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Towards a higher stage of innovation
diffusion: market learning in the life science
industry

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<p>As the networked, socially constructed nature of markets is widely accepted within academia, little emphasis has been on the methods for learning about the market. Through a qualitative single-case study with an internal corporate focus on data collection, this thesis seeks to contribute to the knowledge of methods for firms seeking to alter their market configurations in innovation scenarios.</p> <p>The problem area for this thesis is what happens from the market learning perspective as a company seeks to make an early adapter product into a market standard in the life science industry. Of interest is how market learning methods, or processes used for learning about markets under innovation scenarios, are utilized in a process of tackling an explicitly defined business problem regarding innovation diffusion when markets may still be partly undefined or unfamiliar. The study seeks to contribute to the knowledge on market learning in the industry, how market learning is linked to managers' understanding of the focal firm's market position, and finally, to give propositions on how current market activities could be developed to be more closely aligned with the principles of market learning.</p> <p>Based on prior academic research and the empirical results of this study, market learning in an innovation scenario can be depicted as an approach rather than a methodology: although methods for expanding on the focal company's knowledge on the business environment may be described through the methods in use, the fundamental core of market learning is about shifting the focus from the firm to the socially structured entity of a market, steer away from passive market adaptation as well as to move towards non-predictive strategizing and experimentation in the business network.</p>	
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1 Introduction

In a global economy under constant progression towards a higher state of development, marketing represents an ongoing attempt to keep the company's value creation factors aligned with the changing environment (McCole, 2004): this attempt to keep up with the changes has become one of the biggest challenges of international business. *Market learning*, or "processes and methods used for learning about markets" (Storbacka & Nenonen, 2015, 75-76) represents a firm's efforts towards a higher stage of understanding of their business environment. As the networked, socially constructed nature of markets is widely accepted within academia, little emphasis has been on the methods for learning about the market. Thus, this thesis seeks to contribute to the knowledge of methods for firms seeking to alter their market configurations through market learning.

A market chasm represents a gap between two separate adopter groups for an innovation, or, as in this case, a cognitive gap between early adopters and the majority of the life science industry. This challenge of achieving a higher state of diffusion for an innovation in a social system is presented in the theory of diffusion of innovations (Rogers, 1962), a theory which is regarded as established standard within innovation research and used as a framework in the broad variety of academic disciplines (Ismail, 2006).

What links this theory to recent marketing literature on markets, business networks and market learning is that in the theory of diffusion of innovations great emphasis is put on the context in which innovation scenarios take place. The context is the social system, which resonates with the abundance of findings in marketing research, where markets as networks consisting of economical actors also are essentially social systems (Storbacka & Nenonen, 2011). The chasm constitutes of two adopter groups for an innovation, the first being the early marketplace, dominated by innovators and early adopters that grasp the nature of the development, the value and the possibilities of the innovation. The latter is the main marketplace, dominated by the majority that wants the benefits of the innovations but do not wish to experience risks of adopting new technologies and latest product innovations (Moore, 2007). Being able to execute the transition between the early market and the main market as a firm, and to achieve a broad adoption of a new innovation, currently opposes a challenge for the case company, and this thesis approaches the issue via a theoretical

framework consisting of network approach, theory of diffusion of innovations and of market learning.

In Finland, one of the several business departments of the case company, a Finnish multinational in the life science space, develops and supplies wood-based biomedical products for a variety of uses. The products are derived from renewable wood sources originating from sustainably managed and certified forests. The focal product family is a nanofibrillar cellulose hydrogel for 3D life science area and biomedical applications: it is biocompatible with human cells and tissues, and free from any animal- or human-derived material but despite the product characteristics and functionality in 3D cell cultivation and the innovation's responsiveness to the global need for shifting towards renewable materials (Mülhaupt, 2012) The case company's product innovation is yet to reach its' full commercial potential, offering a sound opportunity to investigate market learning methods behind the firm's marketing activities in an innovation scenario.

1.1 Research problem

A research problem may be interpreted as an area of concern, a condition to be improved, a difficulty to be alleviated, or a troubling question that exists in scholarly literature, in theory or in practice, highlighting an evident need for meaningful understanding, investigation and discussion. Using this reasoning, the problem area for this thesis what happens from market learning perspective as a company seeks to make an early adaptor product into a market standard in the life science industry, in other words, to bridge the chasm between a disruptive innovation and an industry standard with a foothold on the main market. Of particular interest is how market learning methods, or "processes [...] used for learning about markets under innovation scenarios when markets may still be undefined or unfamiliar" (O'Connor, 1998, 33) are utilized in a process of tackling an explicitly defined business problem in the life science industry, the challenge being the process of making the nanofibrillar cellulose hydrogel the industry standard for 3D cell culture, both in academia and in the pharmaceutical industry R&D.

1.2 Purpose and research questions

The purpose of this thesis is, through a data triangulation method combining collected literacy and online sources as well as gathered interview data, to expand knowledge on the topic of market learning. A normative sub-aim for the thesis is to evaluate the current methods for market learning in the case company, and, based on the findings, to give development propositions. These insights could thereafter be taken out of the industry-specific context and applied to management of firms that market products or services that possess market-disrupting characteristics. The goal, as linked to the research questions of this study, is to identify methods-in-use for learning about the biomedical market, study the link between learning outcomes and action, and to accumulate development propositions based on the findings.

Studies conducted on business networks, market shaping and market making can essentially be seen as the foundation for the train of thought presented in this thesis. The studies have, for example, generated insights on how higher-level learning can be utilized in market innovation processes. Also, a key contribution of the studies to the understanding of market learning is the development of a market learning cycle framework (Storbacka & Nenonen, 2015) that delineates the market-learning process into distinct phases: the framework structures the field in which focal actors with market driving strategies operate, as they proactively engage other market actors during the different phases of the market-learning cycle.

All this is based on the network approach, where markets are seen as socially constructed entities that the actors within the network can affect through their interactions. Storbacka and Nenonen (2015), clearly embracing this view on markets, underline that markets, given the socially constructed nature of business networks, are constantly in the phase of becoming, and can thus hardly ever be perfectly understood. Accepting this is to accept that there is always something to learn about the environment that the focal firm acts in, and that market learning constitutes a fundamental process before market-altering strategies can be executed. In this thesis, the aim is to develop understanding on how this may be done in the life science industry at a firm marketing an innovative product.

Recognizing markets as socially constructed networks is what connects the literature on business networks and market learning to theory of diffusion of innovations, which underlines the role of interaction within a social system in the process by which the value of an innovations is communicated over time (Rogers, 1962). Roger’s notion was later re-phrased and applied by Moore (1991) in his works on marketing of innovative, high-tech products to mainstream customers, the core for Moore’s work being the aforementioned theory of diffusion of innovation. He operates on the same elements which influence the spread and acceptance of technological solution: the innovation, communication, time, and the social system. The themes that Moore had been focusing on as strategist and management consultant provided an idea frame which is in this thesis to be set side by side with concepts and approaches derived from academic research. Moore introduces “the market chasm” between early adopters and the early majority: Rogers explains the chasm as “uncertainty about an innovation’s expected consequences in the majority, caused by the lack of innovation-evaluation information” (Rogers, 1962, 170), often derived from peers. For a firm with an early-adopter innovation, the ability to alter and effect the market configuration, which essentially consists of relationships through which information is shared, is essentially a matter of understanding the environment well enough to reach the right actors and to successfully communicate the value of the innovation. This thesis will thus concentrate on the methods for market learning in the company seeking to drive an innovation towards a higher stage of diffusion, which in business context translates into commercial success for a product.

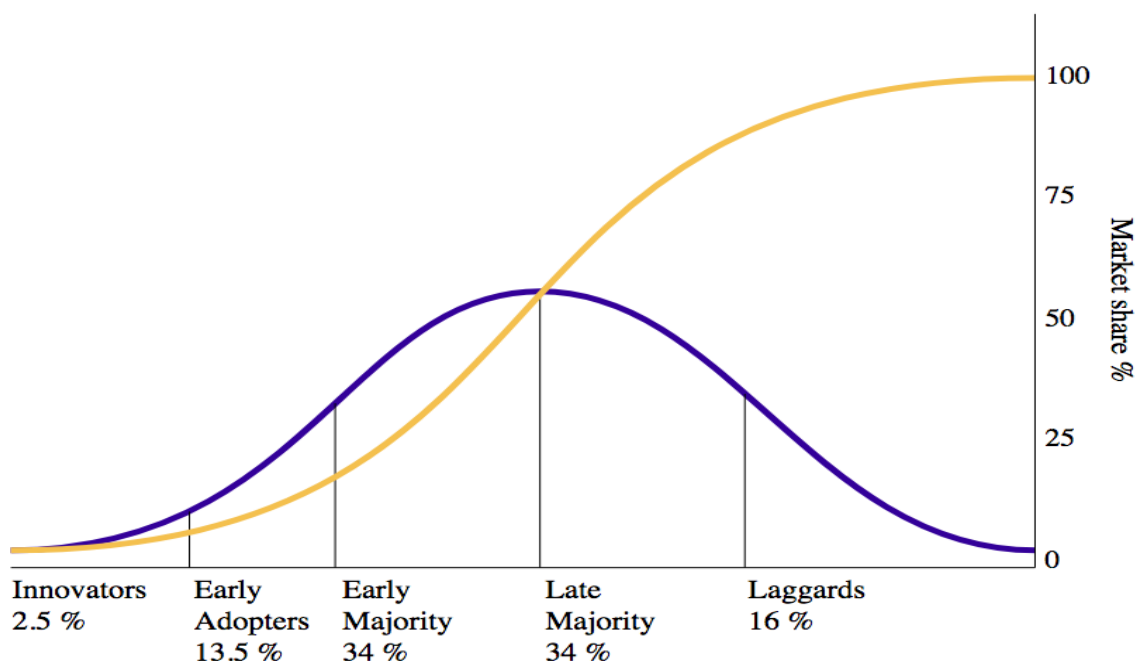


Figure 1: The theory of diffusion of innovations (Rogers, 1962).

According to Rogers' theory, the diffusion of an innovation relies heavily on individuals' stock of knowledge, habits and personal attributes embodied in their ability to create value through different solutions available to perform tasks or solve problems. Moore (1991) takes this theory to marketing context, utilizing the same adopter categories as Rogers: innovators, early adopters, early majority, late majority and laggards. With the adopter groups adopting the new technology, its market share will eventually reach its saturation point.

As the focal theme for the thesis is market learning, the proposed research questions, the fundamental core of qualitative research, are as follows:

- 1. What kind of market learning methods can be identified?*
- 2. Which methods, if any, are used in the case company?*
- 3. How are the identified methods and their use linked to managers' understanding of the company's market position?*
- 4. How could the company's current marketing activities be developed to be more closely aligned with principles of market learning?*

Knowledge and learning can be said to lie in the epicenter of this study. Knowledge about the nature of the business network, of the other business networks and how to create value within the network. Knowledge demands learning, and knowledge about markets requires market learning. If a business actor claims to possess knowledge about the market, learning must have happened. Just what the processes and methods behind market learning are, whether these are conscious efforts or not, and what kind of role market learning has in marketing of innovation are some of the questions that has driven this study to its' advent.

1.3 Delimitations

This thesis represents a qualitative single-case study with the internal corporate focus on data collection. With the background portrayed through the research problem, it is evident that there are multiple ways through which to approach the problem area and the case company's aim to achieve a broader adoption of their product. The focus in this study is based on a present-day-perspective of the company, and very little historical or longitudinal studies of the company or the life science industry are examined. The empirical study is based on in-depth interviews with selected managers, scientists and the director of the case company to get an understanding of how the company makes sense of their business environment and how they are currently addressing challenges regarding product adoption.

An implication of the limitations of case study is in its' focus on the subject company, or rather, autonomous business unit alone. The scope is not extended to other firms that operate in the same network of business actors or end-users, and results may not be generalized to other firms or industries.

A limitation stemming from the chosen research method regards is, as generally prominent in qualitative single-case-studies, is the issue of external validity and generalizability, as usually more observations do better as a basis for generalization as just one. Regardless of this otherwise apt criticism towards the implication, this weakness is mitigated by the fact that the aim is on the side of particularization around the focal theme in specific and well-defined business context of the innovation scenario in the life science industry.

1.4 Thesis structure

The structure of this thesis, illustrated through Figure 2 after the introduction, follows a linearly constructed theoretical framework which depicts the evolution of marketing discourse from markets as entities of exchange (as per neoclassical economics) to markets as complex networks which can be actively engaged with and altered through interaction, as opposed to passively adapting to them.

As for the structure and order of the theoretical sub-parts of this study, the introduction portrays the problem area to which the thesis aims to contribute through reviewing relevant literature and delivering insights. The second chapter discusses and depicts the shift in how markets are understood in the literature. The following chapter, assuming the approach explained in chapter two, gives propositions on how to make sense of the complex environment of networks, and how firms can influence the becoming of markets through market learning. The fourth chapter discusses innovations, disruptiveness of innovations and incorporates the theory of diffusion of innovations to the network approach to markets. After that, an overview based on information gathered from publicly available sources on influential players in wood-based biomedical is provided.

INTRODUCTION: Why focus on market learning methods?

MARKETS: A SHIFT IN THE PARADIGM. How have the notion of markets as socially constructed entities changed the way markets are understood within academia and practitioners?

MARKET LEARNING: Definitions, importance and established tools for making sense of the market

DIFFUSION OF INNOVATIONS: How innovations are adopted within a social system over time

RESEARCH METHOD: Data triangulation in qualitative research, case study design

ANALYSIS & FINDINGS: How does a biomedical company learn about the market?

CONCLUSIONS & IMPLICATIONS: What kind of methods can be identified; how do these methods contribute in innovations diffusion and how could market learning be developed?

Figure 2: Thesis structure

2 The concept of markets: a shift in the paradigm

“It is a peculiar fact that the literature on economics contain so little discussion of the central institution that underlines neoclassical economics – the market.”

(Douglas Cecil North, laureate of the Nobel Prize in Economics, 1993)

2.1 Background: markets as entities of exchange

In neoclassical economics, to which Douglas refers to in his 1977 article on markets and other allocations systems, are seen as structures that enable buyers and sellers to exchange goods, services and information (Begg et al, 2008). Actors on the market consist of buyers and sellers who influence the prices. On a free market, the good or service is produced to and acquired by the buyer willing to pay more or as much as it costs for the seller to produce the desired quantity of the good. Demand determines which products and services are available on the market on long run, and alterations in demand and supply are mirrored in the market price that seeks itself into equilibrium where these two forces meet and determine the market price and quantity. Markets as entities for exchange are traditionally been described as “places” where supply and demand meet, albeit evolved due technological development into concerning virtual exchange environments.

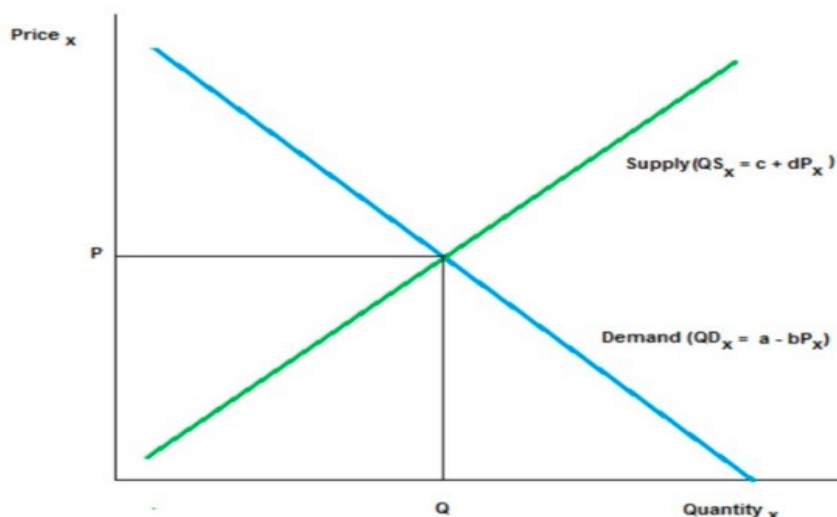


Figure 3: Classical Economics Supply and Demand Model of Markets

In neoclassical economics, the actions of individual firms constitute the aggregate supply (or to stay on micro level, just “Supply”) symbolized with Q_Sx in the graph of Figure 3, and they do not influence the demand (Q_Dx). Demand is thus an externally given factor that the firm has to adjust to in order function effectively and profitably.

Economic activity on the market has been described through different market structures defined by the forms of competition, making it either a market of imperfect or perfect competition (Begg et al, 2008, Pugel, 2012). Regardless of the market form, markets have traditionally been examined through contest or rivalry between two or more market actors, which by definition is the complete opposite from co-operational action represented in network approach to markets, marketing, and strategic value-creating activities. In marketing discourse, after the paradigm-shift, markets are not seen as given nor external to the focal firm. Markets are seen as socially constructed systems that the firms can influence through interactions (Storbacka & Nenonen, 2018).

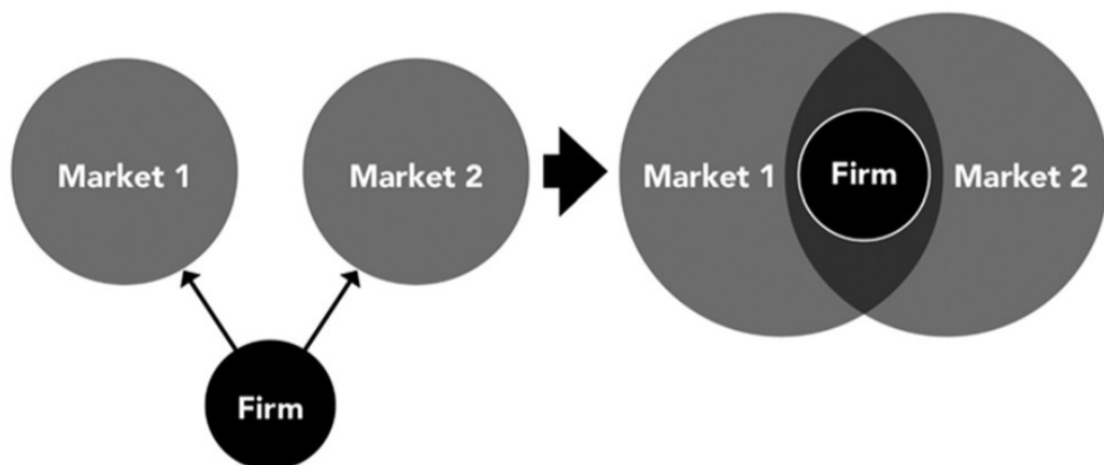


Figure 4: Markets after the paradigm shift: markets are no more seen as given and external entities of exchange. Demand is not just externally given by the markets (left), but markets are rather seen as systems that the focal firm can influence (right). (Storbacka & Nenonen, 2018, p. 28)

2.2 Network approach: from a rivalry juxtaposition to business networks

Business networks can be explained, as what is also the incident angle for Håkansson and Ford (2002) in their scrutinization of how companies should interact in business networks, as nodes connected to each other with special threads, forming a network. The nodes of the network consist of business units such as, for instance, manufacturers and service companies, and the relationships between these companies form the threads of the network. The threads that bind the companies together in the network are being built as a result of investing by both counterparts, the greater the investments both ways, the more substantial is the content and the bind between the actors, the actors in this context consisting of individuals, departments, firms and organizations.

Traditionally, and as derived from the classic Five-Forces-model (Porter, 1980), strategic action on markets strives for winning: gaining independence and power over buyers and suppliers – and other actors that are seen as threats to the company. Victory, by definition a successful result in a contest, conflict, bet, or other endeavor, means that there have to be other actors that loose. This view sees competition as the center for the company's strategic action in conflicting in rival relationships, defining strategic action as something focusing on competitive interaction with others, and how to compete successfully, victoriously.

When thinking in terms of business networks, however, the competitive aspect to strategic action on the market becomes less important, giving more importance to characteristics such as interdependence and co-evolution with the other network actors. It is also advocated in more recent theories and interpretations that the core of strategy is the “ability to build and maintain relationships with other actors” - managing its' relationships is seen as the company's core task, and this way of thinking affects the views and decision-making of individual network actors (Gadde et al. 2003). It is also argued within the industrial network approach that in relationships characterized by collaborations and mutual dependence, the scope of strategy shifts from that of pursuing victory over others to somehow making it together with customers and suppliers, distributors and development partners.

Business networks can be illustrated in three dimensions (Håkansson & Snehota, 1992): the Company, the Relationship and the Network. Anything a firm does (activities) has consequences to the network through its' relationships. The network structure and activity

patterns form a constellation from the collective bonds and resource allocations of the individuals and organizations of the network.

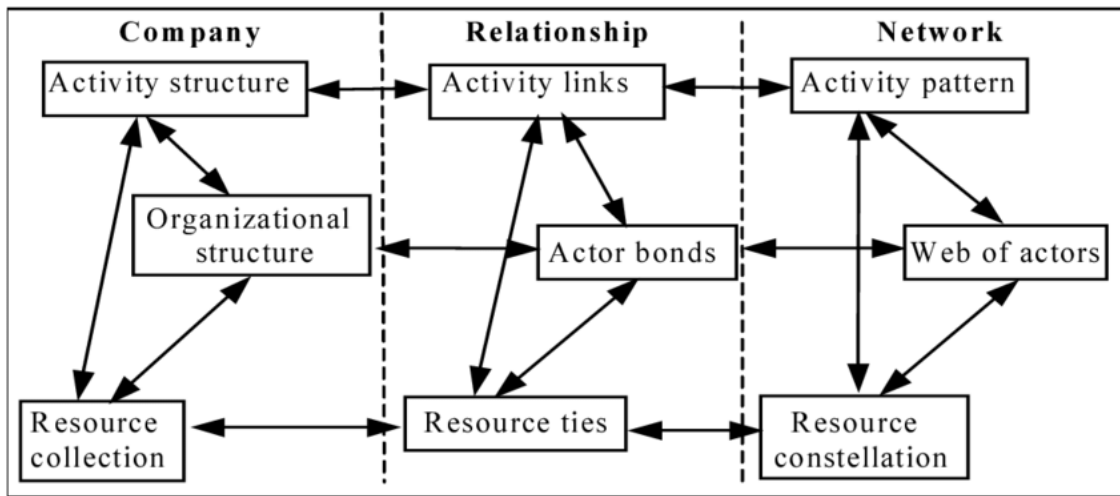


Figure 5: Business environment seen as a network of actors, consisting of organizational and interpersonal relationships (Håkansson & Snehota, 1992, p. 56)

In modern marketing discourse, the neoclassical view on markets has been drastically refined. According to Storbacka & Nenonen (2011), markets consist of networks of actors that jointly create value through integrating their own resources with other actors in the network. Markets are thus seen as socially structured entities co-created by the market actors through their actions. Storbacka and Nenonen also concur to the argument that firms as market actors are not passive victims of their environment, but actively try to alter the conditions they engage in, in manner that will benefit their position. The socially constructed entities are in fact seen as configurations of value-creating elements in a network, where the market configurations comprise of complementary and competing actors that form business ecosystems that are assumed to organize themselves into an equilibrium.

2.3 Market learning: background and definition

Only by getting the nature of markets as complex adaptive systems can companies interpret and respond to their environment, and only by learning to operate and co-operate in this complexity can firms take part in proactively adapting that environment to themselves instead of reactively adapting to the environment (Storbacka & Nenonen, 2018). Market learning lays therefore the foundation for strategic network interaction and for processes

with the aim to actually affect the prevailing configuration of the business network. Understanding the complex, networked aspect of markets can thus be seen as an impulse and driver towards market learning, and through deliberate processes to attain and develop market learning processes the focal network actor can enhance its' understanding of the environment.

The importance of staying at the top of one's game, as far as market understanding and market views go, has been demonstrated, for instance through the case of the demise of Nokia mobile phones: they failed to revise their strategy in time to be able to succeed in the becoming mobile ecosystems market, even though it is stressed that ever until the decline everything was done by the book, albeit and outdated one at that. Could it be through market learning that this strategy book should be revised, as brought forth by Storbacka and Nenonen (2018). Intuitively, it offers a sound area of observance and exploration for mature companies that seek or are currently undertaking ventures into the domain of early-adaptor stage innovations.

By rejecting the outdated assumptions, assertions and approximations about markets that imply that they are externally given and in nature either simple or utterly incomprehensible, firms may manage to successfully shape the market with their ventures. Some of the presumptions that successful market-shapers have abandoned are the view of market dynamics as deterministic, and to see industries as the markets (Storbacka & Nenonen, 2018. 14 – 17). It is further argued that these presumptions have prevailed and functioned as building blocks for strategy partly because of self-reinforcing definitions derived from market and industry data, partly because there has not been a well-articulated alternative.

Today, globalization, digitalization as well global environmental concerns, call for renewed strategies and views on how to act in business networks. Storbacka and Nenonen promote market shaping as the go-to strategy to embrace the complexity of today's networked markets, but it is self-evident that in order to articulate and commit to a strategy, not to mention when revising a strategy of a more mature publicly traded industry giant, a lot of learning is needed to fully understand and put into practice a new approach to markets. To establish a self-reinforcing cycle around market understanding for keeping the company's market outlooks updated for strategy scrutiny, it can be argued that a systematic approach to

identifying, developing and executing market learning activities (Market Learning Methods) could be in place.

Market learning methods, or processes and methods used for learning about markets (Storbacka & Nenonen, 2013) under innovation scenarios when markets may still be undefined or unfamiliar” has been an object for prior research, and the interim results of studies of discontinuous or disruptive innovations imply that market learning processes of disruptive innovations are drastically different from those of conventional new product development processes. It is also important to recognize the variety of mechanisms used to learn about the markets, and to figure out how to cultivate it within the firm. (O’Connor, 1998)

Market learning can generally be divided in two categories: *explorative* and *exploitative* learning. In this division, explorative learning encompasses the company’s search, variation, risk taking, experimentation, play, flexibility, discovery and innovation aspects of learning activities. Exploitative learning, on the other hand, refers to the refinement, choice, production, efficiency, implementation and execution aspects of learning. Simplified, and following the work within market learning studies (Kim & Atuahene-Gima, 2010; Kyriakopoulos & Moorman, 2004; Zhang et al., 2015), explorative market learning may be defined as pursuit of new knowledge about a new or existing market. Following this train of thought, exploitative market learning may be defined as use and refinement of knowledge and skills in the current market. (Yao & Li, 2017) In addition, explorative market learning focuses on challenging existing internal routines and approaches, helping the company to increase knowledge in relation to their customer and product domains. (Mueller et al. 2013)

2.4 Higher-level learning

Within marketing literature, market learning is also defined as “reciprocal processes of higher-level learning involving several market actors, where the learning outcomes are changes in market-level properties, such as market network structures, market practices, and market agendas.” (Storbacka & Nenonen, 2013, p. 76) This definition, emphasizing the inter-organizational aspect of market learning, incorporates the idea of market agenda: this can be translated as a shared mental model of the market and its’ purpose, a collective representation of the network, also seen as a key outcome of market learning activities for the focal firm.

Higher-level learning is also defined as learning that happens “beyond adaptation” (Cope, 2013, p.434). It requires and provokes new frames of reference and implies questioning of market assumptions, such as the boundaries of the market as well as the object of exchange. Higher level learning differs from tradition of market orientation in the sense that the latter focuses on attaining information from a given and unquestioned market, whereas in higher level learning the market is seen as a socially created entity that is constantly *becoming*, as put forth by Storbacka & Nenonen (2015) and as depicted in the network approach. Thus, the shift from adaptive market orientation to higher-level market learning is a very much justified process for a market actor currently in the process convincing the main market of the benefits of a disruptive innovation, especially when the market boundaries may still be partly undefined or unknown to the focal network actor.

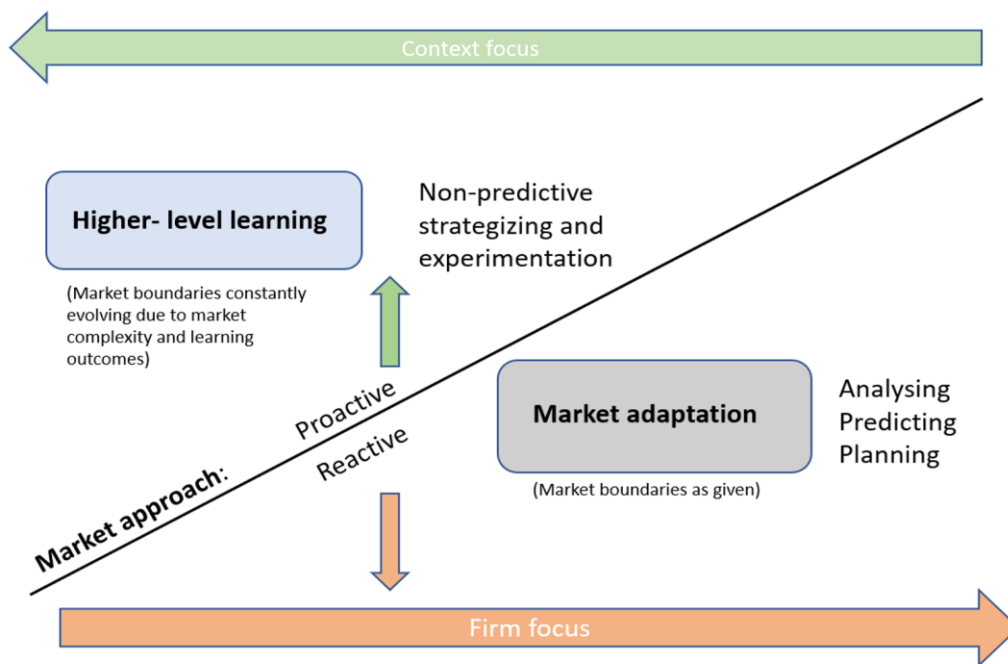


Figure 6: Higher-level learning presented as an antipode to the tradition of market adaptation (after Cope (2013) and Storbacka & Nenonen (2015)).

Higher level-learning can be seen as an antipode to the tradition of market adaptation, where the complexity of the markets is not embedded in the strategy of the focal firm. The approach is reactive, rather than proactive, both in the ways the firm seeks to operate on the market,

and in the way the firm seeks to reach new understanding of the business environment. In this reactive approach, the boundaries of the market are seen as given, static, and as something the focal firm has to adapt to, without being able to change the existing configuration. Strategizing is done through analyzing the given market and making predictions and plans. As a strategy, higher-level learning recognizes the market boundaries as constantly evolving, as the complexity of the socially constructed entity is understood and accepted. The boundaries are changing due to actions taken by other actors, as well as the market learning outcomes achieved through non-predictive strategizing and experimentation. The focus is in the context in which business is happening: the intertwined web of actors, the business network and the social system.

2.5 Requirements for market learning

Firms wanting to influence the becoming of markets are likely to focus on learning *with* the market: this approach acknowledges the need to shift the focus beyond individual and organizational level to an inter-organizational level, towards other network actors. It implies a shift from adaptive market learning to higher level learning, which challenges the network actors existing constraints and requires the actor to develop new practices and views of the environment. It has been argued that in order for a firm to engage in higher level inter-organizational learning, it has to proactively un-learn some of its' key organizational competencies, as well as to question the firms' assumptions about itself and its environment. (Storbacka & Nenonen, 2015)

Studies on business success and failure repeatedly highlight the effect of shortcomings in strategies due to outdated views and insufficient understanding of the market (Storbacka & Nenonen, 2018). Not understanding the nature of markets account for business failures in the more conventional realms, whilst the opposite – the embracement of the network approach and the ongoing attempt to gain better understanding through learning about and with the market – is one of the main contributors of the success of the born market shapers. Adapting to the new, intuitively more humble approach to markets and market understanding - the approach of taking the path of market learning – sparks some fundamental changes in strategic thinking.

THREE FUNDAMENTS FOR MARKET LEARNING:

- 1) Paradigm shift from competing and winning to value creation and cooperation (adapting to *network approach*)
- 2) From firm-focus to context focus, where the relevant context is the definition of markets (adapting to *higher-level learning*)
- 3) From analysis, prediction and planning to non-predictive strategizing and experimentation (*explorative approach* to markets and learning)

Figure 7: Three fundamentals for Market Learning (Storbacka & Nenonen, 2018).

Considerable amounts of paragraphs could be written about changes initiated by a firms' acknowledged efforts to strive towards market learning in its' network undertakings, but the figure above seeks to summarize some of the findings on how changes in strategic thinking affect the company. In the figure, a supplementary explanation of the "market learning fundamentals" is provided inside the brackets, to better connect these findings into the literature presented earlier. For instance, the paradigm shift is connected to adapting to network approach (discussed in Chapter 2, together with some of the research findings from within the IMP school of research), and similarly, the focus shift is connected to higher level learning, an idea presented in the earlier sub-chapter. Finally, a shift from analysis, prediction and planning to non-predictive strategizing and experimentation is simply dubbed as adapting to an explorative approach to markets and learning.

It may be justly argued, as per the in the linearly presented theoretical framework of this thesis, that adopting to the network approach to markets, marketing and strategic thinking constitutes a cornerstone for market learning: as someone not concurring to the networked, socially constructed and constantly evolving nature of markets would essentially regard the market as something opposite, or at the very least, as something different from the established conceptualizations (Håkansson & Ford, 2002, Gadde et. Al, 2003, Begg et. Al,

2008) of the network approach. Disregarding the network approach is to regard market as something not worth influencing and as something not worth influencing through strategy, and disregarding market learning methods is to regard markets as something not worth deliberately learning about.

Regarding the context-relatedness (or context focus of firms engaging in market learning), Storbacka and Nenonen highlight some of the keys in adapting market learning to strategizing. These include unlearning the practice reduction of markets to industries (the industry view of markets), as well as to steer away from the strategy discourse that circulates around product markets (the product market view) which the authors regard as the commonest misconceptions of markets.

This context shift may be seen as an example on the “new frames of references” needed from companies engaging in higher level learning as brought forth by Cope (2013, 434). It requires, as discussed in the earlier chapters, new frames of reference and implies questioning of market assumptions, such as the boundaries of the market as well as the object of exchange: thus, shifting the focus from the focal company to the relevant definition of the market/network constitutes one important fundament of what is needed to achieve market learning, and furthermore, to develop market learning processes to achieve better understanding of the prevailing market configuration.

The reasoning behind the need for neglecting the industry view of markets is that it offers an incomplete conceptualization of markets: the view may tell the focal firm something about “production and competition” (as in the aged, neoclassical take on markets discussed Chapter 2), but offers no insight about the customers or wider product/service ecosystems. The industry view, being deterministic in its’ take on markets, also leaves little room to influence the focal firm’s success or failure, as the industry (being the market) lies outside of the firm’s sphere of influence.

The product view of markets is regarded as a better alternative of the two misconceptions (Storbacka & Nenonen, 2018), as it acknowledges the supply side before focusing on the demand. Despite being less one-eyed in its’ take on the market, the product view still reduces and over-simplifies the market into a mere price-setting mechanism for a firm’s offering. It abstracts from the complexity of the network approach, depicting it as a two-dimensional

supply-demand graph with buyers, sellers, product and price, holding on to a *ceteris-paribus*- assumption not considering the outside factors routine. Actors already embracing the network approach and incorporating the market learning fundamentals would beg to defer on this view.

2.6 Network pictures and market representations

Within the network approach, the firm's ability to make strategic decision and act according to its' own advantage is perceived limited by its' network (Håkansson & Ford, 2002), due to the uncertainty of the possible effects of the actions to the relationships. Håkansson and Ford instantiate that companies are not always free to do as they want and according to their own aims and must therefore carefully scrutinize the affect their actions have in their network. A change in one actor means change in other end of the relationship, and an actor seeking change is dependent on the approval and action of others to achieve that change. A way to monitor the decision-making processes of a company is to scrutinize the decisions made in relation to the managers network pictures. Network pictures are defined (Geiger & Finch, 2010, Abrahamsen et al, 2016) as managers' theories-in-use about their business network, i.e. how they make sense of their network of connected relationships, how they perceive strategizing options and how they evaluate these collectively. Network pictures can be perceived as "interplay with cognition and action" (Abrahamsen et al, 2016) where the managerial perceptions and understandings of the surrounding business environment are intertwined with what they do, based on this understanding.

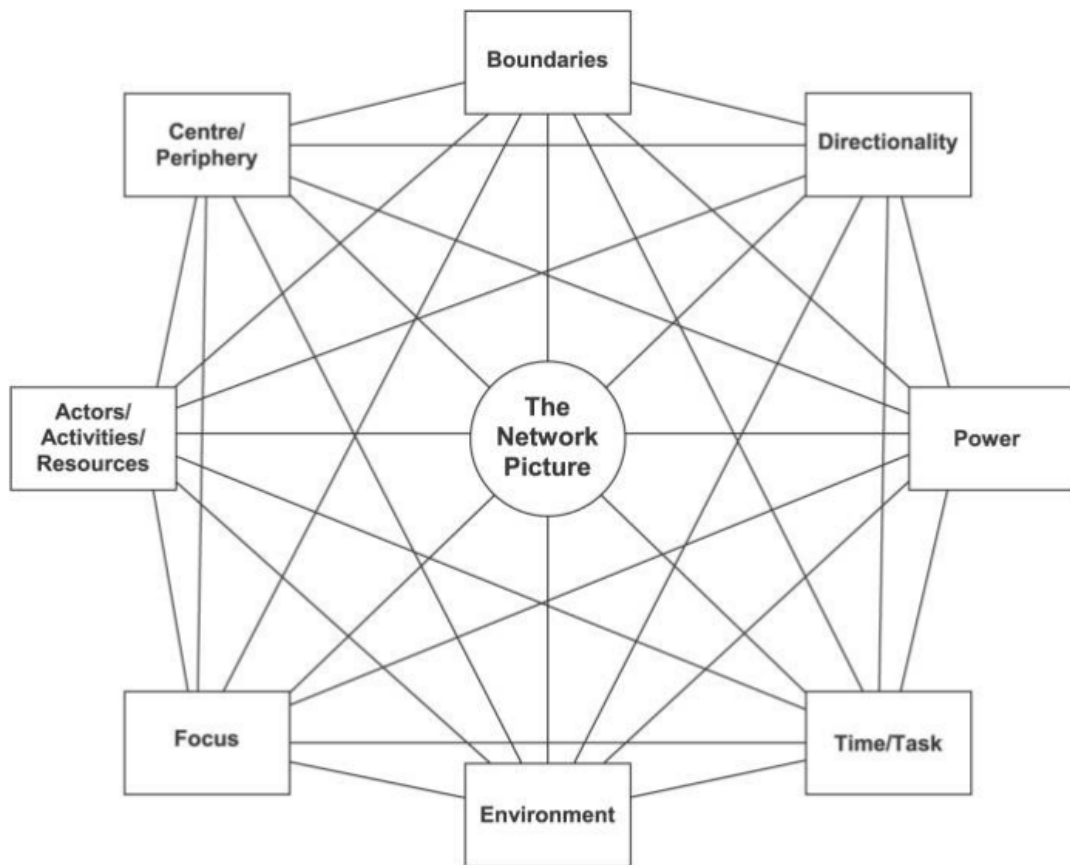


Figure 8: Network pictures as a sense-making tool for operating in the networked business environment. (Henneberg et Al. 2006, p.416)

The implementation of Network Pictures to managerial practice was researched in a longitudinal case study of a large Norwegian food industry corporation. The study (Abrahamsen et al, 2016), supporting the view on network picturing as a useful managerial tool for planning strategizing action, approached the theme with a focus on if the managers consider the network pictures as useful to make sense of their business environment, how they express and utilize these pictures, and how the network pictures translate into managerial analyses, networking options and actions.

It was further indicated that that network picturing is an evolving process including re-evaluation and collective learning, through which managers gain understanding and available options: (Abrahamsen et al, 2016) this connects network pictures as useful tools to implement in companies marketing disruptive innovations and to transform subjective knowledge about the market and the current phase of innovation diffusion to motivate

strategic actions, as well as to evaluate the likely outcomes of them. Again, the learning aspect of strategic interaction is highlighted.

The study shows the usefulness of network picturing as a managerial practice: through applied action research methodology, it is demonstrated that strategizing involves questions about how to interact in business networks through interconnected relationships and how to interact with and mobilize other business actors in the network. A main contribution of the study was to show how managers relate their perceptions about their business network to their decision-making and strategizing activities and establish network picturing as a basic component in business strategy. Concerns can, however, be raised about the supposed determinism about the research design, as all of the concepts were, the ones that later were reported on as part of the study, deliberately given to the managers in the interventions. This gives substance for further research on network pictures as a managerial practice in business networks. Network pictures as tools for strategizing and contemplating opportunities and possibilities for strategic action can be a useful managerial tool for transforming subjective knowledge about the business network into concrete managerial options and insights about likely outcomes of actions.

The contribution of the studies on the usefulness of network pictures underline the effect which the network approach has had to managerial sensemaking of business network. As a tool to make sense of the business environment, plan strategic action in relation to other network actors, gain understanding of innovation diffusion processes and market boundaries (just to mention a few of the possible applications) advocate for the (a) the network approach and (b) making sense (learning) of the market/network. How this learning (something that intuitively has to happen before a network picture can be created and used) remains relatively uncertain in these studies.

Another prevalent concept within the network approach and market learning literature, which resonates with the previously discussed conceptualization, is *market representations* or “translations detailing what a market is and how it works, whether situated in reality or in a future imaginary form” (Ruiz, 2013, p. 247). According to Storbacka & Nenonen (2015), firms applying market driving strategies, or strategies that alter the configurations or behavior of other network actors, need to start from their own subjective representation of which markets to drive, i.e. the market representations of the focal network actor. Detailing

what a market is and how it works, incorporates many of the elements of network picturing. According to Storbacka and Nenonen's take on market learning, markets evolve as network actors introduce new or modified business model elements that affect the market practices that the actors engage in. This results in markets taking multiple and co-existing forms as these subjective definitions of markets are developed and communicated in an attempt to make the representations shared definitions with other relevant network actors. When applied within the wider network approach to marketing, market representations can be seen as affined, collective versions of network pictures discussed earlier in this sub-chapter, and to function as a basis of market learning: network pictures act as a reference point the way in which actors interact with each other, as well as the cumulative results of these actions (Henneberg et al, 2006, p.411). Given the constantly evolving nature of markets as socially constructed networks of actors, the network pictures should intuitively be updated accordingly for them to function as apt representations of the network. As network pictures affect the actors' cumulative results of their actions, their understanding on their options and what they wish to do (Heneberg et al, p.411), the link between the network pictures, market representations and market learning in order to affect what is happening on the market seem rational.

A business network provides the context for business-to-business interactions (Henneberg et al, 2006, p.411). The network context is a set of pre-existing relationships of business actors, who are not passive receivers of contextual information: they affect the way in which this information appears, and how it its acted upon by making business deals. A collective representation of the market, not only of the intertwined businesses in the network, cannot exclude the subjective rationale behind network pictures which, in turn, cannot be constructed without knowledge or attempts to gain knowledge about the business environment.

As to the differences and similarities of "networks" and "markets", which can and are used as partial synonyms, they are both socially constructed (Håkansson & Snehota, 1992, Håkanssån & Ford, 2002, Henneberg et al, 2006). After all, both the demand and the supply side of, individuals and organizations, are connected by interactions with the focal firm. In this study, these are both looked at form the supply side, although considering that equally, if not more important, is the "demand side" which may be represented by co-operative partner in a business network. Value is created through the exchange of resources within the

network, and “supplied” to the market in form of an offering. It can be argued that a market “is” and “becomes” because of the interactions based on the actor’s perceptions of likely outcomes and options (network pictures) and constitute collective market representations, both of which represent an outcome of learning.

3 Diffusion of innovations

3.1 Defining innovation

The ability to identify new needs and problems, to develop solutions to alleviate detected challenges, as well as to analyze the information yielding the latest of theories and validating the latest ideas is a part of human creativity and plays a profound role in the history of innovations. (Rahman et al, 2017) Innovation can be, within the context of business and economics, viewed as application of better solutions that meet new requirements, currently unarticulated or existing market needs. It has been argued that a fourth industrial revolution revolving around numerous new technologies will disrupt various industry sectors globally (Schwab, 2016). Not only on the supply side, but major changes in demand are also occurring, as growing transparency, consumer engagement and new patterns of consumer behavior are making companies act in accordance with the constantly evolving environment, as well as to challenge the assumptions of their operations and strive for constant innovation, applying pressure for growth-seeking firms to develop new technological solutions. This chapter explains, with the help of innovation diffusion theory, the process of adopting innovations.

3.2 Sustaining and disruptive innovations

There is a strategic difference between two kinds of innovations, that Christensen (2013) divides in two categories: *sustaining* and *disruptive* innovations.

Technologies that cherish improved product features and/or performance are according to Christensen's division the sustaining side of the spectrum. They can be either discontinuous or radical in nature and improve the performance of already existing products or technologies in the dimensions that buyers in major markets have previously valued. Rahman et al. (2017) summarize the division between sustaining and disruptive innovations as follows: innovation that sustains an existing product, market and value network are regarded as sustaining innovations. An innovation that prompts a disruption towards established products, markets or value networks and subsequently replaces previous technology, is regarded as disruptive innovation. It is further argued by Gobble (2016), (refining Christensen's idea that the "how" and "to whom" in the value creation logic is the

disruption) that it is rather the business model, not the product or technology itself, or even that the disruption is the business model, particularly when the disruption comes from the low end of the market and the technology in itself is not new. Disruptive innovations bring with them new value propositions as opposed to the one that existed before. Technologies may, as also put forth by Christensen, at first underperform some the existing technologies at least in near-term, but offer new features that a few, generally new customers value. It drives the making of new market and business niches and yields a new concept of product values (Corsi, Di Minin, 2013). Because a product offers a level of new functionalities to the customer, it can be regarded as a disruptive innovation (O'Connor, 1998).

3.3 Diffusion of innovations

Diffusion of innovations is a theory that seeks to explain at which rate new ideas and technologies spread. Rogers (2013) argues that diffusion is the process by which a new idea is communicated among participants of a social system over time.

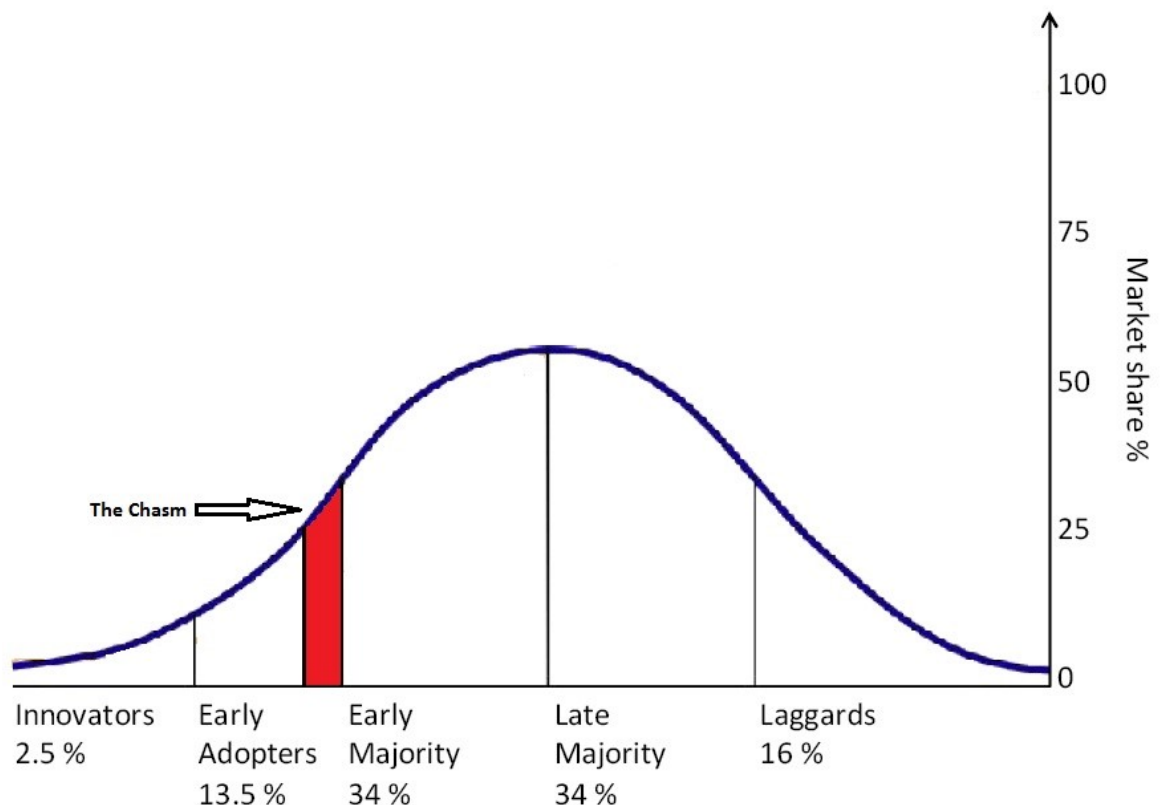


Figure 9: The “Market Chasm” presented in the context of innovation diffusion theory. Modified from Rogers (2013, p. 11)

Diffusion is seen as “a linear, unidirectional communication activity”, where “an active source constructs messages in order to influence the attitudes and/or behaviors of others, where cause resides in the source, and the effect in the receiver” (Rogers, 1983, p.5). It is considered as a one-to-many communication activity, much like some of the findings in the field of persuasion research, but it remains uncertain to the author what Rogers means in the preface of the third edition of his book (Rogers, 1983) by stating that this view is inconsistent with the view that persuasion is something one person does *to* another but something one does *with* another.

An innovation presents an individual or an organization with new alternatives with new ways to solve problems or serve needs, but whether or not this innovation actually manages to excel the previous products or practices is uncertain to individual problem solvers and are therefore motivated to seek information about it in order to decide on whether to start implementing the innovation or not. This information is often attained from near-peers in the form of subjective evaluations of the innovation. Rogers acknowledges a difference between individuals and organizations when it comes to innovation diffusion, as decision making processes before embracing innovations differ substantially from that of individuals. (Rogers, 2013)

Roger’s revised innovation diffusion model (2013) recognizes five established innovation adopter categories: innovators, early adopters, early majority, late majority and laggards.

Innovators are the first ones willing to try the new innovation. They are generally interested new ideas, are willing to take the risk associated with new technologies, for instance, that they are not perhaps fully refined in their functionality, that there are no peer reviews available, or that it is, for the time being, partially unclear to what kind of benefits there are to be attained from using the product or service. Innovators, or technology enthusiasts, appreciate technological innovations for the fact that they are new and perhaps never used by their peers, and are willing to try it perhaps only to see how and if it works.

Early adopters are the group of adopters that essentially function as opinion leaders. This group may embrace change opportunities that are to be attained by adopting new technological solutions. The group is aware of the need for change and are comfortable with

adopting new innovations. This group is also referred to as *visionaries* (Moore, 2007). They understand that new technology bears with it an opportunity to strategic opportunities, and are driven by the need to develop, renew and stay ahead, and are perhaps willing to pay the price for attaining benefits from shifting to new technologies before others.

Early majority needs to see some concrete evidence of the benefits of adopting new technology. They adopt new technologies before the average person but require peer reviews and proof-of-concept to make the shift to new technology. This group can be characterized as pragmatic in nature and is argued to represent a major share of the technology market volume (Moore, 2007).

Late majority also somewhat skeptical towards change and new innovations. This groups makes the change to new technological solutions after it has been verified by the majority. They are thus conservative in nature, roughly representing one third of the clientele of the life cycle of a technology. It is argued that this group generally object disruptive innovations and prefer to hold on to current solutions.

Laggards are extremely conservative in nature, restricted by traditions when it comes to solving problems that are usually solved in a particular way, using particular solutions. This is group are skeptical of change and the last group to adopt an innovation. Laggard are argued to defy new technologies and to be vocal about possible restrictions in new technological solutions.

The market chasm constitutes of the gap between the early market and the main market. The early market consists of the innovators and the early adaptors, whereas the main market consists of the early and the late majority as well as the laggards.

In this context, the “market” is defined as group of actors that use each other as frame of reference when making decisions of shifting to new technologies (Moore, 2007). Therefore, actors that make the simultaneous decision of shifting to a new technology without the possibility to communicate with each other are not, in this sense, part of the same market.

Because of the fundamental differences and contradictions described in the previous distinctions of the two innovation adaptor segments, the first one does not present an

adequate framework of reference to the latter. Because of the early majority as described previously, does not want to experiment with new technology in the same manner as early adopters, recommendations from other users or user groups to validate the decision of shifting to the new technology or new methods. (peer validation, proof-of-concept). This proof of concept is preferably attained from peers, but as actors representing the early majority group do not experiment with new technologies without adequate validation and proof of concepts, this comprises a vicious cycle that makes it difficult to get a product to make it over the chasm. The marketer, when marketing an early adaptor product to the would-be early majority, is in fact operating without a frame of reference to a prospect group that values references extremely high, and this is what constructs the chasm on the market. (Rogers, 1962, Moore, 2007).

The case company had expressed their concern of facing this market chasm with their main product. This would imply that a key concern for the firm is the market share within the plant-based cell cultivation applications segment. Also, explicitly referring to a “chasm”, also referred to as “social network threshold in in the diffusion of innovations” (Valente, T. 1996, p. 69) in the market in this context would mean that, based on the firms’ current understanding of their market position, the product is currently adapted mainly by the “innovators” and the “early adopters” of the field, and is yet to reach the main market of the majority, as depicted on the innovation diffusion curve.

Having difficulties communicating the value of an innovation in a manner that would convince the majority of the market actors to adapt to it could mean that the firm does not know about the main market enough to be able to sufficiently cater to their needs, or that main market for the product is, in fact, partially unknown. Achieving better understanding on the current and potential market for the innovation by identifying and developing market learning methods at the company would, based on the literature review of this thesis, be a proposition to be considered in the strategy for the case company’s commercial success.

4 Research method

In this chapter the methods for conducting the case study will be examined. The tools and methods for collecting the empirical data, as well as the consecutive analysis, will be briefly conferred. First, qualitative research and data triangulation are discussed, followed by case study as an approach, with data triangulation edicting the research question formulation of the study.

4.1 Qualitative research approach

The research conducted for this thesis is qualitative in its nature. Qualitative research is a strategy that delimitates from its counterpart, quantitative research. Qualitative research can perhaps best be defined by describing what quantitative research is not: it is about analyzing words instead of numbers (Bryman & Bell, 2005).

The aim of qualitative research is to gain an in-depth understanding of a situation (Carson et Al, 2001.65). Qualitative research gives, as opposed to quantitative approach, the possibility to study phenomena tied to certain time and space. According to Carson et Al (2001), qualitative methods are particularly suitable for managerial research problems as they combine the rational with the intuitive approach to knowledge.

The case company analysis is built upon the theoretical framework structured through scrutinization of innovations and markets as subjects of academic research, with the aim to deliver new insights to market learning methods in innovation/technology adoption on the life science market.

Market learning and recognizable methods to develop understanding of the network (market) and on how to optimally operate throughout different stages of product adaption on the market are also explored. The shift in the paradigm on the concept on of markets is also portrayed with the help of relevant theories within the IMP field of marketing research.

The collected empirical data consists mainly on primary data attained through in-depth interviews from within the case company and its key personnel in charge of relevant operations within the biomedical department. With help of structured lists of questions, and

attempt was made to conduct personal in-depth-interviews as free of a manner as possible, to allow the informants as much free space as possible to enable them to construct their answers as broad as possible, taking up the issues and their backgrounds and enabling the interviewees to put their expertise in use during the discussions. These insights were then triangulated with gathered field notes and data from secondary sources, such as published organizational records and information collected by government departments.

4.2 Data triangulation method

Data triangulation, a prominent data validation method within economics and social sciences, indicates that two or more methods are used in the process of increasing the stock of knowledge about the object of research, and in this case, to use the insights to help develop new managerial implications to overcome a specific business problem. Through use of multiple theories and empirical materials it is possible to overcome some of the weaknesses of that may occur in single-method studies, such as intrinsic biases. (Carter et al, 2014)

Of the methods of data triangulation, the approach used in this thesis represent method triangulation, which involves the use of multiple methods of data collection about the same phenomenon (Polit & Beck, 2012). The type of triangulation used in this thesis, and as frequently used in other qualitative studies, includes in-depth interviews, data collected from public information sources and notes through participant observation. The purpose for using data triangulation in this thesis is to capture different dimensions of the market learning, combining data collected from different information sources as well as interviewing managers of different functions of the firm.

The approach for the interviews conducted at the case company also incorporates the idea of triangulation. Through interviewing company representatives, managers, scientists and directors, each with their own areas of expertise, backgrounds, positions and tasks in the company, different points of view on the same topic are considered with the aim of higher level of validity for the gathered data. Some of the data retrieved from the data collection interviews will inevitably overlap with one another, but this increases the validity of the findings (Carter et al, 2014).

4.3 Research design

Research design dictates the form and shape of the study and the framework for collecting and analyzing the collected data. The purpose for research design is to answer the criteria and problem formulations generated by the purpose and the research questions of the study. (Bryman & Bell, 2005, 46).

Research design differs from research method in the sense that the latter is the technique used for conducted the research. In this thesis, the study is conducted using qualitative strategies with a case study design. Bryman & Bell (2005) stress that case study is often described as a method, but it is rather the methods for gathering data that dictates how the study is formed. It is evident that a case study in itself does not provide any data, but the data is extracted through the methods used within the frames of the research design. In marketing context, a case study consists for example of a detailed study of and an exhaustive analysis about a firm, a relation or a project. A case study can also include a number of different entities of similar natures, with an aim to compare them.

In essence, this thesis includes an empirical inquiry on phenomenon and the context, where neither of these are yet clearly evident. The phenomena investigated is market learning and the methods used at the investigated company. A single-case study is the starting point for the study: the study is based on a real-life context, and part of the purpose of the study is to give insights to how methods for gaining better understanding of the context could be developed.

In the purpose of this study the relation of market learning methods and the aim to achieve a higher diffusion level for an innovative product is emphasized. Given the network approach to markets, it could have been argued that to portrait an accurate overall picture on the position from which the company makes sense of the environment, interview data from other network actors could have been useful. An intentional delimitation to interview data sources was done, focusing instead of internal informants to keep the focus manageable.

4.4 Research execution

As the design for this study is defined as data-triangulating qualitative single-case study, the execution of the research will be conferred. The specific data collection methods will be examined in the following sub-chapter.

The most important stages in the qualitative research, as also presented by Bryman & Bell (2005), are as follows:

1. Formulating a research problem
2. Choosing the relevant places and research informants
3. Collection of relevant data
4. Interpretation of data
5. Conceptual and theoretical work
6. Reporting results and conclusion

The research problem and research questions are based on participant observation notes and discussions with the director, sales development manager, and R&D specialist at a at a two-day multidisciplinary workshop at the company headquarters. With the formulation of the research problem a theoretical framework for the study is also structured by extensive literature review. In the construction of the theoretical framework the importance of defining the central concepts and terms is also of importance (Bryman & Bell, 2005, 303). In the first stage, suitable methods for the study are also chosen.

Choosing the relevant informants for the study was done by consulting the director of the case company. After a discussion about who to interview to achieve a sufficient level of triangulation within the company, the managers to be included in the study were appointed. At this stage, the exact research problem was not revealed to any of the informants to avoid unnecessarily biased discussion on the suitable managers for the task. Of importance was that the informants should have understanding on the marketing of the main product, but also to represent different functions of the firm. The interviews were to be conducted either in person at the managers nearest convenience, or by skype in case of unexpected events that

would prevent live participation. The collection of data was conducted by recording and transcribing the in-depth interview with the six appointed managers.

Function / Role	Responsibilities
Director	Responsible for the business unit and commercialization of the product
Sales development	Business development, co-operations, sales
Application and product development	Use case and application development, product development
Application scientist	Customer interface: co-operative product development, technical support
Communications manager	Brand communication
Development manager	Visual identity, conferences and marketing-related activities

Figure 10: Roles and responsibilities of the informants

The reasoning behind the selection of the personas for data-collection interviews were based on their connectedness of the focal product. The director, who was consulted in the very beginning of the research planning process, was included in the informants because firstly because of the responsibility of the business unit as a whole, secondly because of the long industry knowledge. Sales development and other customer-facing roles were selected, because of the insights that these persons could deliver, mostly on who the company is serving and interacting with. The intention for discussing the market for the product, both from a conceptual and a concrete level with both customer-facing personas in sales and application development, and communications and marketing was to bring in an element of triangulation and enhanced validity in the answers, as well as to reveal as many points of view on the topics as possible through single, one-hour interview session as possible. The respondents were chosen on the basis of their connectedness with the focal product in the life science area, and other personas within the corporation were left out from the data collection.

The process collecting and transcribing the data connect to data interpretation. Under the interview, supplementary notes about the interview situation are made, for instance about

the environment and overall ambiance of the interview, together with other insight impossible to record with a tape recorder. During and after the conducted interview is transcribed, the data is scanned for bits of information and ideas that are particularly interesting for the purpose of the study. What follows is the conceptual and theoretical work, where the constructed theoretical framework tested with the empirical part and modified for a better match for the case. The idea behind the abductive approach is to develop the theory, and not, as often the case with quantitative research strategies, to verify or to reject a hypothesis. In this stage, the thesis may be in need for specification in problem definition or collection of more data to conclude with the revised theory.

In reporting of the results and conclusions the research questions are answered through the findings of the research. A summary of the theoretical model and how the theory and empirical findings come together, and how the findings contribute to the development of the theory: a central aim is to answer the research questions and link in to the marketing literature reviewed, and to give practical implications based on the findings.

4.5 Data collection methods

In accordance with the research design, the research is based on triangulated qualitative methods to collecting relevant data on the topic of market learning. Qualitative methods focus on creating understanding on the social substantiality, with a foundation on how the participants in a certain context interpret reality (Bryman & Bell, 2005, 298). Two data collection used in this thesis include participant observation and interviews.

Participant observation was a suitable procedure to start the study with. Given the circumstances in which the participant observation in this case was done, it can be characterized as loosely structured. In the observations, attention was paid to the managers as they were presenting the innovation workshop participants with information on the company, the biomedical team, the product, their challenges and expectations. Notes from this event were made, and the idea for the study was cultivated. Also, the event was used for making acquaintance with the company managers and director to initiate the research process at the company, and to ensure the data access needed for the study.

The time during which the initial participant observation was conducted was limited to the two-day innovation work shop at company headquarters in Finland, during which pre-understanding, as discussed by Gummesson (2000) about the context and the problem was attained. Understanding generated during the observation period has been crucial to development of the structure and definition of the problem area of the study.

Bryman & Bell (2005) present different roles the researcher can adopt in participant observation: full participant, participant-observer, observer and participant and full observer. In this case, the observations made during the workshops were as participant-observer. The participants of the event were academics from different fields trying to come up with solutions to problems defined from the information presented by the company representatives. During the event, observations and notes were made with an agenda to develop research for the discovered problem areas.

Qualitative interviews with the company director and key managers constitute the most relevant data material used in this study. After pre-understanding for the context was created through participant observation and discussion with the managers present at the event, the conducting of in-depth interviews with managers of different functions of the firm made it possible to focus on the formulated problem area.

Qualitative interviews are often referred to as an umbrella term for structured and semi-structured interviews (Carson et Al, 2011). As a participant observer, semi-structured interview style was used: information was gathered in a style of normal conversation with the managers, with an agenda to gain understanding of the problem to be studied. The conversations were conducted in a manner that provokes a dialogue contributing to the data collection and understanding of the context.

The structured in-depth interviews followed a strict interview design, consisting of questions regarding the role of the individual in the marketing of the product, the role of the department the manager represents, the current understanding of the firm's market position, sources and tools for gaining market understanding, as well as strategy.

4.6 Case description

The case company for this study, offers wood-based solutions for biomedical applications. The products are derived from renewable wood originating from sustainably managed and certified woods. The case company currently focuses on two application areas: clinical and life science.

The publicly expressed strategy for the case company, along with its' parent company's aims to seize the possibilities of bio economy through five different dimensions: Results, Growth, Innovation, Responsibility and Portfolio. Each strategical dimension is further described by its' meaning, goals, and policy.

The meaning of "Results" in the company strategy communication is to enable investments into growth, innovation and responsibility. According to the strategy section of annual report 2019, this dimension is characterized by the goal for constant development in every business unit in comparison to their competitors. The results are achieved by applying right business models and having separate business areas. Cost-efficiency, commercial strategies and efficient use of production plants and capital area also listed as the drivers for op results, which "add value and risks linked to the business environment".

The central product for the case company, the innovation, is an animal-free, ready-to-use hydrogel that mimics the extracellular matrix, supporting cell growth and differentiation. The hydrogel can be used for three-dimensional cell culture for spheroids and organoids, personalized medicine, organ-on-a-chip models, drug release studies and 3D-printing. A substantial difference to other available 3D-cell culture applications is that it is completely animal-free, as it is extracted from birch. A miniature human liver has successfully been grown with the help of the product. Samples of the product are being sent for test use to laboratories around the world (Biotalous, 2019).

Long-term growth in results requires enhanced profitability and turnover growth. According to the company, the profitability of the growing business units is significantly better than of the more mature, established businesses. As goals within this strategical dimension the company lists growth in results and attractive profits. One of the ways to achieve this is by developing sustainable and safe solutions to the growing global consumer demand.

The parent company lists innovation as one of the central strategical dimensions, meaning the replacement of non-renewable materials with alternatives, which offers “significant” value creation possibilities”. R&D, bio-economical innovations and new technologies support the renewal. The goal is to speed up the growth with new businesses, products and technologies, and to enhance competitiveness by developing processes, service and products.

A substantial difference between the case company’s product and other available 3D-cell culture applications is that it is completely animal-free, as the h is extracted from birch. A miniature human liver has successfully been grown with the help of the product. Samples of the product are being sent for test use to laboratories around the world (Biotalous, 2019).

The case company had expressed their concern achieving higher adoption for their product in its’ central applications areas in the industry, specifying that a key concern for the firm is the market share within the plant-based cell cultivation applications segment, that being one of the main application areas. Also, explicitly referring to a “chasm” in the market in this context would mean that, based on the firms’ current understanding of their market position, the innovation is currently adopted mainly by the “innovators” and the “early adopters” of the field, and is yet to reach the main market of the majority, as depicted on the innovation diffusion curve as per the theory of diffusion of innovations (Rogers, 1983).

Having difficulties communicating the value of an innovation within the social system/market in a manner that would convince the majority of the market actors to adapt to it could mean that the firm does not know about the main market enough to be able to sufficiently cater to their needs, reach out to them in an affective or that main market for the product is, in fact, partially unknown (Moore, 2008). Achieving better understanding on the current and potential market for the product by identifying and developing market learning methods at the company would, based on the literature review of this thesis, be a proposition to be considered in the strategy for the product’s commercial success.

The product is developed for the needs of the pharmaceutical industry. Pharmaceutical industry discovers, develops and markets drugs for use as medication. The search for new pharmacologically active agents obtained by screening natural sources such as microbial

fermentations and plant extracts has led to the discovery of many clinically useful products that play a major role in the treatment of human diseases. Pharmaceutical companies, especially research-based major global players, are placing unprecedented emphasis on innovative drug discovery as the primary driver of industry growth. (Shu, 1998). The World Health Organization (WHO) has stressed the importance of biodiversity, and the aims for preserving the biodiversity could hamper the utilization of natural products in the development of plant-based pharmaceuticals that represent a significant share of the total pharmaceutical sector (David & Wolfender, 2015). Statistics on pharmaceutical R&D spending show that investment amounts grew threefold during 1990-2000, from US 10 Billion to US30 Billion, but have since then shown decline in the case of natural products. (David & Wolfender, 2015). The reasons for the industry trends are as much commercial as they are scientific. However, technological advances together with unrealized expectations from current pharmaceutical lead-generation strategies, have led to a renewed interest in natural products in drug discovery (Koehn & Carter, 2005).

Cell cultivation, or more precisely, 3D cell cultivation is the process by which cells are grown in controlled three-dimensional environments, typically outside their natural habitat. It is currently one of the main application areas for the case company's main product. Cells behave differently when isolated from their complex architecture of their native tissues. For example, human breast epithelial cells proliferate in the same manner as a tumor cell when cultured as a two-dimensional monolayer. This difference in cell behavior between 2D and the native 3D-environments has constituted a major obstacle for example for tissue engineers. (Cushing, Anseth, 2007, 1133-1134). During the past decade, the field has made progress in developing successful three-dimensional microenvironments for cell cultivation with hydrogels – networks consisting of interacting polymer chains that are highly hydrated, with similar elasticity of that of natural tissues. The structure and composition hydrogels can be tailored to the needed chemical, biological, and physical attributes. Cellulose-based hydrogels functionality has proven to be an appealing, low-cost alternative to other natural tissue-engineering applications, and cellulose a renewable, environmentally friendly biomaterial material for cell cultivation (Reza, Nicoll, 2010, 183).

The culture of animal cell lines is regarded as fundamental to the development of vaccines and other biotechnology products. (Qian & Salzman, 2004). Application of cell culture is also a key in cellular agriculture, which focuses on the production of agricultural products

from cell cultures using a combination of biotechnology, tissue engineering, molecular biology and synthetic biology. The idea is to create and develop methods of producing proteins, fats and tissues that would otherwise be derived from traditional agriculture, and therefore to achieve animal-free agriculture. (Prieto & Sotelo-Silveira, 2017). A form of, and an example of the developments in the field of cell culture, is cultured meat: meat produced by cultivation of animal cells, instead of slaughtering animals (Datar, 2010). Because of limited research dedication, cultured meat products are yet to be commercialized. However, several prototypes of meat cultured in vitro have received attention: Mosa Meat, a Dutch food technology company that received 7,5M € in funding in 2018, has estimated that cultured meat could be commercially available in 2021 at around 10€ per patty (Bunge, J. 2018).

Through the qualitative data collection within the company's key personnel, this study seeks to portrait how the market is currently understood, what the understanding is based on, and what could be done to more about the markets in order alleviate some of the expressed concerns about innovation diffusion in the industry.

5 Presentation of findings

The triangulated qualitative data utilized in this study consist of participant observation at the case company, data derived from public data sources and in-depth interviews with key personnel, managers, scientists, as well as the director of the case company. The interviews with each participant were all less than 60 minutes in length, and consisted of 16 broad, open-ended questions on markets, market understanding and market learning. To create a conversational atmosphere and to get as relevant information data as possible, some additional questions were asked to keep the focus in the intended themes and topics. All interviews were conducted in English.

The informants for the study were appointed by the director of the case company. This group seemed fit for the interviews despite the differences in academic backgrounds. In the spirit of data triangulation with the aim of increased validity of the findings, this group would answer the interview questions each from their own experience, understanding and position, which is exactly what was needed to capture how certain things are viewed and approached holistically in the company.

The interview framework was constituted by four sub-topics, all with the aim to depict the central theme of market learning in the company. The sub-topics of the research were divided into basic, personal-level questions capturing the intrapersonal aspect of position and approach to execution of the individuals' in the company, the product, market understanding, market learning methodology, and finally, goals. Some of the questions can be understood either from an intrapersonal or interpersonal dimension, or either from the corporation (the parent company of the biomedical unit) point of view or from the perspective of the biomedical team as a separate business unit within the parent company. This aspect of the question formulation was intentional, as the decision to allow several perspectives for the informant to choose from can be said to be intentional and beneficial: the chosen perspective, be it personal or organizational, of the corporation or the biomedical team, already tells one a lot about how the informant looks at the immediate surroundings within the business entity. More often than not, several of these dimensions were covered in the interviews.

Each of the following discussion topics represent learning outcomes regarding the focal company itself, its' value creation, the business environment, current activities, goals and knowledge evaluation.

5.1 Intra-organizational understanding of the value creation

The consecutive data collection interviews were all structure in the same manner. After briefly discussing the role and position of each individual, and the positions' relation to the product, the discussion moved to the product itself, and how each informant, based on his/her understanding, perceive the supposed benefits of the product. To whom this "benefit" is engendered was up to the informant to define and explain. Quite naturally, the explanations started from the "customers", "users" in different applications, but overall, the demand side.

"There are a lot of hydrogels in this area, but none of those is based on the same material characteristics. There are no competitive products that work in the same way as ours." – Application and product development

The conversation about value creation revolved around the product and its' characteristics. The end-user of the product was mainly seen as the primary beneficiary of the focal product, and added value was seen to be derived from the product characteristics which enable a controlled, animal-free 3D cell culture environment.

"The tendency in the industry is to find new solutions to be used in the area of 3D cell culture and in the overall area of biomedical" - The application scientist

The fact that the product is 100% pulp-based brings with it an element that is seen as a driver for the industry to move towards sustainable, non-animal-derived solutions in the field of biomedical. In a sense, this view entails a notion of the value creation happening in the context of the industry as a whole and not only the end-user: the product can be seen to serve the industry's need to move from traditional 2D cell culture and animal-derived 3D cell culture to plant-based hydrogels in suitable applications areas.

Direct comparisons to the “competitors” were made, and “main selling points” listed. Also, justifiable distinctions between the established application areas and the respective user groups were made. Overall, the materials superiority over some of the materials and products currently in use in the central application area, 3D cell culture, were highlighted.

Discussing product attributes and benefits served as a way to get an understanding on how the product is understood by the different personas at the company. It also validated some of the insights drawn from participant observation notes a few months earlier, as well as from external data sources available.

Another justification for discussing the product attributes and benefits of the product was the emergence of the term “competition” in the discussions. In order to understand this “competition”, it is arguably of importance to understand the means by which the case company seeks to succeed in the contest.

5.2 Defining the market for the product

After receiving the sufficient information on how the product is understood, the focus was shifted towards the business environment, the market(s), in which the case company acts with their main product. Description, or rather, the attempt to define the market(s) in which the focal firm acts, depicts the informant’s understanding of the socially created network of actors, as per the definition of a business network by Håkansson & Ford (2002). The way the practitioner describes the immediate business environment of the focal firm tells how the market is understood and based on the understanding of the network and the actors, a network picture - a managerial sense-making tool for operating in the business network (Henneberg et al, 2006, p. 416) could be created. Moreover, it depicts the informants’ approach to the concept of markets on a practical level.

When asked to describe the market on which the case company acts with the product, the most usual definition was that of “Biomedicals market” or “3D cell culture market”. The market, regardless of the exact definition given by the informants, was described to be in its infancy, in research phase, and that the company is still trying to find its own niche, especially when the company is still in search for new applications areas for the product as well as the most suitable partners. Interestingly, the market for the focal product was

described quite differently depending on the role of the individual, and the unclear boundaries of the market was not only interpretable from the variety of the different takes and answers, but also explicitly expressed:

“I would say the market is kind of shattered. There are different customers working with different applications. [...] People have done cell culture in 2D for a very long time. Just recently, I would say, the last ten years, people have started more and more doing cell culture in 3D. I would say the academia are the first ones to try new things: they want to find new results and new methods. And they are also very willing to test new materials and new methods [...] Academic researcher, CRO companies, big pharmaceutical companies. And this only the 3D cell culture. But that’s not the only application area: there are several ones, for example 3D printing and bioprocessing production of antibodies and production of viruses.” -The Application Scientist

The market was also described through its’ entry barriers. The market was described to have “quite high entry barriers”. In economic literature, “entry” is when a firm joins an industry, and the barriers relate to transaction costs of the entry. An industry with high barriers of entry thus usually restricts the “competition” on the market (Begg et al, 2008), with fewer player due to the high transaction costs of becoming a player on the market. The “entry barriers” on the market were explained by the need of research and publications about the products and materials before they can be thoroughly commercialized. The area is research-intensive, and getting the needed publications take time. To disrupt the market with a new kind of material, ties up resources for an extended period of time before substantial sales can be expected.

Despite being described as a market with high entry barriers, it was also described to be one with “many different players”. The market was described though it’s customer groups, which also were many.

The environment in which the product was mostly connected to was the one of 3D cell culture, which in itself is a new way of doing cell research. Also, the firm is constantly looking and researching new possible research areas. No answers to this question implied any certainty on the “boundaries” of the market, given the “research” phase on the market, and this concerns the other actors on the marker as well: developing and commercializing

new materials and products to be used in 3D culture takes time, because the materials need to be researched to be validated and taken in use in greater volumes.

The market was also described through its' "competition". A clear "market leader" was recognized and named. At the time of conducting this study, it had been on the market for years 30 years, and given the slow progress of new product developments, has had a substantial presence. The "market leader" produces an animal-derived hydrogel for use in 3D cell culture and is currently used by companies in applications where the product could be used.

"Another question is, how do we know where the product actually works? That's something we have to develop in the future. That's part of the, sort of, collaboration that we are doing with (other) companies and research groups to find application areas where the material is suitable." -Sales Development

Overall, the market was described by the customer groups for the product, by other business actors on the market ("competitors"), current and future application areas, and geographical area. Despite the rhetoric of "competition", "market share" and "entry barriers" the networked aspect of the market was recognized. The "research phase" of the market, despite of the exact definition, was essentially seen happening through collaboration and managing relationships within other actors.

5.3 Current representation of the market

When asked which other actors operate on the same market as the case company with its main product, the networked aspect of the market was eminent: it was clear to the respondents that in order to create value with the product, collaboration, co-operation, and learning more about the market possibilities is needed. In this the "learning" had to do with finding new applications areas for the material.

One specific hydrogel for 3D cell culture by another company was seen as the most influential other actor currently in the market. Also, global distributors were mentioned as players on the market. Overall, there are many hydrogel options on the market, with biotech

start-ups introducing new materials all the time. Other material providers were identified as “the others” on the markets. Also, the possibility of changing the firms’ business model from being a mere material provider and hydrogel manufacturer, utilizing the company’s extensive knowledge on nanocellulose, access to raw materials and the resources for scaling up businesses. An example of the areas where to venture and to develop novel business models is the area of 3D printing or additive manufacturing.

During the data collection interviews with the key personnel, and managers, the “market” for the product was fluently discussed. Key players on the market were identified, and scopes, such as 3D cell culture, biomedical, hydrogels, were proposed. But where is the understanding behind all this derived? The answer to this takes us closer to how the firm understands the market in which it operates in. Moreover, it explains how the firm constitutes their understanding on market dynamics, the players, the environment and their own actions related to learning about the market.

5.4 Current market learning methods

When discussing how exactly the company is constructing its’ understanding of the market in which the value is created, an element of uncertainty about the market emerged into the conversation. Projecting into the history of the business unit, it was evident that commercializing the focal product was a process experimentation and learning:

“We have conducted quite a lot of market research in the history of this unit. I would say, we are not currently compiling reports together, but we are basically following up the market every day by following the business info” – The Development Manager

“Defining the market [...] is a much broader question, and I think it’s much more difficult to answer. Even we don’t know all the applications where we could use the product in the future. The whole thing is about defining the market, on the go. Obviously, when we entered the biomedical area we identified some of the areas where the materials could be used, but on the go, I think there are certain areas that “expand”, like 3D-printing etc.” -Sales Development

The unclear boundaries, and “expansion” of the value creation space indicates that the market is not seen as a given, static marketplace for the product. According to the views of development and sales management, it’s neither seen as a specific industry, although industries were used as frames of reference when discussing the value creation with the focal product. It can be stated that the inclination in the company’s development of market understanding is towards experimentation and learning in first hand, conversing with the network in which the company acts, combined with second-hand industry information provided by external third parties.

According to the findings, the current market understanding is based on:

- Bi-lateral discussions with clients
- Discussions with co-operation partners, the distributor partner and their customers, interpreting customer testimonials.
- Search-word based information from press releases, delivered by a service provider daily
- Internal market studies (not recent)
- Market studies conducted by external consultants
- Following latest academic publications on 3D cell culture
- Attending conferences and exhibitions.
- Discussions with universities: how are the research groups conducting research in the relevant applications
- Talent acquisition

Based on the findings, the current understanding of the business environment is built in co-operation with other network actors. The respondents admit that the collective understanding of the market within the firm achieved through sharing of knowledge internally, between colleagues, while the external environment is to high extent depicted through interaction with other network actors. The firm is actively engaging in interaction with external actors in order to evaluate their value creation propositions in the central application areas for the product.

Although the term “market” had been used by the informants frequently during the interviews, defining it on a conceptual level opposed obvious challenges. The answers covered anything from an product-view on markets (“anyone who uses our product, anyone we could sell it, the hydrogel market), the neoclassical take on markets (with “products and competition” as discussed in Chapter 2), to definitions, or rather attempts, with an approach more in line with network thinking (“anything that can affect our business”) that admit the uncertainty of the boundaries of the market. Although some elements of the kind of markets discussed in academic marketing literature connected to network approach (Håkansson & Ford, 2002, Gadde et Al, 2003, Storbacka & Nenonen, 2011) could be identified, the product and industry view on markets was eminent, the term “competition” was brought up. What is also notable is that in the discussion, both “supply” side (the product) and the “demand” side (the customer base) were used in the attempt of defining the market on a conceptual level.

“Market is where we have the customer base and the competition, but the market should consider also what else could come and replace the need for (the product) if there is such development going on somewhere. This, in my understanding, is related to market understanding.” -The Development Manager

“In my opinion, the market includes a certain application area. There’s a certain offering for certain customers. Clearly, these customers are “talking about the same thing” and are looking for solutions for a certain problem they have. Then, there are the companies that try to help these customers.[..] at a certain time point you can say “this is the market where were now operating” but.. companies can get into financial problems or might be merging into bigger companies, so in that sense there are these market dynamics that affect the players. If you “take a snapshot” of the market at a certain timepoint, you could say that “this is the market now”, but after a while it might be completely different.” -The Application Scientist

In the interviews, the prevailing understanding and definition of a market in the innovation scenario in which the case company acts with the product, resonates with the theory of diffusion of innovations (Rogers, 1962).

In this view, the market constitutes of “customers” that are “talking about the same thing” when looking for solutions to a problem, with companies trying to come up with solutions

to help the customer. In innovation scenarios (according to the theory of diffusion of innovations), “the innovation is communicated through certain channels over time among the members of the social system” (Rogers, 1983, p.10-11) resonating with the adopter groups in the innovation diffusion theory, presented in the chapter 4. The view by the case company sales development incorporates aspects of the theory, the “social system” being the market and the product the innovation.

It can be argued that of many of the elements that constitute business networks as per the network approach are there. The network view is, however, somewhat contradicted by the “competition” rhetoric, and is not shared by all the individuals within the company. Also, from the attempts to define and describe the market it is evident that the firm is experiencing challenges in communicating the value of the innovation effectively enough (partly due to the challenge of “finding the right partners” in the social system), and the slow progress in accumulating academic publications on the product before it can fully reach the diffusion in the intended adopter groups.

“A lot of this is built within the networks that we operate on, so its discussion with the customers, and discussions with the collaborators, especially (regarding) the new entries into the market. Sort of, getting a picture on who could be included there, who could be collaborate with, but we also use and collect data from external sources.”

-Sales Development

As to where the company bases its understanding of the nature of the market, the findings show that the network itself plays a major role. Both the methods of gaining understanding and the description given based on this understanding indicate that the market is seen as a networked web of actors in which information is shared between individuals, updating the “snapshot” of the market. This “snapshot” of the market can be understood to represent a network picture discussed in chapter 3. The findings also indicate a need for identifying new possible network actors and look beyond the current network to adjust the focal company’s operations

Based on the interview data, it seems safe to state the environment in which the case company is creating value is essentially a network. According to the findings, the most

important actors in the current network, with whom also the market understanding in built, include:

- Customers globally
- Academic researchers, groups and individuals
- Distributors
- Universities
- Advisory board consisting of external partners
- Biotech companies, start-ups
- Manufacturers
- CRO's
- Pharmaceutical companies

The company identifies the need for constantly looking for new possible network partners globally. Of importance are “opinion leaders”, such as valued researchers in certain application, with an aim to gain validation for the use in the applications areas in order to reach diffusion within pharmaceutical R&D and drug development. A lot of the marketing material is currently based on collaborative projects with research materials, and that the benefits are communicated through research publications.

Within the firm, the marketing approach is dubbed “B to R&D”, being more focused on research and development, showcasing the results of what external researchers have achieved with using the product.

Based on the description of the current activities, academia is seen as the group of innovation adopter through which the case company is communicating the benefits and value of their solution in the form of research publication. Currently, the firm sees the communication between peers as an important driver in the diffusion process.

It is also evident from the discussions with the sales development manager that the big pharmaceutical companies are the ones carefully followed by other business actors, and that activities are directed towards gaining diffusion within the pharmaceutical industry:

The network, especially the nodes between academia and the biotech companies (who develop solutions through academic research and develop product to different applications) and the pharma, is seen as bi-lateral and interdependent in nature. The academia validates the developed materials and solutions provided by companies such as the case company and biotech companies, and the pharmaceutical companies (the source of great demand volumes for cell culture solutions) are following material discoveries and product development. Based on the firm's view, it is only through strong validation, backed up by scientific research, publication and consistent result that the pharma companies change from traditional 2D cell culture to 3D in their development of new drug compounds and, as well other kind of R&D-related activities.

5.5 Evaluation of the current knowledge about the market

The discovered methods of learning and gaining understanding were discussed in a descriptive manner: how it's done, who is it done with, and what kind knowledge is seen as an immediate result of the actions. The case company's understanding of the market is seen to have developed immensely over time through these methods. In moving the focus towards learning outcomes and knowledge about the market, the importance of talent acquisition and interpersonal aspect in an explorative venture into new business area were highlighted:

“At the moment, I think our understanding has developed a lot from the early stages. Obviously, for the company, for the corporation, it has been an unknown area when we entered the there. We entered the market a bit accidentally: when we were looking for different applications for the nanocellulose products, this was only one of the applications that came up. The potential was then recognized after the first tests with the product - that was the starting point of entering the market and of learning how the market operates.”
The Applications Scientist

“The way we have been learning is obviously bringing people from the industry to the company. And also, by learning and collaborating internally. So, I think there's been quite a big, sort of, learning process for the people who have been involved here, sort of building the knowledge based of the market. At the moment, I think we are very well aware of where the possibilities are, where we have to aim, what is the strategy, and what are the key areas

where we have to succeed so that we can grow in this business and find new opportunities.”

-The Development Manager

Room for improvement, partly due to limited resources, was recognized. Although the current level of understanding was generally evaluated as good, the company background being outside of Biomedicals and in the pulp and paper, the starting point from which the development knowledge base and learning processes could have been better. Not knowing everything and being constantly forced to develop better understanding of the market has been topical for the firm throughout its' existence.

5.6 Development propositions

In terms of what to improve in gaining understanding of the market, the question itself opposes an important issue for the firm. The current understanding was evaluated as good, and no totally new methods for market learning came up in the discussions from the behalf of the informants. Relating to the discussion on how the current understanding was built, allocating resources for methods and processes towards market learning came up. Being part of a big corporation was seen both as an asset and a disadvantage, but the “muscles” of the big corporation were seen as something that could be used more in improving market learning. Some of the suggestions were better utilization of social media channels and establishing dialogue with some of the bigger players on the biomedical market. Overall, allocating more resources towards market learning through several conventional methods was seen imperative.

Identified activities and methods for learning more about the market include:

- Project collaborations: the case company as a material provider or joint product development
- Attending conferences
- Compiling and processing business reports based on search words in publications
- Acquiring market studies from third parties (consultant firms)
- Recruiting industry experts to the firm

Discussing these activities, some see the case company not doing “any special things” to actually learn more, expand on the understanding and methods to accomplish that. Also, the mother company was not seen as actively driving the development of market learning and market knowledge in biomedical.

Discussing the market learning findings, and how they have affected the way the market is understood and how the firms should act, several contributions to market understanding came up. Most of them have to do with market characteristics (the networked nature of the life science market), the notion of the market evolving constantly, admitting that there is need for more knowledge, and that development in terms of innovation diffusion is slow.

“One clear finding for us is the number of competitors growing constantly, the new players entering the market. We also see that they are good in getting their news out there and getting their information shared. That is something we could be much better at: getting our stuff widely spread using more PR.” – The Development Manager

Some other findings through market learning, in terms of recent developments or concrete development propositions included:

- Enhancing coverage through enhanced utilization of press releases and social media
- Network approach, collaborations
- Admitting the need for learning more
- Structured methods for evaluating strategic collaborations
- Application feedback from several network actors simultaneously, resulting in focusing on the development of a certain application area.

Derived from market learning findings, discussion evolved on expanding and renewing the business model to new business areas. In a way, the existence of the biomedical business unit can be seen as an outcome of explorative learning from the behalf of parent company.

For the corporation to enter the biomedical market with a background in pulp and paper, everything they learned was “new, important and useful”.

The goal for the case company, or the biomedical business unit, is to grow into a business of the scale of the parent company’s business areas. In general, the mission is to be the leader in the use of wood-based materials in life science and clinical applications. The current hydrogel product is the first product for the company, and the goal is to increase the adoption of in the industry, and to increase sales and deliveries. Most of all, the goal for the company is to become a “serious” player in the industry, and based on the understanding of the informants, growth player a role in becoming that.

When discussing the strategy of the company in terms of where biomedical is headed, the mission for “aiming higher” was perceived vague and to contain many dimensions, making it difficult to explain through concrete examples. As the importance of aligning mission, objectives and strategy is a notion that has been demonstrated (Ormiston, 2011) achieving a more coherent understanding of the firm’s mission and its’ relations to the individual’s role in the company can also be listed as one learning-related development suggestion.

Assessing the success for achieving strategic goals, the informants perceived the success to be moderately good. The market entry contained risks, given that the venture from pulp and paper to biomedical is something new for the corporation. The sales and deliveries are progressing, and the product’s reputation is growing through attention publications in the academia. The diffusion process is just generally seen as slow.

Critique was, however, also raised. The eminent issues in achieving the goals according to the interview data due to lack of resources appointed from the parent company to the biomedical unit. The parent company wants to see more sales before more investments are made. With a recent distributor agreement, the sales were seen likely to increase.

Reflecting back to topics and questions discussed, the interviews were concluded with listing out key resources for the case company achieving a higher diffusion level for the product and to achieve strategic goals.

According to the findings, the key resources include:

- Knowledge on scaling up businesses
- Knowledge on manufacturing
- Knowledge on the raw materials
- Technological know-how
- The innovation and it's benefits
- Internal innovation culture within the corporation

The parent company has scaled up numerous businesses in the history of the company. Innovation has been a part of the organizational culture, making it possible for the company to keep its' value creation processes aligned with the changing environment. The history in pulp and paper industry has developed knowledge in manufacturing processes and the raw material, wood.

The identification of resources can be seen as a starting point for any learning market learning activities. What resources are seen as important by the focal company portrays a picture on how the firm sees itself creating value in it's network, what external and internal resources are used in the value creation process. Moreover, the resources that are for some reason overlooked can, if discovered, serve as path for market learning.

It has also been argued that in order for a firm to engage market learning, it has to proactively un-learn some of its' key organizational competencies, as well as to question the firms' assumptions about itself and its environment (Storbacka & Nenonen, 2018): this would include re-evaluating the key competences in relation to the changing environment.

6 Conclusions

This chapter concludes the thesis by answering the research questions and proposing managerial implications of the conducted study.

6.1 Answering the research questions

The purpose of this study was to expand knowledge on the topic of market learning. The purpose was sub-divided into testing and developing theory for strategic management and marketing. A normative sub-aim was to offer insights on how marketing activities could through identification and development of market learning methods be aligned with principles of market learning in innovation scenarios.

What kind of market learning methods can be identified?

Based on the outputs of this study, it can be difficult to draw a strict differentiation between methods and outcomes of market learning. A good example of this are network pictures, which are both tool for making sense of the environment (picturing it) and simultaneously generating insight on the dynamics of it in the process (learning). Network picturing happens even though the concept itself might be unfamiliar to the practitioner: players, resources, and possibilities are mapped when planning action. In general, market learning methods lay the foundation for strategic network interaction and for processes with the aim to actually affect the prevailing configuration of the business network. Understanding the complex, networked aspect of markets can thus be seen as an impulse and driver towards market learning outcomes, and through deliberate processes develop market learning processes can the focal network actor enhance its' understanding of the environment.

Market learning can be understood more as an approach than a set of methods: the acceptance that the focal firm, regardless of the industry, acts in an environment that has to be constantly learned from in order to keep the firms value creation processes (which are only possible because of the environment) aligned with it, is a key to the actually altering the market dynamics. The purpose for an action also affects the end result of it: if an action is undertaken solely for the purpose of learning more about the market, learning in some

form will evidently happen, either as intended, or in the form of knowledge on how to re-approach market learning if the process yield no desired outcomes.

Which methods, if any, are used in the case company?

Scaling down to firm-specific processes and methods of learning about the market, being actively out there, establishing bi-lateral connections and dialogues and being close to and co-operating with the research groups that constitute an influential innovator group area a few examples on practical market learning methods at the case company.

Leveraging the knowledge within the network is done, for example, through co-operative projects as material provider for applications, or as a product development partner in joint projects. Learning about networking, strategic partnerships, and the scientific substance from within the projects, happens.

One method through which the case company has achieved higher level of market and industry understanding is talent acquisition. Hiring individuals with extensive industry experience is seen as a substantial driver of market learning, as the knowledge is shared within the company, re-directing the already existing efforts towards gaining understanding of the industry developments, market dynamics, and customer leads.

Taking the perspective of the corporation of which the biomedical acts as a smaller business entity, the initiation of the business unit is an example of deliberate market learning methods, and, given the intertwined effort-outcome- dynamic of market learning methods, also as a learning process in action. The biomedical business unit can be seen as the corporation's project towards learning to operate and co-operate the current business network in the forest industry, proactively adapting the environment to themselves instead of reactively adapting to the environment.

Network picturing is done through market reports gathered by external service provider. The idea is to get a unified understanding of the market, the players and the dynamics. Direct interaction, feedback and discussions with partners and customers is valued as a method for gaining understanding and building on the stock of knowledge about the industry, the players and possible new application areas for the product.

How are the identified methods and their use linked to managers' understanding of the company's market position?

Establishing bi-lateral connections with other network actors, leveraging on the knowledge of individuals of the firm and of external network actors, as well as co-operating with research groups play a key role in understanding the dynamics and key players on the market. In gaining this understanding, these methods constitute a major part of the understanding how the market is at the moment, and possible directions the market might develop. The processes can be identified as part of a deliberate context shift from the focal firm to the context, where the context is the network and the definition of the market.

The learning outcomes and the market learning methods are partially intertwined: it is difficult to specify whether the understanding of the network or market position (depicted by a network picture, for instance) is a result of learning, or might it be more likely that learning is happening on the go, as the sensemaking of the environment is happening, rather than the outcome being the network picture.

The connection to the parent company (recognized as a market learning method), the learning methods and processes behind the biomedical business unit, and the fact that the company operates as an individual entity within the corporation in a start-up-like manner has an unequivocal effect to the manager's understanding of the company's current network position and status as a player in the biomedical market. The focal firm's role as a business unit of corporation is seen both as a strength as a weakness: the resource ties to parent company, the knowledge in scaling up businesses, the knowledge on the raw materials and technological resources are naturally perceived as an asset in operating on the market and achieving value creating goals, but this connection the parent company is internally seen as a partial weakness in terms of how the other network actors might perceive the company, being a biomedical venture of an MNC with a background in the pulp and paper industry.

How could the company's current marketing activities be developed to be more closely aligned with principles of market learning?

Given the challenge of achieving a higher phase of innovation diffusion for the product, future market learning activities should deliberately be directed not only to re-enforcing the internal learning processes, but also to identifying the essential strategic partners within the network. As the results indicate, finding the right partners for accomplishing higher stage of diffusion in the application areas is seen a key to delivering value, but in this, identifying the next adopter groups outside of academia (the innovators and early majority in the innovation diffusion curve), is, according to the innovation diffusion theory, the next step. This means that the adopter groups have to be identified, in order for adequate activities and resources be successfully allocated.

For the activities to be better aligned with the principles of market learning, the focus in the development and reinforcing the already existing methods for gaining understanding of should be outside the firm and in the context in which innovation diffusion is seen happening: the social system of business actors and their customers, the market. This implies a shift from firm-focus to context focus. Although the initiation of the biomedical business unit can be seen to represent an effort to shift from prediction and planning to non-predictive strategizing and experimentation from the parent company's side, as well as to explorative market learning, this approach should be extended to the actions of the biomedical business unit.

6.2 Implications

Building on the research questions, practical implications for learning about the market and desired outcomes of methods for market learning methods can be presented.

One implication, deriving from the focus-shift from firm-focus to context-focus, is to map out the market in which the innovation diffusion for the product happens: identifying the innovators, early adopters, early majority and late majority in the innovation for the innovation diffusion. While the importance of "finding the right partners" is already identified, shifting the focus more outside of the firm and to the social system in which the adoption happens is justified: substantial resources towards internal learning about possible applications areas and product development needs are already allocated, but the issue with achieving a higher diffusion phase is still eminent. The focus-shift is both a requirement and

result of market learning. Change in the unit of analysis would include not devising a strategy for the company, but a strategy for the network.

Another implication has to do with communication and promotion. Can the shift from 2D cell culture to 3D cell culture with the case company's product be regarded as a great advance step compared to using the current solutions to cell cultivation? As the innovation diffusion theory implies, the early adopters that do not value the mere innovation but the edge that can be attained by it. The communication of the value and benefits should be prioritized when looking for new, influential network partners to advance the diffusion. The innovation that is marketed should oppose the users with possibility for a strategic advance, something that is not possible to achieve with the current technology or solution. Is the market able to convert the R&D input behind the product to their advantage? Is the value of the solution communicated to the market, and the market educated to the point where it can truly benefit from the product? As presented in this study, there are examples of products by market-leading companies, that have fallen in the chasm between the early majority and late majority: the companies managed to gain solid foothold amongst the early majority, but never succeeded to reach the later majority, due to reserved attitudes towards the product's performance.

As the results of the study indicate that the network approach to markets adopted to, the notion should be acted upon by network picturing. The outcome of the market learning process of network picturing could be utilized throughout the business unit, to construct collective representation of the market, for business activities to be more aligned with market learning on several levels. The representation of the market should be scrutinized regularly, in order to expand the understanding of the market: network picturing can be seen as a tool for gaining more understanding of the market.

The act of picturing the business network in which the dyad company is situated can undoubtedly be done with a number of ways, depending on to which extent one is willing to extend the idea of networks. The ultimate result requires intellect to operate on some of the concepts within network approach (some presented and discussed in this study), to grasp possible effects of managerial decisions to other actors in the network, and the ability and will to keep adding to the network picture over an extended period of time. Network pictures can offer usable insight to "mapping out" relationships in a firm's network, but as

the market is constantly evolving, the network picture of an individual is constrained to the individual's view, time of analysis and previous experiences, the network picturing done regularly and collectively within the firm in order to keep the value creation processes aligned with environment is a sound proposition, depicting both a method and an outcome of market learning.

Another implication derived from the market learning principles is revising the market rhetoric within the company. This refers, yet gain, to the shift to context focus: markets should not be depicted as industries or products, but as socially constructed networks of individual and business actors. Moreover, if the network approach to markets and strategy is to be implied, the "competition" rhetoric should be ridded of. Competing for a "market share" when everyone defines their market by "product" represents the outdated, neoclassical take on markets. By definition, a strategy based on competing and market share reduces strategy to a zero-sum game: this delimitation is built into a poor market view. If companies in the market use the same market definition, they automatically start to view each other as competitors: because the market is defined in terms of the current product instead customers, adopter groups and their value creation, there are exiguous chances to achieve desired innovation diffusion within the market and increase sales.

6.3 Research critique and suggestions for further research

Under the course of this study, the process itself as well as the chosen theoretical framework has been under scrutiny. One area of scrutiny has been the theoretical approach chosen from a number of available options, and in particular the decision to include the theory of diffusion of innovations to be used in the framework. Combining the theory with more recent marketing discourse opposes a challenging mix in regards of the unit of analysis and the studied phenomenon. Diffusion of innovations partially contradicts network approach as it sees businesses competing for market shares. However, the problem of reaching the adopter groups in innovation scenarios prevails even if one disregards this adaptive view on markets.

For further research, partially building on the insights generated during this study of Finnish multinational, a proposition to arrange a workshop focusing on analyzing the current business environment with tools such as network pictures could be beneficial. Letting the

informants experiment and conceptualize with tools for market learning in first hand could generate further insights on how the current market configuration is perceived by practitioners, and could help to generate new kinds of research questions in the domain of market learning. Furthermore, documenting the outcomes from using the tools, such as network pictures, could generate interesting findings on the current market configuration, and how the perceptions of the market may differ from person to person in the organization.

7 Mot högre grad av innovationsdiffusion – marknadsinläring i den biomedicinska industrin

I en global ekonomi med ständig progression mot högre grad av utveckling utgör marknadsföring ett pågående försök att hålla företagets värdeskapande faktorer i linje med den föränderliga miljön. Detta försök att hålla jämna steg med förändringarna har blivit en av de största utmaningarna i internationell företagsverksamhet. *Marknadsinläring*, eller processer och metoder som används för att lära sig om marknader, representerar ansträngningar mot högre grad av förståelse för affärsmiljön. Fast marknads socialt strukturerade karaktär är allmänt accepterad inom den akademiska världen, har metoder för marknadsinläring betonats överraskande lite bakom. Således syftar denna avhandling till att bidra till kunskapen om metoder för företag som vill ändra sin marknadsposition genom marknadsinläring.

Under de senaste decennierna har cellulosanofibrer undersökts som ett mångsidigt material inom elektronik, kosmetika, läkemedel, biomedicin och 3D-tryckning, och har uppmärksammats som en biomaterialplattform inom den biomedicinska industrin på grund av deras strukturella efterlikning av extracellulära matrisställningar. Cellulosananofibrer, eller CNF-baserade kompositer, har visat sig vara potentiellt plattformsmaterial i sårläkningstillämpningar och odling av mänskliga celler. Fallföretaget för denna studie utvecklar och producerar träbaserade biomedicinska produkter för en mängd olika användningsområden. Produkterna härrör från förnybara träkällor från hållbart förvaltade och certifierade skogar. Den centrala produktfamiljen är en nanofibrillär cellulosa hydrogel för 3D-celldodling och andra biomedicinska tillämpningar. Den är biokompatibel med mänskliga celler och vävnader, och är fri från vilket som helst animaliskt eller mänskligt härlett material, men trots produktens egenskaper och funktionalitet vid 3D-celldodling och innovationens responsivitet för det globala behovet av att övergå till förnybara materialer har produkten ännu inte nått sin fulla kommersiella potential. Detta ger ett bra tillfälle att undersöka marknadsinlärningsmetoder bakom företagets marknadsaktiviteter i ett innovationsscenario.

Syftet med denna avhandling är att genom datatriangleringsmetod (som kombinerar samlad läskunnighet och onlinekällor samt samlat intervjuuppgifter) utöka kunskapen om ämnet marknadsinläring. Ett normativt delmål för avhandlingen är att utvärdera de befintliga

metoderna för marknadsundervisning i fallbolaget och ge utvecklingsförslag baserat på resultaten. Dessa insikter kan därefter tas ur det branschspecifika sammanhanget och tillämpas i strategisk ledning hos företag som marknadsför produkter eller tjänster med marknadsdisruptiva egenskaper. Målsättningen är, i enlighet med undersökningens frågeställningar, att identifiera metoder som används till att lära sig om den biomedicinska marknaden, studera sambandet mellan läranderesultat och åtgärder samt att samla utvecklingsförslag baserat på resultaten.

Eftersom fokusområdet för avhandlingen är marknadsinläring är forskningsfrågorna, den grundläggande kärnan i kvalitativ forskning, följande:

- 1. Hurdana marknadsinlärningsmetoder kan identifieras?*
- 2. Vilka metoder, om några, används i fallföretaget?*
- 3. Hur är de identifierade metoderna och deras användning kopplade till chefernas förståelse av fallföretagets marknadsposition?*
- 4. Hur kan företagets nuvarande marknadsaktiviteter utvecklas för att anpassa dem mer till principerna för marknadsinläring?*

Ett affärsnätverk kan förstås som noder kopplade till varandra med speciella trådar som bildar ett nätverk. Näten i nätverket består av affärsenheter som till exempel tillverkare och serviceföretag, och relationerna mellan dessa företag utgör trådarna i nätverket. De trådar som binder företagen samman i nätverket byggs till följd av investeringar från båda parterna, och ju större investeringarna är, desto större är innehållet och bindningen mellan aktörerna som består av individer, avdelningar, företag och organisationer.

I modern marknadsföringsdiskurs har den neoklassiska synen på marknaderna drastiskt raffinerats: idag betraktas marknader som aktörsnätverk som gemensamt skapar värde genom att integrera sina egna resurser med andra aktörer i nätverket. Marknader ses som socialt strukturerade enheter som skapats av marknadsaktörerna genom deras handlingar. Företagen som marknadsaktörer ses inte som passiva offer för sin miljö, utan de borde aktivt försöka förändra villkoren för engagemang och interaktion med andra aktörer på ett sätt som

gynnar deras ställning. De socialt konstruerade enheterna ses faktiskt som konfigurationer av värdeskapande element i ett nätverk där marknadskonfigurationerna består av komplementära och konkurrerande aktörer som bildar ett affärs ekosystem som antas organisera sig till en jämvikt.

Kunskap och lärande kan sägas ligga i epicentret för denna studie. Kunskap om affärsnätets karaktär, andra affärsnätverk och hur man skapar värde inom nätverket. Kunskap kräver lärande, och kunskap om marknader kräver marknadsinläring. Om en marknadsaktör hävdar sig ha kunskap om marknaden måste inläring ha hänt. Just vad processerna och metoderna bakom marknadsinläring är, huruvida det är medvetet arbete eller inte, och vilken typ av roll marknadsinläring har i marknadsföring av innovation är några av de frågor som har drivit denna studie till sin existens.

Idag kräver globaliseringen, digitaliseringen och den globala miljöoron förnyade strategier och synpunkter på hur företag ska agera i affärsnätverk. Betydelsen av att vara aktuell i den befintliga affärs miljön har demonstrerats i fallet med Nokia-mobiltelefonerna: företaget misslyckades med att se över sin strategi i tid för att kunna lyckas på marknaden för mobila ekosystem. Genom att avvisa de föråldrade antagandena, påståendena och uppskattningarna om marknader som innebär att de är externa givna och i naturen antingen enkla eller ofullständiga, kan företagen framgångsrikt forma marknaden till sin fördel.

Marknadsinläring kan definieras som processer och metoder för att lära sig om marknaden, vilket omfattar företagets sökning, variation, riskupptagning, experiment, spel, flexibilitet, upptäckt och innovationsaspekter av lärandeaktiviteter. Det utmanar företaget att ifrågasätta sina befintliga hinder, och kräver att aktören utvecklar nya metoder och synpunkter om marknaden. Det skiljer sig från traditionen av marknadsorientering i den meningen att den senare fokuserar på att uppnå information från en given och bestämd marknad, medan marknaden från marknadsinläringssynvinkel ses som en socialt skapad enhet som ständigt återskapas och tar nya former. Således är övergången från adaptiv marknadsorientering till marknadsinläring en väldigt motiverad process för en marknadsaktör som för närvarande är i färd med att övertyga huvudmarknaden om fördelarna med en innovation, särskilt när marknadens gränser fortfarande kan vara delvis odefinierade eller okända för den lokala nätverksaktören.

Att erkänna marknader som socialt konstruerade nätverk är det som förbinder litteraturen om affärsnätverk och marknadsinläring med teorin om diffusion av innovationer, vilket understryker rollen av interaktion inom ett socialt system i processen genom vilket värdet av en innovation kommuniceras över tid. Endast genom att förstå och acceptera marknadernas karaktär som komplexa adaptiva system kan företagen tolka och reagera på sin miljö och bara genom att lära sig att fungera och samarbeta i denna komplexitet kan företagen delta i att proaktivt anpassa den miljön till sig själva istället för att passivt anpassa sig till miljön.

Innovation kan (inom ramen för affärsverksamhet och ekonomi) betraktas som tillämpning av bättre lösningar som uppfyller nya krav, för närvarande oförutsedda eller befintliga marknadsbehov. Det har hävdats att en fjärde industriell revolution som rör sig om en rad nya teknologier kommer att störa olika industrisektorer globalt. Detta gäller inte bara utbudssidan, utan stora förändringar sker också på efterfrågesidan, på grund av ökad insyn, konsumentansvar samt nya mönster för konsumentbeteende.

Diffusion av innovationer är en teori som syftar till att förklara i vilken takt nya idéer och teknologier sprids. Diffusion är processen genom vilken en ny idé kommuniceras bland deltagare i ett socialt system över tiden. En innovation presenterar en individ eller en organisation med nya alternativ till att lösa problem eller betjäna behov, men huruvida en ny innovation faktiskt klarar av att utmärka de tidigare lösningsmetoderna är osäkert för en individ, och hen är därför motiverad till att söka information om den för att bestämma om man ska börja implementera den nya innovationen eller inte. Denna information erhålls ofta från närstående individer i form av subjektiva utvärderingar av innovationen. Modellen omfattar fem etablerade kategorier av ibruktagare av innovationer: innovatörer, tidiga ibruktagare, tidig majoritet, sen majoritet och eftersläntare.

På grundval av fallföretagets nuvarande förståelse för sin marknadsposition är företagets huvudprodukt för närvarande i bruk hos ”innovatörerna” och ”tidiga adoptörer” på fältet, och har inte ännu nått huvudmarknaden som avbildats i innovationsdiffusionsteorin. Att ha svårigheter med att kommunicera värdet av en innovation på ett sätt som skulle övertyga majoriteten av marknadsaktörerna att anpassa sig till den kan innebära att företaget inte vet tillräckligt om huvudmarknaden tillräckligt för att kunna kommunicera nyttorna effektivt eller att den största marknaden för produkten i själva verket är delvis okänd. Att uppnå bättre

förståelse för den nuvarande och potentiella marknaden för produkten genom att identifiera och utveckla marknadsinlärningsmetoder hos fallföretaget skulle, utgående från litteraturöversynen i denna avhandling, vara ett förslag som skulle kunna beaktas i strategin för innovationens kommersiella framgång.

De samlade empiriska data som används i studien består huvudsakligen av primära data samlade genom djupintervjuer hos fallföretaget och dess nyckelpersonal med ansvar för relevant verksamhet inom den biomedicinska avdelningen. Av datatrianguleringsmetoderna representerar denna avhandling metodtriangulering, vilket innefattar användning av flera metoder för datainsamling om samma fenomen. Den typ av triangulering som används i denna avhandling, och som ofta används i andra kvalitativa studier, inkluderar djupintervjuer, data som samlats in från offentliga informationskällor och anteckningar genom deltagarobservation. Syftet med att använda datatriangulering i denna avhandling är att fånga olika dimensioner av marknadsinläring, kombinera data som samlats in från olika informationskällor samt att intervjua chefer för olika funktioner hos fallföretaget. Efter förståelse för sammanhanget hade skapats genom deltagandeobservation och diskussion med företagets ledning, var det möjligt att fokusera på det formulerade problemområdet genom utförandet av djupintervjuer med chefer i företaget.

Under deltagarobservation uttryckte företaget sin oro för frågor om att uppnå högre grad av ibruktage för deras produktinnovation inom dess centrala applikationsområden inom branschen, eller närmare bestämt att en viktig fråga för företaget är marknadsandelen inom segmentet för växtbaserade applikationer för cellodling. Att uttryckligen hänvisa till en "klyfta" (chasm) på marknaden i detta sammanhang skulle innebära att produkten för närvarande är anpassad till företagets nuvarande förståelse av deras marknadsposition främst av innovatörerna och tidiga adoptörer i fältet, och ännu inte har nått majoritetsmarknaden, vilket avbildas på innovationsdiffusionskurvan enligt teorin om diffusion av innovationer. Genom den kvalitativa datainsamlingen bland företagets nyckelpersoner strävar den här studien efter att porträttera hur marknaden förstås, vad förståelsen bygger på och vad som kan göras för att lindra den uttryckta oron för innovationsdiffusion i branschen, samt att bidra till att identifiera och utveckla marknadsinlärningsmetoder i företaget.

Baserat på resultaten från denna studie kan det vara svårt att dra en strikt skiljelinje mellan metoder och resultat av marknadsinlärning. Ett bra exempel på detta är nätverksbilder (Network Pictures), som både är verktyg för att skapa förståelse av miljön och samtidigt skapa insikt om marknadens dynamik (lärande). Network picturing sker även om konceptet själv kan vara okänt för utövaren: aktörer, resurser och möjligheter kartläggs när man planerar åtgärder. I allmänhet lägger marknadsinlärningsmetoderna grunden för strategisk nätverksinteraktion och för processer som syftar till att faktiskt påverka den rådande konfigurationen av affärsnätverket. Att förstå den komplexa nätverksaspekten av marknader kan därmed ses som en impuls och drivkraft mot marknadslärandemål och genom avsiktliga processer för att utveckla marknadsinlärningsprocesser kan nätverksaktören förstärka sin förståelse av miljön.

Marknadsinlärning kan förstås mer som ett tillvägagångssätt än en uppsättning metoder: acceptansen av att det fokala företaget, oavsett branschen, verkar i en miljö som som företaget ständigt måste lära sig av för att hålla sina värdeskapandeprocesser (som miljön möjliggör) anpassad till den, är en nyckel till att faktiskt förändra marknadsdynamiken. Syftet med en åtgärd påverkar också dess slutresultat: om en åtgärd utförs enbart för att lära sig mer om marknaden kommer det att uppenbarligen uppstå inlärning i en eller annan form, antingen den inlärning som eftersträfvats eller kunskap om hur man ska närma sig marknadsinlärning om processen inte gav inga önskade resultat.

För att skala ner till företagsspecifika processer och metoder för att lära sig om marknaden, att vara aktivt ”där ute”, att etablera bilaterala kontakter och dialoger och att vara nära och samarbeta med de forskningsgrupper som utgör en inflytelserikt innovationsgrupp är exempel på praktiska marknadsinlärningsmetoder hos fallföretaget.

Kunskapen inom nätverket utnyttjas till exempel genom samarbetsprojekt som materialleverantör för applikationer eller som produktutvecklingspartner i gemensamma projekt. I samarbetet med sker också inlärning om själva nätverk, strategiska partnerskap och det vetenskapliga ämnet från projektet.

En metod genom vilken fallbolaget har uppnått en högre grad av marknads- och branschförståelse är rekrytering. Att anställa talanger med omfattande branschfarenhet ses som en betydande drivkraft för marknadsinlärning, eftersom kunskapen delas inom

företaget, och redan befintliga ansträngningar omdirigeras för att få förståelse för branschutvecklingen och marknadsdynamiken.

Initieringen av affärsenheten i fokus kan ses vara ett exempel på avsiktliga marknadsinlärningsmetoder och med tanke på den sammanflätade insats-resultat-dynamiken hos marknadsinlärningsmetoder kan den också ses som en pågående lärandeprocess. Fallföretaget som en affärsenhet i en större korporation kan ses som moderbolagets projekt för att lära sig att driva och samarbeta i det nuvarande affärsnätverket inom skogsindustrin, samt att proaktivt anpassa miljön till sig själva istället för att reagera på den.

Att etablera bilaterala förbindelser med andra nätverksaktörer, utnyttja kunskapen hos individer i företaget och externa nätverksaktörer, samt samarbeta med forskargrupper spelar en nyckelroll för att förstå dynamiken och aktörerna på marknaden. Dessa metoder utgör en stor del av förståelsen av hur marknaden är för tillfället, och möjliga riktningar som marknaden kan utvecklas i. Processerna kan identifieras som en del av ett avsiktlig kontextbyte från den fokala företaget till dess kontext, där kontexten är nätverket och definitionen av marknaden.

Inlärningsresultaten och marknadsinlärningsmetoderna är delvis sammanflätade: det är svårt att ange huruvida förståelsen av nätverket och marknadspositionen (avbildad i en nätverksbild, till exempel) är ett resultat av lärande - kanske det är mer sannolikt att lärande händer på språng, och att nätverksbildning är bara en marknadsinlärningsmetod.

Förbindelsen till moderbolaget, inlärningsmetoderna och processerna bakom fallföretaget samt det faktum att företaget agerar som en enskild enhet inom bolaget på ett start-up-liknande sätt har haft en klar inverkan på chefernas förståelse av företagets nuvarande nätverksposition och status som en aktör på den biomedicinska marknaden. Företagets roll som en enhet inom moderbolaget ses både som en styrka och som en svaghet: resursbandet till moderbolaget, kunskapen i att skala upp företag, kunskapen om råmaterial och tekniska resurser uppfattas självklart som en tillgång, men denna koppling till moderbolaget inses internt som en partiell svaghet när det gäller hur de andra nätverksaktörerna kan uppleva företaget.

Med tanke på utmaningarna i att uppnå en högre grad av innovationsdiffusion för produkten, bör framtida marknadsinlärningsaktiviteter avsiktligt riktas inte bara för att stärka de interna inlärningsprocesserna utan även för att identifiera de väsentliga strategiska partnerna i nätverket. Som resultaten tyder på, en nyckel till att skapa värde på marknaden är att hitta rätt partner för att uppnå högre grad av diffusion i de centrala applikationsområdena. Därigenom att identifiera de nästa adoptörgrupperna utanför innovatörerna och den tidiga majoriteten i innovationsdiffusionskurvan är enligt innovationsdiffusionsteorin det nästa steget för högre grad av innovationens ibruktagnin. Detta innebär att adoptörgrupperna måste identifieras för att tillräckliga aktiviteter och resurser ska kunna fördelas framgångsrikt.

För att verksamheten skulle kunna anpassas bättre till principerna för marknadsinläring bör fokuset på utveckling av de redan existerande metoderna för utökning av marknadsförståelse vara utanför företaget och i det sammanhang där innovationsdiffusion ses: det sociala systemet av affärsaktörer och deras kunder – på marknaden. Detta innebär ett skifte från företagsfokus till kontextfokus. Trots att initieringen av fallföretaget som en affärsenhet kan ses som en ansträngning att övergå från förutsägelse och planering till icke-förutsägbar strategisering och experiment från moderbolagets sida, bör detta tillvägagångssätt utvidgas också till fallföretagets egen verksamhet.

Utifrån forskningsfrågorna kan praktiska metoder för att lära sig om marknaden och resultat av befintliga metoder för marknadsinlärningsmetoder presenteras. En implikation, som härrör från fokusskiftet från företagsfokus till kontextfokus, är att kartlägga marknaden där innovationsdiffusionen sker: att identifiera innovatörer, tidiga ibrukttagare, tidig majoritet och sen majoritet för innovationsdiffusion. Medan betydelsen av att ”hitta rätta partners” redan är identifierad, borde fokuset is stort flyttas mer utanför företaget och till det sociala systemet där ibrukttagandet händer: stora resurser mot internt lärande om möjliga tillämpningsområden och produktutvecklingsbehov är redan allokerade, men problemet med att uppnå en högre diffusionsfas är fortfarande framträdande. Fokusskiftet är både ett krav och ett resultat av marknadsinläring. Förändring av analysenheten skulle innefatta att inte utforma en strategi för företaget, utan en strategi för affarsnätverket.

En annan implikation gäller kommunikation och marknadsföring. Kan övergången från 2D-cellodling till 3D-cellodling med fallföretagets produkt betraktas som ett utmärkt framsteg

jämfört med att använda de nuvarande lösningarna för cellodling? Kommunikationen av värdet och fördelarna bör prioriteras när man letar efter nya, inflytelserika nätverkspartners för att främja diffusionen. Den innovation som marknadsförs ger användarna en möjlighet till strategiska framsteg, något som inte kan uppnås med den nuvarande tekniken eller lösningen. Kan marknaden utnyttja R & D-insatsen bakom produkten till sin fördel? Utbildas marknaden till den punkt där den verkligen kan dra nytta av produkten? Som framgår av den här studien finns det exempel på produkter av marknadsledande företag, som har fallit i klyftan mellan den tidiga majoriteten och sen majoritet: företagen lyckades få fast fotfäste till en början, men det gick aldrig att nå den senare majoritet på grund av reserverade attityder mot produktens prestanda.

En annan implikation som härrör från marknadsinlärningspraxis är att revidera marknadsretoriken inom företaget. Detta hänvisar till övergången till kontextfokus: marknaderna bör inte avbildas som branscher eller produkter, utan som socialt konstruerade nätverk av enskilda och affärsaktörer. Dessutom, om nätverksinriktningen på marknader och strategi ska underförstås, bör ”konkurrensretoriken” slopas: att konkurrera för en ”marknadsandel” medan alla definierar sin marknad med ”produkt” representerar den föråldrade, neoklassiska synen på marknader. Enligt en strategi som bygger på konkurrens och marknadsandelar sänks strategin till ett nollsummespel. Denna avgränsning är inbyggd i en dålig syn på marknader. Ifall företag på marknaden använder samma marknadsdefinition börjar de automatiskt att se varandra som konkurrenter - om marknaden definieras i form av den nuvarande produkten och konkurrens istället för kunder, ibruktagargrupper och värdeskapande finns det svaga chanser att uppnå önskad innovationsdiffusion inom marknaden.

Appendix

Interview questions

1. What is your name and position in the company?
2. What is the role of your position and department regarding the product?
3. Based on your understanding, what kind of benefits are to be gained by the product?
4. How would you define the market(s) in which the case company acts with the product?
5. Which are the other actors on the same market(s)?
6. Where do you base your understanding of the market(s)?
7. How do you understand the concepts of a “market”?
8. Where does the company base its understanding of the market?
9. Who are the most important partners in terms of marketing the product?
10. What terms would you use to characterize the firm’s understanding of the market and the possibilities for the product?
11. Is there something you would like the firm to improve in terms of gaining understanding of the market for the product? Why?
12. What does the firm do to learn more about the market for the product?
13. What kind of findings have you made through these processes and methods? How are the findings applied?
14. What are the case company’s goals in terms of their main product?
15. How would you evaluate the company’s success in achieving these goals?
16. What are the company’s most important resources for making their product a success?

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