Guba this study adheres to, including the underlying requirements of each construct and means of their application in the context of this study:

Credibility		
Sub-Component	Requirements	Method of Application
Prolonged Engagement and Observation	Allocation of sufficient time for fieldwork in order to achieve an unbiased and deep understanding of the context, phenomenon of interest, and members of the setting under inquiry.	The researcher has had a deep interest in the study of business models prior to the study (via extensive reading of interviews, articles, and other publications) which allowed for proper interview design. Following data collection, both the acquired data and the context surrounding the study's participants was studied extensively over a prolonged period of time.
Triangulation	The utilization of multiple data sources with the goal of achieving a content-rich and comprehensive narrative.	Although interviews were the main data source, respondents were across different industries, positions and backgrounds. As part of the theoretical framework, sensemaking was utilized as both a theory and a frame for the methodology.
Deviant Case Analysis	A search for the data that challenges the patterns or explanations derived from the analysis.	As part of the methodology, content analysis was presented through a critical perspective (with limitations and possible areas of disagreement highlighted). The limitations of the findings and the theoretical framework were highlighted.

Transferability		
Sub-Component	Requirements	Method of Application
Thick description	Provision of a detailed account of the phenomenon and a description of the transferability of the findings to other contexts.	A detailed theoretical background, background of the participants, and an overall detailed account of the research process, which was informed by extant content analysis and sensemaking studies was provided.
Dependability		
Sub-Component	Requirements	Method of Application
External Audit	Involvement of competent outside observers examine the research process and its results.	Participation in the thesis seminar, undertaking of consultative sessions with the supervisors and revision of the study's logic based on feedback and critique
Confirmability		
Reflexivity	Presence of attention on behalf of the researcher to the context of knowledge creation and his/her personal perspective, and influence	The perspectives, beliefs, and assumptions of the researcher have been conveyed throughout the study as well as in a separate section. Research methods that incorporate the context of knowledge creation were utilized.
Confirmability audit	Provision of a comprehensive account of the research steps accounting for the study as a whole.	The audit trail consists of a detailed theoretical framework, methodology, results & discussion sections.

Figure 9: The Application of Lincoln and Guba's (1985) Methodology for Establishing Trustworthiness

Part 4. Findings & Discussion

4.1 Results

As part of the coding procedure, 35 data units were labeled under the "identity schema" category, 93 under the "other schema – mental model" category and 57 under the action category. Six distinct high-level categories emerged from a re-reading, sorting, and abstraction of the data. Labels were assigned that would capture the high-level core meaning of each emergent theme. The following names were assigned: 1. customer-centricity frame, 2. a business model schema, 3. own purpose schema, 4. confirmation-seeking, 4. framing through known objects, and 5. Own purpose schema and 6. stakeholder management. For purpose of conveying the approximate "strength" of each category, the number of coded units that were coded under the coding scheme are summarized below:

Sub-Category / Emergent Theme	Identity Schema	Schema – Mental Model (Other)	Action	Total
Customer centricity Schema	5	23	8	36
Business model Schema	1	17	11	29
Confirmation-seeking	0	3	9	12
Own purpose schema	16	0	0	16
Framing through known objects	0	11	2	13
Stakeholder management	4	0	0	4
Total	*26*	*54*	*30*	*110*

As the table illustrates, with the exception of several categories, most units of meaning combined elements of cognition and action, though one of the two was more prominent in all cases. As a result, the categories that contained predominantly "schema-like" and "cognitive" units were labeled with the word "schema" while the more action and process oriented categories were given names that imply a process. Also, the customer-centricity category contains the highest number of labeled units, followed by the business model schema, and own-purpose schema. Finally, 65 labeled units were not assigned to any category since they contained units of meanings that were too distinct to cluster together into themes.

Each of the categories will now be explored in more detail:

4.1.1 Customer-centricity schema

The first emergent category captures both a general frame that impacts which strategic actions inter-viewees take with respect to company building, including a set processes, routines, and techniques for understanding who their target customer are or should be (with such questions as what are the needs, problems, and challenges of prospects) as well as transferring those insights back into the business model. With respect to business model sensemaking these can be seen as distinct yet complementary form acquiring, marketing and selling to customers, activities that reflect an already defined and tested business model.

The general mental frame is found is the language of "wanting to help people" in a certain area of their lives ("our vision is still to help people in their career"), having an awareness of the value and role of customer-centricity as an approach to conducting business, and in the form of a set of assumptions that they hold about their target customers, including claiming to "know" what potential customers would want ("*I think we know quite a lot about our customers*"; *"from the beginning, I was pretty sure there was a market"*; "*I think for a very large chunk of our customer base if we didn't exist, they would try to build everything themselves and not buy anything…*"; "*I assumed the market would be people who are forty years and older…principally women because in Germany and in Europe half of the population over forty wants to lose weight*").

The more hands-on manifestation of the customer-centricity schema involve activities through which founders and managers test or update their initial hypotheses and general understanding of the cus-tomer-facing elements of the business model and feed that data back into the organization's business model:

- Focusing on user-experience design as a philosophy: "*we really focused on UX (user experience design)….so that everything that we do in terms of platform development and course-development is always with a UX designer – what that helps with is it makes sure that we do things that custom-ers actually want and not just because we think that we are intelligent people.*"

- Conducting interviews as well as tracking various customer satisfaction metrics: "*we try to use quantitative and qualitative tools to a large extent...so we do regular in-depth customer surveys, three four thousand users...we do regular net customer promoter satisfaction ratings, we do that quantitatively on a very regular basis and in addition just using user-tests...video-based...real-life based...whatever*".

- Taking of proactive measures based on acquired insights: "*In addition, the company has regular in-ternal feedback cycles and critique sessions during which several people who conduct the afore-mentioned research discuss their findings & implications with the wider team.*"

4.1.2 Business model schema

The business model schema categorizes recognizes the fact that there are commonalities among the founders' mental models of the business model concept, as both a theoretical and practical notion. A critical look at the comments of the study's participants reveals that first, are aware of the business model as a relevant idea; second, that it remains primary an object that remains in their minds (i.e. it does not have a physical representation other than in the direct expression through the organization itself) and hence remains an abstract and diverging concept; and third, that they apply both high-level and, at the same time, very specific conceptual categories when defining both the business model of their ventures and its constituent parts.

One might ask why this is important to mention. Well, bringing to the surface founders' definitions of the term 'business model' is an important foundational element of understanding how founders make sense of this aspect of their ventures. Indeed, the way a founder (i.e. form a mental model) represents something in his or her mind has a direct impact on many aspects of the ventures - from high-level decision-making to its more practical elements, such as the content and style of founders' communication towards the venture's key stakeholders (investors, employees, customers and partners).

Indeed, the data speaks to the following points:

1. Founders have their mental own images of the business model as a concept. In particular, some emphasize the business model as a "recipe" - a formula or a "descriptive resume":

- "*I kind of see it like a **recipe**, it's almost kind of like the core of the business…it's kind of the core and the secret…or not the **secret**, but it's like the **insight**…it's how you describe the whole business from just this recipe – and in our case it has to **do with the courses** that we sell and our business model and how basically the **student and the mentor and the course** – how that works. And…yeah, so **who is paying**, who is **the customer**, and **what is the offering, what is the product**.*"
And

- "*I would well, it's a **simplified model**, so you're trying to simplify reality into something more conceptual that incorporates **the base assumptions** of what you want to create and sell to consumers...and that I think is incorporated in the business model...*"
Others see it on a value vs cost dimension:

- "…a business model to me is how much is **it costing** to you to solve a problem for the customer base vs. how much the **customer base is willing to pay for it**…it's really how **much does it cost** you to solve the **problem vs. how valuable** is it for the customer."

2. Founders also appear to equate a business model with the company's differentiation strategy or unique value proposition: the mentor-based teaching approach in the case of CareerFoundry as the first quote above also illustrates, and "simplicity" in the case of Mambu ("I think in the end, it was really about simplicity. And simplicity has implications for business"), utilization of bluetooth technology by High Mobility ("*we are focusing on a core centric platform – how we can use Bluetooth energy to sort of then utilize these connections*"), and the application of sous vide cooking technology in the case of Kukimi.

3. Founders are more likely to put their entrepreneurial focus on elements of the business model that make sense in the present and do not appear to apply a methodical, systematic business model design & development approach. Examples of the simple-to-grasp areas that founders appear to develop include the product/offering, channels, and customer-facing communication approaches:

- "…*but then we sort of came to courses as sort of being one of the things we could work on…because it's a. offered a business model*"

- "*I think we're testing our go-to-market model because we have such as broad base of customers geographically as well as operationally*

- "…*we developed a new TV campaign, a new communication approach that would reach new demographics and would convert them into paying customer…and after we knew that that would probably work...*"

Also, although not explicitly expressed by the founders', a re-reading of the interview transcripts pointed to a two-sided relationship of the role of technology and their ventures' business models. Two distinct roles can be identified in this regard. One role of technology is that of an enabler of the business (model) - a role that favors and, to a great degree, makes the venture feasible and viable. Founders who expressed this view of technology have started companies that serve a target market by leveraging, implementing, and adapting technologies. Companies in this category can be placed in pre-existing, albeit broad business model categories, for example, e-commerce and SaaS (i.e.MisterSpex and CareerFoundy). One important characteristic of founders in this group is that they exude a markedly clear understanding vision of their business models and, through a recounting of several pertinent episode of their ventures' history, have claimed to have "tweaked" the components of the organizations' business models (MisterSpex through the introduction of online fitting, an offline shop, and novel delivery options and CareerFoundry through its adaptation of the customer funnel and relationship management approach). The second role of technology is that of the business creator - it's essence and "secret sauce." Founders who subscribed to a greater degree to this view of technology perceived themselves as technology creators and held arguably more grandiose and, in some ways, less concrete and defined entrepreneurial visions in their minds. High-Mobility and Mambu fall on this side of the spectrum.

4.1.3 Confirmation-seeking

The third emergent category is interesting in the sense that it turns some aspects of "traditional" sense-making theory on its head in the sense that it highlights that as a function of their role as organizational builders amidst uncertainty, founders are not only aware, to some degree at least, of the "need" to pro-actively make sense of their larger environment, but also of the notion that they don't know what they should know and potentially don't know what they don't know. This is how this behavior-driven aspect of sensemaking makes itself known:

a. In the form of deliberate "hypothesis-testing" and "iteration": entrepreneurs in this study's data set acknowledged that some of their a pirori views, assumptions, and beliefs may be incorrect or may be in need of further refinement. Hence, they seem to invent their way into a sense of "knowing", though not all in the same way:

- *"I think it's all about hypothesis testing. You're assuming…you're assuming what existing market players will do, try to react to the opportunities and the threats moving forward, figuring out what the perceived challenges and threats are – especially for the new market you're making assumptions about – and all you can really do is learn through sales and marketing."*

- *"we were basically iterating on that concept and trying to figure out whether to do two-week courses or one-month courses and iterate quickly with a mentor and see where the value was in that inter-action…"*

- *"We experiment a lot. Also in our presentations, when we meet new – I don't know Risto – many hundreds of pitch decks we have done – maybe some small tweaks – maybe some totally new ones – so from new input that we learn, we all the time try new thing. And I mean that's – from a statup we can do that."*

- *"…we did a lot of testing…so this pouch was not really not sexy…so the reaction was very nega-tive…we did a test with Weight Watchers newsletter…it was interesting…"*

b. By placing constraints on sensemaking as a function of an environment where relevant information and data (or cues for sensemaking) may or may not be easily accessible. Indeed, the cost of acquiring information was highlighted by some interviewees as a headwind in their sensemaking journey. In this respect, a key distinction can be made between the relatively high resource expenditures on the part of startups operating in the enterprise market (Mambu, High Mobility), which underscored that the "closed" and "secretive" nature of their chosen industries as well as a lack of widely accessible and useful data necessitated a continuous one-on-one engagement with key stakeholders, leading to a more prolonged search for a business model compared to those targeting consumers. The leaders of the former group

emphasized the prolonged and resource-intensive nature of their efforts aimed at understanding potential customer segments:

- "*so you just meet a lot of these companies…get to know what their problems are…so that has taken all the time, but you just need to get in touch with people…talk with them…ask questions – we've done some pilot projects and we really see what kind of problems they have – because the car industry is so secretive – no one really talks in public about what's the problems or what they are aiming for – it's just very big things.*"

- "*…and we stated to explore that space even more and I'd say we were a bit lucky in the sense that those who were in that traditional space of providing banking software approached us and said we are really interested in what you're doing*"

4.1.4 Own Purpose Schema

In line with postulate of sensemaking identity theory, the interviewees in this particular dataset have demonstrated the taking on of different identities that are well-aligned and supportive of their larger role as venture creators. In particular, the following distinctions can be made from the dataset:

a. Respondents drew connections between their past activities and general backgrounds and their present endeavors – as is illustrated quite well in these quote:

- "*Well, I come from a technical background, so I would not be able to give you the sort of exact definition of a business model.*"

- "*And myself – I was involved in the founding of an agency – we did like IT solutions for the car industry.*"

- "*I have a software engineer background…but kind of learning by doing…and same with [R. name removed]…design mechanical engineer background.*"

- "*Well, I already had an idea about how e-commerce business models are working [before joining the company]*"

b. Connecting their objective goals of succeeding in the competitive business landscape with more altruistic motives or ones relating to substantial impact:

- "*Uhm, but it was like very much like a drive for ourselves to create something that makes an impact in the industry and experimenting with these new technologies.*"

- "*We started talking about what could we do as a service to help them take their next step and it was kind of hard to imagine what that would be, but then we sort of came to courses as sort of being one of the things we could work on.*"

c. Reframing the challenge of making sense of a challenging rapidly changing environment as a useful learning experience and an opportunity for adaptability:

- "*but to me personally it's been an amazing journey of learning…two years almost 3 years of constant learning of new things…it's been pretty cool…almost addicting*"

- "*So yeah, innovation is a…but it's in my blood…I'm interested in doing new things…I'm getting bored if I stick to the same thing for too long…*"

4.1.5 Framing through known objects

Thought less prominent in the data than the previous ones, the fifth category that emerged from the data embodies the point that as part of their sensemaking undertakings, a substantial number of participants in this study exhibited a common tendency to utilize known entities, such as industry-specific big-name companies, thought leaders in the startup and "entrepreneur" space, as well as commonly understood theoretical concepts. The following examples illustrate this point further:

a. The placement of their own ventures in relation to the established players was noticeable, especially when the discussion concerned potential risks and threats to their businesses (or, in a slightly different context, powerful tools that may be utilized in lieu of "homegrown" solution):

- "*Oracle, SAP – in the sense of competing with them and didn't believe in ourselves and our product, technology, value proposition – we'd hear customers saying we're considering you and Oracle – and we didn't think we'd belong in that room…*"

- "*the threat of a big US company maybe being bought by Google or Facebook and sort of takes over the whole market…*"

- "*And also Apple and Google are in this space – so we are also kind of in that space in that we create technology that enables the carmakers to open up the car to new services and applications…*"

- "*Most things have been built already. You can build extremely complex platforms overnight just using the services that Amazon and Google have produced – and WordPress for that matter…*"

b. Referencing of thought leaders as well as their publisher works. Steve Blank (a Silicon Valley serial-entrepreneur and academician) and his treatise, *Four Steps to Epiphany* and Alex Osterwalder's 'business model canvas', the framework that was discussed in the theoretical section of this thesis, were mentioned by several respondents. Concepts, such as the product-market-fit, which was popularized by Marc Andreesen (the influential venture capitalist and co-author of Mosaic, the first widely used Web browser) and MVP (Minimum Viable Product), which was developed and disseminated by a host of high-profile business thought leaders, were also mentioned by the interviews. This is a strong sign that fledgling business leaders heed the opinion and place their trust into seemingly more successful and experienced entrepreneurs.

4.1.6. Stakeholder management

Although the last category is the least represented among the data, it touches upon one of the key properties of sensemaking as posited by Weick, namely, it's that it's inherently social. As its title implies, stakeholder management suggests that founders have to heed the desires and motivations of stakeholders to their organization, investors being one of the more influential groups. As a consequence of their influence, investors have the power to shape the evolution of the organization's business model – and founders hold this point in mind:

- "*but **luckily** we have, let's say, strong investors, with long-term vision and so on who understand the business…*"

- "*so product quality was very important from the beginning…**now some of my investors are mad at me** because I didn't really care about the costs…but it's something that we have very easily started to improve this year…because we have a huge volume and then it's very easy to go to suppliers and say slash your price by 30%...so I paid attention to the product and growth…*"

Next, the findings will be discussed from a theoretical and practical perspective.

Part 5. Discussion

5.1. How Founder-Managers Make Sense of Ventures' Business Models

What follows is a reflection on how the results fit into the larger theoretical body of knowledge on sense-making and business models that has accumulated over the years.

The results of this study give credence to the notion that in young entrepreneurial firms, the founder-managers engage in sensemaking as part of their larger goal of constructing and enacting a sustainable business models for their respective organizations. This study has, in a small way, advanced the current understanding of that process. In short, this thesis proposes six distinct elements of sensemaking in an effort to answer the study's research question, "*in a knowledge intensive firm, what is the founder's sensemaking process of the venture's business model like during the early formative period?*"

The answer is that the founders' sensemaking process is characterized by the presence of a customer centricity schema, business model schema, own higher purpose schema, confirmation-seeking behavior, framing through known objects, and stakeholoder management, which are summarized in the diagram below:
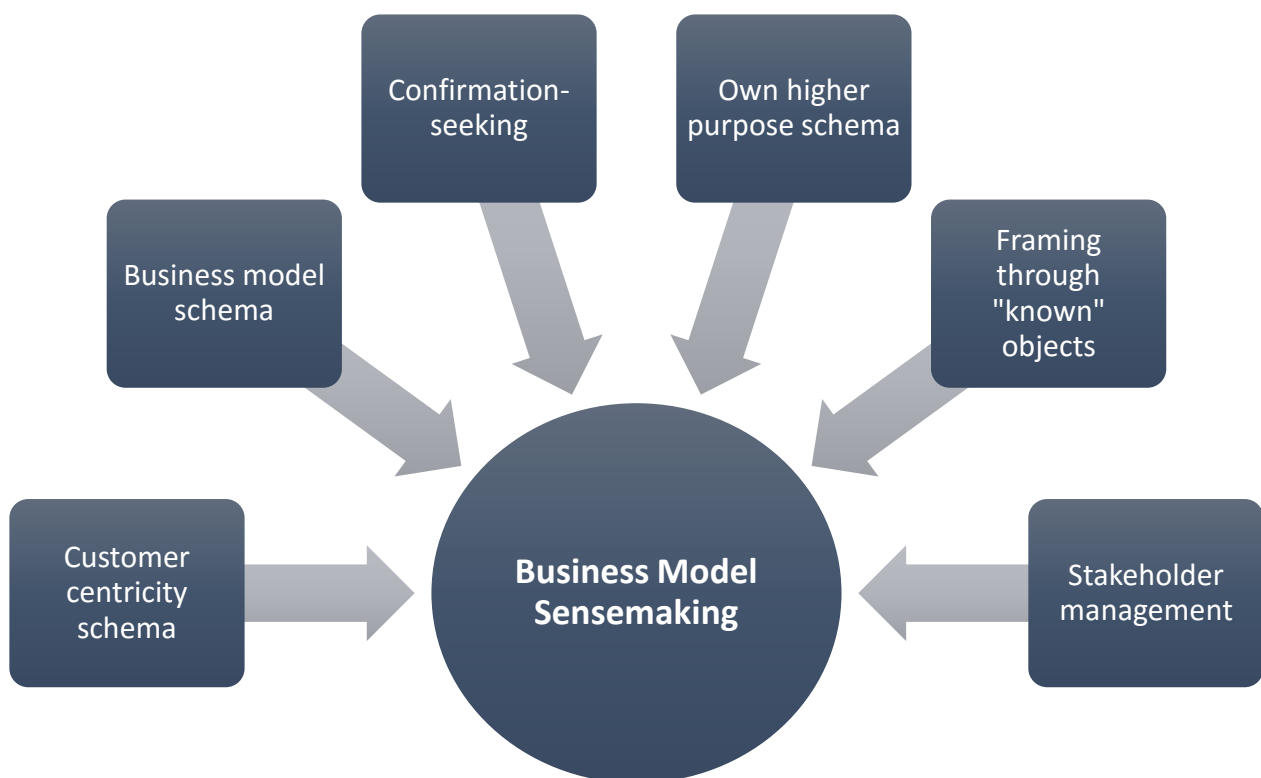

Figure 10: Summary of The Key Findings

In light of this claim, it's worth highlighting that it is argument of this this thesis that all of these mental models and present in all founder-mangers of young entrepreneurial firms operating in knowledge-intensive industries or that each element of sensemaking has the same potential for impact or that the descriptions given in the results section are exhaustive. The main conclusion is that each is one of the possible factors that may influence sensemaking in a meaningful way.

First, to a considerable degree, the findings are in line with the basic tenants of the sensemaking perspective. A holistic view of the identified categories sheds some light on how the founders' present and past experience is enacted onto a possible "future" of their firm. There is a constant interaction between what founders know - with regards to all the essential dimension affecting their venture - and what they don't know, either consciously or otherwise. As the venture matures, this dynamic continues to hold precedence - and the identified mental models or schemas founders mediate that relationship and dynamic. The enacted schemas explain, in part, how founder-managers enact the way their organizations develop and grow.

Thus, mental models (schemas) and organized action elucidate several important aspects of their larger effort to make meaning out of their environment and translate that insight into the construction of the organization's business model. These mental models appear to play a number of roles. First, they provide an organizing frame for sensemaking as well as a direction in an environment teeming with complexity. In fact, Weick emphasizes that the reliance on what he called the substance of sensemaking, such as "premises" would be expected to be more prominent when both the work itself as well as the technology employed in organizations is non-routine and highlighted.

In the context studied here, one of likely reasons for the visibility of schemes in founder-managers is that they provide an answer to the question founders inevitably ask themselves - "*what "cues" (a key element of sensemaking) should I focus on in order to generate the insights necessary to make my venture a success*?". Second, each represents a piece of the sensemaking "pie". And just like pieces of a real pie, they may be of different "share of mind" as was evident by the more strongly pronounced themes (i.e. customer-centricity and business model schema) compared to the less dominant one. In summary, the combination of such mental models and "directives for strategic action" help the founders balance the distant objective with the more routine day-to-day actions.

Furthermore, reflecting on the findings in light of the study's theoretical framework, enactment and the social nature of sensemaking begin to reflect themselves in the results as well. To a significant degree, the behaviors and thoughts of founders enact an environment through the "self-fulfilling prophecy" nature of founders' beliefs and expectations. For example, by placing customers at the forefront of their sensemaking efforts, they enact a business model that's impacted by the current preferences of the target market. And if founders had believed that they should disregard customer's demands entirely and

instead thought to develop groundbreaking technological advances, they would have enacted a radically different future environment. The social aspect is reflected in the weight given to direct communication with partners, customers, investors, and other stakeholders.

Furthermore, in their insight overview of sensemaking as a stream of research, Sandberg and Tsoukas (2015) identify episodes, events, processes, outcomes, and "factors that affect sensemkaing" are they main constitutes of sensemaking based on extant literature on the subject. It's important to situate the results of this study in light of these categories. For the most part, the current study put the spotlight on the factors affecting the outcome of sensemaking primarily as a function of the study's design. A business model is inherently an intellectual concept, which warrants the study of sensemaking from both a cognitive and interpretive frame. With regards to data availability, semi-structured interview data is better suited for the purpose of inquiring into certain aspects of sensemaking and less so for others. One should also note that sensemaking is a concept that too exhaustive to be studied all in once (Sandberg and Tsoukas (2014) highlight this point as well, pointing out that a large share of the studies in sensemaking focus only a limited set of aspects).

The results also lend support to the importance of further inquiry into context-specific sensemaking as well as to the study of complementary, yet distinct concepts of "sensegiving" and "sensebreaking." The former is defined as "the process of attempting to influence the sensemaking and meaning construction of others toward a preferred redefinition of organizational reality" by (Gioia & Chittipeddi, 1991) and referenced by Maitlis & Christianson (2014). The latter is defined "the destruction or breaking down of meaning (Pratt, 2000) Maitlis & Christianson (2014). The findings of this study show that managers of young firms engage in both to some degree: as leaders of their respective organizations, they define the "modus operandi" of the rest of the organization and as is illustrated through the confirmation seeking schema category, they deliberately aim to break sense in an effort to support and/or disprove their existing understanding, beliefs, and expectations. Also, although the aspect of power hasn't shown prominence in studies on sensemaking, the role of sensegiving underscores the importance of further investigation in this area.

One are of divergence between the findings and extant sensemaking theory has to do with cues – ambiguous issues, events, and occurrences that are said to be the "spark" in the fire of snensemaking. Discrepancies between expectations and reality, are said to initiate sensemaking behavior. However, the confirmation seeking category explored in the results section points out that founders expect to have their expectations to be violated (and in fact, to some degree, they proactive in initiating situations of that sort. This is a sign that sensemaking in some environments and individuals may have a particularly pronounced self-reflective dimension whereby the person engaged in sensemaking is conscious of one's sensemaking efforts and tries to control them to some degree (though it goes without saying that he or she may not describe that processes as "sensemaking"). One should point out that the potential benefits of such a dynamic may be overshadowed by more reticent beliefs and expectations underlying other active schemas (some which may not have been uncovered as part of this study), such as the

"own higher". Thus, the push and pull of different mental models as a tenant of sensemaking may be an interesting avenue of future research.

5.2 Managerial Implications

A number of key managerial recommendations can be made based on the findings of this study. For example, the results of this study suggest of founders taking an "cognitively agile" approach to sensemaking (as demonstrated by the confirmation seeking and customer-centricity schemas). Founders and managers may therefore benefit from cultivating self-awareness and developing the latter tendencies even further. For example, it may be worth considering adopting a process of "frame mapping" – an uncovering of the beliefs, mental models, and "frames" that exist around the areas that are core to their organization. By bringing to the level of awareness what founder-managers believe to be true about these crucial areas of their business, they would make the process of sensemaking, reasoning, and decision-making more tangible, open to evaluation, and most important of all, open to change and adaptation.

The notions that founders hold about the role of themsleves, customers, competition, and regulation are example areas that are worthy of exploration. In addition, as evidenced by the study findings' the interviewees exhibited a strong degree of confidence in the "correctness" of their actions and beliefs. Accordingly, founders may benefit from a greater degree of examination of their certainty with regards to the chief areas of their organizations on a general level, and incorporation of experimentation, prototyping, and customer development activities on a more practical level. A conscious focus on acquisition of sufficient data, application of appropriate frameworks and the questioning of personal preferences, motivations, gut feelings and biases may help improve company performance and the chance for success.

5.3 Limitations of the Study

This thesis has a number of limitations.

First, it's appropriate to underscore the factors that impact the degree to which sensemaking can be studied from a research perspective as despite its considerably rich theoretical foundation, the sensemaking perspective is not without its shortcomings. Notably, "the actual process of sensemaking remains relatively vague, the "creation" and "interpretation" process are often conflated", and "the concept of "sense" within SP remains vague and imprecise" (Sandberg and Tsoukas, 2014).

Furthermore, despite the theoretical value and continued impact of Weick's work, the scholar's conceptualization of sensemaking may present a number of challenges for scholars wanting to investigate the phenomenon further. First, sensemaking is presented as simultaneously encompassing action and cognition, the temporal and the persistent, the abstract and the concrete, the individual and the collective.

Unfortunately, the scholar doesn't operationalize how many of the concepts whose definitions are problematically intertwined should be understood in relation to one another. For example, Weick discusses the role of mental constructs and identity, but doesn't deliberate how they two are related from a sensemaking perspective. Are mental constructs part of one's identity? If an entrepreneur believes his company will be successful because he has the right knowledge, is he drawing on identity-level beliefs ("I am someone with the right knowledge") or is he resorting to a frame of "the right knowledge is the key ingredient for success in entrepreneurship")? Since identity is such a broad term, one could potentially put anything under the umbrella of identity. Often, potentially troublesome generalizations are seemingly stated without strong supporting proof. The identification of all decision-making as retrospective come to mind. Since Weick doesn't define "retrospective" in concrete terms, how then should a research decide whether a potential respondent's account is retrospective or not, especially if the questions that lead to that particular response have pre-framed the respondent to think of the past or imagine a particular future scenario?

Last but not least, many of the properties of sensemaking posited by Weick, namely "enactment", "ongoing", and "driven by plausibility rather than accuracy" leave nothing short of mind-reading or constant 24/7 supervision of the subject's actions for extended periods of time if one has the goal of applying and /or testing these propositions. The commonly used and available methods of acquiring data through open-ended interviews or the application of particular research that demand validity and reliability, including largely content analysis, generally don't tolerate vagueness in the constructs that are applied leave one at a loss on how to extend sensemaking theory in all but the most incremental ways.

Furthermore, sensemaking is arguably inherently difficult to observe retrospectively. By its nature, it's a processes that takes place in the moment and some interviewees may not able to recollect in rich detail the nuances of their sensemaking process. In addition, individuals may not be fully conscious of their sensemaking abilities and activities (and memories may be suboptimal for the purpose of recounting sensemaking that took place in the past) since a significant "chunk" of sensemaking may take place at the subconscious level. Furthermore, individuals may justify unfavorable past actions and decisions in an effort to maintain mental wholeness.

Also, action, a core component of sensemaking, is a result of a multitude of forces: the experiences, motivations, values, and biases of the individuals involved, the results of group-level dynamics & decision-making, as well as factors outside the individuals' sphere of influence (e.g. market forces, stakeholder pressure etc.). Attributing key events, such as business decisions, to antecedents on the individual level is an intrinsically complex and not always reliable.

Sensemaking is also innately a personal and intimate phenomenon. As a result, respondents may hold back in their responses and conceal embarrassing, uncomfortable, or potentially compromising episodes of sensemaking. A healthy reaction, no doubt, but one that limits to a degree the insights that may be derived as part of the interview process.

Lastly, the fact that the literature and theory behind business models is still in a period of development and convergence poses challenges for the rigorous study of this concept.

Part 6. References

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Part 7. Appendix

Interview Questions

All interviews were asked a close variation of the following questions:

1. What was your "thought process" when you first envisioned the concept behind {company name}? Why did you think it could become a viable business?

2. What aspects of the business have been the most "ambiguous" with regards to decision-making?

3. What does the term 'business model' mean to you?

4. How would you describe {company's} business model?

6. What has changed the most about {company} business model over time? What has inspired those changes?

7. In the very early stages of {company name} development, what key expectations, views or beliefs did you have that have turned out to be incorrect down the line? On the other hand, which ones have proven to be correct?

8. As you grew {company}, what insights or knowledge have you wished you'd had much sooner on that journey?

9. What have been {company's} main "success factors" so far?

10. Since you started {company}, what were some of your biggest surprises?

11. At this stage, which aspects of {company} - as a business - are the most and, on the other hand, the least developed and built-out?

12. What were some of your biggest wins or loses so far? Did you make any course adjustments as a result of having experienced them?

13. Where do you perceive the greatest amount of risk to reside with respect to High-Mobility's future growth and development? What do you perceive as being potentially threatening?

14. What information and/or data do you pay close attention to?