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How do managers sense Business Model Innovation opportunities and threats?

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TIIVISTELMÄ:

Taistelulla ilmastonmuutosta vastaan on suuri vaikutus energia-alalle, joka on nojannut vahvasti fossiilisiin polttoaineisiin. Uudet teknologiat, kuten tuuli- ja aurinkoenergia, tuovat omat haasteensa sähköntuotannolle niiden epäsäännöllisyyden vuoksi, mutta teknologioiden kehitys myös mahdollistaa kuluttajille oman tuotannon ihan uudessa laajuudessa. Näistä syistä sähkönmyyjien tulee kyseenalaistaa ja innovoida heidän liiketoimintamalleja pysyäkseen kannattavina ja ylipäättään perustellakseen olemassaolonsa. Tässä työssä tutkitaan liiketoimintamallien innovointia kognition näkökulmasta, ja pyritään löytämään vastauksia, miten johtajat löytävät mahdollisuudet innovoida tai miten he havaitsevat uhkat liiketoimintamalleille, jotta niiden negatiiviset vaikutukset voidaan minimoida.

Työn teoreettisena pohjana toimii kirjallisuus liiketoimintamalli-innovaatiosta ja kognitiosta, joiden välille luodaan silta dynaamisten kyvykkyysien avulla. Teoreettisen mallin kaksi avainelementtiä ovat huomiointi ja tulkinta, jotka käydään tarkemmin lävitse.

Tutkimusmenetelmänä käytetään monitapaustutkimusta, johon osallistui viisi kuluttajasähkönmyyntialan yritystä. Aineiston keräämiseen käytettiin osittaisstrukturoitua haastatteluja. Aineisto analysoitiin sekä tapauskohtaisesti, että ristikkäisanalyysillä. Lisäksi tuloksia verrattiin teoriaan tutkimuksen luotettavuuden varmistamiseksi.

Tutkimuksen tuloksena todettiin, että johtajien huomiointi ja tulkinta ovat monimutkaisia prosesseja ja koostuvat useasta tekijästä, ulottuvuudesta ja elementistä. Huomiointiin kohteen määrittämiseen vaikuttaa sekä sisäisiä, asiakas ja sidosryhmätekijöitä, kuin ulkoisia tekijöitäkin, ja nämä voidaan jaotella sekä signaaleihin, jotka kääntävät huomion tiettyyn asiaan, mutta myös tuloksiin, joita pyritään löytämään. Johtajat voidaan ryhmitellä sen tulokulman mukaan, jaottelevatko he havainnot mahdollisuuksiin vai uhkiin, vai näkevätkö he jokaisessa havainnossa elementtejä molemmista. Havaintoihin reagoimisen suhteen johtajat voidaan jakaa kolmeen ryhmään: optimisteihin, realisteihin ja puolustajiin. Optimistit pyrkivät suhtautumaan havaintoihin mahdollisuuksina, realistille vain havainnon vaikutuksella on väliä, ja puolustajat reagoivat enemmän uhkiin.

Tässä tutkimuksessa lisättiin näyttöä kognition ja liiketoimintamalli-innovoinnin väliselle yhteydelle. Työssä luotiin teoreettinen malli, jota voidaan hyödyntää tulevaisuuden tutkimuksessa. Johtajille tulokset antavat mahdollisuuksia reflektoida omia tulokulmia kognition ja siten kehittää omia kognitiivisia kyvykkyksiä ja lisätä yrityksen kilpailuetua.

AVAINSANAT: Business Model, Innovation, Cognition, Sensing, Attention, Perception

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1 Introduction

1.1 Motivation for the study

The fight against climate change has dramatically impacted the energy industry, which relies heavily on fossil fuels. The new technologies – wind and solar – to produce climate-friendly electricity bring their challenges due to the intermittency of production. Electricity companies must also justify their existence, as technology allows consumers to produce electricity independently, and electricity has become a commodity that users can buy from many suppliers. Thus, the electricity companies cannot continue with their existing business models. They need to re-think them and innovate in this regard to stay competitive and exist in the future.

Against this backdrop, how do the managers find those possibilities to innovate? Or how do they recognize the threats in the fast-moving industry to minimize its adverse impacts on their business models? Addressing these questions involves understanding managerial cognition, and thus this thesis explores business model innovation from a cognition perspective. Business model innovation and cognition have interested researchers for decades, but the link between these two has not been researched so much. This master's thesis aims to increase the theoretical evidence of the link between managerial cognition and business model innovation.

1.2 Research gap

The business model is a concept that has been researched since the 1990s, and the theory has developed since then and is relatively rich today (Richardson, 2008: 135-136). Similarly, cognition has been researched for decades. However, the research that unites these two streams is relatively nascent, scarce, and fragmented. The theories that link cognition and business model innovation have not developed much, so the links

between cognition and business model innovation need more research (Frankenberger & Sauer, 2019: 283-284), and the role of cognition in Business Model Innovation has been pointed out as a future research suggestion in several studies (Foss & Saebi, 2017: 213, 219-220, 2018: 18).

More specifically, the literature lacks information on BMI's internal and cognitive antecedents and how to knowingly initiate BM adaptation without exogenous change using cognition (Frankenberger & Sauer, 2019: 283). There is a need to understand in more detail the cognitive factors that "trigger corporate business model transformation" and relate "to the identification of opportunities in the environment" (Aspara et al., 2013: 471). The illustrative managerial cognitive capabilities, attention, and perception were linked by Helfat and Peteraf (2015) to firm performance, but they were not researched in the context of Business Model Innovation. Furthermore, Frankenberger and Sauer (2019: 302) argue the need for more understanding of triggers to shift the attention and antecedents of attention. Lastly, the literature lacks theoretical models linking cognition to BMI, which could be tested in further studies (Frankenberger & Sauer 2019: 302).

In a summary, it can be argued that attention and perception are not researched enough in the context of Business Model Innovation, so there would be an understanding of how they specifically happen when looking for Business Model Innovations.

1.3 Research problem and theoretical contribution

The aim of this thesis is to increase the theoretical evidence that links cognition and business model innovation. We will fill this gap by researching the attention and perception as the sensing dynamic capabilities, which contribute to the business model innovation. In more detail, this thesis aims to find out how attention and perception manifest in detail. Thus, the research question is the following.

RQ: How do managers sense Business Model Innovation opportunities and threats?

The answer to the research question will be studied with the following research objectives or subquestions.

RO1: How do managers determine which things to focus their attention on when looking for business model innovations?

RO2: How do managers define if something they recognize is a business model innovation opportunity or a threat?

RO3: How do managers evaluate if a business model innovation opportunity or a threat requires action?

The implications include a novel theoretical framework to research opportunity and threat recognition as the sensing dynamic capability of business model innovation. Also, the thesis builds the overall knowledge of the elements and how the sensing dynamic capability manifests itself in the form of attention and perception. It allows future research to understand better how attention and perception occur to sense business model innovation-related opportunities and threats. Additionally, the empirical results increase the support of the existing theories. Thus, cognition also manifests similarly in the electricity sector, increasing the generalizability of those theories even in different industries.

The managerial implications of the master's thesis are following. Firstly, this thesis builds on understanding the big picture and how attention and perception occur when looking for business model innovation. Thus, the managers can learn which areas still need improvement to gain a competitive advantage within the industry. Still, also, the whole industry can develop when the competition increases. Secondly, there are differences in the approach of managers. Some managers approach observations as opportunities or threats, but a specific group of managers see elements of both in each observation.

Also, managers approach the observations with either optimism, realism, or defensive, and their behavior will differ depending on the approach. Realizing the various approaches helps the managers to reflect on their approach, question it, and find possibilities to change the underlying cognition models, which may lead to business model innovation, as a business model can be seen as a construct of managers' cognitive models.

1.4 Thesis structure

The thesis starts with a literature review where the theory of business models and business model innovation will be described first. Next, the theory of cognition will be explained. Thirdly, the link between cognition and business models will be explained with dynamic capabilities, and thus a theoretical framework for this thesis will be described. This thesis will mainly focus on cognition; therefore, the share of dynamic capabilities will stay low.

After the literature review, there will be a detailed section on research methodology, where the various choices will be explained and justified, and the research context will be introduced.

The following section will be the findings of the research. First, the within-case findings will be explained in detail. After that, a cross-case analysis takes place. Lastly, there will be a summarizing synthesis.

After the findings, there will be a discussion. The discussion will use a pattern-matching technique to compare the empirical results with the theory. Lastly, the conclusions will discuss the theoretical implications, managerial implications, suggestions for future research, and study limitations

2 Literature review

2.1 Business Models and Business Model Innovation

2.1.1 Business Models

The business model has existed as a term since the 1990s, primarily through the e-business era, which enabled new ways of doing business, and ever since, it has become more popular. It has consolidated its position as an essential part of the business language (Richardson, 2008: 135-136). Despite existing over a few decades, there is still no common understanding among the researchers of what exactly a business model is (Foss & Saebi, 2018), but the rather more general basic definition of “*description of how a firm does business*” (Richardson 2008: 136). The definitions in the literature vary from a statement or description to an architecture or frame work (Foss & Saebi, 2018). Perhaps the essence of a Business Model is most clearly defined as the “design or architecture of the value creation, delivery, and capture mechanisms of a firm” (Foss & Saebi, 2017). Thus, “the business model abstracts the complexity of a company by reducing it to its core elements and their interrelations and thus specifies the core business logic of the firm” (Bucherer et al., 2012: 184).

It is first advisable to understand their value to understand business models. Bowman and Ambrosini define *total monetary value* as the price, what the customer is willing to pay in a monopoly situation, and *consumer surplus* to be the difference between total monetary value and the price paid; according to them, customers aim to maximize the consumer surplus (2000). Based on these definitions, we can argue that a company can maximize the consumer surplus in two ways: maximizing the total monetary value perceived by the consumer and reducing the cost. As the total monetary value is based on customers’ perceptions (Bowman & Ambrosini, 2000), the value is multifaceted and has many dimensions. For example, for the retail business, there is a PERVAL scale, which has four dimensions: emotional, social, quality, and price dimension (Sweeney & Geoffrey, 2001). Thus, value also has a human part; value is not only rational.

There are different factors of which the business model is seen to be consisted of. In his research, Richardson found definitions varying from three up to eight different components (Richardson 2008: 137), of which he developed his definition, which consists of three higher-level components: (1) the value proposition, (2) the value creation and delivery system, and (3) the value capture (Richardson 2008: 138). The value proposition comprises “what the firm will deliver to its customers, why they will be willing to pay for it, and the firm’s basic approach to competitive advantage” (Richardson, 2008: 138). The value creation and delivery system incorporates “how the firm will create and deliver that value to its customers and the source of its competitive advantage” (Richardson, 2008: 138). Lastly, the value capture explains “how the firm generates revenue and profit” (Richardson, 2008: 138).

Osterwalder & Pigneur have developed the Business Model Canvas tool for business model developers, and they divide the business model into nine different components (Osterwalder & Pigneur 2010: 16-19). The components are (1) Customer Segments, (2) Value Propositions, (3) Channels, (4) Customer Relationships, (5) Revenue Streams, (6) Key Resources, (7) Key Activities, (8) Key Partnerships, and (9) Cost Structure (see Figure 1). The left side of the Business Model Canvas represents the Value Creation part, the right side is the Value Capture part of the business model, and the Value Proposition is in the middle. Although the effect of Business Model Canvas on the financial performance of firms has not been indisputably proven, the Business Model Canvas is still a widely used tool by practitioners (Joyce & Paquin 2016: 1476). There are also further developments of the Business Model Canvas, for example, for developing sustainable business models in the form of a Triple Layered Business Model Canvas, where the Business Model Canvas is divided into three layers: economic layer, environmental layer, and social layer (Joyce & Paquin 2016). The principle is similar to segmenting customers and crafting the value proposition and Business Model Canvas for each customer; here, the customer is divided into economic, environmental, and social “customers”. Despite the practical uses of the Business Model Canvas for a company, it also has limitations. As the value capturing is determined by bargaining power and the competition in the market (Bowman & Ambrosini, 2000), the focal

company alone cannot determine the Value Capture. Still, the competition dynamics in the market are involved too. Thus, the Business Model Canvas focuses on the focal firm only and does not cover the broader picture of the ecosystem.

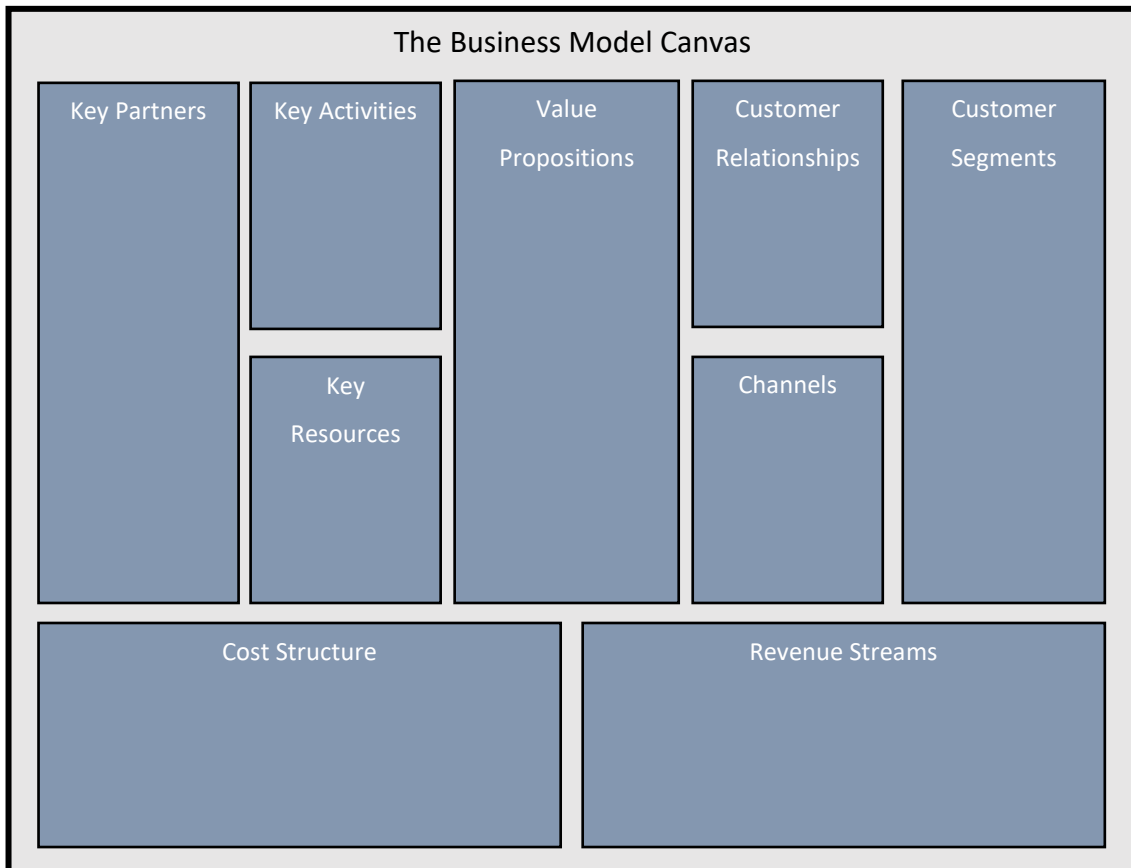


Figure 1. Business Model Canvas adapted from (Strategyzer 2020).

A clear distinction between business models and strategy is crucial for understanding business models. It can be argued that the business model is not the strategy. Casadesus-Masanell et al. (2010: 196, 202-203) argue that the strategy is the firm's plan concerning "which business model it will use" to compete, but the business model defines the "logic of the firm, the way it operates and how it creates value" and tactics being "choices open to a firm by the business model it employs" and being limited by the chosen business model (see Figure 2). It can be argued that a company might not have a strategy, especially if considering that strategy has to be planned and formulated

and not realized or deliberate (Mintzberg & Waters, 1985). Nevertheless, considering the definition of a business model as the way the company does business, every company has a way of doing business, and thus also always has a business model.

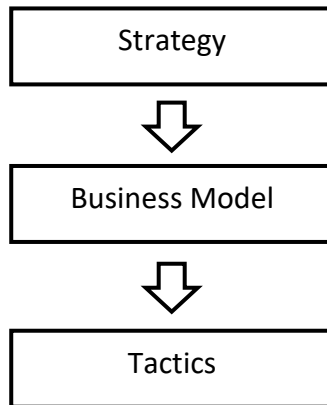


Figure 2. Strategy, business model, and tactics.

In summary, we can define the Business Model as “a way the company does the business”. The business model can be divided into three main elements: value proposition, value creation and delivery, and value capture, or up to nine elements with the Business Model Canvas tool. Furthermore, lastly, the Business Model is not the same as the strategy, as the strategy defines the Business Models to be used and considered.

2.1.2 Business Model Innovation

Business Models are not static. The environment changes, the competitors look for new possibilities to compete, and the customers change their behavior. Hence, the business models must change for the firms to stay competitive. Especially in stable markets, where the product offerings are similar, the Business Models present a way for innovation and differentiation from the competition (Bucherer et al., 2012: 184). Business Model Innovation is a concept that considers the dynamics of business models.

As for the Business Model itself, researchers' definitions of Business Model Innovations vary. Overall, there are two main streams of definitions of Business Model Innovation. The first research stream defines Business Model Innovation as the outcome of the change process (Foss & Saebi, 2017). Here the focus is on the dimensions of the Business Model change itself. The research topics include generalizing certain Business Models in specific industries or investigating a specific innovative Business Model of a firm (Foss & Saebi, 2017). The second research stream emphasizes Business Model Innovations "as an organizational change process" (Foss & Saebi, 2017). This emphasizes how Business Models are changed and focuses on the change process, not the outcome. This research stream considers the different BMI process stages, underlying organizational capabilities and processes, experimentation and learning, and tools used to innovate Business Models (Foss & Saebi, 2017).

Considering the first BMI research stream mentioned above and treating the outcome of the BMI process as BMI, it can be argued which BM change is enough to be considered as BMI. The most basic definition could include all changes in the business model inside the term Business Model Innovation. Foss and Saebi define that BMI has to be novel for the firm or the industry and that the changes should be on the key elements of the BM (2017). Accordingly, BM changes already seen in the industry or firm would not be seen as an innovation. Similarly, Aspara, Hietanen, and Tikkanen (2010) argue that Business Model Replication brings existing Business Models to other environments and then learns and adapts the Business Model. Business Model Innovation only consists of developing new Business Models not seen before in any industry (Aspara et al., 2010). However, their definitions disregard those Business Model developments that utilize Business Models already used in some industries but used intelligently and profitably in new situations, environments, and industries. Bucherer et al. (2012) have divided the degree of innovation into two groups: radical and incremental, where radical is new BMs and incremental is changes based on existing BMs. Foss and Saebi are referring to similar findings, as some scholars consider incremental and some more radical innovation as Business Model Innovation (Foss & Saebi, 2018). It comes back to the fundamental questions: what is the scope of the Business Model Innovation? If it is the Business

Model itself without the environment and the focal firm, it can be argued that only novel Business Models are Business Model Innovations.

Nevertheless, on the other hand, if thinking about the environment and the focal firm too, then even more minor non-novel changes in the Business Model can be innovative and bring a competitive advantage to the focal firm compared to the competition. For this reason, the Business Model Innovation is dependent on the perspective. Environment changes, and it might be that some old business model is relevant again, and switching to said Business Model would be profitable. As Foss and Saebi (2018:15) summarize, there is no agreement in the literature on how much has to change to consider the change to be Business Model Innovation. Thus, it could be argued that such Business Model adaptations should also be considered Business Model Innovation. It remains to be clarified by the literature if incremental innovation or Business Model replication can be considered as Business Model Innovation and novel or radical Business Model Innovations. This paper defines a Business Model Innovation as either a novel or incremental change in a Business Model.

Back to the second research stream mentioned above, Bucherer et al. (2012) define Business Model Innovation as “a process that deliberately changes the core elements of a firm and its business logic”. Geissdoerfer et al. (2018) open the possibilities to further innovate the BM in four possible ways: “development of entirely new BMs, diversifying into additional BMs, acquisition of new BMs, and transformation from one BM to another”.

In this paper, a BMI process is defined as the change process which aims to search, identify, and change the Business Model into an innovative value-creating Business Model, or in other words, to create a Business Model Innovation. However, in some relations, it is more convenient to use the BMI to relate to the “doing of Business Model Innovation,” so the reader should be alert to recognize what is meant at which time.

Bucherer et al. (2012) have determined the triggers of Business Model Innovation into internal and external factors, divided by a second dimension into threats and opportunities. In conclusion, the triggers include four categories: internal threat, internal opportunity, external threat, and external opportunity. Technological advancements often trigger Business Model Innovation (Bucherer et al., 2012; Hossain, 2017).

There are two different main ways to describe a Business Model Innovation Process. The first one is more structural, which defines clear steps in the BMI Process. For example, Bucherer et al. (2012: 190) have explored in their study four usual phases: “analysis, design, implementation and control”. Teece also uses four phases, which are “(1) segment the market, (2) create a value proposition for each segment, (3) design and implement mechanisms to capture value from each segment, and (4) figure out and implement isolating mechanisms to hinder or block imitation by competitors, and disintermediation by customers and suppliers” (Teece, 2010: 182) (*numberings added*). Frankenberger et al. have developed a 4I-framework for BMI development: “initiation, ideation, integration and implementation” (Frankenberger et al., 2013: 260-264). These three different examples emphasize the structure of a BMI Process.

The second way to describe a BMI Process is to see it as a non-linear non-structured process with iterations and chaos (Bucherer et al., 2012: 190-191). This emphasizes the need for experimentation and learning, which is underlined in literature widely as a source and key to BMI (Foss & Saebi, 2017; Hossain, 2017; Sosna et al., 2010). The BMI Process is - “an initial experiment followed by constant fine-tuning based on trial-and-error” (Sosna et al., 2010: 384). However, experimenting is not so easy to succeed. Companies need out-of-the-box thinking because path dependency is a crucial barrier against successful experimentation. Thus, the experimentation will likely consist of experimentations of a too-narrow field (Chesbrough, 2010). Another challenge is switching from one Business Model to another and determining the right time to switch between two models (Markides, 2013). Thus, strategic agility and flexibility are required from a firm that wants to achieve Business Model Innovations (Hossain, 2017: 347).

According to Hossain, a Business Model Innovation “requires organizational restructuring” (Hossain, 2017: 347), and therefore the organization needs to have and implement such “resources, dynamic capabilities, and entrepreneurship”, which enable the organizational change required by a Business Model Innovation and its implementation (Carayannis et al., 2015). For established companies, this might be a challenge.

For this reason, Koen et al. argue that the most novel ideas and Business Model Innovations might come from new companies instead of established ones (Koen et al., 2011). However, the established companies have several options to run the two Business Models simultaneously until a switch between the two is fully complete. Perhaps the most practical choice is to establish a separate and independent organization to run the new Business Model instead of creating one that could handle multiple Business Models simultaneously (Bucherer et al., 2012; Markides, 2013). The right choice between the two alternatives and creating possible synergies depends on the firm’s situation and requires justified decisions and balancing (Markides, 2013).

Whether Business Model Innovation is the key to success in every situation, can be questioned. The literature suggests that this is not the case. Aspara et al. (2010) have researched the differences between BM Innovation and BM Replication. Their results suggest that initial innovation should be followed by replication, meaning that the present BM is implemented in new environments, adjusted with minor changes, and learned to improve its efficiency (Aspara et al., 2010; Dunford et al., 2010). This makes sense, as BMI takes resources, and if those resources are not used, but a new Business Model Innovation takes place right after the last BMI, the invested resources will not give a return on investment. This is especially true in larger firms, where too much innovation leads to inefficiency and low profits, and both innovation and replication are needed (Aspara et al., 2010). Small firms and start-ups behave differently, as their growth and profit are more affected by innovation but not replication (Aspara et al., 2010). Similar results are supported by Szulanski and Jensen (2008), who argue that sometimes innovation should be purposefully suppressed to increase growth.

Companies must balance the right amount of Business Model Innovation and Replication to maximize the firm's performance.

That said, it can be summarized that a generalized path of a Business Model Innovation could start from creation, followed by sustained growth, and then lead into an efficiency improvement phase (Christensen et al., 2016). In the first two phases, the Business Model Innovation is more critical, and in the last phase, Business Model Replication.

Business Model Innovations can be analyzed and categorized differently. Bucherer et al. (2012) have divided Business Model Innovations into four groups: "market breakthrough, radical innovation, incremental innovation, and industry breakthrough". Foss and Saebi (2017) use two dimensions, novelty and scope (see Figure 3), to categorize the Business Model Innovations into four groups: evolutionary BMI, adaptive BMI, focused BMI, and complex BMI. Here the novelty means how new the Business Model is and the scope of how much or many components will change.

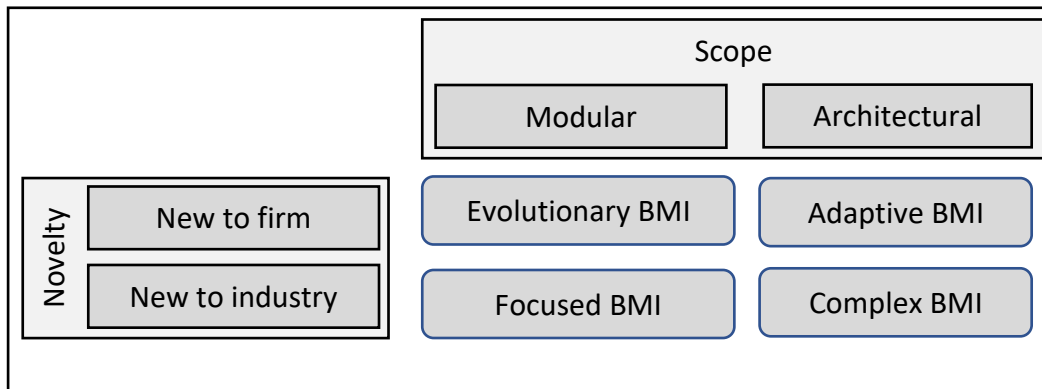


Figure 3. Business Model Innovation Typology (Foss & Saebi, 2017).

Another way to categorize Business Model Innovations is how they are achieved. In the case of new companies, (1) the Business Model will be created, but existing companies have the following possibilities: (2) Business Model Transformation (transforming the existing Business Model into another Business Model), (3) Business Model Diversification (another Business Model will be created besides the existing Business

Model) and (4) Business Model Acquisition (exploring a Business Model, and acquiring and implementing it) (Geissdoerfer et al., 2018: 407).

Whatever the Business Model Innovation outcome will be, there is no self-evident proof in the literature that links successful Business Model Innovations to the performance or profitability of a firm (Foss & Saebi, 2017). The linking is a complex challenge; perhaps the difficulty lies in the long duration between Business Model Innovation and the actual benefits (Foss & Saebi, 2018). Some positive correlations and findings exist in specific circumstances, but the generalizable proof is still missing (Foss & Saebi, 2017; Hossain, 2017).

2.2 Managerial Cognition

According to Helfat and Peteraf (2015: 832 - 834, 835), cognition comprises processes or activities, how humans know, remember, reason, acquire, and process information. As they continue, this knowledge processing can be called mental activities, mental processes, or mental operations, forming a considerable part of cognition. They also argue that some mental activities are uncontrollable and automatic, but other are controllable and deliberate. However, as they argue, the other side of cognition is the content itself that is processed, and it includes concepts, memories, knowledge but also beliefs. They are called mental structures or mental representations, and they comprise the cognitive representation of the external reality of an individual (Helfat & Peteraf, 2015: 832 - 834, 835).

One key element of cognition is bounded rationality, which means the limited capability to receive and process information (Tripsas & Gavetti, 2000: 1148). The two elements of bounded rationality are limited information processing capacity and limited information access (Adner & Helfat, 2003: 1021; Johnson & Hoopes, 2003: 1059). Different heuristics methods are used to cope with bounded rationality (Johnson &

Hoopes, 2003: 1058). Using heuristics leads to simplified representations of the environment, which are the building blocks of the mental representations on which managerial decisions and beliefs are based (Tripsas & Gavetti, 2000: 1148). One manifestation of bounded rationality is the tendency to focus on nearby competitors only, thus not considering all available information (Johnson & Hoopes, 2003: 1058). Using heuristics thus means that the cognition is not rational (Tversky & Kahneman, 1992: 317). This emphasizes humanity in decision-making, which is non-rational by nature and affected by various biases and path dependency.

A second noteworthy manifestation of the non-rationality of cognition is loss aversion. Humans tend to be risk-averse when choosing between potential gains and sure things and risk-seeking when choosing between probable and sure losses (Tversky & Kahneman, 1992: 316). This irrational unbalance of non-probable and potential gains is conceptualized as the Prospect theory (Tversky & Kahneman, 1992). However, cognitive capabilities can be improved over time by practice. Also, deliberate mental processing can be developed to be more automatic increasing speed and efficiency, but as a downside can make mental processing more prone to biases and other errors (Helfat & Peteraf, 2015: 836). However, despite heuristics simplifying the problem and its risks, cognitive heuristics can also bring good decisions (Aspara et al., 2013: 471).

Search processes impact cognitive processing and the cognitive representations of the environment (Tripsas & Gavetti, 2000: 1157). Johnson and Hoopes (2003: 1067) argue that searching must be costly under competitive pressure to change a prevalent cognition. Similarly, Tripsas and Gavetti (2000: 1159) argue that strategic beliefs must be challenged completely, or the advantages will not cover the disadvantages of changing strategic beliefs. Past experiences are the typical basement for cognitive representations. Therefore path dependency is a key cognitive problem that must be overcome to adapt the cognitive representations to incorporate with the realistic environment (Tripsas & Gavetti, 2000: 1148). Consequently, managers need to be ready to invest in changing their beliefs and overcome their biases and path dependency, to get actual gains.

Managerial cognition is one of the three managerial attributes: managerial human capital, managerial social capital, and managerial cognition (Adner & Helfat, 2003:1020). Helfat and Peteraf (2015: 832, 835) define managerial cognitive capability as “the capacity of individual managers to perform mental activities”. Adner and Helfat (2003:1021) define managerial cognition as “managerial beliefs and mental models that serve as a basis for decision making”. Thus, managerial decisions are based on managerial perceptions of a situation, which are affected by the limited field of vision (bounded rationality), selective and filtered perceptions (path dependency), value systems, and cognitive biases (Adner & Helfat, 2003:1021).

2.3 Managerial cognition, dynamic capabilities, and business model innovation

Nadkarni & Barr (2008: 1396-1398) have researched the relationship between exogenous environmental change and strategic response through managerial cognition. They argue that the strategic response is formed by two subjective representations: attention focus and environment-strategy causal logics. Their findings confirm that the attention-focus and environment-strategy causal logics indeed mediate the strategic responses to environmental change, but also that the higher the velocity of the industry, the faster the response (Nadkarni & Barr, 2008: 1416-1419).

Dynamic capabilities are seen as processes that use and reconfigure resources to match the market dynamics (Eisenhardt & Martin, 2000: 1107). The dynamic capabilities can be categorized into sensing, seizing, and reconfiguring (Teece, 2007). The advantages of the dynamic capabilities are the “ability to alter the resource base: create, integrate, recombine, and release resources,” and using them better than the competition will bring competitive advantage (Eisenhardt & Martin, 2000: 1116-1117). Helfat and

Peteraf (2015: 831-832, 835) link different managerial cognitive capabilities to sensing, seizing, and reconfiguring components of dynamic capabilities (see Figure 4). The two illustrative managerial cognitive capabilities linked to sensing by Helfat and Peteraf are perception and attention, and their impact is opportunity recognition and creation (Helfat & Peteraf, 2015: 838).

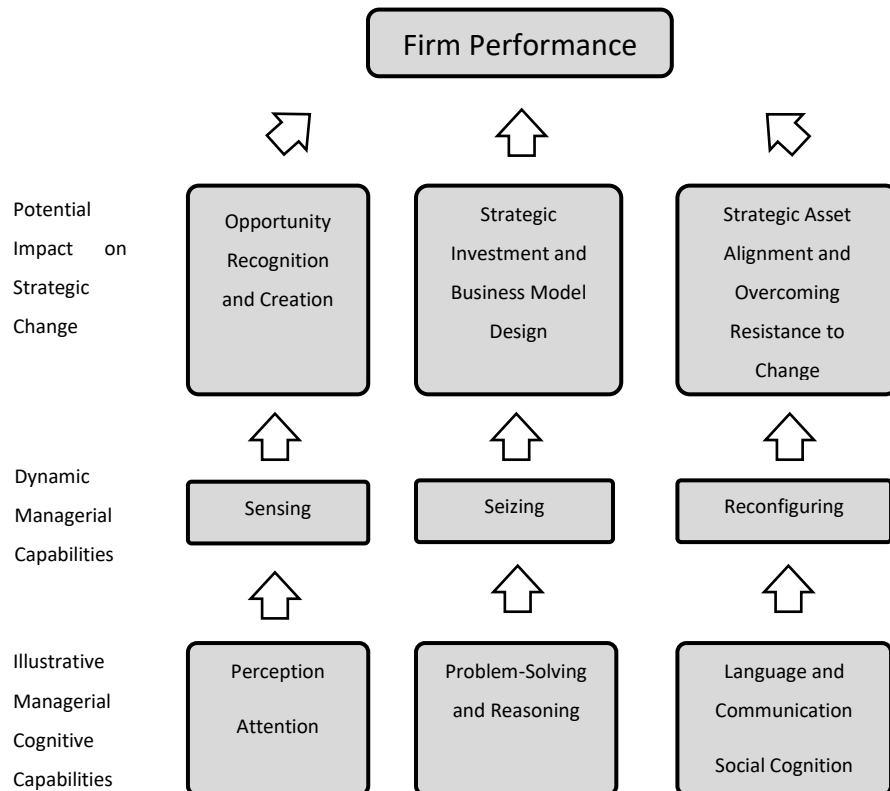


Figure 4. Managerial cognition and firm performance. Adapted from (Helfat & Peteraf, 2015)

There are multiple definitions of attention. Helfat and Peteraf define it as “a state of focused awareness on a subset of available perceptual information” (Helfat & Peteraf, 2015: 838). On the other hand, Frankenberger and Sauer define attention as “noticing, encoding, interpreting, and focusing of time and effort” (Frankenberger & Sauer, 2019: 284). It can be argued that attention focuses on and limits the information received for perception. Attention comprises three functions; focusing on what to sense, detecting

to-be-processed inputs, and keeping the attention in a continuous state, which defines which information is processed by perception (Helfat & Peteraf, 2015: 838). As there is a link between attention and actions, thus attention shifts and attention patterns (intensity and target) will define if and which kind of Business Model changes will be initiated (Frankenberger & Sauer, 2019: 285, 294). There can be single or multiple attention targets, which may complement each other (Frankenberger & Sauer, 2019). Attention could be focused on different Business Model designs: novelty, lock-in, complementaries, and efficiency (Frankenberger & Sauer, 2019). The right level of attention shall be balanced from case to case as research suggest different optimal levels varying from moderate levels (Frankenberger & Sauer, 2019) to high (Helfat & Peteraf, 2015).

Perception is formulating the sensory input of the environment or event into meaningful and valuable information, and it is affected by path dependency in terms of existing knowledge, expectations, and beliefs (Helfat & Peteraf, 2015: 838). Thus, the perceptions are subjective opinions, not hard and rational facts. Osiyevskyy and Dewald argue (2015: 63) that the perceptions of the environment are linked to changing Business Models. They found that perceived opportunities led to an explorative change in BM, as well as performance-reducing threats (Osiyevskyy & Dewald, 2015: 71). But critical threats (e.g., risk of bankruptcy) did not initiate explorative or exploitative Business Model changes, meaning an unwillingness to adapt to changes in the environment (Osiyevskyy & Dewald, 2015: 71). One factor of such rigidity is the specific industry experience of a manager, which leads to an unwillingness to adapt the Business Model, but on the other hand, success in prior risk experience and experience of several industries overcome the rigidity (Osiyevskyy & Dewald, 2015).

Managerial cognition links changes in the external environment and strategic decisions and outcomes (Adner & Helfat, 2003: 1021-1022). Thus, the individual's cognitive capability of attention and perception determines the ability to sense emerging opportunities and threats in the environment (Helfat & Peteraf, 2015: 838). Teece (2018: 48) argues that "strong dynamic capabilities enable the creation and

implementation of effective business models". As Helfat and Peteraf (2015) argue, perception and attention comprise the Sensing Dynamic Capability which leads to firm performance, and Nadkarni and Barr (2008) link the attention focus to Business Model change; it can be argued that a Business Model Innovation occurs through attention and perception leading to Business Model opportunity recognition and creation. Thus, managerial perception and attention can be considered internal cognitive antecedents of Business Model Innovation (Frankenberger & Sauer, 2019: 285, 294, 299; Osiyevskyy & Dewald, 2015: 71). In this paper; the focus is on these two cognitive activities: attention and perception, which comprise the sensing managerial dynamic capability.

We have created a theoretical link from cognition to Business Model Innovation using dynamic capabilities. At this point, it is good to clarify that as the dynamic capabilities work as a theoretical link between these concepts and our primary focus is on cognition, the dynamic capabilities will have a minor role in this study.

We will continue with the literature about the link between managerial cognition and Business Models. As Teece (2010: 191) argues, the business model reflects managers' hypotheses, meaning that the business model is a product of managerial cognition. Several scholars reinforce this, as the Business Model is argued to be based on the managers' perceptions (Aspara et al., 2013: 460) or seen as cognitive structures (Foss & Saebi, 2017: 213). Thus, the Business Model is a manifestation of Managerial Cognition, and a change in a Business Model can be implemented by changing the underlying cognitive structures (Foss & Saebi, 2017: 213). In many cases, managerial cognition mediates between Business Model Innovation and environmental changes. However, using cognition, it is possible to change Business Models without an environmental change through analogical reasoning and conceptual combining (Martins et al., 2015).

Aspara et al. (2013: 467) argue that recognizing an opportunity or a threat is likely, but getting the recognition into action might be anything else but likely. Firstly, the managers in a firm must find a cognitive consensus about the opportunity or the threat. Secondly, a severe crisis might be needed to make the recognition into a BM adaptation

(Aspara et al., 2013: 467). This unlikeliness to change the Business Model has various reasons. One of them is the organizational inertia and uncertain outcome, and thus a remarkable incentive is needed to drive the change (Saebi et al., 2017: 570). Also, Sosna et al. (2010: 397) emphasize that an intense crisis is likely needed to overcome the barriers and lead to business model adaptation. One source of this path dependency is managers' resistance caused by perceived threats to the business and tensions between Business Models, especially if the existing Business Model is still more profitable than the new and innovative Business Model (Sosna et al., 2010: 397).

According to the Prospect Theory, similar behavior can also be recognized in Business Model Innovation. The Business Model Innovation is different if facing opportunities or threats. When faced with opportunities, firms are more likely not to innovate the Business Model but to keep it and try to defend their business (Saebi et al., 2017: 576). However, when faced with threats, Business Model adaptation is more likely, and the firms aim to develop the markets (Saebi et al., 2017: 576). Thus, a Business Model will be more likely to adapt to threats, and the more critical the threat, the more likely the adaptation will be (Saebi et al., 2017: 575).

When asking the question, "how do managers sense Business Model Innovation opportunities and threats?" it can be argued (see Figure 4), based on the theories of Helfat and Peteraf (2015) and Nadkarni and Barr (2008), that managers sense BMI opportunities and threats through attention and perception. However, it remains to be answered how the managers choose on which things to focus their attention when looking for Business Model Innovations, how the perception takes place, how they define if the observation is an opportunity or threat, how they define its severity, and how the biases and path dependency affects the sensing. With the theoretical framework (see Figure 5), three following research objectives have been created to find answers to these questions.

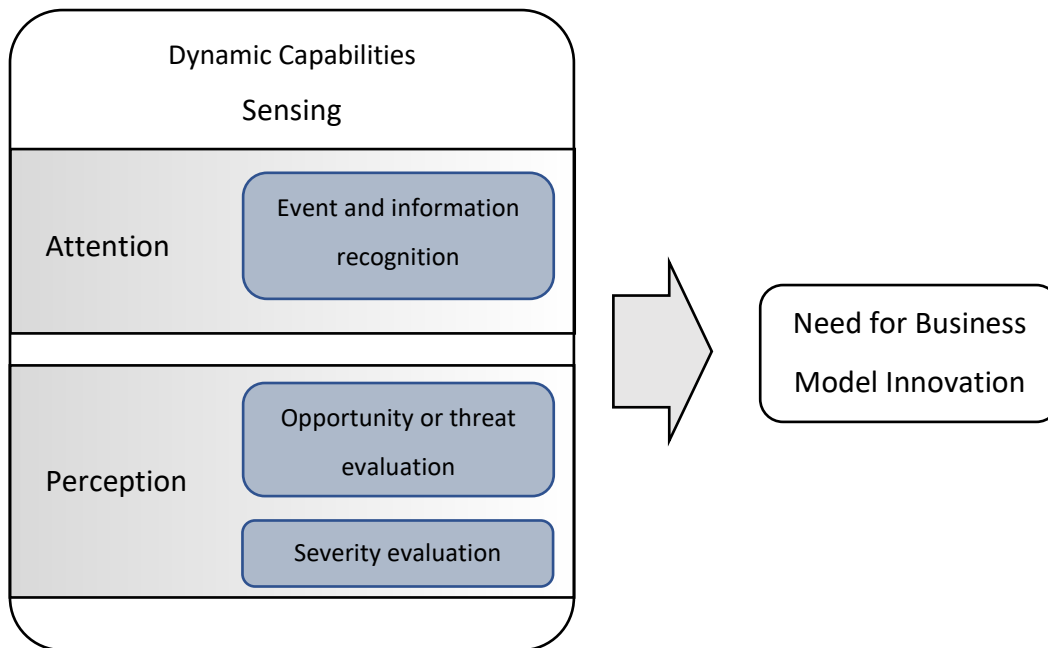


Figure 5. Theoretical framework.

RO1: How do managers determine which things to focus their attention on when looking for business model innovations?

RO2: How do managers define if something they recognize is a business model innovation opportunity or a threat?

RO3: How do managers evaluate if a business model innovation opportunity or a threat requires action?

Answering these three research objectives makes it possible to answer the main research question.

RQ: How do managers sense Business Model Innovation opportunities and threats?

3 Methodology

3.1 Research strategy and method

This master's thesis is based on qualitative research. It uses an exploratory multiple-case study as its research method because the research question is formed to determine how sensing happens, and its precise nature is not known (Saunders et al., 2020: chapter 5.7). We use both deductive and inductive approaches, as there are existing theories on which the theoretical framework of this thesis is built, and the theoretical framework is researched in the chosen context in the empirical world. Finally, the findings of the empirical study will complement the novel theoretical framework. Thus, the research type will be abduction (Dubois & Gadde, 2002: 559; Eriksson & Kovalainen, 2016: 24).

In more detail, this study aims to understand the role of attention and perception in sensing business model innovation opportunities and threats. The case study method is viable as the research question is how-type (Yin, 2009: 6-9). Even though the popularity of the case study has brought some challenges, those challenges can be overcome with specific methods so that the quality of the case study can be kept high (Beverland & Lindgreen, 2010: 62; Eisenhardt & Graebner, 2007: 30). This master's thesis will be using a multiple case study approach, which is seen to have advantages of robustness for the overall study and analytical benefits over the single case study (Eisenhardt & Graebner, 2007: 27; Yin, 2009: 19, 53, 60-61).

Even though the case study can include qualitative and quantitative data to build synergies (Eisenhardt, 1989: 538), qualitative data fit better to how-type research questions, as proposed in this study. Thus, we aim for this research only on qualitative data to keep it within practical limits for a master's thesis. Moreover, obtaining quantitative data on the researched topic appears to be difficult, especially as the number of willing companies to participate in such a thesis tends to be low. Additionally, qualitative research has the benefits of higher depth and detail of the data and

implications (Patton, 2015: 22). The study will be cross-sectional of type, meaning that the data collection will be at the same point in time.

3.2 Research context

The Finnish electricity retail sector is chosen as the research context in this master's thesis. In the following chapter, the research context will be presented.

The energy sector is responsible for two-thirds of global greenhouse-gas emissions (Nillesen & Pollitt, 2016: 283). The energy sector is under a significant shift called energy shift (or also energy transition), which means changing from fossil to renewable energy sources (S&P Global, 2020). Electricity is one area of the energy industry (James, 2021). 54% of Finland's electricity generation in 2021 was renewable and 87% CO₂-neutral (see Figure 6).

Electricity generation 2021

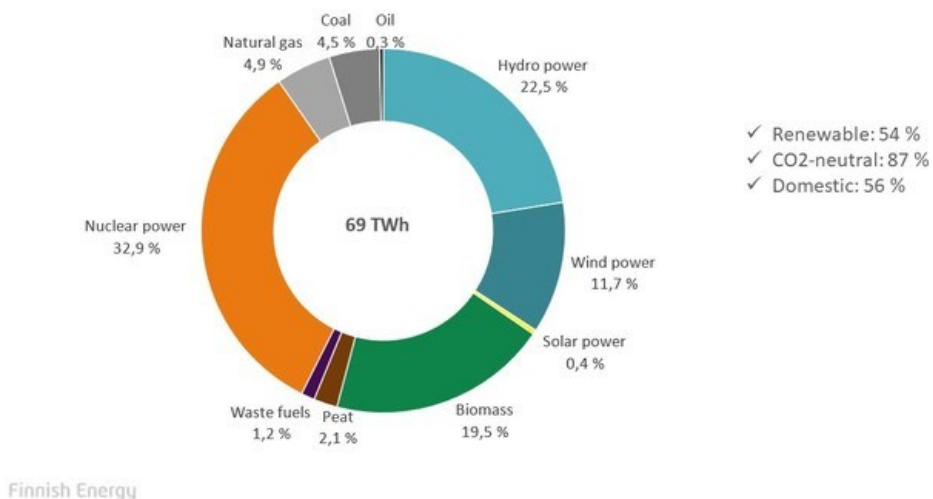


Figure 6. Electricity generation in Finland 2021. (Finnish Energy, 2021)

Nillesen & Pollitt have categorized the driving forces of the energy shift into five megatrends: “technology breakthroughs, climate change and resource scarcity, demographic and social change, a shift in global economic power, and rapid urbanization” and name the technological innovations as the primary driver of those five (Nillesen & Pollitt, 2016: 283). Other researchers also emphasize technological change (Boscán & Poudineh, 2016). The development of technology enables, for example, private people to own electricity generation. In Germany, in 2015, almost half of the renewable energy generation was owned by private people and farmers (Nillesen & Pollitt, 2016: 284). Thus, the role of energy companies today is under question. They need to renew themselves and find Business Models that will last during the new era. As Boscán and Poudineh argue, “incumbents can choose a confrontational approach to deter consolidation of the emerging business models, or can accommodate to entry” (Boscán & Poudineh, 2016: 379). The purpose and core capabilities of utility companies need to be questioned if they are still required for the future (Nillesen & Pollitt, 2016). The need for foundational changes lies at the roots of the incredible intensity of the megatrends; incremental changes are not enough, but the changes need to be transformational (Nillesen & Pollitt, 2016).

As a result of the energy shift, more solar and wind power will be used, which are more intermittent, than fossil fuels, hydropower, or nuclear power. Thus, electricity production will be more unstable and dependent on weather variations, and there will be more challenges in meeting production and demand (Behrangrad, 2015). Behrangrad supposes two types of Business Models for Demand Side Management (DSM): Energy Efficiency (EE) and Demand Response (DR), of which the demand response gives more room and possibilities for Business Model innovations in terms of capacity, flexibility, reliability or cost reduction selling (Behrangrad, 2015). Especially the flexibility selling has gained the attention of researchers lately. Flexibility in electricity means “flexible production and consumption of electricity and can be provided by either the supply side or the demand side” (Berntsen & Vatn, 2014: 10). Flexibility is highly needed because of the intermittency of renewable sources. The implementation of renewable energy sources would not be possible on a large scale without flexibility (Boscán & Poudineh,

2016). The flexibility market allows new roles (see Figure 7) in the business, such as aggregator (gathers flexibility from consumers and sells it to procurers) and prosumer (a consumer that can also produce electricity with, e.g., solar panels) (Berntsen & Vatn, 2014: 11, 17). One possibility to create value for flexibility market is a timing-based Business Model (Helms et al., 2016). Also, new possibilities to store intermittent energy sources will be one of the critical elements in flexibility markets (Boscán & Poudineh, 2016).

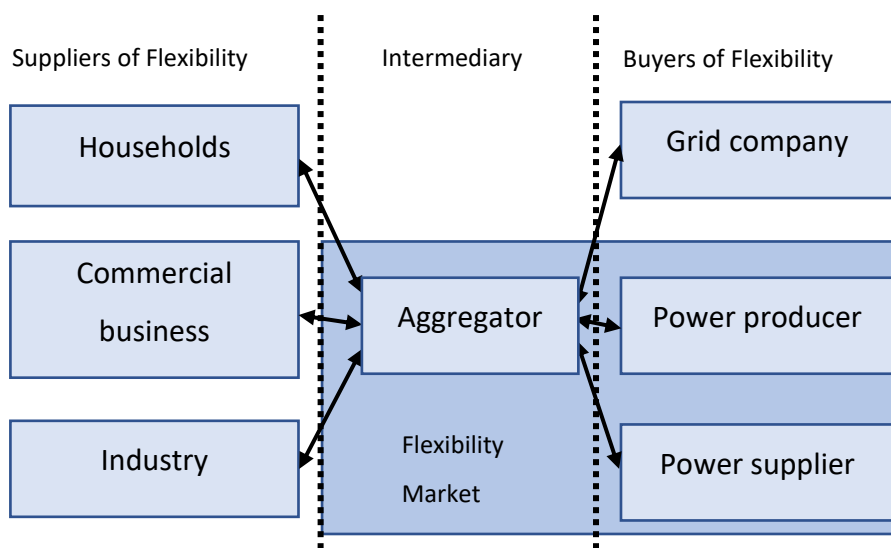


Figure 7. Value system for flexibility. Adapted from (Berntsen & Vatn, 2014: 13)

The energy shift will also change the Business Models of the electricity sector toward sustainability. As Geissdoerfer et al. define sustainable Business Models, it is about a Business Model creating both monetary and non-monetary value for many stakeholders in long-term perspective (Geissdoerfer et al., 2018). For example, more renewable sources mean that one stakeholder that gets non-monetary value is the environment. Possibilities in renewable energy include Business Models focusing either on consumers and offering a comprehensive energy solution or on utilities and offering them large-scale renewable plants (Richter, 2012). Hamwi and Lizarralde present three major Business Models: “(1) a customer-owned product-centered Business Model, (2) a third-party service-centered Business Model and (3) an energy community Business Model”

(Hamwi & Lizarralde, 2017; He et al., 2011). Thus, it can be argued that in the energy shift, not only a focal firm's Business Model should be innovated, but the innovation can also happen in the whole ecosystem, and perhaps it is the only possibility in some circumstances (D'Souza et al., 2018).

Regulation is one key barrier and enabler of Business Model Innovation in the electricity sector (Gordijn & Akkermans, 2007; Hall & Roelich, 2016). As energy is a highly political topic (Nillesen & Pollitt, 2016), it can be argued that politics can significantly affect Business Model Innovations in the electricity sector.

Due to the energy shift, there are numerous possible Business Models Innovations to implement in the electricity sector. Looking at the effects of the energy transition from a bigger perspective, it can be argued that through flexibility and other demand-side-management and supply-side-management, the electricity sector will move towards service selling instead of selling electricity as a product. In mature markets, Business Model Innovation is the remaining option to continue to innovate (Bucherer et al., 2012).

3.3 Case Selection Process

As discussed before, multiple cases will be used in this research. The case selection must be made carefully by predicting similar or contrasting results, as argued by Yin (2009: 54). Likewise, Eisenhardt (1989: 537) argues that case selection can be targeted for theory building instead of statistical purposes. These arguments are conceptualized as purposeful sampling by Patton (2015: 264), and he argues that the sample selection should be focused strategically for the purpose of the research question and data collection. More specifically, a homogenous sampling strategy will be used, where the selected cases are very similar to describe a particular subgroup in depth (Patton, 2015: 268, 283-284). Thus, in this research, as similar cases as possible will be selected, which

enables us to compare the cases and identify patterns among them, and the generalizability and reliability of the master's thesis will be higher.

The similarity of the cases is secured by selecting only companies which work in the Finnish electricity retail sector for end consumers. A total of five case companies were selected. The aim was to select seven companies, but this thesis faced difficulties finding companies willing to participate in the thesis interviews and which also fit the quality standards of this thesis to have good generalizable, and reliable results. Such companies were chosen, which have re-invented their business models from selling only electricity as a product to a broader offering, including different products and services. All the chosen companies sell, e.g., solar panels for their consumers. Still, the majority of them have additionally re-invented their electricity retailing in various ways, which will not be opened here not to make the companies identifiable. All the companies fit into small and medium-sized companies with a staff headcount of less than 250. Most companies are municipality owned, and only one is privately owned. The interviewed persons varied from development managers to business unit directors to CEOs. However, all have in common being responsible for developing the business models in the company or the business unit of electricity retailing for consumers.

3.4 Data collection

The primary data was collected with semi-structured interviews. Interviews are considered one of the most important sources of case studies, as they bring rich insights but are prone to biases and communicational challenges (Yin, 2009: 106, 108-109). Semi-structured interviews enable adaptation to the interview situation by asking additional in-depth questions about the rising topics and gathering more relevant data on the researched topic than structured interviews (Yin, 2009: 107). Compared with unstructured open interviews, the semi-structured interview gives more standard data. Thus, the pattern recognition of the data and generalizability will be higher.

The interview questions are to be found in the appendices. To enable more detailed data, most of the questions will be open-ended, but follow-up questions were prepared. There are warm-up questions and content questions.

The primary data collection occurred from the 25th of March 2022 to the 6th of May 2022 (see Table 1). The interviews were done with online video meetings that were recorded and transcribed afterward to enable a more accurate rendition (Yin, 2009: 109). The interviews were in Finnish to ensure the interviewees expressed their thoughts freely without language barriers.

Table 1. Data of interviews.

Company	Interview date	Interview length	Responsibility Level
Alpha	25.3.2022	60 min	Business Unit
Bravo	28.3.2022	150 min	Business Development
Charlie	6.4.2022	67 min	CEO
Delta	12.4.2022	48 min	Business Development
Echo	6.5.2022	60 min	Consumer Business

3.5 Data analysis

The general strategy of the analysis relies on theoretical propositions (Yin, 2009: 130-131), where the propositions are the research question and the research objectives. Thus, the analysis of the data will reflect the developed theoretical framework. The following data analysis process will be used. After acquiring the data from interviews,

the interview recordings will be transcribed into text. Next, the whole interview data will be read through several times to get familiar with the data. Then a more systematic analysis will take place. A coding analysis method will be used to analyze the qualitative interview data. The data will be gathered into similar themes first, then the themes will be shrunk down to 3-7 different final themes, and finally, the codes will be determined for the final themes. After the coding, argumentation will be used to explain the relations between the final themes.

The analysis will consist of two parts. Firstly, a within-case analysis of each case, which advantage is the high volume of data and detail (Eisenhardt, 1989: 539-540). Secondly, a cross-case synthesis will be made, strengthening the findings as more than two cases will be compared (Yin, 2009: 156). In cross-case synthesis, the emphasis will be on finding patterns among the companies or grouping the companies and finding patterns within those groups (Eisenhardt, 1989: 540-541; Yin, 2009: 136-141). These techniques will increase the accuracy and reliability of the implications (Eisenhardt, 1989: 541). Pattern matching ensures that the relationship between variables is actual and analytic generalization ensures that the results are generalizable beyond this case study (Yin, 2009: 42-44).

3.6 Reliability and validity

The validity and reliability of the research will be ensured with specific methods throughout the thesis, starting from the research strategy and method and ending with the analysis section (Yin, 2009: 40-45, 72). With comparative case studies of several similar case companies, it is possible to recognize patterns in more than one similar company. Thus the results will be more generalizable, and the reliability and validity of the implications will be higher (Yin, 2009: 19, 53, 60-61). Thus, the choice of multiple-case study with homogenous sampling increases the study's generalizability, reliability and validity.

To increase the validity and reliability, it must be open from where the data was collected (Beverland & Lindgreen, 2010:58-59). To address this, the selected companies were opened as far as possible, but they were kept non-identifiable to respect their business secrets. The data collection must be transparent to address the thesis results' validity, reliability, and generalizability (Beverland & Lindgreen, 2010:58-59). Thus, the data collection methods were described transparently.

In the data analysis, the reliability is considered by describing the analysis process openly so that it can be replicated by other researchers (Yin, 2009: 45) and by giving readers a direct access to the raw data with direct quotes from the interviewees (Beverland & Lindgreen, 2010: 61). Avoiding observers own biases is ensured by being open for contrary findings (Yin, 2009: 72). Lastly, the quality of the analysis process is ensured by not jumping too fast on conclusions, but the analysis results are questioned several times, and the data is observed in many ways. (Eisenhardt, 1989: 540-541).

4 Findings

4.1 Within-Case Description and Analysis

In the following sections, the within-case findings will be described.

4.1.1 Company Alfa

The company Alfa focuses its attention on the benefit for themselves, the benefit for their customers, and if the observation has changes for the business.

“Much it is about observing the business environment through various media, which kinds of things are happening in the business environment and recognizing if it could benefit us, or our customers, or does it change our business. One very essential part of this industry is, of course, the legislation and regulation. There must be continuous monitoring of how the regulation changes our business.”

According to the company Alfa, the threats are more clearly to be perceived than the opportunities. There is no formal process for attention and how to define it, but the intuitive process loosely follows the following steps: recognition, raising it for discussion, evaluation, and focus shift. The company Alfa ensures attention to include all relevant, accessible information by broadening the way of thinking and evaluating what can be utilized from other industries. The ensuring is strongly based on intuition. The intensity of each attention focus target is defined based on the feeling it raises. Thus, the intensity determination manifests very intuitively, but the amount of research-based elements has increased lately. The intensity increases during the investigation. There are KPIs behind the intensity determination. For company Alfa, these include ROI and customer-related KPIs, e.g., customer benefit or customer experience. At the Alfa company, the alertness of the attention is based on occasional daily observation, thus not being so structured or ensured. They would improve the structures, resources, and responsibilities to improve staying alert.

Formulating the perception of a threat or opportunity is an intuitive process. It goes as follows: raising the topic for discussion, a discussion between two or a team, and deciding on the direction, actions, and urgency. The threats in company Alfa are seen more as risk management, which is operational actions, not innovating. Alfa defines the opportunity and the need for actions based on short- and long-term ROI estimations. They also recognize the susceptibility to a threat by staying out of market opportunities.

“It manifests itself just in bilateral or team discussions, and then the topic will be raised, discussed through, and different viewpoints are brought ... and then it is decided how to bring it forward and with which kind of schedule.”

The ensuring of the perception being based on reality and environment takes place through the company culture. The culture emphasizes recognition and expressing possible biases. The individual and organizational way of thinking supports identifying, recognizing, and processing both own and others' biases. They emphasize a secure company culture and continuous improvement.

“Important is, ..., that we aim to recognize the biases of thoughts and bring them up. For example, I have said within the last months here inside the house that, ‘I might have a bias in this thought; please, challenge me’.”

The company Alfa lets down opportunities too quickly by threats. They also recognize that the threats lead more likely to actions.

“We are quite good at inventing all kinds of threats, why it is not profitable, and so on, so it is still in the cultur, that we always invent more reasons why not to go than why we would go. So somehow, the threat is easier to find out there.”

The background here is defending the existing, which gets one to act. They find it a natural reaction and question the need to avoid the unbalance of acting more toward threats than toward opportunities. However, they acknowledge the risk that focusing too much on threats might lead to not getting a grip on opportunities and that they do not want to let this happen. The size of the threat or the opportunity determines the size of the actions. The larger the size, the higher the actions, but for small threats, there

might be no actions at all, but the risks of small threats are more perceived as bearable. The evaluation, if the new business model innovation opportunity or threat surpasses the existing ones, would be done at the company Alfa by different kinds of analyses of competitors and business environment with the help of external partners and consultants.

4.1.2 Company Bravo

The company Bravo has multiple ways how to determine its attention focus. First are signals from customers, owners, management, and other stakeholders.

“Traditionally in electricity companies, there is a habit ... that the exploration, productization, and development begin because other similar companies have such products. It is one approach. Such signals come from customers as a question, ‘from there, one can get such, wouldn’t one also get from you’. This is a very traditional way. And the second traditional way is that the company’s owners, the board, or other suitable stakeholders have a fixation, that because certain things happen there at the neighbor, we should think such things as well.”

Secondly, there is the attention focus based on changes in their circumstances. Next are the customer needs, which can be evaluated based on your experiences (e.g., electricity usage). These two are different signals that can determine where the attention is focused.

“But then, what I would like, is that it goes more to the direction that we think the customer needs through our energy consumption. ... Own example, there was a move ..., the way of thinking changes at that point, when the personal need is different. ... Through that, I started to reflect on my behavior, and what I need now, and I started looking for solutions for that.”

Lastly, there are “best practices” coming from the partners. The company Bravo sees that difference between a threat and an opportunity is hard to define. The attention focus does not follow any formal process but is mostly based on individual thinking and

discussion with colleagues. The attention is shifted based on those discussions and individual thoughts. Ensuring that the attention is based on reality and the environment is hard for company Bravo. They do not ensure it anyway. They trust to luck, seeing innovation as a result of chance and good people, not based on systematics. When they look for innovations, they search for them from other industries. For example, they reflect the service processes from other industries through their service consumption. When they aim for copying, they search for their competitors in their industry. According to their thinking, what is needed is to understand the direction of the change of the world. Their way of working in this regard is almost complete intuition. They make a feeling-based estimation of the customer demand and revenue potential. With the help of data, they can make different estimations of customer potential. With experience, they can improve their estimations. There is no systematics behind how the company Bravo ensures staying alert with the attention focus. Their attention is based on trust in their people and creating prerequisites for regular discussion of the findings from monitoring the media. The people are seen as an important asset here. To improve alertness, they would develop monitoring responsibilities.

For the company Bravo, it is not natural to divide the findings into opportunities or threats. Moreover, they see both elements and think, in every case, how to turn the threats into opportunities.

“For me, there are different shades of grey. There is no either or. Perhaps we try more to turn it from a threat to an opportunity. What do we need to do that it does not hurt us but strengthens us? When we make some recognition, we try to focus the attention on how we turn this into success. We go very quickly into it.”

However, the company strategy and megatrends are the factors that, in their evaluation, define if a finding is an opportunity or threat. Opportunities are also though through the value proposition for the customers. Additionally, the company must face its realities – do they have resources for big opportunity projects? Ensuring that the perception is based on the reality and environment is done in various ways. Firstly, they collect customer data, analyzing and defining the customer potential. Secondly, they have a

light and agile, fail-fast, iterative product development process, where they pilot different business ideas on the market early on. At the lightest, they follow the process steps: data analysis, prototype product, start sales with the prototype product, follow-up, evaluation, and lastly, improvements or killing the product.

They can hardly find any business model innovation threats they would not have considered an opportunity. Thus, they tend to act more on opportunities or perceive the observations majorly as opportunities. The most challenging part of their job is to get the stakeholders to see the opportunities the same way. The traditional monopolistic market still affects the stakeholders' and owners' thinking and risk-taking capacity.

“And then when you wonder why the energy sector is so rigid, I repeat: such stubborn those guys.”

4.1.3 Company Charlie

The factors determining the attention focus in the company Charlie can be divided into two groups: internal and external. Internally their attention focuses on things they get excited about and want to do.

“I would say that we are rather reactive, that we continuously throw stuff on the board, what would be cool to do, and usually we start from when we think some topic, that what we want to do and of which we get excited. ... In a sense, we try, get excited about something, and then pack it in a way that ‘hey, could this work’.”

Externally the attention focus is determined by megatrends, market situations, direction, and future, but the industrial revolution and threat of existence also play a role in determining the attention focus. Different financial KPIs of own and market status are part of determining the attention focus among other metrics. The company Charlie sees that every opportunity is a threat; thus, the attention focus does not differ so much

between opportunity and threat. The determination of the attention focus does not follow any process but manifests intuitively. The company Charlie aims to ensure all relevant, accessible information. Thus, they admit that one cannot manage this perfectly. They research and follow different cases from their own or similar industries. They also emphasize the right networks from their own or suitable industries, as they help gain the correct information more easily. Lastly, they point out the following domestic competitors, as well as globally. Their search processes are mainly based on intuition, but there are also some controlled processes. The defining factor for attention intensity is ROI. At the company Charlie, they evaluate the ROI based on intuition, choose an observation with the best ROI, and focus their attention 100% on that observation. Other financial KPIs than ROI can also be used. The key to staying alert for the company Charlie is constantly monitoring environmental events. They monitor their stakeholders, relevant customers, large key accounts, daily politics, significant trends, and middle Europe. They would improve more and braver anticipation and ability to act faster.

Dividing the observation into threats and opportunities is unnatural for the company Charlie. In their principle, they think that threats are also almost always opportunities. Moreover, their approach is that the opportunities exceed the threats almost in every case.

“Every opportunity is also a threat. However, you always have to evaluate if the possible upside is higher than the threat. ... Somehow, I would like to answer that we have such an approach that the opportunity exceeds the threat almost in every case.”

They follow a basic process: defining the market opportunity, checking the threats, and minimizing them. After this, the threats should be smaller than the opportunities for the observation to go forward. For them also, different business models do not exclude each other. For the company Charlie, there are four main topics on how they ensure the perception is based on the reality of the environment: data, piloting, monitoring, and questioning. For them, the data is the most significant factor in defining the correct

choice, decision, or direction. They do a significant amount of testing, and by that, they increase their amount of data. Thirdly, they monitor their environment, for example, the regulation and energy industry changes. Lastly, they question the experiences in the past. However, they still believe that there will always remain beliefs, and they accept this. Thus, they think one must choose a position with a correct risk level.

The optimistic approach at the company Charlie makes them act more on opportunities than threats. Light threats might not react at all; they will act with great actions for significant threats. They invest a small amount for light opportunities, but for great opportunities, they put all in. According to them, how a person sees the threats and opportunities is individual. For them, the threat or opportunity does not matter, only the size of the observation. Thus, there is a conflict, as they just said, that they might not react to a minor threat, but right after, the threat or opportunity does not matter, only the size of it. They have seen that the market has reacted with product innovations in market threats. Moreover, they see that market threats are always opportunities, even though one might not see them as opportunities in that time.

“And I have concluded that these market threats, they are always opportunities, in every case, even though one cannot think that way in that time, but it concerns each actor in the industry, it concerns the end consumer, so one just has to see it as an opportunity, but at that time it for sure was a threat, but it led to product innovation.”

They forecast the potential of a nascent business model with three main factors. First is the data and forecasting model that can be constantly adjusted with new data. Secondly is a belief. They take a position based on belief and intuition. Lastly, they test with a small stake.

4.1.4 Company Delta

The company Delta names three factors defining how they focus their attention. They are data, strategy, and profitability. The data aim their attention focus, and strategy and estimated profitability define if and how much time they use for it.

“It circles in the strategy work, so in a way, the strategy sets the big frame, within we work. ... We are still in a world, where continuously comes such, ‘hey this is a cool thing, and that is a cool thing’. ... My thinking starts from the strategy, which possibilities it gives, and based on that, we search for the opportunities.”

They use more time on opportunities than threats. Threats are acknowledged, and they aim to live with them. For them, data is the main factor in defining if the attention focus needs to be shifted to something else. They realize that it is not possible to succeed ideally in ensuring that their search processes and attention would consider all relevant, accessible information because there is an enormous flow of information available, and one cannot process all of that. However, the means to aim for it is a product development process, which they realize is imperfect. On threats, they emphasize the need for experience and understanding. Their processes to ensure relevant, accessible information are divided into intuition-based and controlled processes. The main defining factor for the company Delta is the strategy for defining the attention focus intensity. They do not invest time if the opportunity observation does not fit into their strategy. On threats, the threat type defines the intensity. The underlying KPIs are financial metrics for both observations: opportunities and threats. The company Delta admits clearly that their alertness is ensured badly. Mainly they would improve the resourcing.

Delta defines whether an observation is a threat or an opportunity through strategy.

“It is the strategy. ... If it fits in the frame, then we explore it as an opportunity.”

They define an opportunity as a possibility to make more money. They define a threat as a threat to an existing business. Delta considers many ways to fail to ensure that perception is based on the environmental reality rather than biases, beliefs, and past experiences. They ensure this through a process that includes calculations and business analyses. However, they still realize that while doing the calculations and analyses, most of the data is evaluations, which are prone to biases, beliefs, and experiences from the past. Furthermore, this needs to be realized, and they usually adjust the evaluations systematically to a more realistic direction.

For the company Delta, the effect in monetary value is the one that defines the actions, not if the observation is perceived as an opportunity or a threat. Nevertheless, the actions are not defined by the monetary value alone, but the probability of the observation also plays a role. These together define which actions are done.

“The first concrete thing is which kind of impact it has. In the end, we speak about euros.”

The company Delta aims to analyze the future potential of a business model innovation opportunity or a threat and if it exceeds the existing business model by scenario work. Nevertheless, here they turn back to the risk of biases, beliefs, and experiences of the past and emphasize the need to overcome their effect.

4.1.5 Company Echo

In the case of the company Echo, they have multiple factors defining which things the attention is focused on. According to them, the primary defining factors are the strategy and short-term targets of the company.

“I would say that the major factor, which defines, ..., is our business need. ... The strategic goals, yes, ..., but sometimes in business might come things that quick wins are needed. ... So, in general, business needs.”

Additionally, they follow the market and megatrends, and based on the events there, they define where to focus their attention. Lastly, the business cases are mathematically calculated, of which they get the overall understanding, and the attention focus is defined through these calculations. Defining the attention focus does not matter if the observation is an opportunity or a threat, but the business goals define it, and the business goals can be long-term defined by the strategy or short-term defined by the operational needs. The attention focus is shifted mainly by intuition; they do not follow any controlled process. Echo emphasizes two factors in ensuring the attention and search processes consider all relevant information. Firstly, there must be a genuine interest and desire. These are very personal and individual characteristics and stress the proper characteristics of a person. Secondly, they have continuous information searches from other industries. Their search processes lean heavily on intuition, but they also have controlled processes and aim for a balance between the two. For the company Echo, the attention intensity is defined by the time perspective. If the company aims for long-term strategical goals, the intensity lies on future possibilities. However, if the company aims for short-term operational needs, then the intensity lies more on observations that are strong on financial facts in the short term. The KPIs are financial metrics, but in the case of long-term needs, some metrics of future potential are included as well. The ensuring of staying alert manifests through a defined process.

“I would say that this requires a permanent process and a polished operations model for it to stay active, but it means daily a hefty amount of data, which we monitor, and which we regularly weekly and monthly and quarterly handle in different levels and we make decisions from it.”

The process includes elements of monitoring competitors, monitoring electricity procurement, and monitoring different industries. The process yields data, which then is analyzed, and analyses lead to decisions. In addition to the process, they also read much. What they would still improve is having even more data to analyze.

For the company Echo, one must understand the broader picture when defining if an observation is an opportunity or a threat. One can also compare the observation to past

cases of reference companies in other industries. Still, one must also evaluate how the market and consumer behavior have changed since the reference case and define if the observation is an opportunity or a threat in the present time. The company Echo thinks there are elements of a threat and an opportunity in a single observation, and one must transform the threats into opportunities. Also, one must realize in which direction the market as a whole is going and decide if the company wants to be a part of this change, as it is evident that staying out of the market change will shrivel the company. The time perspective defines the actions. If the company is close to launching, the actions are defined by concrete KPIs of the business model innovation. Still, if the observation is early, the actions are based on evaluations, not data. The company Echo ensures the perception is based on reality with data and by questioning past experiences based on the monitoring. They monitor the market, consumers, and data; through that monitoring, they question past experiences and aim for realistic perception.

An overall assessment, including the monetary value of the business case and own resources, define the actions. The scale of the observation defines the actions with two exceptions. A light threat can be left without action. In the case of business model innovation opportunities, one must always have a reality check if they have enough right resources to implement them, as the opportunities tend to be large projects and require a certain number of resources. What considers threats is that they are seen more as operational work that needs to be done. The observation scale is defined through KPIs comprising the brand, financial metrics, and business targets. Lastly, Echo sees that it depends on individual characteristics how one sees an opportunity or a threat.

“I would say that it depends on the type of the individual if the things are considered threats or opportunities when we speak of innovations.”

For evaluating if the business model innovation opportunity or threat exceeds the existing business model, the company Echo has two main topics: data and monitoring. By monitoring the megatrends, market, and political decision-making, they have the understanding and data to evaluate which business models are possible and probably profitable. The key here is to stay alert, monitor, gather data, and evaluate it.

4.2 Cross-Case Analysis

The following sections will clarify the three research objectives in the cross-case context and identify cross-case patterns.

4.2.1 How do managers determine which things to focus their attention on when looking for business model innovations?

The attention focus is divided into four elements in this master's thesis. The first element is how the attention focus is determined. The second element is ensuring the search processes include all relevant information. The third element is how the attention focus intensity is defined. Moreover, the last element is ensuring that the search processes stay alert so that no relevant events are missed.

These four elements form together how the attention of the managers takes place. The following section will review the four elements, how they manifest in the researched companies, and which patterns can be found.

The factors defining the first element, on which the managerial attention is focused, can be categorized into four patterns; internal factors, customer and stakeholder factors, market factors, and data. Within these patterns, the factors can be divided into signals and results. The signals signal the attention to be focused on something. The result factors manifest so that the attention is focused on something to find a specific result.

The internal factors are regarded as pattern I. The managers focus their attention on finding results that benefit the company, have a change to their business, or fit in the long-term goals defined by the strategy or the short-term goals derived from the company's operational needs. Thus, these results are searched for and raised internally by the focal company. Internal factors that signal the focus of attention to something comprise two topics. Firstly, the managers focus their attention on things they get enthusiastic about and want to do, but secondly, through the change of personal

circumstances, which leads to seeing the environment differently and makes the individual manager focus on new things.

The customer and stakeholder factors work as signals and results and comprise pattern II. The managers focus on finding results that benefit their customers or meet their needs, which can be helped by reflecting on the manager's energy consumption habits. The managers may receive various signals from their customers, owners, management, or other stakeholders like partners and suppliers, and these guide the focus of attention.

In pattern III, the market mainly provides different signals for attention focus. The factors in the market manifesting as signals are megatrends, the market situation, the market direction, and the future prognosis of the market. Also, the possible revolution in the industry and the threat to the existence of an industry are included. These factors are monitored, and when observed, they guide the attention focus.

In pattern IV, data concern all other three patterns, as all three previous patterns can be analyzed with data. The data was mentioned so many times with the interviewed managers, so it is worth mentioning as a distinct pattern here determining the attention focus even though it is linked with the specific three patterns mentioned before. The observations can be transformed into data as different KPIs of the company or the whole market. Also, the business cases can be calculated mathematically to understand the broader picture better.

If the attention differs between a threat or an opportunity, divide the interviewed companies into three different groups. Some feel that the threats are easier to be recognized. Controversially, some feel it is difficult to distinguish between a threat and an opportunity. Lastly, some argue there is no difference between a threat and an opportunity. Either they are treated neutrally through the organizational targets, or every case has elements of both.

The companies also differ in how the attention focus shift takes place. For some, it is happening intuitively through an individual's thoughts and discussions with colleagues, but for some, the data is the primary source for the shift in attention focus. However, all companies agree that it is based on intuition, and there is no structured process for the attention focus shift.

The second element of attention is ensuring the search processes include all relevant information. The second element is much more fractioned than element one, possibly reflecting the element's difficulty. The difficulty was recognized and mentioned by many of the interviewed managers. The managers think that there is no possibility of succeeding ideally in this, even though they strive for it, and especially as the change is so rapid in the industry, one can be left behind the industry change already after one or two years if standing still or changing too slowly. Ensuring that the search processes and attention consider all relevant, accessible information manifests through three patterns.

The first pattern consists of gathering information from other industries, which was the most robust pattern in this element. The companies find suitable cases from other companies and analyze them to find elements they can utilize in their case. The monitoring can be local or global. Also, one possible dimension is to reflect their service usage from other industries.

The second pattern is individual characteristics and the mindset of the manager. If the individual manager has a genuine interest and desire, it helps to gather the relevant information. Similarly, the industry's experience and understanding help gather relevant information, especially regarding the threats. Furthermore, lastly having a mindset to gather a broad understanding of the more comprehensive picture. These are very personal and emphasize the correct type of manager in the proper role.

The third pattern comprises the competitors and the market. The topics emphasize monitoring the competitors, especially if the target is to copy something within the

industry. Also, the managers must understand the market to ensure the relevant information.

Additional to the three patterns, another three lesser branches were observed. These were the product development process, partners and networks, and lastly, luck was mentioned. Each of these branches was mentioned by only one company, so they cannot be generalized as patterns, but their importance was still high enough for them to be mentioned.

The ensuring was highly based on intuitive processes for more than half of the companies. Only two companies had some structure and controlled processes accompanying the intuition, and only one emphasized that there should be a balance between the two.

The third element defining the intensity of each attention focus can be categorized into two patterns. There the companies are more even, and the patterns are well generalizable.

The first pattern emphasizes that the intensity is determined through an intuitive process. For some companies, the intensity is based on a feeling, increasing as the analysis advances. For some companies, the intensity is based on a conjecture evaluation of the customer and revenue potential, and they see that the experience can increase the quality of the conjecture evaluation. Some companies make an intuitive evaluation based on the data. Lastly, one company evaluates ROI based on intuition, chooses the best ROI, and focuses solely on that observation. Each process manifests intuitively, and the process is not described or structured.

The second pattern comprises the factors behind defining the intensity. For one company, the strategy is the main factor determining the intensity: if the observation does not fit into the company strategy, no attention will be focused on that observation. One of the companies sees that the time perspective defines the attention focus

intensity. If the time perspective is on long-term targets defined by the strategy, the intensity of the attention focus will be on observations that consider future possibilities. On the other hand, if the time perspective is on short-term targets, then the intensity of the attention focus will be on observations and business cases that are strong on financial facts in the present time. Lastly, all companies agree that the intensity is defined through different financial or qualitative KPIs depending on the case and the company's targets.

The fourth element is about staying alert so that no relevant threats or opportunities would be missed. The results vary here the most from the different elements, and they are divided into different levels of quality. The worst level is that it is not ensured in any way, as one company admitted this is ensured "badly". The second level was trusting the people and building prerequisites for regular discussions. The next level was based on casual daily monitoring of the media and the events in the environment.

Furthermore, the highest level was based on a process that ensures staying alert. In this case, the process comprises continuous monitoring of competitors, electricity procurement and different industries, data analysis, and decision-making. The majority of the companies agree on similar improvement needs, which are more structure, more resources, and monitoring responsibilities

4.2.2 How do managers define if something they recognize is a business model innovation opportunity or a threat?

Perception is divided into two research objects. The first is how the managers perceive the observations if they are business model innovation threats or opportunities. This topic will be discussed next.

Firstly, considering the underlying factors that define whether the observation is an opportunity or a threat, it can be concluded that the managers are very diversified. The only factor mentioned, even by two interviewees, was the strategy. In those companies, the strategy defines whether they perceive various observations as opportunities or threats. Individual managers mention other findings that cannot be generalized as patterns. For one manager, the megatrends define the threat or opportunity question. A similar finding is the market's direction; in this case, the manager must choose whether they are aligned with that direction or outside it, determining the threat or opportunity question. Also, own realities can define if the observation is an opportunity or a threat. Suppose the company does not have the resources to implement an opportunity. In that case, it can become a threat if some competitor implements it and gains a competitive advantage over the focal company. One approach to this topic is from the viewpoint of the value proposition for the customer; if the observation can offer an attractive value proposition for the customer, it will be seen as an opportunity. Another way to define the opportunity or a threat question is through the maturity of the business. If it is seen to be profitable now, in the short-term or long-term, it can be approached as an opportunity. As can be seen, many different factors define whether an observation is perceived as an opportunity or a threat.

Opposing the last chapter, the question of an opportunity or a threat is not black-and-white. Most managers do not think it is natural to classify the observations as threats or opportunities. The background here is that this group of managers sees that every observation has elements of both opportunities and threats. For example, as already discussed, if the company does not take the opportunity and implement it, it can become a threat if a competitor or the whole industry implements it profitably and gains a competitive advantage. Also, differing business models do not exclude each other. More and more, managers tend to aim to turn threats into opportunities and to think positively so that almost every case can be seen and turned into an opportunity. The interviewed managers see that it depends on the individual how one sees a threat or an opportunity. Also, it is dependent on the time point. For example, one of the interviewees said that the market threats are opportunities each time, even though it is

hard to see it at the time, but afterward. For example, the electricity price shock in December 2021 led to product innovation, which can be seen as an opportunity afterward.

Managers determine the perception of a threat or an opportunity through different processes. Still, all of them are mainly based on intuition and are not structured or defined clearly in the companies. In one company, the defining starts by raising the question and then continues in discussions between two or more persons, and in those discussions, the perception and the needed actions are formed. A second very straightforward process is defining the market opportunity, and then the threats must be checked and minimized. Lastly, there is a process where they compare the observation to past cases of reference companies in other industries, they evaluate how the market and consumer behavior has changed from the reference case, and with these together, they make their perception of the observation, whether it is an opportunity or a threat in the current market situation.

An important topic when speaking about perception is human limitations regarding biases, beliefs, and reliance on past experiences. As these affect the perception by the evaluation not being based on reality, we researched how the companies aim to avoid them affecting the determining if the observation is a threat or an opportunity. Five different patterns could be distinguished. Firstly, electricity companies collect many data, especially from their customers, and with the data, they can evaluate the customer potential and make better decisions. Secondly, they question past experiences and make decisions based on monitoring the market, consumers, and data. Still, the companies admit that some evaluations and beliefs always remain, but the managers must evaluate and choose a position with a possible risk level and base their decisions on it. Thirdly, a company culture that recognizes cognition and emphasizes psychological safety is essential. This means that the possible biases are recognized and expressed so that they can be considered in discussions and decisions. This means understanding own and others' biases and emphasizing continuous learning at the individual and organizational levels. The fourth pattern is piloting and testing. This can manifest itself

as pilot marketing of a product or in other forms of agile fail-fast iterative product development, where the product is put into the market quickly, monitored, and iterated with the help of customer feedback and own evaluation. This emphasizes that instead of developing too long, they want to test the products as early as possible in the real market. Lastly, there can also be a defined and structured product development process, where the specific calculations and business analyses will ensure that the correct actions are implemented, and biases, beliefs, and past experiences are addressed in a structured way.

4.2.3 How do managers evaluate if a business model innovation opportunity or a threat requires action?

Next, the last research objective will be discussed. This research objective is to determine the severity of the perceived business model innovation observation and whether that will lead to further actions.

There are three patterns or groups on whether a Business Model Innovation opportunity will lead to actions as likely as a BMI threat. Firstly, a group of managers aims to consider each observation an opportunity and sees that they act more on opportunities than threats. Secondly, a group of managers makes no difference between a threat and an opportunity. Still, they define the severity from data, and the severity of the observation determines the actions, not the fact if it is a threat or an opportunity. Thirdly and lastly, are that group of managers that tend to act more on threats. An important notion is that these companies see the threats as a natural reaction and operational activity. Thus, the disparity of acting more on threats does not need to be avoided. However, they recognize the risk that focusing too much on threats might lead to not striving for opportunities, which must be avoided. Also, they mention that the opportunities often require high effort and are a question of resources.

The question of severity and the observation leading to actions is defined through financial impact, meaning how much euros it will bring or threaten. Other possible measures are qualitative metrics such as brand and reputation-based and future business metrics. The scale of the metrics defines the actions. However, the relation between the severity and the actions appears not linear. On the opportunity side, it is clear that every company will put more actions the higher the severity of the opportunity. However, on the threat side, there is non-linear behavior. Most companies tend not to react to small threats but tolerate them, live with them and act only on more severe threats.

Part of the severity determination is to see and forecast if the nascent Business Model Innovation will grow and exceed the existing Business Model. The companies interviewed do this in several ways. Two of them can be seen as patterns. The first pattern is monitoring, which needs to stay alert and recognize all relevant events. The monitoring is headed in many directions: trends and megatrends, the broad picture of the market and the world, and the market and the political decision-making, to name a few examples. With the monitoring, the companies understand the surroundings well and which Business Models are possible in the future. The second pattern is data analysis and scenario work. As companies collect a vast amount of data from their customers and monitor their surroundings, they update their forecasting algorithms frequently and form various evaluations and scenarios frequently to forecast possible future events and their probabilities in the future. Other various methods cannot be generalized as patterns. One manager emphasizes collaboration with partners and consultants. Another refers to the already discussed topic of fail-fast testing. One manager brings up the constraints from stakeholders, mainly the management and owners. The managers must assure them to believe in the new BMIs, which is a challenge due to the mindset of the owner structure of a municipality-owned company. However, here again, the managers also emphasize that one cannot predict the future perfectly, and the basis of evaluation is always partly on beliefs and biases.

4.3 Synthesis

The research question, "*How do managers sense Business Model Innovation opportunities and threats?*" is divided into two main sections in the theoretical model: attention and perception.

Our empirical data reveal that managers focus their attention on internal factors, customer and stakeholder factors, market factors, and data. The factors are divided into signals that trigger an attention focus shift and results that are searched for. The internal factors comprise search results linked to the company's strategy and short-term goals that benefit the focal company. Internal factors also include signals to shift the attention focus, which are managers' enthusiasm for specific topics, and the changes in personal circumstances, which lead the manager to focus on new things. The customer and stakeholder factors include signals from customers, owners, management, and other stakeholders to guide the attention focus and search for results that benefit the customers and meet their needs. The market factors work as signals to shift the attention focus, including the various megatrends, the market situation and direction, and possible revolutions and threats to the existence of an industry. Data is the fourth factor, and it concerns all three mentioned topics, as they are analyzed with the data. The managers vary in how they approach opportunities or threats. For some, the threats are easier to be recognized. However, for some others, it is difficult to distinguish the two, as an observation is likely to have elements of both opportunities and threats. Lastly, some managers feel that the attention does not differ between opportunities or threats, but the company targets define where the attention needs to be focused. The attention shifts manifest themselves intuitively through discussion and thinking but are also directed by the data.

According to our data, it is fractioned how the managers ensure all the accessible, relevant information. The methods vary from gathering information from other local or global industries to monitoring competitors and the markets and having the correct managerial individual characteristics and mindset. Other methods include the product

development process and having the right partners and networks, but one company trusts luck in this topic. However, in most companies, the ensuring is intuitive, and only in two companies are structure or controlled processes involved.

The attention focus intensity takes place through an intuitive process, which emphasizes either choosing the intensity by pure feeling, using data for decision-making, or making a conjecture evaluation of the business case. The factors defining the intensity include strategy, time perspective from short-term to long-term, and financial or qualitative KPIs depending on the case and the company's targets.

There are multiple quality levels, how the managers remain continuously alert to avoid missing relevant opportunities or threats. The worst level is where this is not ensured in any way. The second level is where the company trusts people and builds prerequisites for regular discussions. The third level comprises casual daily monitoring of the media and environmental events. The highest level is where the company has a process to stay alert. The process includes monitoring competitors, electricity procurement, and different industries, analyzing the data gathered, and decision-making based on the data. All companies feel that they could improve, and majorly the improvement need lies in resourcing and building more structure.

Perception is about formulating the inputs of attention into meaningful and valuable information. The interviewees suggest diversified ways of determining whether the observation is an opportunity or a threat. They define the threat or opportunity question through strategy, megatrends, market direction, own realities, customer value proposition, and business maturity. However, it is not black-and-white, but many managers sense that it depends on individuals, how they see the opportunities and threats. Each observation has elements of both opportunities and threats, and they aim to turn the threats into opportunities. The process of defining opportunity or threat is intuitive and has differing forms. For some, it is as straightforward as raising the question, discussing, and forming the perception and needed actions. The second possibility is to define the market opportunity, check the threats and minimize them.

The third possible process is to compare the observation to reference cases from other industries from the past, to evaluate how the market and consumer behavior have changed, and then evaluate if the observation is an opportunity or a threat in the current situation.

Our empirical data reveal, that managers have various methods to ensure that the perception is based on the reality of the environment but not on biases, beliefs, and past experiences. First, the companies collect a high amount of consumer electricity usage data, and the managers can make various analyses based on that data. Second, questioning past experiences and using data and market monitoring to improve decision-making. Third, having a company culture that emphasizes cognition in terms of recognizing possible own and organizational biases, having psychological safety, and building awareness and handling of biases. Fourth, testing a product in the actual market as soon as possible, failing fast, collecting the feedback, and reacting to it rapidly. Finally, one company has a defined and structured product development process to guide them in answering pre-set questions, thus ensuring not to forget the completeness of a business case.

According to our data, there are three different groups among the interviewed managers, and their actions differ between opportunities and threats. Firstly, some optimists see each observation as consisting of elements of both and turn the threats into opportunities, or they act more on opportunities. Secondly, there are realists, who do not make a difference between an opportunity or a threat, but they define the actions solely based on the impact of the observation. Furthermore, lastly are the defenders, who act more on threats and see acting on threats as a natural reaction that does not need to be avoided but is seen more as an operational activity. In all groups, the severity of observation is determined by financial or qualitative KPIs.

Additionally, the scale of the severity determines the actions. However, the relation between the severity and action scales is not linear (see Figure 8). On the opportunity side, the higher the severity, the higher the actions.

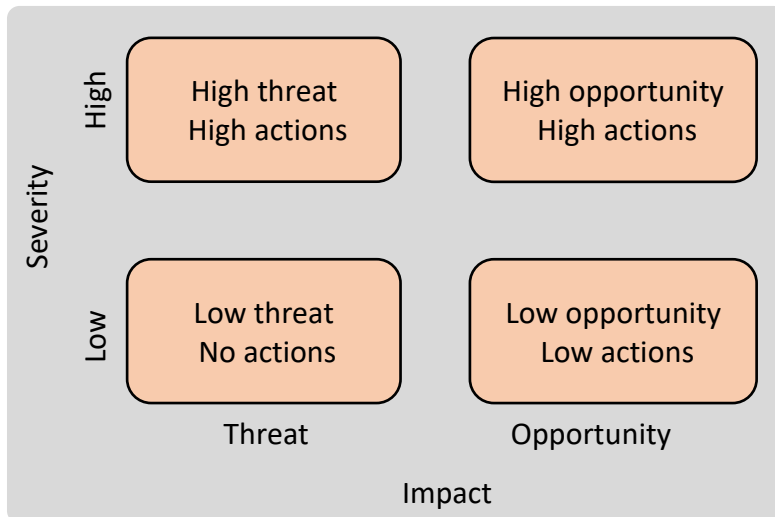


Figure 8. Empirical findings of actions concerning perception.

Nevertheless, on the threat side, small threats might not raise any actions, but the managers tend to live with small threats, still being aware of them. However, with high or existential threats, they will react with high actions. This behavior was similar among all three groups: optimists, realists, and defenders.

One factor influencing the severity determination is if it is foreseeable that the nascent Business Model Innovation opportunity or a threat will surpass the existing Business Model. The managers have two methods to evaluate this. Firstly, by monitoring the surroundings, thus, having as realistic and broad picture of the environment as possible. Secondly, data analysis and scenario work to find the possible Business Models and environmental changes. Other but not generalized findings include having the right partners and consultants, the fail-fast piloting of a product, and the difficulty in assuring stakeholders, especially the company owners. However, it is widely admitted that this part cannot be succeeded ideally.

The findings are summarized below visually in the theoretical framework (see Figure 9). From the figure, it can be argued that the process of *how managers sense Business Model Innovation opportunities and threats* is complex and has numerous factors, dimensions, and elements. This comprises the sensing dynamic capability, which is the

first of the three: sensing, seizing, and reconfiguring dynamic capabilities, and brings inputs for the seizing and reconfiguring dynamic capabilities.

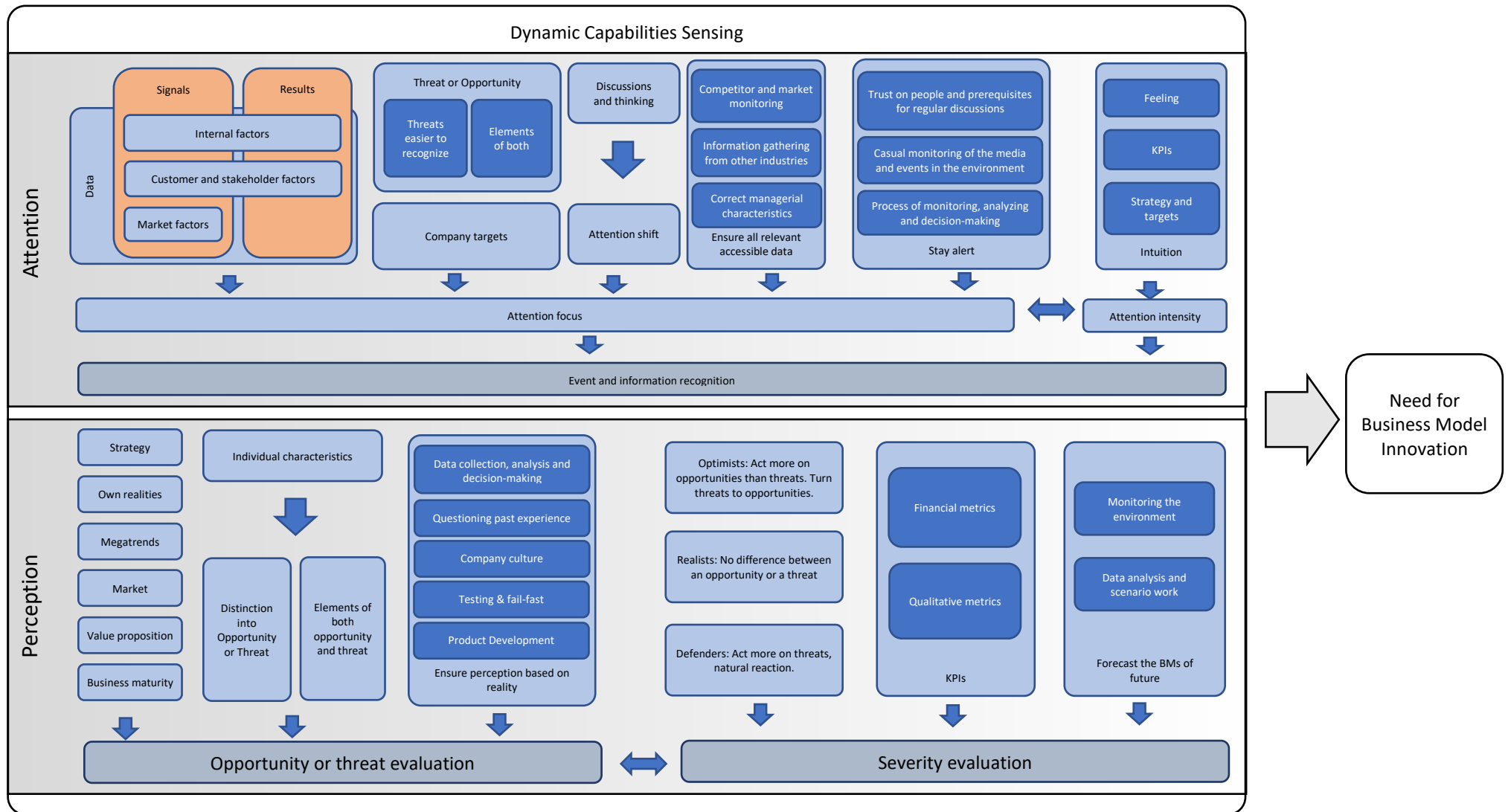


Figure 9. Theoretical framework filled with data.

5 Discussion

Next, we will use the pattern-matching technique to address the validity of the master's thesis even further (Yin, 2009: 40-45) and compare the empirical findings with the theory. Moreover, analytical and critical thinking will also be applied to the pattern matches.

The finding that the attention focus is determined by internal factors, customer and stakeholder factors, and market factors is much in line with the argument by Bucherer et al. (2012) that the triggers of Business Model Innovation can be categorized into internal and external factors, in more detail into an internal threat, internal opportunity, external threat, and external opportunity. In our findings, the customer and stakeholder factor could also be divided into internal and external factors, depending if the signal comes from an external customer or internal owners or management, and the market factor can be seen purely as an external factor. Thus, this pattern match strengthens the argument that the attention focus triggers Business Model Innovation. Moreover, perhaps the competitive situation in the industry does not allow companies to look for BMIs in only one direction, but they need to focus on all possible factors. Thus, they focus on internal, customer and stakeholder, and market factors to turn every stone to find all the possible BMI observations to gain competitive advantage.

The theory of bounded rationality, which limits the capability to receive and process information (Tripsas & Gavetti, 2000: 1148), received empirical evidence in this research. The interviewee of the company Delta recognized the challenge of enormous information flow and continuously facing interesting business cases, but they need to limit their attention within the frames of their strategy due to the limited information processing capacity. Limiting the attention within the frames of the strategy can be seen as a heuristic method to simplify the cognitive problem to a more understandable task. Thus, this finding is unsurprising as humans have cognitive limitations despite the industry. However, the empirical results did not support the tendency to focus attention on nearby competitors only (Johnson & Hoopes, 2003: 1058). Thus, it can be concluded

that this part of bounded rationality is well-avoided in the electricity sector in Finland, which was an unexpected finding. A stereotypical municipality-owned electricity company can be seen as rigid and non-innovating, focusing only on copying competitors. Our empirical findings suggest the opposite, and the reasons for this can vary. Perhaps here also the competitive situation in the industry leads to looking for competitive advantage from all possible directions, and the companies can not afford to focus only on their competitors.

As Johnson and Hoopes (2003: 1067) and Tripsas and Gavetti (2000: 1159) argue, the search must be costly, and the strategic beliefs need to be entirely challenged to gain BMI advantages over disadvantages. We received similar empirical findings as the company Bravo's interviewee concluded that the opportunities might be substantial projects. One must face their realities if they have enough resources to start large transformation projects to chase the opportunities. This might hint that small companies could not act on BMI opportunities with the same ability as mid-sized and larger companies in the electricity industry. Additionally, our empirical results show that companies need to increase the innovation resources. It can be argued that the whole industry might benefit of increasing the innovation resources. Perhaps the reason can be, that the electricity industry in Finland has been open for competition for less than 30 years and has faced greater technological shifts only lately to address the energy shift. Thus, the need for greater innovations has increased only lately.

The literature suggests that the BMI Process has "an initial experiment followed by constant fine-tuning based on trial-and-error" (Sosna et al., 2010: 384) and emphasizes experimentation and learning (Foss & Saebi, 2017; Hossain, 2017; Sosna et al., 2010). Our empirical findings enormously strengthen this theory. The optimistic managers implement a fail-fast iterative and intuitive development process to ensure that the perception is based on the reality of the environment rather than not on biases, beliefs, and past experiences. The aim is to pilot the product as early as possible on a real market, monitor its success, learn from it, make adjustments, and remove the product rapidly if needed. The structural BMI Processes, like the ones argued by Bucherer et al.

(2012: 190) (*analysis, design, implementation, and control*), Teece (2010: 182) (*segment the market, create a value proposition for each segment, design and implement mechanisms to capture value from each segment and figure out and implement isolating mechanisms to hinder or block imitation by competitors, and disintermediation by customers and suppliers*) or Frankenberger et al. (2013: 260-264) (*initiation, ideation, integration, and implementation*), were not always endorsed by the empirical findings. Only Delta has some structure on the product development process, but not on a scale as suggested by the theories. Nevertheless, why did only the optimists implement the fail-fast iterative process, and this was not emphasized by the other groups of managers? It could be that the process depends on the type of managers or the organizational culture, and future research could explore this matter in more detail.

Our empirical results show behavior similar to the Prospect theory regarding the irrational unbalance of non-probable and probable gains (Tversky & Kahneman, 1992). We can distinguish two different behaviors of the managers. The first behavior is that the managers might not act on threats with low severity but let them be, live with them, and only recognize them. High-severity threats will lead to high actions. On the opportunity side, the severity is more evidently concerning the actions it raises from low to high severity. This behavior was evident in all three groups: optimists, realists, and defenders. The second behavior is the tendency to focus more on threats or opportunities. The defenders say that the threats are getting more actions than opportunities. This is because of the natural reaction of defending the existing or reacting to threats as not innovation but a normal operational activity that belongs to the daily work. Thus, the defenders' behavior supports Saebi et al.'s (2017: 575) findings that the Business Model is more likely to adapt to threats.

Nevertheless, optimists tend to focus more on opportunities, and here the background could be the optimistic thinking that each observation could be turned into an opportunity. Both these behaviors can be argued to be irrational behavior as there could be probable or even more probable gains on the opportunity side than on the threat side, where the focus is on the threats and vice versa. The root of this behavior could be

the limited processing capability (bounded rationality), and to cope with that, different heuristics could be used, which are dependent on the managers' different individual characteristics, basic principles, and past experiences. Findings which Osiyevskyy and Dewald (2015: 71) argue that the Business Model would not be adopted in critical threats were not supported as all of the companies would act on the critical threat (e.g., existential risk).

The finding of the interviewee from the company Bravo highlights the challenge that Aspara et al. (2013: 467) discuss recognition not being the hard part but getting the recognition into action. The challenge identified is to get the stakeholders and owners to see the opportunities the same way as the managers. Perhaps the intense crisis would be the key to achieving the same level of understanding and transforming the recognition into action (Saebi et al., 2017: 570; Sosna et al., 2010: 397).

Lastly, due to the exploratory nature of the research, we contribute to new theory building by explaining what comprises attention and perception while looking for BMI. The novel-built theoretical framework, complemented with the empirical results, brings valuable insights into how the sensing dynamic capability manifests. Thus, we have addressed the research gaps by creating a clearer link between cognition and Business Model Innovation and addressing BMI's cognitive factors and antecedents. Future research can develop a more detailed understanding with descriptive and explanatory studies on this phenomenon.

6 Conclusions

6.1 Theoretical implications

Using dynamic capabilities theory, we have addressed the research gaps by creating a clearer link between cognition and Business Model Innovation. Thus, we have brought the fragmented research streams closer to each other. This master's thesis proposes a theoretical framework to research the sensing dynamic capability of business model innovation. Also, the empirical findings build the overall knowledge of the elements and how the sensing dynamic capability manifests itself. It also gives possible future research possibilities to gain more detailed knowledge of how attention and perception occur to sense opportunities for business model innovation and threats.

With the pattern matching technique, it was possible to gain support that the theories regarding cognition in business model innovation also apply in the electricity sector. Thus, cognition manifests similarly in the electricity sector, which builds the evidence for the generalizability of those theories even in other industries.

6.2 Managerial implications

The first managerial implication of this master's thesis is to shed light on how attention and perception manifest themselves when looking for business model innovation. Thus, understanding the various elements can bring up specific areas where managers can improve and develop their cognitive capabilities regarding attention and perception. This can be beneficial in two ways. Firstly, the managers can see which areas are not so highly developed in the electricity sector, develop it, and gain a competitive advantage over the industry competitors. Moreover secondly, by developing cognitive capabilities and increasing the competition, the electricity sector can improve its business model innovation and be more effective as an industry.

Secondly, one of the findings is that there are certain managers' approaches. Firstly, a group of managers sorts the observations into business model innovation opportunities and threats. However, the other group sees elements of both opportunities and threats in each observation. Secondly, the managers can be divided into optimists, realists, and defenders, and they have different approaches to acting on the BMI observations. By recognizing these findings, the managers can reflect on their approach, question it, and find possibilities to change the underlying cognitive models. Thus, as Martins et al. (2015) argued, one can change their business models by changing the cognitive models.

6.3 Suggestions for future research

Many managers do not differentiate between threats and opportunities. Instead, they treat them as manifolds. Thus, it would be an interesting suggestion for future research to find underlying factors of this thinking. Which characteristics of a manager enable this kind of thinking, or is it a product of company culture? How can one learn to see elements of both in each case? Moreover, does this thinking have effect in the firm's performance or the probability of adapting its Business Model when an observation is recognized?

Similarly, the differences between the behavior of optimists, realists, and defenders were recognized. Future research could explore whether these three groups' approaches can be learned. Another interesting topic will be to understand if the different approaches influence the likeliness of successful BMI and their other effects on BM adaptation.

Specifically, a more straightforward definition of a business model innovation opportunity and a business model innovation threat would help the researchers. Also, clarifying the difference between the risks of a business model innovation opportunity and a business model innovation threat would be beneficial.

Lastly, this master's thesis is rather broad to clarify how cognition affects business model innovation due to its exploratory nature. Many topics discussed in this thesis could be researched in more detail to get more specific information on each topic. More descriptive and explanatory research is needed. For example, determining the attention focus and when it should be shifted could be researched more. The results here are listed instead; more depth could be researched into that and many other topics.

6.4 Limitations

As Patton (2015: 22) argues, the researcher's skills and limitations might affect the research's credibility. Thus, it needs to be understood that this is a master's thesis and is made with the skills of a master's thesis worker, which might bring some limitations in terms of methodological and analytical skills.

The collected data is limited to only interviews, which means no triangulation was used, which would increase "the construct validity and reliability of the case study evidence" (Yin, 2009: 114-118). Additionally, only one interview per company does not allow to contrast for internal discrepancies among interviewees in each case company.

Some of the limitations of this master's thesis lie in the definitions. Some definitions could have been thought of and defined in more detail. For example, what explicitly means a business model innovation threat or a business model innovation opportunity? Also, defining these for the interviewees would have helped. A few times during the interview, there was a feeling that the interviewee was discussing business in general and not specifically about the business model. Thus, some of the data was not addressing the question and had to be skipped. Another limitation is that the topic of the master's thesis is rather broad due to its exploratory nature, and thus the results lack depth and detail.

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Appendices

Appendix 1. Interview Questions

Questions in English.

Warm-up/descriptive questions:

1. Could you describe your role and responsibilities and how they are related to BMI?
2. Would you give me a quick overview of your company, especially regarding the latest BMI?

Attention:

3. How do you determine which things to focus your attention on to find BMI opportunities or threats?
 - a. Does it differ between an opportunity and a threat?
 - b. How do you define if the attention focus needs to be shifted to something else?
4. How do you ensure that your search processes and attention is considering all the relevant information available, e.g., not only your competitors in your industry?
 - a. Concrete example?
 - b. How can you also explore from other industries?
 - c. How are your search processes divided into automatic (intuition) and controlled processes (learned/trained/defined)?
5. How is the attention intensity defined on each attention target?
6. How to ensure that the attention is in a continuous state so that no relevant threats or opportunities are missed?
 - a. How could this be improved?

Perception:

7. How do you determine if a recognition is an opportunity or a threat and if the severity of the recognition calls to action?
 - a. Concrete example?
 - b. Solar panels as an example. How to define if it is an opportunity or a threat?
8. How do you ensure that the perception is based on the reality of the environment and not on biases, beliefs, or past experiences?
9. Does a BMI opportunity call to action as likely as a threat?
 - a. If there is an unbalance in likeliness, why is that, and how to overcome it?
 - b. Does the severity of a threat or an opportunity play a role in calling to action, and how?
10. How to see that the BMI opportunity or the threat will surpass the existing profitable Business Model in the future?

Questions in Finnish.

Lämmittelykysymykset:

1. Kertoisitko roolisi ja vastuusi ja miten ne liittyvät liiketoimintamallien innovointiin?
2. Kertoisitko lyhyen katsauksen yrityksestäsi ja mahdollisesti sen viimeisimmistä liiketoimintamalli-innovaatioista?

Huomio:

3. Kuinka määritätte, mihin asioihin kohdistatte huomionne löytääksenne liiketoimintamalli-innovaatiomahdollisuuksia ja -uhkia?

- a. Eroaako se mahdollisuuksien ja uhkien välillä?
- b. Kuinka määritätte, jos huomio täytyy siirtää johonkin muuhun?
4. Kuinka varmistatte, että etsintäprosessinne ja huomiointi ottaa huomioon kaiken relevantin saatavilla olevan informaation, esim. ei keskity vain toimialanne kilpailijoihin?
 - a. Konkreettinen esimerkki?
 - b. Kuinka voitte tutkia esim. muita toimialoja?
 - c. Kuinka etsintäprosessinne ovat jakautuneet automaattisiin (intuitio) ja kontrolloituihin prosesseihin (opittu, koulutettu, määritetty)?
5. Kuinka huomion intensiteetti määritetään kullekin huomion kohteelle?
6. Kuinka olette varmistaneet, että huomiointi on jatkuvasti valppaassa tilassa, ettei relevantteja uhkia tai mahdollisuuksia jää havaitsematta?
 - a. Miten sitä voisi parantaa?

Tulkinta:

7. Kuinka määrittelette, että havainto on mahdollisuus tai uhka ja jos sen vakavuus vaatii toimenpiteitä?
 - a. Konkreettinen esimerkki
 - b. Aurinkopaneelit esimerkkinä. Miten määrittää onko mahdollisuus vai uhka?
8. Kuinka varmistatte, että tulkinta perustuu todellisuuteen ympäristöstä, eikä vinoumiin, uskomuksiin tai menneisyyden kokemuksiin?
9. Johtaako liiketoimintamalli-innovaatiomahdollisuus yhtä todennäköisesti toimenpiteisiin, kuin uhka?
 - a. Jos näiden välillä on epäsuhta, mistä se johtuu ja kuinka välttää se?
 - b. Onko uhkan tai mahdollisuuden vakavuudella vaikutusta siihen, johtaako se toimenpiteisiin, ja millainen vaikutus sillä on?
10. Kuinka nähdä se, että liiketoimintamalli-innovaatiomahdollisuus tai -uhka ylittää olemassa olevan tuottavan liiketoimintamallin tulevaisuudessa?