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New Ventures Entering the Norwegian Maritime Industry

How can new ventures utilize strategic alliances to overcome entry barriers?

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Problem Description

This thesis aims to answer how new ventures can overcome the entry barriers when entering the Norwegian maritime industry (NMI), and how they utilize partnerships in order to enter and build legitimacy. The following research questions are introduced in order to answer this:

i. What entry barriers do new ventures face when entering a mature industry?
ii. How do new ventures utilize partnerships to enter the NMI?
iii. How do new ventures utilize partnerships to build legitimacy?

An industry study of the NMI, in addition to a multiple case study of four Norwegian based new ventures that have entered the industry, serves as the foundation for empirical findings. The findings from the case analysis are anchored with theoretical perspectives on industry entry, strategic alliances and theory on legitimacy in order to give a valuable study on the topic of new ventures entering the NMI.

Preface and Acknowledgements

This master thesis is written as the final part of our Master of Science at the School of Entrepreneurship at the Norwegian University of Science and Technology (NTNU). The thesis was written during the spring of 2018, as a part of the research project *"Greening the Fleet"* between SINTEF and NTNU. The thesis is an in-depth study as part of the course TIØ4945 *"Innovasjon og Entreprenørskap."*

The master thesis is a theoretical and empirical case study that explores how new ventures could enter a mature industry, with the mature Norwegian Maritime Industry (NMI). This study explores the entry barriers in the NMI, and how new ventures can utilize partnerships in order to overcome these barriers and build legitimacy.

We have prepared for this thesis through a preliminary literature that was conducted during the the autumn of 2017, as part of the courses TIØ4530 and TIL45345. The work with this thesis has been very interesting for the authors, and a deeper understanding of the entry process in the NMI, as well as the changing environment in this industry.

Several people have contributed in the realization of this thesis. First, we thank Øyvind Bjørgum, our supervisor, at the Department of Industrial Economics and Technology Management (NTNU), for guidance throughout the process of writing this thesis. He has helped us through the process of gathering and interpretation of data, and in the writing process, and given us valuable insights and feedback.

Moreover, we like to express gratitude towards the following case firms, for their valuable contributions to our empirical data: Clean Marine Switchboards, YXNEY Maritime, ZEM Energy and Corvus Energy - both for taking the time to participate in our study through in-depth interviews, as well as answering follow-up questions when needed.

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Abstract

This master thesis explores how Norwegian new ventures can overcome entry barriers in the Norwegian maritime industry (NMI), and how they can build legitimacy and survive through various forms of strategic partnerships. More specifically the study investigates entry barriers in the NMI, motives for forming alliances, partner selection criteria, partner contributions, and strategies for how new ventures build legitimacy in the NMI.

Several new ventures have attempted to enter the Norwegian maritime industry, but most of them do not succeed. The NMI is a typical mature industry, and it is therefore characterized, among other things, to be driven by large capital, with laws and regulations that may be demanding, and have culture and norms within the industry that can be challenging for new players. This is especially true for small players such as new ventures who often have limited resources and networks. This is also the reason why this assignment focuses on strategic partnerships as a tool for how new firms can build legitimacy to overcome entry barriers in the NMI.

A literature study has been conducted to gain better insight into how existing literature discusses issues related to the challenges of entering the NMI. According to some lack of literature in this area, the emphasis has been placed on mapping specific entry barriers for new firms in this industry. Based on this literature study and the empirical data from interviews from four different new ventures that are now operating in the NMI, we look at the use of strategic partnerships and how they are attempting to build legitimacy as two main pillars for how a new firm can achieve a successful entry in the industry.

The findings indicate that the choice of strategic partnerships varies for different types of new ventures. If the firm delivers a complex technology, they need partners that can assist with network, capital, legitimacy and as a guarantee for delivery, but if the firms delivers a ”support service” technology, they need (at the very least) partners who can assist with legitimacy. The different case firms that have been interviewed have similarities as they all provide technology that be categorized within green technology, but they are also different in age, experience, network, products and entry strategies.

The findings in this master thesis concludes that strategic partnerships are critical for new ventures to overcome entry barriers in a mature industry. Furthermore, we emphasize that founders' personal relationships and industry backgrounds are crucial for providing the necessary legitimacy to attract these partners. Furthermore, it also appears that legitimacy is critical to acquire necessary resources, capital and customers, in order to grow and survive. Without relevant industry background and network, new ventures will not have the necessary legitimacy to enter a mature industry, such as the NMI.

Sammendrag

Denne masteroppgaven utforsker hvordan norske oppstartsselskaper kan overkomme inngangsbarrierer i den norske maritime industri (NMI), og dette ved hjelp av å bygge legitimitet og ulike former for strategiske partnerskap. Flere oppstartsselskaper har forsøkt å entre NMI, men de fleste lykkes ikke, og dette skyldes flere ulike grunner. NMI er en typisk moden industri, og den kjennetegnes derfor blant annet som å være svært kapitaltung, med lover og reguleringer som kan være krevende, så vel som at kultur og normer innenfor bransjen kan være utfordrende for nye aktører. Dette gjelder særlig for små aktører som oppstartsselskaper som ofte har begrensede ressurser og nettverk. Sistnevnte er også grunnen til at denne oppgaven fokuserer på strategiske partnerskap som et verktøy til hvordan oppstartsselskaper kan bygge legitimitet for så derfor å overkomme inngangsbarrierene i NMI.

Det har blitt utført et litteraturstudie for å få bedre innsikt i hvordan eksisterende litteratur adresserer tema som angår utfordringer ved å entre norsk maritim industri. I henhold til noe manglende litteratur på dette området har det her blitt lagt vekt på å kartlegge spesifikke inngangsbarrierer for oppstartsselskaper i denne bransjen. Basert på dette litteraturstudiet, og de empiriske dataene fra intervjuer fra fire ulike oppstartsselskaper som opererer innenfor NMIi, ser vi nærmere på bruken av strategiske partnerskap og opparbeidelse av legitimitet som to hovedpilarer for hvordan et oppstartsselskap kan oppnå en suksessfull entring i bransjen.

Funnene uttrykker at valg av strategiske partnerskap varierer for ulike typer oppstartsselskaper. Dersom oppstarten er teknologitung, trenger man partnere som kan bistå med nettverk, kapital, legitimitet og leveransesikkerhet, men dersom oppstarten leverer en ”supporting service”-teknologi, trenger man (i det minste) partnere som kan bistå med legitimitet. De ulike oppstartene som har vært intervjuet har likheter da de alle leverer en teknologi som kategoriesers som grønn teknologi, men de er også ulike i alder, erfaringer, nettverk, produkter og inngangsstrategier.

Funnene i denne masteroppgaven kan fastslå at strategiske partnerskap er kritisk for at oppstartsselskaper kan overkomme inngangsbarrierene i en moden industri. Videre konkluderer vi med at grunnleggernes personlige relasjoner og industribakgrunn er helt avgjørende for å gi oppstarten legitimitet som den kan benytte for å etablere disse partnerskapene. Videre viser det seg også at legitimitet er helt nødvendig for å hente inn ressuser, kapital og kunder for å kunne overleve. Uten relevant industribakgrunn og nettverk vil ikke oppstartsselskaper ha den nødvendige legitimiteten som behøves for å entre en moden industri, slik som i NMI.

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Chapter 1

Introduction

1.1 Background

For new ventures trying to enter a market or an industry, the challenges can be many, not only regarding entering, but also for survival. A new venture has limited resources compared to a larger and more established company, hence they need to strategize for how to overcome this challenge. The barriers of entry vary depending on characteristics in the industry the new firm is trying to enter. These variations can be a result of changes in market trends, cultures, rules, norms, customer demands and regulations in each industry. In certain emerging industries it could be easier for younger firms to enter because rules, regulations and norms have not yet been set in the industry's business culture as opposed to in a mature industry.

Industry maturity is often synonymous with a few dominant firms, dominant product designs, high entry barriers and a low rate of entry (Swaminathan, 1998). New entrants in mature industries are often a result of technology shifts that result in the founding of new ventures that introduce new organizational structures and activities that differ from those of incumbent firms (Swaminathan, 1998). This thesis seeks to to give valuable insights on how new ventures can enter a mature industry.

Several of the characteristics of a mature industry can be applied in the Norwegian Maritime Industry (NMI), hence this industry was selected to provide contextual understanding to the thesis. The NMI is one of the most important industries in Norway, accounting for a value creation of NOK 140 billion in 2017 (Maritime Outlook Report, 2018). The industry is characterized as an industry with a high global competition, where Norwegian actors holds a world leading position with regards to knowledge and innovation, and are on the forefront of implementing new technologies.

The industry is further characterized as a cyclical industry with an average duration between two production peaks of eight years for a shipbuilding cycle. The periods of the cycles can be divided into phases of growth, peak, recession (downturn) and recovery (Westhead & Solesvik, 2016). The industry is highly subjected to regulations, and is further characterized with a high degree of complexity with respect to both technology and the value chain, as well as large capital requirements.

The rise of green technologies such as fuel cells, battery technologies together with advanced ICT technologies (information and communication technologies), as well as regulations from both national and international governments to reduce emissions, strongly influence the shift towards more emission friendly technologies in the industry (e.g. technologies that replace today's propulsion systems, or fleet management systems that optimize operation of the vessels).

These trends poses new opportunities for new technology ventures to enter this industry and challenge the established firms in the NMI. Given the limited resources of a new venture and the complexity of the NMI, this study further wish to explore the new ventures approach to strategic alliances when entering the industry, and how they use their partners as a strategy for gaining resources and building legitimacy.

From this, we look into theoretical literature regarding industry entry, entry barriers in mature industries, as well as literature on strategic alliances and legitimacy. In-depth interviews with four new ventures engaged in the NMI serves as the empirical foundation along with the industry study of the NMI. These findings are analyzed and discussed in depth and linked to literature in order to conclude on how new ventures can enter a mature industry.

1.2 Research Questions

This study seeks to to analyze how new technology ventures can enter a mature industry, and studies this in the context of the NMI. To establish a better understanding of how new ventures could enter a mature industry, three research questions (RQs) are formulated. In order to break down the initial problem, the RQs will form the basis for understanding the entry barriers new firms face when entering an industry, and thus how they can use strategic alliances/partnerships[1] to overcome these. Thus, the first research question is:

i. What entry barriers do new ventures face when entering a mature industry?

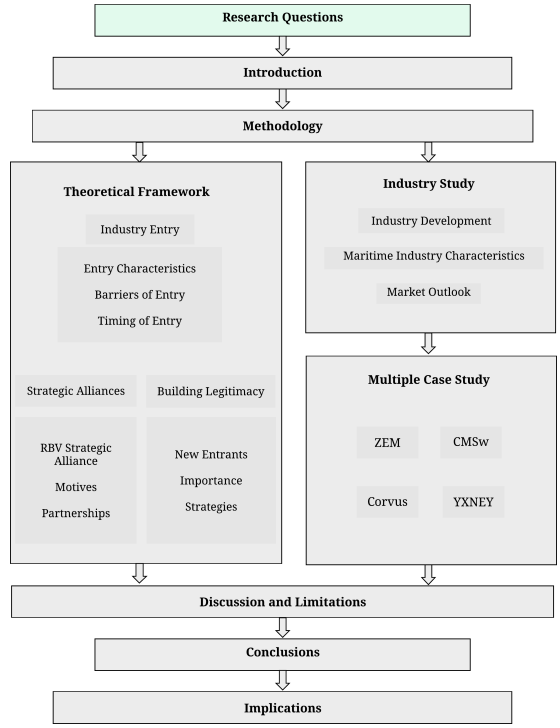

Figure 1.1: Structure of the Research Questions.

Literature highlights that one of the main challenges of new ventures are their limited resource base, and one way of attracting the needed resources are through establishing strategic alliances. There exists a large amount of theory regarding entry into industries and strategic alliances. However, there is a gap in knowledge about strategies new ventures should adopt when entering a mature industry, and what type of partnerships they should form to acquire the needed resources to survive.

[1] In this thesis we will use both of the terms alliance and partnerships when talking about the relations between the new ventures and actors in the industry.

There exists several studies that focus on how established firms form joint ventures and internationalization strategies when talking about strategic alliances (Solesvik & Westhead, 2010). Literature concerning strategic alliances within new ventures in the context of the NMI have not been examined to the same extent. In addition, the subject of how new technology ventures can enter as stand-alone entrants seems rather under explored with respect to the cyclical NMI. Thus, this exploratory study will examine motives for why new ventures form alliances, with whom and when these partnerships are established. Further we wish to investigate in what way their contributions are important when entering the NMI? This will be done by answering the following research question:

ii. How do new ventures utilize partnerships to enter the NMI?

Legitimacy is highlighted as a critical resource for new ventures that is important for gaining other resources Zimmerman & Zeitz (2002). Hence, alliances can provide critical resources such as: Specific skills, financial resources, legitimacy and market power (Hamel et al., 1989). As new ventures have limited legitimacy due to their short track record, this study will explore in what way their partners contribute to how new ventures gain legitimacy. This leads us to the third research question:

iii. How do new ventures utilize partnerships to build legitimacy?

1.3 Purpose and Structure

1.3.1 Purpose

The increased pressure on the industry actors within the NMI to innovate and implement new and more environmentally friendly technologies, to reduce the industry's environmental impact, poses opportunities for new ventures to enter the NMI. As today's technological solutions become obsolete, new technology ventures can seize this opportunity and challenge the market position of the leading actors. However, being a new venture entering an industry also poses challenges with respect to limited resources and lack of legitimacy that are critical to overcome for survival and growth. A strategy for attaining resources and building legitimacy is therefore needed. The purpose of this thesis is to explore how new technology ventures can utilize partnerships as a strategy for gaining access to resources and building legitimacy when entering the NMI.

1.3.2 Structure

In order to investigate how new ventures should enter the NMI, both theoretical and empirical research have been conducted, followed by an analysis of the collected data. This serves as the foundation of the thesis, which is presented in the following section, see Figure 1.2. We will also review the methodology of the thesis in Chapter 3. In this chapter we will justify the research method, case firm selection as well as the industry data collection process. In this Chapter we will also present the limitations of research method that form the foundation of the empirical data of this thesis. To construct a contextual understanding of the thesis, we will present the conducted industry study on the NMI in Chapter 4. Chapter 5 contains individual presentations of the case firms, before a multiple case-analysis is conducted. Findings from our industry research and case firms will be discussed in relation to theoretical findings in Chapter 6, followed by a conclusion of the key findings in this thesis in Chapter 7. Lastly, implications and further recommended research will be presented in Chapter 8. The interview guide that has been used for gathering of empirical data is included in the Appendix.

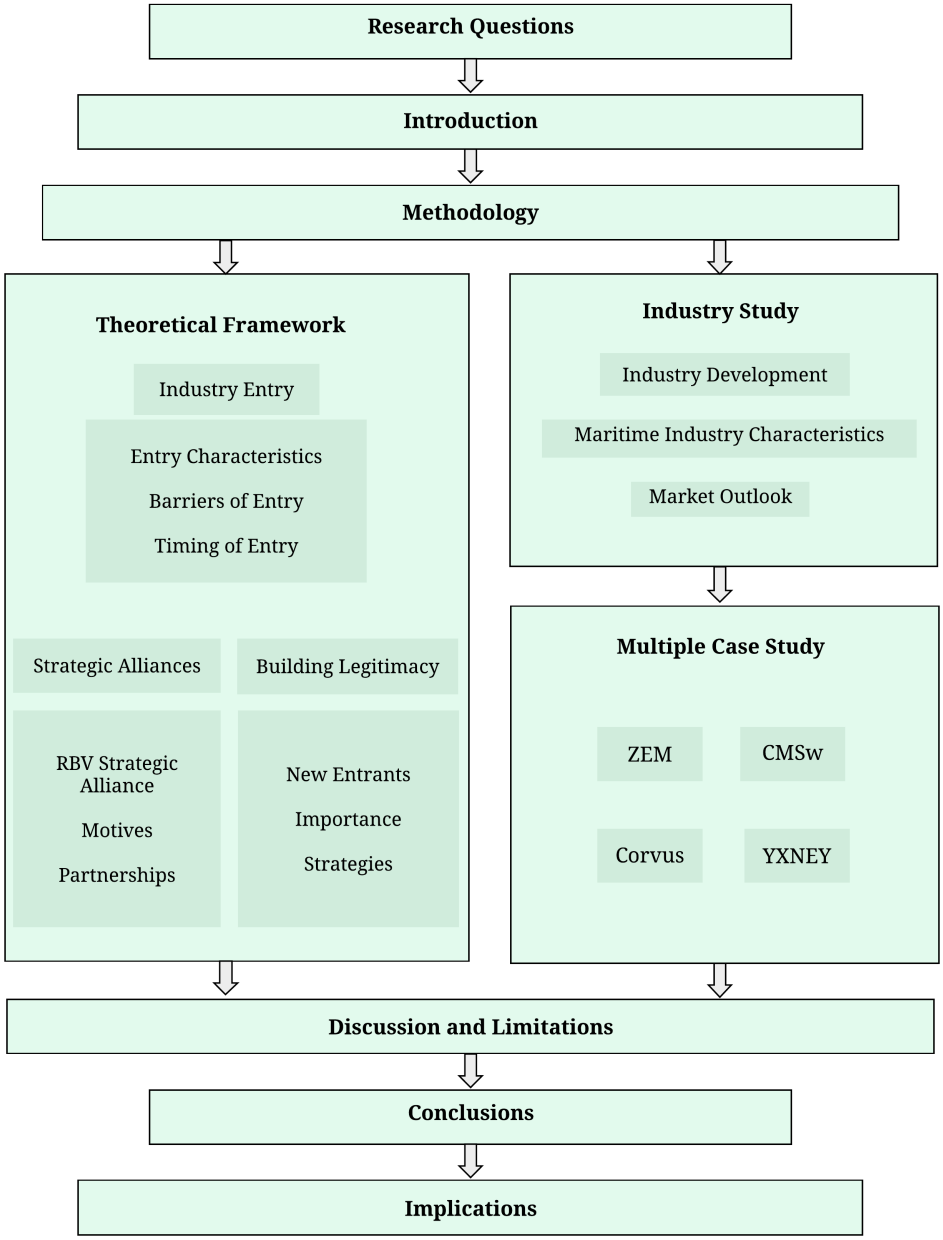

Figure 1.2: Structure of the thesis.

Chapter 2

Theoretical Framework

In order to answer the research questions, a theoretical framework for industry entry into mature industries are established. This is done by studying the concepts of industry entry, barriers of entry, strategic alliances and legitimacy. First, literature on industry entry will be presented, where industry entry of new ventures are in focus. Moreover, new venture entry characteristics and barriers of entry will be explained.

Studies mostly focus on the aspects of joint ventures between incumbents, and internationalization with respect to strategic alliances, and focus on the transaction costs as an explanation for why some firms choose to form strategic alliance (Eisenhardt & Schoonhoven, 1996; Westhead & Solesvik, 2016). However, these explanations do not capture the strategic and social factors which drives new ventures into alliance formation (Eisenhardt & Schoonhoven, 1996).

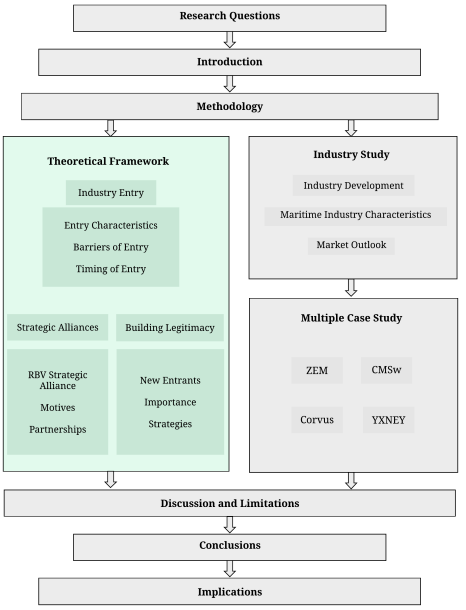

Figure 2.1: Structure of the Theoretical Framework.

This study will explore what existing literature say about what factors lead new ventures into alliance formation, what partner selection criteria are important, and what are the main contributions from strategic partners? Lastly, theory on how new ventures can build legitimacy will be presented.

2.1 Industry Entry

A successful entry to an industry can be defined in various ways. In this chapter we will explore literature concerning how new ventures can enter industries and specifically what factors and challenges new ventures need to be aware of when trying to enter a mature industry, like the NMI. More specifically we will look into literature explaining different modes of entry, barriers of entry and timing of entry. Furthermore, these theoretical findings will be discussed in the context of the NMI together with empirical findings in Chapter 6.

2.1.1 Defining Industry Entry

Geroski (1995) describes entry as a "part of a process of change in which large numbers of new firms displace large numbers of older firms".Geroski (1995) further states that entry is often used as a vehicle for introducing new innovations. These innovations could be driven by any shift in technology, processes or customer needs. According to Helfat & Lieberman (2002), market entry is "the initial production of a product or provision of a service". In their research they conclude that a firm's pre-entry resources, capabilities and experience within the firm have an important impact on the markets they choose to enter, the mode of entry, and the timing of entry, and thus the success of entry (Helfat & Lieberman, 2002). This research will adopt the last definition of entry, and look at the theoretical industry entry segments.

Helfat & Lieberman (2002) argue that industry entrants' choice of entry mode depends on the factors such as pre-entry resources, entry capabilities and the importance of early entry. Industry entrants are typically divided into two groups, either as new firms or established firms ((Forbes & Kirsch, 2011), (Helfat & Lieberman, 2002). Helfat & Lieberman (2002) further divide the industry entrants into three categories: diversifying entrants, parent-company ventures and new firms. Established firms can enter as a diversifying entrant or through parent-company ventures, while new firms can enter as stand-alone entities (Helfat & Lieberman, 2002). This study will further focus on new firms entry characteristics.

2.1.2 Barriers of Entry

Barriers of entry are thought of as an obstacle which prevents new firms from surviving long in a market. Barriers to entry appear similar in character to costs of adjustment, and they are particularly pressing for those entrants who only have a limited time in which to prove themselves (Geroski, 1995). Entrants need to develop new capabilities or replace existing ones to be able to overcome the entry barriers. This means that they need to develop or change something to fill a gap in the market today.

Helfat & Lieberman (2002) examines the relationship between a market entry and the organizational resources and capabilities to the entrant, and how the resource base and capabilities affects the market that the firm choose to enter, the mode of market entry, the timing of the entry and lastly the success of entry.

McAfee et al. (2003) argue that barriers to entry can be organized into three categories that reflects the cost aspect of the barriers. The first category is primary entry barriers, which is a cost that the entry firm face when they consider to enter an industry. The second is ancillary barriers, which deal with costs that reinforce other barriers that are present, while not forming barriers on their own. Ancillary barriers are often present in industries without clear technological standards, and where there are several technological options that can potentially be invested in. An example could be to invest in battery or hydrogen technologies to replace fossile fuels. The third is referred to as antitrust barriers, which are costs that delay entry. An expample could be investments needed to pass requirements and get permits from a regulating governmental entity (McAfee et al., 2003).

Young firms do not have a proven track record of accumulating entrepreneurial skills and business success, gaining external resources and funding can therefore pose a challenge as the value and prospects of the new venture is more difficult for investors and potential partners to predict (Djupdal & Westhead, 2015). The absence of a new venture's track record of performance, results in a lack of confidence among customers, distributors and suppliers that the new venture depend on to survive (Zimmerman & Zeitz, 2002).

Scholars have long recognized the increased mortality risk that new ventures face in terms of liabilities of newness. Shepherd et al. (2000) argues that the mortality risk, and the liabilities of new ventures are largely dependent on the degree of novelty. Novelty is viewed in three different dimensions; novelty to the market, novelty in production, and novelty to management. These novelties are connected to the uncertainty customers have about the new venture, to the technology of production, and lack of business skills and start-up experience (Shepherd et al., 2000). Novelty may be present in production and/or in management, and both contribute to the liability of newness (ibid). Novelty is related to a firm's level of prior knowledge and affects an organization's ability to recognize the value of new information, assimilate and apply it (Shepherd et al., 2000; W. M. Cohen & Levinthal, 2000).

Furthermore, the market-stage can also influence the degree of entry barriers. E.g. when industries are new there is a higher entry rate, higher rate of product innovation, and market positions change rapidly (Klepper, 1996). As the market grows, subsequently entry slows, and the rate of product innovation and the diversity of competing versions of the product decline. Eventually markets mature and seem to agree on a dominant product design and market shares stabilize. Industry maturity is often synonymous with a few dominant firms, dominant product designs, high entry barriers and a low rate of entry (Swaminathan, 1998).

New ventures strive to overcome the barriers of entry by accessing necessary resources, reduce costs and risk, and building legitimacy, in order to grow and survive. Jeje (2015) argues that these achievements are less likely to be met by an individual new venture, as they are constrained by operational, financial and technological challenges. Thus, the survival chances of a new venture can be enhanced by pursuing a strategic alliance strategy.

2.1.3 New Venture Industry Entry Characteristics

Previous work examining the displacement of large incumbents has shown that these firms are sometimes overtaken by young newcomers because they were late in recognizing and responding to technological threats (C. M. Christensen & Rosenbloom, 1995), or had difficulties making the structural changes required by the disruptive innovations (Henderson & Clark, 1990).

Another reason for why incumbents are displaced, are the emergence of new market niches as a result of discontinuities in an industry's environment (Swaminathan, 1998). Swaminathan (1998) further argue that these discontinuities may reflect changes in technology or consumer behavior. The formation of a new niche poses an opportunity for new ventures to enter the industry (Swaminathan, 1998). As industries mature, they come to be dominated by a few generalist firms that try to maximize their performance by drawing on the largest possible resource space (Swaminathan, 1998). That is, the center of the market. Hence, this opens up possibilities on the periphery of the market. Thus, specialized new ventures can enter the industry by exploiting the peripheral resources. This is referred to as resource-partitioning by Swaminathan (1998). The niche formation argument concerns the entrepreneurs ability to respond to the emergence of a new niche, while the resource-partitioning argue that adaption constraints prevent incumbent firms from moving into a specialist niche.

Abernathy & Clark (1985) suggest that there are three environmental changes that lead to the formation of a new niche. These are: New technological options that improve performance or offer new applications; Changes in governmental policy, such as regulatory regimes; Change in consumer preferences that can only be met through new design approaches.

According to resource-partitioning model, generalists firms depend on a wide range of resources while specialist firms survive within a narrow range of environmental resources (Swaminathan, 1998). In a perfect market there is a large number of generalists that cannot individually affect price levels, and who all tailor their products or services to appeal to a slightly different set of industry segments. In terms of resources, there is a certain degree of overlap in the center, but the generalists posses unique advantages within different segments. This indicates that the resource space available for new specialist entrants to exploit, is smaller. In markets where there are fewer generalists that are larger in size, the competition is tougher. The degree of overlap in generalist strategies is higher, as most of them exploit resources at the market center (Swaminathan, 1998). Therefore the specialist firms have access to greater resources they can exploit without going into direct competition with the larger generalists. According to Swaminathan (1998) this should improve the survival chances of new specialist entrants.

Pre-Entry Experience
A number of studies highlight that new entrants should enter industries where the founders have relevant pre-entry experience, and that those who do survive longer than firms with no relevant experience. In such cases the founders can often contribute with valuable market insights, product and technological understanding during industry entry (Helfat & Lieberman, 2002). Employees of existing firms who form new ventures, are particularly important for the creation of technologically intensive ventures (Agarwal et al., 2004; Audretsch, 2009). In contrast to the new ventures where founders have previous experience, some new ventures do not have founders with strong relations to the industry. These founders rather use their personal experiences and knowledge to shape the firm. Pre-entry experience has been identified as an important source of heterogeneity among industry entrants that has consequences for post-entry performance (Helfat & Lieberman, 2002).

Pre-Entry Resources
New firms entering a new industry differ from diversifying entrants on two important dimensions. First, new entrants typically enter with less financial, managerial, and related technological or marketing resources and capabilities (Carroll & Huo, 1986; Klepper & Simons, 2000). A second dimension of difference relates to structural inertia (Hannan & Freeman, 1977). The more inert processes and structures of diversifying entrants can enhance their legitimacy and make them appear more reliable to customers than new firms (Hannan & Freeman, 1977). However, the less inert structures of start-ups (Hannan & Freeman, 1977) and their higher rate of new product innovations (McKendrick et al., 2003) may enable them to span niches and quickly reorient activities. New entrants have less inert, established processes, thus Choi et al. (2016) argue that this lack of organizational experience are often an advantage for new ventures, as it makes them more flexible and adaptable in terms of environmental changes.

Hence, new firms are better equipped for exploration, because their fluid and organic structures and routines allow them to avoid the myopic learning (Levinthal & March, 1993) and competency traps (Levitt & March, 1988) endemic to the more established firms. The absence of ties to existing processes (Carroll & Huo, 1986) or existing customer needs (C. Christensen, n.d.) may enable new ventures to engage in creative destruction (Schumpeter, 1947).

Visibility as a strategy to enter mature industries
In most contexts a low visibility for a firm that is entering an industry is perceived as something counterproductive. However, in a mature and very established industry like the NMI, a low visibility when entering could be used strategically and an advantage when used correctly. Chen & Miller (1994) state that highly visible firms are more likely to elicit competitive responses. These same writers also found that the more responses a firm's actions provoke, the worse its performance. During periods of low visibility, the young firm has the opportunity to become stronger both technologically and from a resource perspective, improving its ability to withstand the competitive response of the incumbent once it occurs (Lieberman & Montgomery, 1988).

For highly technological new ventures, the time that it takes to develop the technology uninterrupted is crucial. Time to develop the technology is particularly important when pursuing a disruptive innovation because the technology is not initially well-understood or developed (P. Anderson & Tushman, 1990), and gaining technological and customer knowledge is important to successful development and commercialization (Abernathy & Clark, 1985). However, the extent to which low visibility is likely to be helpful to the young firm depends on the type of disruptive technology it is commercializing.

Low visibility becomes significantly more important with modular innovations. [1] If the young firm is able to maintain low visibility long enough to fully develop its product and secure the resources needed to convince outsiders of its ability to reliably deliver a good quality product, it can then approach the incumbent with its innovation, and either license it or sell it. The incumbent is more likely to purchase or partner with the young firm if the young firm has something valuable to offer, particularly if it can minimize the time and uncertainty of pursuing its own version of the innovation (Ahuja, 2000). The low visibility of the new venture and its product is most likely to be very beneficial when commercializing an incremental disruptive technology, beneficial when commercializing a modular technology, of some benefit when commercializing an architectural disruptive technology, and little or no benefit when commercializing a radical disruptive technology (Carayannopoulos, 2009). New ventures introducing radical disruptive technologies should according to this pursue a high visibility strategy.

[1] Modular Innovation is where you maintain the architecture and modify the modules and vice versa. For instance adding more interfaces to a PC.

Post-Entry
Small-scale entrants are relatively common in most industries, but these have a rather short life expectancy. Entry is easy, survival is not (Geroski, 1995). Entry can be episodic in character, playing an important role in shaping industry structure in certain phases of the product life cycle and a more minor role at other times.

Helfat & Lieberman (2002) state that the likelihood of an entry into a market or industry and survival in that industry, is strongly related to the capabilities and the resources in the firm prior to entry. If there's a resource gap between the firm and the required resources in the industry this will affect the mode of entry, meaning that a firm without the required technological skills would consider a strategic alliance with someone with these skills (or capabilities) to cover the gap (Helfat & Lieberman, 2002).

2.1.4 Timing of Entry

The NMI as a cyclical industry
Industry cycles are cyclical patterns in industrial data of the industry, including sales, price, capital investment, and capacity. Those cycles display as recurrent deviations from the long-term trend. The duration of an industry cycle's phases (upturn or downturn) last more than a few months. The issue of cycles enters into some key debates over such matters as the timing of innovation. There is for example a debate in the literature over whether innovation should be pro or counter-cyclical (Geroski, 1995). One view argues for counter-cyclical innovation because opportunity costs of innovation are usually lower during a recession when financial resources, human resources, and most importantly, technological resources become more accessible. By contrast, the argument for pro-cyclical innovation focuses on the profit that innovators can reap from industry cycle upturns as a main motivation to undertake innovative activities. Indeed, from the perspective of individual firms, intensive R&D activities should take place during industry cycle downturns to take advantage of the low cost and accessibility of technologies. Industry cycle upturns are ideal timing for introduction of new products and innovations to enjoy the expansion of demand. This is an application of the so-called constrain strategy to the field of technology management (Greer et al., 2001).

2.2 Strategic Alliances

Strategic alliances strategy has been prescribed as an important tool for attaining and maintaining competitive advantage (Elmuti & Kathawala, 2001). When speaking of alliances, a number of definitions and terms can be identified through literature. Terms such as strategic alliances, corporative ventures, collaborative ventures, interfirm partnerships, informal partnerships, networks and joint ventures, all refer to collaboration between firms of some sort (Franco & Haase, 2015). Due to the many different forms of alliances, there lack a consensus in defining a strategic alliance (Franco & Haase, 2015). Some argue that a strategic alliance refers to ”collaborative efforts between two or more firms in which the firms pool their resources in an effort to achieve mutually compatible goals that they could not achieve easily alone” (Lambe et al., 2002).

Franco & Haase (2015) define a strategic alliance as a mutual decision adopted by two or more independent firms in order to trade or share resources for mutual benefit. According to Todeva & Knoke (2005) a strategic alliance involves at least two partner firms that 1) remain legally independent after the alliance is formed. 2) Share benefits and managerial control over the performance of assigned tasks. 3) Make continuing contributions in one or more strategic areas. Strategic alliances are partnerships of two or more corporations that work together to achieve strategically significant objectives that are mutually beneficial (Elmuti & Kathawala, 2001). Scholars seems to agree that access to assets and resources is one of the main reasons for engaging in alliances. How new ventures manage to form alliances can further be understood in light of their social capital.

2.2.1 Different Types of Alliances

Alliance form vary with the firms' market positions (Todeva & Knoke, 2005). Business literature have acknowledged that there could be many positive outcomes for companies engaged in a strategic alliance. However, these alliances range from informal ”handshake” agreements to formal agreements with lengthy contracts in which the parties may also exchange equity, or contribute capital to form a joint venture corporation (Elmuti & Kathawala, 2001). This meaning that to what degree the strategic alliance partners contribute with resources, their administrative responsibilities, control over assets, and rewards from the joint activities are dependent on the formation of the partnership (Todeva & Knoke, 2005). There are numerous types of alliances, these vary in the form of the relation between the partners, that can differ from simple licensing arrangements to joint ventures, distribution and value chain partnership alliances as shown in Table 2.1 (Elmuti & Kathawala, 2001). The types of alliances are associated with different legal forms, and encompass both short-term projects and long-term equity based, cooperation between firms with varying degrees of vertical integration and interdependence (Todeva & Knoke, 2005). Partners choose a specific alliance form not only to achieve greater control, but also for more operational flexibility and realization of market potential. (Todeva & Knoke, 2005). Technology Associates and Alliances (1999) (Elmuti & Kathawala, 2001) lists the following types of alliances, and suggests that alliances can be hybrids between these different types:

1. Marketing and sales alliances:
    - Joint marketing agreements
    - Value added resellers
2. Product and manufacturing alliances.
    - Procurement-supplier alliances:
    - Joint Manufacturing
3. Technology and know-how alliances:
    - Technology development
    - University/industry joint research

Based on these types of strategic alliances listed above, Todeva & Knoke (2005) suggest the following interfirm relations, shown in Table 2.1. The table illustrates how the degree of ownership change in the varieties of alliances, from acquisition to pure market relations through transactions.

Table 2.1: Modified list of varieties of interfirm relations (Todeva & Knoke, 2005).

Hierarchical Relations	Through acquisition or merger, one firm takes full control of another's assets, and coordinates actions by the ownership rights mechanism.
Joint Ventures	Two or more firms create a jointly owned legal organization that serves a limited purpose for its parents, such as R&D or marketing.
Equity Investments	A majority or minority equity holding by one firm through a direct stock purchase of shares in another firm.
Cooperatives	A coalition of small enterprises that combine, coordinate, and manage their collective resources.
R&D Consortia	Inter-firm agreements for research and development collaboration, typically formed in fast-changing technological fields.
Strategic cooperative Agreements	Contractual business networks based on joint multi-party strategic control, with the partners collaborating over key strategic decisions and sharing responsibilities for performance outcomes.
Subcontractor Networks	Inter-linked firms where a subcontractor negotiates its suppliers' long-term prices, production runs and delivery schedules.
Market Relations	Arm's length transactions between organizations coordinated only through the price mechanism.

2.2.2 Motives to engage in Strategic Alliances

One of the most cited reasons for why new ventures engage in interfirm alliances is access to complementary assets and skills to manage scarcity in resources (Franco & Haase, 2015). Rapid technological changes, or the abrupt emergence of a competence-destroying technology can radically restructure an entire organizational field, and a firms competitive and collaborative alignments.

For many small companies the only way they can stay competitive and even survive in today's technologically advanced, ever-changing business world is to form alliances (Elmuti & Kathawala, 2001). According to Todeva & Knoke (2005) the motives to engage in a strategic alliance can be grouped into four different categories.

Table 2.2: Motives to engage in Strategic Alliances.

Organisational	Learning/Competence building.
Economic	Market, Cost & risk related
Strategic	Competition shaping / Product & Technology related
Political	Market Development

Growth strategies and entering new markets are among the top reasons for forming alliances (Elmuti & Kathawala, 2001). This is because firms do not have the time to establish new markets one-by-one, hence forming alliances with an existing company already in that marketplace can consolidate the market position of the new venture (Elmuti & Kathawala, 2001; Franco & Haase, 2015). Franco & Haase (2015) concludes that alliances should also be seen as an opportunity for exploring synergies between firms, learning and gaining experience that can create competitive advantages.

Not all companies can provide the technology that they need to effectively compete, therefore technology transfer in strategic alliances is viewed as a factor of success in a strategic alliance. Collaboration among firms provides benefits from the mutual exploitation of innovative capabilities and technology transfer (Franco & Haase, 2015).

Another reason for forming alliances is outsourcing of business functions, which can include outsourcing of marketing, production, accounting, sales, or for companies that are looking for best quality or technology, or cheapest labor or production costs (Elmuti & Kathawala, 2001).

Furthermore, the financial risk involved with pursuing a new product or technology could be too big for a company to undertake on their own. Hence, a strategic alliance could be a way of spreading risk among the partners, along with achieving economies of scale (Franco & Haase, 2015). By forming alliances with other companies, new ventures are able to accomplish bigger projects more quickly and profitably than if they tried to do this on their own (Elmuti & Kathawala, 2001).

2.2.3 Partnership Selection Criteria

A critical factor influencing alliance success is the identification and selection of appropriate partners (Franco & Haase, 2015). Yet, done correctly, they help ensure a higher quality and longer lasting relationships of the alliance parties (Elmuti & Kathawala, 2001). Therefore, firms should be clear about why they are entering the alliance, and what they expect to gain from it (Elmuti & Kathawala, 2001). Geringer (1991) has presented a widely respected classification of partner selection criteria, where he makes a distinction between partner-related and task-related dimensions. The first criteria is associated with the personality of the partner, the second is related to the activity and business abilities (Franco & Haase, 2015). The partner-related criteria include reputation, strategic fit, trust between top-management teams, financial stability of the partner, position within the industry, and enthusiasm for the project. One decisive variable influencing the partner selection pointed out by Geringer (1991), is also the reputation of the potential partner.

The task related criteria include knowledge of the local and international markets, competence in new product development, knowledge and partner's culture and internal standards, links with major buyers and suppliers and distribution channels, product-specific knowledge, capital and finance, local regulatory knowledge and other related to the industry Eisenhardt & Schoonhoven (1996). Literature points out that one should select partners with complementary skills and resources, and that each of the partners should contribute with unique resources that the others lack, when establishing an alliance (Franco & Haase, 2015). Socio-psychological dimensions is also highlighted as an important factor influencing partner selection, where trust and similar cultural background are the most critical factors for alliance success.

Elmuti & Kathawala (2001) concludes that strategic alliance partners should be selected based on their expertise in the operation and their cultural fit with the firm.

2.2.4 Resource-Based View

The theory on Resource Based View (RBV) argues that firms enhance their sustained competitive advantage through abilities that are scarce and difficult for others to replicate (Coates & McDermott, 2002). They further define resources as all assets that are in the possession of a firm (Coates & McDermott, 2002). When talking about resources, the term capabilities is often mentioned in literature. Capabilities refers to the bundling of resources, in other words the firms ability to utilize its resource base (Coates & McDermott, 2002). Supporters of the RBV believe that a firms success is dependent on its resource base, as it provides the firm with unique abilities. It is therefore argued that a firm should seek to develop or obtain resources with VRIN-characteristics. This refers to resources that are valuable, rare, inimitable, and non-substituable (Levitas & Ndofor, 2006).

According to RBV, firms that possess bundles of resources that are VRIN will enjoy sustained competitive advantages and, consequently, superior firm performance (Barney, 1991). Nason & Wiklund (2018) states that VRIN resources allow firms to exploit opportunities inaccessible to firms with non-VRIN resources. Barney (1991) further argue that firms whose resources are neither valuable or inimitable will be unable to pursue similar growth strategies to the same extent. Firm growth is broadly defined as the increase in a firm's size from one point in time to another (Nason & Wiklund, 2018; Penrose, 1959). Growth is important for economic development and employment, allows new firms to establish legitimacy in order to survive (Stinchcombe & March, 1965; Nason & Wiklund, 2018) and constitutes a signal of success (Eisenhardt, 1989; Eisenhardt & Schoonhoven, 1996).

VRIN resources also allow firms to implement efficient strategies (Barney, 1991), enables firms to lower prices and drive market expansion. While firms with non-VRIN resources may pursue similar strategies, their inability to match the strategic initiatives of firms with VRIN resources or to protect gains from their own initiatives will limit their growth prospects relative to firms with VRIN resources.

RBV literature argue that since VRIN resources are rare and inimitable, those who control them and supply them to the market, have greater growth opportunities (Peteraf & Barney, 2003). The Penroasean view contradicts the RBV in that resources need to be VRIN to pose a competitive advantage and argue that resources should be versatile. This view states that versatile resources increase a firm's combiniative possibilities and thus expand its productive opportunity, and ability to adapt to environmental changes (Nason & Wiklund, 2018; Penrose, 1959). Nason & Wiklund (2018) further argue that flexibility and versatility of a firms resources are important factors governing the possibilities of its expansion and make more strategic actions and opportunities to the firm.

Firms rely on the resources within their organizational boundaries to generate growth. However, the rise of strategic alliances has demonstrated that firms can leverage resources outside of their boundaries in accordance with their own resources to further increase growth (Gulati et al., 2009; Nason & Wiklund, 2018). This implies that firms can use strategic alliances to utilize services rendered from resources they do not own, in order to expand their productive opportunity set (Nason & Wiklund, 2018).

2.2.5 Social Capital

Bourdieu & Wacquant (1992) defines social capital as the resources that result from social structure. Furthermore, social capital is understood as the goodwill that arise from social relations and that can be mobilized to facilitate action (Adler & Kwon, 2002). By goodwill Adler & Kwon (2002) refer to the sympathy, trust and forgiveness offered us by friends and acquaintances. Social capital provides advantages that individuals or groups have because of their location in social structure (Burt, 2000).

Literature presents diverse perspectives on social capital, but seem to agree that social structure is a kind of capital that can create a competitive advantage for individuals or groups, in order to attain other resources. The social structure is rooted in three different types of relations: 1) *Market relations*, in which products or services are exchanged for money. 2) *Hierarchical relations*, in which obedience to authority is exchanged for material and spiritual security. 3) *Social relations*, in which favors and gifts are exchanged. It is the third type of relationship that constitutes the dimension of social capital according to Adler & Kwon (2002).

Furthermore, social capital enhances the amount of information available to an actor, ensures the actor is one of the firs to know of events that can impact his or her business, and also get the actor's name and reputation mentioned in the right settings (Burt, 2000).

Adler & Kwon (2002) presents three perspectives on how to view social capital: The bonding view, the bridging view and the neutral view. The bridging view focuses on the individual and how he or she is linked to other actors (Adler & Kwon, 2002; Berg et al., 2008). This view is used to explain the differential success of individual actors in their competitive rivalry (Adler & Kwon, 2002). The bonding view focuses on collective entities (firms and organizations) and its internal structure. This view can further explain how these collective entities pursue a common goal. Lastly, the neutral view argue that whether an actor entity can be seen as part of an internal or external network is a matter of perspective.

Nahapiet & Ghoshal (1998) defines three dimensions of social capital: The structural, the relational, and the cognitive dimension. The structural dimension concerns the structural pattern between actors, this meaning who reaches whom and how. The relational dimension is connected to trust and trustworthiness, obligations and expectations. These are assets that are created and leveraged through relationship, and that impact the behaviour of the actors (Berg et al., 2008). Finally the cognitive dimension refers to aspects surrounding the existence of shared representation, interpretation and meaning among the

actors, this could e.g. be a shared vision between the actors (Nahapiet & Ghoshal, 1998; Berg et al., 2008). Berg et al. (2008) conclude that social capital can have many forms, but an important factor for leveraging the social capital is the quality of the relations. Thus, new ventures established by a team with more experience, and larger networks will have a stronger social capital, and are more likely to succeed (Berg et al., 2008).

2.2.6 Strategic Alliance Formation

When trying to explain why some firms choose to form strategic alliances while others do not, literature emphasizes social and strategic aspects of cooperation.

The resource-based view of the firm can be extended to combine these two themes of alliance formation. The resource-based view assumes that firms are bundles of resources, that can be thought of as strengths, advantages or assets of the firm (Wernerfelt, 1984). Examples of such resources are technical know-how, management skills, capital and reputation. The resource based view can be extended to alliances by arguing that resources provide both the needs and the opportunities for alliance formation. Strategic alliances are thus a mechanism to manage scarcity of resources (Franco & Haase, 2015). Alliances form when firms are in vulnerable strategic positions, for which they need additional resources that can enhance their competitive advantage, or when firms are in strong social positions such that they have the resources necessary to know, attract, and engage partners (Franco & Haase, 2015).

1) Strategic Needs for Cooperation

Vulnerable strategic positions occur when firms are in difficult market situations, or are undertaking expensive or risky strategies. In such situations, alliances can provide critical resources such as: Specific skills, financial resources, legitimacy and market power (Hamel et al., 1989; Wiewel & Hunter, 1985), that can improve strategic position. Factors that determine the strategic posiiton of a firm are the following: i) Competition, ii) Market stage, and iii) Firm strategy. These are further elaborated.

i) Competition: When a firm faces many competitors, its strategic position is vulnerable. Alliances improve the strategic position of firms in competitive markets by providing resources from other firms that enable them to share costs and risks. This cost sharing eases profit pressures, which are particularly intense in highly competitive industries. Alliances also improve the strategic position by enhancing legitimation. Cooperating with another organization can give a firm visibility, signal enhanced status to would-be buyers, suppliers and employees (Eisenhardt & Schoonhoven, 1996; Baum & Oliver, 1991). An alliance can improve the market power of a firm because the partner is a customer for the product or because the distribution channels and buying power of the partners can be combined. This provide specific knowledge-based resources such as manufacturing or customer information (Hamel et al., 1989; Eisenhardt & Schoonhoven, 1996).

ii) Market stage:
Markets evolve through several stages that can affect the strategic position of firms, and thus whether they will engage in strategic alliances. The markets evolve from emerging-stage to growth-stage and lastly to mature-stage.

Emerging-Stage Markets
Initially, emergent-stage markets arise and are small, new, and characterized by a lack of product clarity. Market share can shift dramatically. The winning technology, appropriate distribution channels as well as the market direction are often unclear (Klepper & Graddy, 1990; Eisenhardt & Schoonhoven, 1996). In these uncertain markets, strategic alliances can provide financial resources that enable risk-sharing with other firms. Extra resources are particularly helpful as it may take time for the market to become viable, and the alliance can help to legitimate a new market. By cooperating with a with an important potential customer or a competitor, a firm may be able to signal that the new market will become established.

Growth-Stage Markets
Large markets characterized by rapid increase in demand (C. R. Anderson & Zeithaml, 1984). There may be many candidates for the dominant design, and rapid turnover. Consequently market share, competitive structure, and technology are volatile. As Eisenhardt (1989) found, fast pace and quick moves are keys to success in such environments. In these environments, alliances can improve the strategic position by creating flexibility as they are more able to make adjustments to resources as environments change. Although alliances may enable firms to adapt and learn, substantial evidence suggest that gaining resources from alliances can be slow and difficult (Larson, 1992; Eisenhardt & Schoonhoven, 1996). Alliance formation rate is thus likely to be lower in the growth-stage markets, than in emergent-ones.

Mature-Stage Markets
Eventually markets mature. These markets are characterized as stable, dominant product designs and process technologies are usually clear. Further, technology, market shares, and competition are much slower to change. This reduces uncertainty, and speed and flexibility are not critical. Firms have resources they have built up over time, that they may be reluctant to share in alliances. Alliances often offer few advantages in mature markets (Hagedoorn, 1993; Eisenhardt & Schoonhoven, 1996).

iii) Firm Strategy:
Strategic position do not only depends on the characteristics of the market, but also on firm strategy. According to Boeker (1989), the most relevant strategy difference across technology based firms is the degree of innovation. The degree of innovation affects the firms needed level of resources. Technologies with high level of innovative degree often takes long time to develop before it becomes viable. An alliance partner could improve the strategic position if the alliance partners are involved in joint product development or in technology exchange that enables the firms to gain financial and other resources. Technological viability of new technology are often unclear, hence the importance of alliances

could play a major role for gaining legitimacy of pioneering technologies. This because technology standards can evolve for political and social reasons, not only because of superior technology. In the case of more evolutionary innovations, Eisenhardt & Schoonhoven (1996) argue that a the firms strategy is less likely to be associated with alliance formation.

2) Social Opportunities for Cooperation

According to Eisenhardt & Schoonhoven (1996) alliance formation is associated with a vulnerable strategic position in emergent markets with high competition, and with pioneering technology. However, another important factor influencing alliance formation is the social position of the firm. Strong social position enhances alliance formation by capitalizing on advantages such as contacts, reputation, and status that creates opportunities for alliance formation (Eisenhardt & Schoonhoven, 1996).

All action including economic action is embedded in a social fabric of opportunities to interact (Eisenhardt & Schoonhoven, 1996). Eisenhardt & Schoonhoven (1996) further states that interaction and cooperation are more likely to happen among people who know one another or. Eisenhardt & Schoonhoven (1996) argue that personal relationships lay the groundwork of trust and knowledge that is important for interfirm cooperation and alliance formation. These personal relationships creates opportunities for cooperation by deepening awareness, trust, and commitment among parties within the relationship (Eisenhardt & Schoonhoven, 1996). Factors such as status and reputation also enhance the likelihood of cooperation, particularly when there is high uncertainty. These qualities signal the skill and trustworthiness of potential partners.

Strong social positions lead to alliance formation because extensive personal relationships create an awareness of opportunities for alliancing as well as knowledge and trust among potential partners (Eisenhardt & Schoonhoven, 1996). A strong social position is connected to high status and reputation which signal the quality of the firm and attract partners who want to be associated with high status firms. Firms without resources and of a strong social position may suffer from unawareness of opportunities, lack of information, that might lead to difficulties of attracting good partners (Eisenhardt & Schoonhoven, 1996).

Personal relationships set the stage for alliance formation since ”the key is who you know”. Further, the Resource-Based View argue that for new ventures, these strongly rely on having a top management team with strong social resources as they have not had the time to establish firm-level networks. Important factors that enhance the top management teams social resources, are the team size, their industry experience, and whether they have had high-level jobs. Eisenhardt & Schoonhoven (1996) states that large top management teams that are experienced and well connected through former employers and high-level jobs, are more likely to have the resources (skills, connections, status) necessary to form alliances at higher rates (Eisenhardt & Schoonhoven, 1996).

2.2.7 Successful Alliances

A successful alliance requires the joining of firms seeking a similar goal and both intent on its success (Elmuti & Kathawala, 2001). Alliance success is highly dependent on the creation of value for the parties involved (Franco & Haase, 2015). This is difficult to measure, and the influential factors are mostly subjective (Franco & Haase, 2015). They further highlight trust, commitment and complementarity as key factors of interfirm alliances performance. Building trust is a difficult aspect of strategic alliances, as trust needs to be built between individuals and not between companies. Alliances need to be formed to enhance trust between individuals (Elmuti & Kathawala, 2001). Pursuing a collective strategy typically depends on unanticipated future conditions that cannot be explicitly written into formal contractual agreements. Hence, successful strategies require basic trust, mutual understanding, unrestricted learning, and interfirm knowledge - sharing to achieve a high level of joint decision making (Todeva & Knoke, 2005).

There are also relational factors that can influence the success of an alliance. Partners tend to be more interested in pursuing their self-interest rather than what is in the common interest of the alliance. Hence, a high degree of commitment can prevent partners from operating in a manner that is harmful for the outcome of the alliance (Franco & Haase, 2015; Elmuti & Kathawala, 2001).

The degree of cultural and organizational compatibility between co-operating firms is another important factor for the success of the alliance. Alliances with dissimilar objectives, inability to share risks, and lack of trust often lead to the failure (Elmuti & Kathawala, 2001). Problems often emerge if there are too large divergences in organizational culture, management style and if there is no consent in the objectives of the alliance (Franco & Haase, 2015). Therefore, it is extremely important that alliances are aligned with company strategy. Furthermore, having non-competitive partners enhance the chance for success (Franco & Haase, 2015).

Lastly, the commitment of the senior management of all companies involved in the alliance, is key for the success of the alliance (Elmuti & Kathawala, 2001). The commitment of senior management is important so that resources are allocated to reach the alliance objectives, as well as it is important for implementation of the strategic plans in the firms (Elmuti & Kathawala, 2001).

2.3 Building Legitimacy for new ventures

2.3.1 Newness and legitimacy

Newness, which is a hallmark of entrepreneurship, is recognized as both an asset and liability for new ventures (Navis & Glynn, 2011). Entrepreneurial ventures derive competitive advantage over incumbent organizations by introducing novel technologies into the market and by developing innovative business models that give rise to new market categories (Srivastava et al., 2001). But, new ventures simultaneously confront a liability of newness (Stinchcombe & March, 1965) because their lack of performance history and consequent relative illegitimacy serves as a burden when they seek to acquire resources and enter into exchange relationships (Aldrich & Fiol, 1994). New ventures therefore confront a paradoxical challenge in that a primary source of competitive advantage - technological or market newness - can also serve as a significant liability.

Another paradox new ventures face is that between inert processes and organizational flexibility. (Hannan & Freeman, 1984) argues that the more inert processes and structures of entrants are, they can enhance their legitimacy and make them appear more reliable to customers. McKendrick et al. (2003) does, however, argue that the less inert structures of startups and their higher rate of new product innovations may enable them to span niches and quickly reorient activities. The paradox between gaining legitimacy through developing more organizational routines or keeping a more flexible structure that allows for quick innovation and adaptation processes, can be a very sensitive and difficult topic for different entrants to a mature industry.

To overcome the liability of newness associated with a new venture, an entrepreneur can work to strategically establish organizational legitimacy by materially and symbolically manipulating elements of the venture (Delmar & Shane, 2004). Legitimacy is derived from the perception that a new venture is desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions (Suchman, 1995). Such complex factors differs from industry to industry, and it can be very difficult for a new venture to strategize how to enter and survive if they are not familiar with the industry they are about to enter from previous experiences. Prior literature has described the actions that entrepreneurs can take to strategically establish the legitimacy of a new venture. Strategies employed to establish organizational legitimacy include conforming to existing rules and norms, selection of favorable contexts, manipulation of cultural environments, and creation of new social contexts (Zimmerman & Zeitz, 2002). There does however exists little guidance on when and how each of such strategies should be employed.

2.3.2 Legitimacy as a resource for young firms

Zimmerman & Zeitz (2002) argues that legitimacy is a resource for new ventures, that is important for gaining other resources. They define legitimacy as a social judgement of acceptance, appropriateness and desirability that enables new ventures to access other resources needed to survive and grow. Existing literature seems to agree on the fact that new ventures need legitimacy to acquire other resources such as top managers, quality employees, financial resources, technology, and government support (Zimmerman & Zeitz, 2002; Lohrke & Landström, 2016). Further they argue that resource acquisition is positively related to the new ventures legitimacy, and the growth is positively related to the amount of resources it attains.

How a new firm should attempt to acquire different resources will vary when it comes to what kind of new firm this is. Bjornali et al. (2017) states that young cleantech firms that are typically capital intensive in their technological development, and are targeting complex industrial markets face great challenges related to legitimacy. This is also enhanced by the fact that these new ventures often represent new organizational forms. Organizational legitimacy is the perception that an organization is meaningful, predictable and trustworthy (Suchman, 1995; Carayannopoulos, 2009), and determines the acceptance and support of an organization by its environment (Hannan & Freeman, 1977; Carayannopoulos, 2009). As an organization ages, it gains external legitimacy by creating and developing relationships and obtaining support from its clients, creditors and suppliers.

According to Carayannopoulos (2009) the young firm is more likely to be successful with an architectural innovation[2]. Although lack of legitimacy may mean the large incumbent won't invite the young firm to access its complementary resources, the architectural innovation is likely to have diminished the value of many of those resources in any case. In addition, the structure and many complementary assets of the large firm will impede the large firm's ability to accommodate and therefore react to the architectural innovation. Meanwhile, the learning advantages of young firms identified by (Autio et al., 2000), and the superior ability of young, small firms to accommodate changes in their activities due to their lack of ingrained routines (Fiegenbaum & Karnani, 1991) allow the young firm to more easily make the changes demanded by an architectural innovation. Although it is possible to be visible and still lack legitimacy, as visibility increases, so too does the possibility of being perceived as legitimate. Similarly, a firm is visible to those that perceive it as legitimate Carayannopoulos (2009).

[2] Architectural innovation alters the ways that components work together (Carayannopoulos, 2009).

Cognitive institutions are widespread and taken-for-granted beliefs among audiences about what constitutes 'standard' or 'normal' organizational behaviour within a given field of activity (Meyer & Rowan, 1977). Cognitive institutions include beliefs such as that 'normal' new ventures have a proper business plan and 'sound' financial indicators (Delmar & Shane, 2004), that 'typical' entrepreneurs have a certain background and personality (B. D. Cohen & Dean, 2005), and that, for instance, a typical advertising firm has certain structures or job descriptions (Khaire, 2010). If new ventures conform to such institutionalized beliefs, they are legitimate in the eyes of their audiences and increase their chances to acquire needed resources. Kuratko et al. (2017) has also looked into such cognitive institutions and different strategies (e.g conformance) to be able to provide different new entrants with more choices of legitimacy strategies.

2.3.3 Potential strategies for a new entrant building legitimacy

A lack of legitimacy is a crippling problem, particularly for new ventures within an entrepreneurial ecosystem that develop a radical new technology or seek to disrupt a market by creating a new category (Aldrich & Fiol, 1994). Since the activities of such a venture are not widely known or well-understood, the surrounding partners and supporters are less likely to accept and support what they are doing. This results in that the entrepreneurial environment cannot fulfill its purpose of enabling and fostering productive entrepreneurship. Because of the challenge that entrepreneurs confront in fostering legitimacy for a new venture, some scholars have proposed strategies that can be employed to foster new venture legitimacy. These strategies are particularly relevant within the context of an entrepreneurial ecosystem because they focus on a venture's relatedness to its external environment. Zimmerman & Zeitz (2002) suggest there are four basic legitimation strategies available to new ventures — conformance, selection, manipulation, and creation. We highlight each as follows:

1. Conformance strategy: A new venture that conforms does not question, change, or violate the social structure but rather "follows the rules". A conformist strategy signals allegiance to the cultural order and poses few challenges to established institutional logics (Meyer & Rowan, 1977). Thus, it is a strategy of fitting into the local ecosystem context of firms to be seen as legitimate. Zimmerman & Zeitz (2002) point out that conformance is a widely used legitimation strategy for new ventures.

2. Selection strategy: A selection strategy involves locating in a favorable environment such as an entrepreneurial ecosystem (Suchman, 1995). For the new venture, selection allows for the choice of an environment that is consistent with and advantageous for the new venture. If an entrepreneur has the insight and resources to select a favorable environment, then the selection strategy can be highly effective for attaining legitimacy (Zimmerman & Zeitz, 2002).

3. Manipulation strategy: Manipulation is the attempt to make changes in the current ecosystem environment to achieve consistency between an organization and its environment (Zimmerman & Zeitz, 2002). This may involve getting rules and regulations changed so that a new venture can legitimately engage in an activity that was previously disallowed. Because manipulation involves changing some of the scripts, rules, norms, values, logics, or models that exist in a particular ecosystem, it requires more effort and is more strategic than selection and compliance legitimation strategies (Zimmerman & Zeitz, 2002).

4. Creation strategy: A creation legitimation strategy requires that an entrepreneur create a new social context by creating new rules, norms, values, scripts beliefs, models, etc. New ventures, especially those in new industries or attempting to establish new market categories, often uncover new domains of operations that lack existing scripts, rules, norms, values, and models (Zimmerman & Zeitz, 2002). Therefore, the basis from which new ventures derive legitimacy may not necessarily be established, requiring a creative entrepreneur to act as a pioneer in order to establish the basis of legitimacy for those that come after it (C. R. Anderson & Zeithaml, 1984). Creation is the most strategic of the four new venture legitimation strategies in that it offers an entrepreneur the most latitude in deciding what he/she will do to legitimate a new venture, yet it is also the most challenging to achieve a positive outcome (Zimmerman & Zeitz, 2002).

Kuratko et al. (2017) points out a unique paradox for new ventures trying to establish legitimacy within and beyond an entrepreneurial ecosystem. Firms that have a high level of technological newness are confronted with a significant challenge in legitimizing their venture within an industry, while those ventures using existing technologies and entering an industry have a much easier path to acquiring legitimacy within that ecosystem (Kuratko et al., 2017). However, the diffusion of that legitimacy beyond the ecosystem will be wider and more far-reaching for those pursuing the newer elements compared to those using existing technologies or pursuing existing markets, thus, creating a paradox of venture legitimation. For ventures trying to enter and survive in the NMI this paradox can provide valuable information for future strategizing.

Chapter 3

Methodology

The research serves to explore how new technology ventures can enter the NMI, and further how they use partnerships as a strategy for entry and building legitimacy. This chapter presents the research methodology for the master's thesis, which gives an overview of how the research process was conducted. To answer the research questions in this study, a qualitative research and case study have been conducted.

This method helps reveal what is unique for new ventures when entering the NMI, and capture the individual's own subjective experiences and interpretations through a qualitative study where the interviewees can express themselves through own words (Graebner et al., 2012). Relevant literature on industry entry, and strategic alliances create theoretical basis for answering the research questions. Further, an industry study consisting of data from industry reports and research articles on the NMI was conducted.

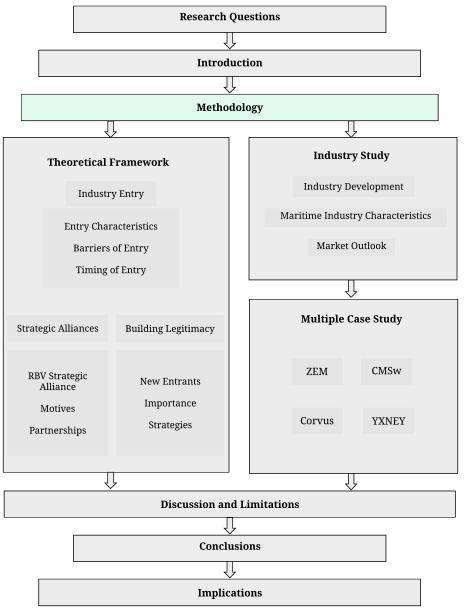

Figure 3.1: Structure of the Methodology.

The empirical data in this study was gathered through a multiple case study, with in-depth interviews of four Norwegian new ventures that have entered the NMI. The case firms were selected based on a set of predefined criteria. The next step in the process was to analyze the data through case analysis and cross-case analysis. The theory and industry study was put in context with the empirical findings, and together these elements form the basis of the thesis discussion. During the research process we have reflected around methodological choices in order to maintain trustworthiness of the study. The methodology chapter is ended with a reflection of the method and challenges and limitation related to the method.

3.1 Selection of Research Method

3.1.1 Epistemology

Epistemology is the theory of knowledge. Especially with regards to validity and scope, and the distinction between justified belief and opinion (Porter, 1913). Epistemology helped the authors of this thesis to know that the ”truth” in the findings meant data collection from both literature and from the empirical findings in the case interviews. The epistemology is based on the grounds of the interpretivist approach as the main data collection technique of this study is interviews. The perspective relies on the results of interaction between parties, and is qualitative in nature (Sekaran & Dan, n.d.). In addition, the knowledge of the participants is considered relative to time, context and culture rather than being permanent. Hence, it is also important to consider the role of ethics and personal values in the research situation.

In this study, the authors have experience with startups and have throughout the study discussed the value and problems related to new venture entry in a mature industry with several outside actors who might have formed the authors' opinions. According to Saunders (2016), researchers are affected by these values throughout the research process, and it might influence everything from the choice of research approach to the analysing of the data (Saunders, 2016).

3.1.2 Qualitative Research Method

When performing a social research there are two main methods one can adopt. These are quantitative and qualitative research (Flick, 2015). Quantitative research methods emphasize collection and quantification of data. Further all interview objects are interviewed in a standardized way. To provide deeper insights beyond standardized answers, a qualitative research study method was applied as a research method. This research method emphasize expressed opinions rather than the quantification in the data collection (Bryman et al., 2008), and was therefore more favorable as a research method. A qualitative study is furthermore suited for research where you have a small number of cases, many different set of variables, and want to connect the research with existing theory (Yin, 2017).

The authors structured the interviews of the case firms as semi-structured interviews, meaning that only some of the questions were defined in advance. This also suites the purpose of the study, allowing the researchers to go in-depth on some answers to the interview questions. This contributed to creating in-depth knowledge by understanding the interview objects subjective perceptions and opinions about their strategic decisions when entering the NMI.

The aim of this thesis is to explore the barriers new ventures must overcome when entering the NMI, and how they use partnerships to enter and survive in this industry.
The research questions are formulated as;

i. What entry barriers do new ventures face when entering a mature industry?
ii. How do new ventures utilize partnerships to enter the NMI?
iii. How do new ventures utilize partnerships to build legitimacy?

The research questions were evaluated to be best answered through a qualitative approach, as they are hard to quantify.

According to Yin (2017), collecting data from multiple sources will allow the investigator to address a broader range of historical, attitudinal and behavioral issues. However, the authors have not had the chance to interview more than one person in each of the case firms. Despite this, because of the interview objects position in the case firms, they were valued to have the necessary insights that would provide sufficient information about the strategic choices. Within the new ventures the authors have interviewed founders, CEO's, or senior leaders responsible for sales.

The study is formed as an exploratory study as it seeks to ask questions and to assess a specific phenomenon in a new light (Yin, 2017). This type of study is especially useful when the researchers need new insights on the field of research where existing research is scarce (Yin, 2017). In this case the authors will therefore investigate the NMI, which is a rather unexplored field of research regarding new venture industry entry (Solesvik & Westhead, 2010).

3.2 Data Collection

3.2.1 Literature Acquisition and Industry Study

In order to create a contextual background for the thesis, th authors went through a number of industry reports and articles. Together with the case study, the industry study form the empirical data foundation for the thesis. Different websites such as DNV GL[1], Norwegian Shipowners Association[2], the Norwegian Government[3] and Norwegian Maritime Authority[4] have also been useful in the gathering of industry information. After searching for relevant articles using Web Of Science, Oria and Google Scholar. The literature addressing new venture entry into a mature industry from the perspective of a new venture was limited was limited as most research focus on joint ventures and internationalization. In addition, little research have been done on the field of strategic alliances of new ventures. The authors quickly discovered the relation between new venture industry entry and strategic alliances as a strategy for entry and building legitimacy. Thus, the purpose of this literature acquisition therefore became to gather research which focused on three different, but closely related themes; industry entry, strategic alliances and building legitimacy. Relevant industry reports that lay the foundation of the industry study are presented in Table 3.1. Keyword strings that were used for collecting relevant literature on the topics of this thesis, is presented in Table 3.2.

Publisher	**Name of industry report**
Menon Economics	Maritim Verdiskapningsbok 2018
Federation of Norwegian Industries	Norwegian Maritime Equipment Suppliers 2017
Norwegian Shipowners Association	Maritime Outlook Report 2018
Norwegian Ministry of Trade, Industry and Fisheries, Norwegian Ministry of Petroleum and Energy	Regjeringens Havstrategi 2017

Table 3.1: Overview of industry reports applied in the industry study.

[1] dnvgl.no

[2] https://www.rederi.no/rapporter/

[3] https://www.regjeringen.no/globalassets/upload/nhd/vedlegg/rapporter$_2010/maritim21.pdf?id$ = 2144977

[4] https://www.sdir.no/

Keywords and search strings applied for the literature findings
SME AND legitimacy
New venture* legitimacy
Building legitimacy AND new ventures
Building legitimacy AND SME
Strategic alliance* AND SME
New venture* strategic alliance*
Partnership AND new venture*
New ventures forming partnerships
Resources AND growth
Entry into mature industry
Partner selection criteria
Types of alliances
Barriers of entry into mature industry
Industry entry barriers
Antitrust barriers
Partnerships new ventures
Social capital
Social capital AND New venture*
Social capital perspective
Resource based view
Resource based view AND strategic alliance*
Versatility of resources strategic alliance AND maritime industry
New technolog* maritim* partner*
New innovation* maritim* partner*
Software maritim* partner*
Battery technolog* maritim* partner*
New technolog* maritim* network*
New innovation* maritim* network*
Startup* maritim* partner*
Resulting in a number of 34 articles

Table 3.2: Keyword strings applied for literature findings applied in the study.

3.2.2 Multiple Case Study Interviews

Case study data can be gathered from several sources according to Yin (2015), such as: Archives, documents, interviews, direct observation and physical artifacts. Furthermore, the acquired data can be either primary or secondary data. The primary data gathered for this thesis have been collected through in-depth interviews with the four case firms. Key persons from top-management were contacted and interviewed. Through in-person interviews it is easier to get more updated information, and more controversial information than one can access online. All interviews were conducted within the time frame of one month, from March 2018 to April 2018. The secondary data have been gathered through browsing of public information, such as company websites, annual reports and other industry reports. In addition some of the case firms provided us with additional information from presentations that they use in sales meetings.

A general interview guide was created in line with the research questions. This interview guide can be seen in the appendix. Saunders (2016) recommended dividing the responsibilities during the interview as it improves the authors' ability to complete the tasks, which lead to one author being the active interviewer and the other author being the note taker who also added some follow-up questions where needed. Because the interview followed a semi-structured design, some questions were formulated in advance while others were formulated during the interview. This gave the flexibility to go in-depth on the most important subjects and to ask follow up questions that could provide a deeper understanding of the firms. As recommended by (Yin, 2017), a voice recorder was used to record every interview, as it enables the authors to focus on steering the conversation and asking the right questions.

As a consequence of following a semi-structured interview method a few deviations from the interview guide occured. In addition, between six and ten follow-up questions were sent to each of the case firms, to clarify some information after analyzing the interviews. Thus, an additional phone interview was conducted with ZEM Energy. Except from this, each interview was executed in person. Every interview started with the presentation of the thesis, and was followed by a presentation of the respective case firm. The interviews were recorded in agreement with the participants. In addition, notes were taken. Lastly, the interviews were transcribed in order to prepare data for thorough analysis. All information have been verified by the case firms, and confidential information have been excluded from the analysis.

Firm	Name / Title	Location	Duration	Date
CMSw	Erlend Langstrand *CEO*	Brekstad	1 hr 50 min	12.03.2018
YXNEY	Gjord Simen Sanna *CEO*	Oslo	1 hr 10 min	20.03.2018
ZEM Energy	Jan-Olaf Willums *Chairman & Co-Founder*	Oslo	1 h 20 min	21.03.2018
Corvus Energy	Willie Wagen *GVP Sales & Marketing and MD Europe*	Bergen	1 hr 30 min	06.04.2018
ZEM Energy	Egil Mollestad *CEO*	Phone	30 min	23.05.2018

Table 3.3: Overview over the conducted interviews.

3.2.3 Case Selection Criteria

In alignment with the purpose of the study, the authors found that the case firms should be new ventures engaged in the NMI. More specific that they are providers of energy storage systems (ESS) for ships, or supporting technologies of ESS. However, the four case firms represent technologies with different degree of innovation and complexity within the value chain. In order to get comparable results from the companies in the NMI, the authors have selected the case firms based on the following criteria:

- The case firms had to be within the geographical scope limited to Norwegian borders.
- The case firms had to be operating in the maritime industry.
- The case firms had to be developing or providing Energy Storage Solutions (ESS) or supporting technologies for ESS, in the maritime industry.
- The case firms had to be involved in partnerships.
- The case firms have entered the NMI within the past 10 years (2008-2018), meaning that they are relatively new in this industry.
- The case firms had to be available for in-depth interviews during the master thesis period - the spring of 2018.
- The case firms entered the NMI as a stand-alone entrant.

By using a multiple case design, this provided the authors with the possibility to compare results across the different cases to find similarities or differences between the case firms, as well as between the degree of innovation that these technology ventures introduce.

Following the above listed criteria, this left the authors with a very limited list of potential case firms. The authors identified eight potential case firms that fulfilled the predefined criteria. These were identified through conversation with our supervisor, through browsing websites of maritime clusters. One potential case firm was declared bankrupt during the research period, and did therefore not wish to participate in the study. Two of the case firms that were identified were not available for interviews in the period that this research was conducted. This left the authors with a total of four case firms that fit the authors' criteria and were available for interviews.

3.3 Data Analysis

The data analysis started with structuring of the empirical data. After each interview, the authors got together to discuss and co-align main impressions of the potential findings. Each interview was recorded and transcribed within a week of the interview. Both authors have read through all the transcribed interviews to ensure accurate and correct transcriptions. The transcriptions, categorization and analyzing of data have been done manually, by both authors. This is often the standard for non-standardized qualitative interviews (Saunders, 2016). After the initial sorting and categorization of data, each interview was analyzed in depth. This was done using a cross-case analysis approach, in order to search for patterns and generalized case study results. The categories were formed based on the research questions and literature review, as well as patterns that were discovered after analyzing the data. Using this process, the authors were able to reduce the amount of data and rearrange it into categories to provide the best possible answers to the research questions, as suggested by Saunders (2016).

Eisenhardt (1989) states that cross-case analysis improve the chance of getting reliable data to build theories on, as well as the chance of discovering novel contributions. According to Yin (2015), the validity of the analyzed in-depth interviews is increased by triangulating data, therefore the data was analyzed in the industry context.

The empirical findings from the interviews presented the authors with some new terms which lead to an additional round of literature searching. The case firms all spoke a lot about the value of their network, and this has contributed to shaping the literature in this thesis.

The following categories were used to sort and classify the transcribed interviews and used for further analysis.

- General company information
- Co-Founders industry background
- Network
- Pre-Entry Resources
- Timing of Entry
- Barriers of Entry
- Motives for engaging in alliances
- Key Partners
- Partner Contributions
- Gaining Legitimacy

3.3.1 Alterations between theory and empirical data as part of the analysis

The thesis takes an abductive research approach, which is by Dubois & Gadde (2002) referred to as "systematic combining". An abductive approach is useful if the researcher's goal is to discover new variables and other relationships, and the main concern is related to the development of new theory and generation of new concepts, rather than confirmation of existing theory (Dubois & Gadde, 2002). The purpose and research questions were reoriented several times. The authors initially wanted to investigate the liabilities of newness in a new venture trying to enter a mature industry, but after a few literature searches it became obvious that it would be more interesting to look at the differences in resources, especially within social capital and legitimacy, within new entrants in a mature industry. In addition, after reading the four interviews again a few weeks after they were held, the authors conducted a new literature search where words like "trust", "social capital", "strategic alliances" and "strategic partnerships" where tried with different search words and strings. This resulted in nine new relevant articles we ended up using in the literature chapter, that contributed to new alterations in the theory as a consequence from new empirical findings in the interviews. This phenomenon is referred to as "matching" in systematic combining Dubois & Gadde (2002), and stands in contrast to traditional linear positivist research methods, like concepts provided by Yin (2017). Then the authors searched and read through new articles that were identified through their primary sources, this is referred to as snowballing (Petersen et al., 2008). The discussion concludes with a final moderation of the framework based on the findings from the analysis.

The authors have both exploited the limited theory on the research area and explored their own empirical findings, resulting in this study combining a deductive and an inductive approach, as argued by Yin (2017) and Saunders (2016). In line with Dubois & Gadde (2002) arguments, the abductive approach can be argued to closer to an inductive approach than a deductive approach, as the interplay between theory and empirical observations have been essential for the end-result.

3.4 Quality of Study

In this section the quality of the research methods used in this thesis will be evaluated. Measuring the quality of a semi-structured interview and the data produced all depends on the trustworthiness of the study (Lincoln, 1985). When conducting a qualitative study, and a multiple case study there are several sources of error that can impact the reliability and validity of the study Yin (2013). One of these errors may be interviewer bias, as only one person from each case firm was interviewed. Dalland (2012) emphasizes not to underestimate the potential effect of the interviewees. The subjects answers will almost certainly be biased and affected by their subjective interpretation of the given situation, and can sometimes view and display their own firm and its industry actions as more positive than it actually is.

To overcome the bias of the interviewees the authors have taken the following measures: 1) The authors read background information on each of the interview objects, and the case firms. 2) The structure of the interview and the purpose was clearly communicated before the interview, to prepare the interviewees in giving honest answers. 3) The interviewees were responsible for finding a suitable place for conducting the interview. The interviews were mostly held at their office spaces. 4) During the interview, leading questions were limited, as the authors wanted the interviewee to form their own answers.

We have enhanced the thrustworthiness of the study by following (Lincoln, 1985) four criteria for trustworthiness. These being: credibility, transferability, dependability and confirmability. These are further elaborated in the following sections.

3.4.1 Credibility

According to Seale et al. (2004) credibility refers to the validation of findings and results. It can be viewed as the bridge between the researchers interpretation and reality (Seale et al., 2004). Lincoln (1985) and Krefting (1991) refers to credibility using the term ”truth value”. They state that in qualitative research this is usually obtained from the discovery of human experience as they are perceived by informants, and thus they are subject-oriented. Our study has ensured credibility by sending summaries of the case studies back to the interviewees, as well as follow up questions to clarify answers and interpretations. This to be sure that the interview has been interpreted correctly and no important aspects have been left out, to avoid presenting false information. Both researchers were present at all interviews, and have reviewed the case transcriptions and reported missing factors or mistakes. This can increase the validity of the study by clarifying misinterpretations that the authors have had after analyzing the data. Regular meetings with our supervisor at NTNU have been used to discover blind spots and discuss results, as suggested by (Flick, 2015). Furthermore, the credibility of the study is increased by the experiences that the case firms had in common. For example, on several of the questions all four case firms had almost identical ways of formulating their answers.

3.4.2 Transferability

The term transferability has to do with the generalization of the findings in a study to other contexts and situations (Merriam, 2009). Lincoln (1985) refers to this as applicability, which means to what degree the findings can be applied to other contexts and settings or to larger population (Krefting, 1991). We have analyzed the details of entry into a mature industry for new ventures to the extent that the conclusions are transferable to new ventures with similar characteristics, entering the NMI or another mature industry. Through the comparison of case firms the authors addresses this problem in accordance to what Krefting (1991) says, which is: ”if researchers presents sufficient descriptive data to allow comparison, he or she has addressed the problem of applicability” (Krefting, 1991).

3.4.3 Dependability

Dependability is concerned with the consistency of the findings, meaning that they could be repeated or replicated with the same subjects or in a similar context (Krefting, 1991). Qualititative research is often spontaneous and unstructured, where the researchers seek to learn from rather than control the informants (Krefting, 1991; Lincoln, 1985). Furthermore, qualitative studies emphasizes the uniqueness of the human situation, thus explainable sources of variability are expected in qualitative studies (Krefting, 1991). Such variations could be the increasing knowledge and insights the researchers gained during the research period. To make the findings consistent, the interview followed a interview guide that was based on the theoretical findings presented in Chapter 2. However, to learn as much of the interviewee's experience, deviations between the interview questions occured. This framework structured the data acquisition process to provide comparability across the cases on predefined topics. By identifying findings that match across the case studies the dependability of the study has been strengthened.

3.4.4 Confirmability

The criterion of confirmability is concerned with the objectivity in the study, the freedom of bias in the research procedures and results (Krefting, 1991). To ensure thrustworthiness it is important that the researchers and informants are free of bias and other motivations and that the findings are solely a function of the informants and conditions of the research (Krefting, 1991). Both authors were present at each interview to assure consistency and objectivity, as well as the neutrality of data. One of the authors had prior relations to one of the CEO's in one of the case firms. However, he was not the interview object, and the other author led the interview, to ensure the objectivity of the study. Krefting (1991) also states that confirmability is achieved when credibility and transferability are established.

3.4.5 Limitations

Limiting our search to new ventures within ESS and supporting technologies within the NMI, has its benefits making the cases more easily comparable. Nonetheless limiting the research to these companies only, may have reduced the generalizability of the results and might have made the findings less applicable to companies of other categories. Furthermore, it must be noted that the interviews were conducted, transcribed and analyzed in Norwegian. The final findings and quotes included in the thesis were translated to English. This process might have led to important points getting lost in the translation, and might have weakened the credibility of the data.

According to Dalland (2012) the objects might be interested in being perceived in a certain way, and this might have caused them to be untruthful in some of their answers. Naturally, they would tend to present themselves in a better way by not admitting wrongdoings. The subjects answers will almost certainly be biased and affected by their subjective interpretation of the given situation. This means that the risk of subjective opinions from the researchers as well as the interview objects in a qualitative study lies in the very definition of this type of study. Thus, this study's confirmability might have been affected by both the authors and the interviewees subjective opinions in certain answers or empirical findings.

The time frame of the case study was relatively short when compared to studies that have the resources to follow the respective case firms over a period of time, following a longitudinal approach. A consequence of this is that valuable information that can only be observed by following the selected case firms over an extended time period may be overlooked. During the selection of our cases, knowledge about the respective firms were limited and consisted of what we could find through conventional channels.

Moreover, we did not have any previous relations[5] to the interviewees. From this, our research approach can be regarded as neutral and unbiased. However, it should be noted that the interview guide was developed in accordance with our initial literature review, as well as our industry study. This was done in order to triangulate and anchor our empirical findings with theoretical rationales and industry insights. To some degree, this made us as researchers influenced by the introduced theory and industry study when conducting the in-depth interviews.

Although we reached out to eight potential case firms to secure a broader foundation for our findings, only four of them were both suitable according to our case selection criteria, and available in the set time frame for the study. The study's dependability might have been higher if we were able to secure even more case firms, but it turned out not to be possible with the scope of the study in addition to the limited time frame.

[5] One of the researchers is acquainted with the CEO in ZEM, who answered the follow up questions. We argue that the research remain unbiased since he is not part of the main interview, and the other researcher conducted the interviews.

Chapter 4

Industry Study

In this chapter, we will present some characteristics and trends in the NMI. Norway is home to a world leading cluster of maritime companies that deliver high-class shipping services globally (Menon Economics, 2017). The NMI is a knowledge intensive and global industry. It employs 90,000 people in Norway, and generates value of NOK 140 billion annually (record in 2014 with 190 billion NOK (Maritime Outlook Report, 2018). Norway holds a leading position worldwide in the maritime industry, and ranks as the world's fifth largest shipowning nation measured in fleet value (Maritime Outlook Report, 2018). The NMI also holds a world leading position when it comes to knowledge within maritime technology and being forward-leaning in developing new technologies. With leading actors throughout the value chain, the maritime industry accounts for considerable part of the Norwegian value creation and exports, and is among the most important industries in Norway (Regjeringens Havstrategi, 2017). The industry is competitive in the global arena and in 2016 it accounted for a third of Norway's exports (excluding oil and gas) (Menon Economics, 2017).

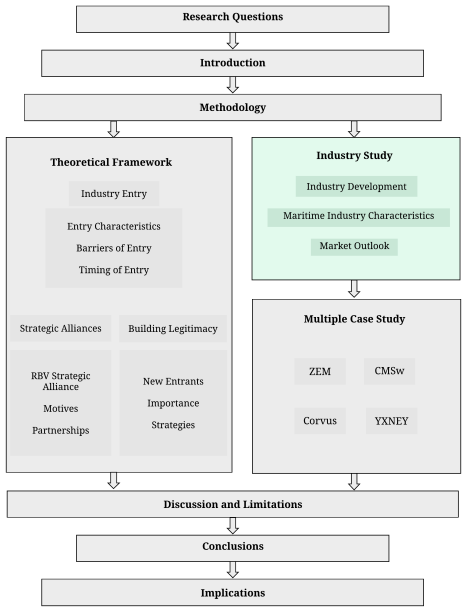

Figure 4.1: Structure of the Industry Study.

4.1 Industry Overview

4.1.1 Value Chain

The Maritime industry's value chain is quite complex, but very simplified it contains the following industry actors:

- **Shipowners** - Who operates the vessels.
- **Ship yards** - Who builds the vessels.
- **Service Providers** - Providers of financial, juridical, classification, logistics and trading services.
- **Equipment Suppliers** - Mechanical equipment, electrical and electronic equipment, design, and operational and management systems.

These can operate within many segments of the maritime industry, e.g deep sea shipping, short sea shipping, offshore shipping, offshore drilling, and aquaculture. The complexity of the industry is reflected in the complexity of the products and services that they provide. In many cases your competitor on one project could be your customer on the next project. This is due to the high degree of customized vessels that are being built for advanced operations and many different segments (E.g. ferries, cruise ships, offshore service vessels, tankers lifeboats and construction vessels), the size of the ship, and lastly the competence of the ship yard that wins the project.

4.1.2 NMI Characteristics

Norway is one of the few high-cost countries that still are building vessels (Maritime Outlook Report, 2018). These vessels are high-tech and advanced giving Norwegian shipyards competitive advantage. One of the reasons for this success is the high growth in productivity in the industry - meaning, they are managing to produce more with fewer employees (Menon Economics, 2017). The productivity trend can be explained by two industry characteristics. The actors have contributed to making the industry more and more knowledge-based and innovation-driven, and are known world-wide for their quality and innovative solutions (Menon Economics, 2017). E.g. maritime companies, including shipowners, equipment manufacturers, yards and service providers, all play a central role in the development of highly advanced technologies for e.g. the oil and gas industry (Maritime Outlook Report, 2018).

One important characteristic of the industry that have enabled the strong international position of the different actors in the NMI, is the close collaboration and transfer of knowledge within the specialized clusters that are located along the Norwegian coastline (Regjeringens Havstrategi, 2017). Norway is one of the few countries with a complete maritime cluster consisting of shipping companies, equipment suppliers, classification societies, service providers, ship designers, providers of insurance and financial services, and shipyards distributed along the Norwegian coastline (Maritime Outlook Report, 2018).

Traditionally, the maritime sector has also been characterized as a rigid and conservative sector, where the role of political institutions have strongly influenced the sector (Suurs, 2009). Local regulations such as emission free ports also strongly affects the shipowners, and forces them to upgrade their fleet. Moreover, the NMI operates in markets where key elements of framework conditions are determined on a global basis (Maritime Outlook Report, 2018). The Norwegian Shipowners' Association highlights that in order to ensure equal framework conditions between countries and regions, it is important that environmental and climate regulations are established internationally through the International Maritime Organization, IMO (Maritime Outlook Report, 2018).

Another common feature of the ocean industries is that they are capital intensive, due to a high degree of tailor made vessels not necessarily designed to maximize carrying capacity, but rather to perform complex operations (Regjeringens Havstrategi, 2017). Furthermore, there are high requirements to quality of the suppliers, and their ability to provide future maintenance services. This is to reduce operating risk for shipowners. Stability and predictability are highlighted as the most important factor when shipping companies are asked to name factors critical to owning and operating in and from Norway (Maritime Outlook Report, 2018).

The industry can furthermore be characterized as a cyclical industry[1]. Since the financial crisis hit in 2008, the industry experienced a cyclical downturn. The offshore segments have experienced extremely challenging markets, that have been reinforced by the fall in oil prices in 2014. Consequently they expect a further reduction in revenue in 2018 (Maritime Outlook Report, 2018).

In the present business cycle the Norwegian Shipowners' Association reports that their members experience demanding market conditions, but that for many of the segments, such as the transport segments, they have gradually increased their turnover to the same levels as before the financial crisis (Maritime Outlook Report, 2018). Shipowners' total turnover fell by 5 percent from NOK 224 billion in 2016, to NOK 213 billion in 2017 (Maritime Outlook Report, 2018). This is expected to turn around in 2018, as most segments expect increased operating results for 2018. Two factors have positively affected equipment providers activity level and competitive advantage in the aftermath of the financial crisis, and the low oil prices.

[1] A cyclical industry is a type of industry that is sensitive to the business cycle, such that revenues are generally higher in periods of economic prosperity and expansion and lower in periods of economic downturn and contraction. Companies in cyclical industries can deal with this type of volatility by implementing layoffs and cuts to compensate during bad times and paying bonuses and hiring in good times.

These are the weak Norwegian currency that helped the Norwegian equipment suppliers to stay competitive against global competitors, and the new emerging niches in the industry (e.g. battery driven and hybrid vessels such as ferries, fishing and well/service boats). This is an indication that the industry downturn is changing towards a growth phase, that the industry is moving to new niches, and that the industry actors are more optimistic about the future.

Changing demand patterns, combined with new technological developments and suppliers selling to competitive international markets, indicates that the industry rapidly need to adjust to new market demands (Menon Economics, 2017). According to Harald Solberg, the NMI is well positioned to develop solutions that the whole world will seek:

"We may not manufacture electric cars in Norway, but we are leading in technology for low-emission shipping. This is a strength we must build on."
Harald Solberg, CEO of the Norwegian Shipowners' Association (Maritime Outlook Report, 2018).

4.2 Market Trends

The competition to develop the best technology is high in the NMI. Many countries are investing to secure market shares in maritime technology, and Norway needs to do the same to maintain its position as a leading maritime nation (Maritime Outlook Report, 2018). The ongoing technology shift can be a tremendous opportunity for the NMI. The focus on blue growth and a sustainable ocean-based economy will ensure new growth opportunities, allowing the knowledge within the NMI to be translated into future technological developments, innovation and value creation (Maritime Outlook Report, 2018). This can be reflected in the growth of new niches in the industry, as investment in cruise vessels now make up almost half the investments in vessels globally, up from 5 percent just four years ago (Menon Economics, 2017). Norwegian yards have won important contracts in this market, and this migt increase deliveries to this growing market from Norwegian suppliers. Another interesting segment for Norwegian yards and equipment producers, is ferries, where Norway has taken the lead with ferries that run on more environmentally fuels such as LNG, battery and hybrid solutions. (Menon Economics, 2017).
Despite the fluctuating cycles and markets, we argue that the following trends will continue to influence the development of the NMI in the following years:

- Regulations due to the international accord in the UN to reduce CO_2 emissions from shipping. The Norwegian Shipowners' Association supports ambitious regulations to reduce its CO_2 emissions by 50 percent by 2050. This is a challenging target as shipping is expected to grow by 60 percent in the same period (Maritime Outlook Report, 2018).
- The opportunities presented by increased digitalization and autonomy, a development that will pick up speed in the years to come (Maritime Outlook Report, 2018).

- The increased pressure on developing environmentally friendly solutions (Menon Economics, 2017).
- Sustainable development and cultivation of the oceans, to preserve the sensitive ecosystems (Maritime Outlook Report, 2018).

Maritime transport accounts for three quarters of all transport in Norway. Short sea shipping carries passengers and all types of goods between Norwegian ports and to and from ports in Europe (Maritime Outlook Report, 2018). Maritime transport is the most energy efficient mode of transportation, and as a part of the Norwegian National Transport Plan, 30 percent of road transport travelling more than 300 kilometers is to be transferred to sea and railway by 2030 (Maritime Outlook Report, 2018). The expected increase in shipping of 60 percent together with the Paris agreement from 2015 and a goal of emission reductions of 50 percent, poses a challenge for shipowners in the NMI. On the other hand it poses opportunities for new technologies that seeks to reduce emissions and optimize the operations of the vessels, and thus their fuel consumption (Regjeringens Havstrategi, 2017).

"In light of future regulatory requirements, we believe it is imperative that the industry find solutions that make it possible to accommodate this growth without a corresponding rise in CO_2 emissions. This is one of the biggest challenges we will face over the next few years. It will place demands on the industry in the form of investment, implementation of new technology, and new fuel solutions."
Knut Ørbeck-Nilssen, CEO of DNV GL Maritime (Maritime Outlook Report, 2018).

The Norwegian Shipowners' Association has commissioned a report from DNV GL outlining possible measures to reach the goal of cutting CO_2 emissions by 50 percent by 2050 (Maritime Outlook Report, 2018). Among other measures, DNV GL highlights the need for both technological and operational advances (Maritime Outlook Report, 2018). Technological advances include energy-efficient components on the ship, as well as more energy efficient hull and ship design. The transition to low and zero-emission propulsion solutions is another. Operational changes include the possibility of using data analysis to improve sailing patterns, as well as reducing the speed of ships. A combination of these will probably enable shipping to achieve the ambition of reducing climate emissions by 50 percent by 2050 (Maritime Outlook Report, 2018).

4.2.1 Digitalization trends

The development within IT and communication technologies (ICT) is highlighted as a central driver in the development of a more efficient and sustainable industry (Menon Economics, 2017). This is made possible by advanced data analysis and management, as well as with more efficient and safe maritime operations and production processes. This trend will together with battery technologies be able to monitor whether the vessels are operating within environmental requirements, and optimize operations both in order to reduce energy demand, but also optimize operations in general (Menon Economics, 2017). The key of this digitalization is to create value by storing, processing, manage and analyze the data. Enabling technologies within ICT, that will be crucial for doing this are the following:

- **Big data, and digitalization** is about making data collection throughout the value chain and the life cycle of a product or system, to make use of the collected data for others (DNV GL, 2014).

- **Sensors** reduces demand for human resources and the risk of human faults, if processes and systems can be monitored, controlled, and adjusted efficiently either on board the ship or from a control center (Menon Economics, 2017). In the development of sensors, both prizes and size have been reduced which increases the area of applications.

- **IoT technology**, that enables units to communicate, and enables different stakeholders to gain insight in performance. As a result, data collection and managing performance becomes more efficient and can be done autimatically, and in real-time (Goldman Sachs, 2014).

- Technologies such as **robotics, automation and remote control** can be utilized to reduce human risk and increase reliability in complex systems. Robotics represents a huge potential for increased productivity in the maritime industry. Automation will be one of the major drivers in maritime operations, where automated means of transportation are just the beginning of an industrial transformation. Self-operating machinery could disrupt efficiency, reliability and the demand for competencies in the industry. Unmanned systems and ships will further increase the demand for new ship designs, machinery solutions and demand for infrastructure (Menon Economics, 2017).

"Technological developments are happening almost overnight, and they will have a huge impact on the way the companies operate. Nevertheless, digitalization of operations and processes is just one element in shipping's biggest challenge – finding ways to reduce emissions in line with the two-degree goal from the Paris Agreement. In the long run, ships will have to move to more environmentally friendly propulsion".
Beate Kvamstad-Lervold, Research Director at SINTEF Ocean, (Maritime Outlook Report, 2018).

4.2.2 Trends towards environmentally friendly technologies

In a survey completed by Norwegian Shipowners' Association, shipowners (within short sea, deep sea, offshore shipping and offshore drilling) were asked what fuel or propulsion solutions there vessels will be using on their ships and rigs in 15-20 years (Maritime Outlook Report, 2018) the response were as following:

- Almost 50 percent of all segments said that they will be using hybrid solutions.
- Nearly 40 percent of all segments states they will be using batteries.
- Diesel will still be the most widely used option in deep-sea shipping and offshore drilling, with about 55 percent of ship owners reporting this as the fuel of choice in these segments.
- Nearly 60 percent of short sea shipping companies believe that they will use hybrid solutions.
- More than 40 percent believe their ships will be using batteries.

This is an indication that the industry is positive to the transition to environmentally friendly technologies, and further that battery technologies have reached a stage of commercialization where it is competitive with today's solutions. In addition many Norwegian shipping companies are voluntarily investing in environmentally friendly solutions and using it strategically to develop their services (Menon Economics, 2017). Half of the companies that took part in a survey conducted by Menon Economics (2017) believe that stricter environmental demands will be positive for their business. This could be a result of Norwegian companies being leaders in their fields, which usually means that their solutions are less harmful for the environment, and that Norwegian suppliers have positioned themselves to take advantage of this trend (Menon Economics, 2017).

"When we know that one electric ferry reduces CO_2 emissions by as much as many thousands of electric cars, it stands to reason that there is a significant climate effect from every kroner invested,"
Arvid Moss, Executive Vice President of Energy and Business Development at Hydro (Maritime Outlook Report, 2018).

4.2.3 Incentives for green innovation provided by the Government

The significant pressure from the governmental and international authorities as well as from the stakeholders towards the implementation of green technologies, is observed in many industries (Karagülle, 2012). An example of this are the significant reductions of CO_2 and NOx emissions that are being introduced from 2020 (Karagülle, 2012). The vessels that do not comply with the requirements will not be allowed to enter European ports. Renewing the fleet to become compliant with governmental environment regulations is extremely costly for shipowners. Some shipowners are conservative, making regulatory work important as a driver for meeting these regulations. Here, governmental funding from ENOVA and Forskningsrådet plays crucial roles in the transition to new environmentally friendly technologies. In addition, due to stakeholder's expectations, more and more shipping companies engage in R&D to develop environmentally friendly vessels, that both reduce fuel consumption and save costs for shipowners (Borch & Solesvik, 2013). Examples of this are projects such as Yara Birkeland, a partnership between Yara and Kongsberggruppen in developing the world's first fully electric and autonomous container ship [2]

The Norwegian Government has stated several goals in their Ocean Strategy report from 2018 (Regjeringens Havstrategi, 2017). The overall goal is: "The Government will contribute to a conducive regulatory framework by continuing to develop efficient, predictable and knowledge based regulation of the ocean industries." In order to attain the overall goal, the Government has also published 34 specific goals to achieve along the way. We present some of the most relevant ones for this paper (with regards to management and regulatory frameworks): The Government will

- make sure legislation does not hamper innovation and the transfer of technology and experience across the ocean industries.
- strive to secure technology neutral regulations that help promote technological development.
- discuss capital markets in Norway in the White Paper on Industry, and follow up on the Storting's request to perform an overall assessment of the access to venture capital in Norway, both public and private.
- continue its focus on enabling technologies and facilitate the ocean industries' use of new technologies.
- remain a partner in the "Green Coastal Shipping Programme".

The Government has also decided to establish a new investment company, which is to help reduce emissions of greenhouse gases, Fornybar AS. The investment company will mainly invest in new technology in transition from development to commercialization, and will give priority to low- and zero-emission solutions (Regjeringens Havstrategi, 2017).

[2] https://www.km.kongsberg.com/ks/web/nokbg0240.nsf/AllWeb/4B8113B707A50A4FC125811D00407045?OpenDocument

Chapter 5

Multiple Case Study

In order to further understand the entry process of new ventures, their motives for engaging in alliances, and how these strategic alliances help the new ventures to build legitimacy in the context of the NMI, empirical data have been gathered through in-depth interviews. Four different case firms have contributed to the empirical findings of this study, these being: CMSw, YXNEY, ZEM and Corvus.

In this chapter, the case firms are introduced to give an overview of the firm characteristics used in the following analysis. Further, the findings from the cross-case analysis, which are divided into the following categories: Pre-Entry Resources, Entry Strategy, and Strategic Partnerships - will be presented. Thereafter, the main findings will be summarized.

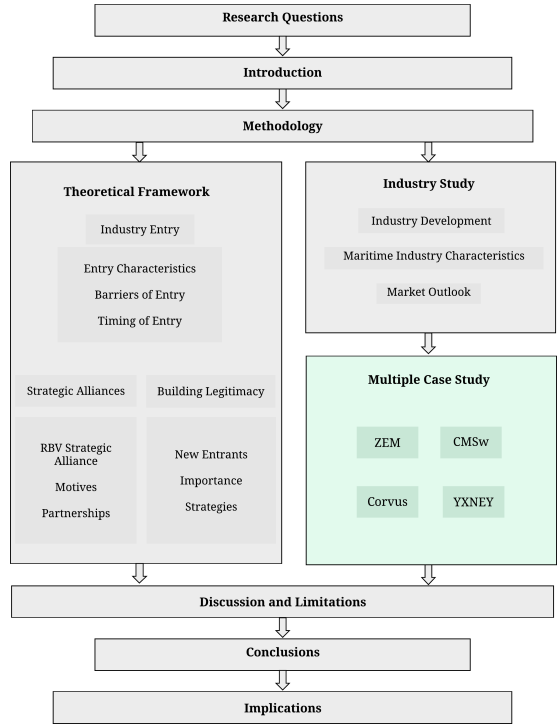

Figure 5.1: Structure of the Multiple Case Study.

5.1 Case Firms

5.1.1 Clean Marine Switchboards AS

Clean Marine Switchboards AS (CMSw) was established in March 2017, and is a Norwegian system integrator that delivers maritime switchboards and software solutions, designed for different types of vessels. The founders of CMSw are Erlend Langstrand (CEO) and Marius Dyrseth (CTO). Both founders, have extensive experience from the industry, and are specialized within system integration on ships, and battery development. Erlend and Marius first met through work related events, and then with their complementary skills came together to start CMSw in 2017. With a vision of *"Where others seek safe harbour, we go hard starboard"* they seek to make the marine fleet clean, only powered by natures own forces[1]. Their technical background allows the firm to hold all technical competence and production in-house at Brekstad, where they are located.

CMSw entered the industry in 2017 through a pilot project with Norwegian Electric Systems (NES) who delivered the hybrid electric systems for ferries that are being built by Remontowa Shipbuilding, and will operate on the river Thames in London.

CMSw operates within the maritime industry, and their customer groups are mainly shipowners and system integrators. Since the pilot project, they have signed several contracts, delivering system solutions for ferries, service vessels and supply vessels. Currently CMSw are involved in projects such as Color Hybrid, where they will deliver maritime switchboards directly to the shipyard Ulstein.

One of their unique partners is especially their investor Erik Ianssen, who owns 50% of the company, and who is a major financial contributor as well as a resource when it comes to marketing. Being the owner of Selfa Arctic, a ship yard that is also a potential customer, he contributes with valuable market insights. CMSw is concerned with building good relations with their partners, and regard their key suppliers and customers, such as ABB and NES, as important partners within their value chain.

ABB operates as a component supplier of electric components and as a system integrator[2]. They are a pioneering technology leader that works closely with utility, industry, transport and infrastructure customers in roughly 100 countries. With more than four decades at the forefront of digital technologies, they are a leader in digitally connected and enabled industrial equipment and systems. NES is a total system integrator of diesel electric and hybrid electric propulsion systems for the global marine market. They deliver complete marine propulsion systems with the necessary engineering, electrical calculations, project management, commissioning and service[3]. Both companies have a long track record and are acknowledged actors within the industry.

[1] https://cmsw.no/
[2] https://new.abb.com/about
[3] https://www.norwegianelectric.com/about-us/

Because of the complexity of projects and competence of different shipyards and shipowners vary in this industry, CMSw's position in the value chain shifts with respect to its partners. ABB is often a supplier and a customer, while NES is a customer and a competitor, depending on the size of the projects. CMSw believe that strategic alliances with partners you can build good relations with, are critical for growth. Important partner criteria are the response time of the partners, synergy effects between the partners, quality of the products and that all partners deliver in accordance to the industry requirements set by the classification companies.

Owner	Erik Ianssen (50 %), Erlend Klefstad Langstrand (25 %), Marius Dyrseth (25 %)
CEO	Erlend Klefstad Langstrand
Founded	2017
Headquarter	Brekstad
Number of Employees	20
Industry	Maritime Industry, Offshore
Products	Marine Switchboards
Customer Segments	Shipyards, Shipowners, System Integrators
Operating Markets	Norway
Partners	Norwegian Electric Systems, ABB, Erik Ianssen
Key Partners	Erik Ianssen

Table 5.1: Key facts about Clean Maritime Switchboards AS (CMSw, 2018; Proff.no, 2018).

5.1.2 YXNEY Maritime AS

Seeking to increase the energy efficiency of offshore vessels, YXNEY Maritime was established in June 2016 by Gjord Simen Sanna (CEO) and Carl Christoffer Lysdahl (CTO). YXNEY Maritime delivers the software solution, MarESS, which gathers important data from offshore vessels and other data sources to give ship managers the information they need to perform fuel saving initiatives. The founders of the company have extensive knowledge on vessel positioning from previous work experience in Kongsberg gruppen. It was through working together in Kongsberg gruppen that the two founders met, and initiated the founding of YXNEY Maritime. The founding team is located in Oslo, while the development of the software is outsourced to developers in Belarus.

After doing several projects as consulting engineers, they landed a deal with Solstad-Farstad, the worlds largest offshore shipowner, in the beginning of 2017. This was a company YXNEY had targeted for some time where the goal was to establish a partnership with them. After a year of software development together, SolstadFarstad is now paying a monthly fee for the subscription of the MarESS solution. Even though Solstad-Farstad being their only customer at this point, the partnership have given the company access to a fleet of 150 vessels worldwide. Giving YXNEY Maritime the opportunity to grow at a much larger pace than they would have been able to on their own.

YXNEY Maritime categorize their customers into two segments, Offshore Shipyards and Oil companies. While the Shipyards develop the vessels according to specifications from the oil companies, who operates these, it is the oil companies that enjoy the benefits of the Maress solution. Hence, the positioning of YXNEY varies between these two actors in the value chain.

They define their key partners as actors that can provide data sets with in depth information about vessels, partners they cooperate on sales strategies in the market, and financial partners that have provided funding. Today, YXNEY have partners such as Kystverket, Fleetmon, and Aqualis that provides access to databases of vessel information such as positioning data, fuel consumption and other technical information. Fleetmon is a German vessel tracking company, that have a open database of ships and ports world-wide [4]. Aqualis Offshore is a specialised marine and engineering consultancy focusing on the shallow and deep-water offshore segments of the oil gas and renewable industries worldwide. These data are critical for their value proposition to their customer, however, the partnerships do not involve anything beyond purchasing/exchange of data. Innovation Norway and Enova have funding programs that has been very important for YXNEY to reach their goals within market declaration and for financing projects they have been involved in.

In addition, Norwegian Shipowners Association is a partner that provides them with office facilities which also has introduced them to potential new customers, partners or collaborations of some sort that are a door opener to potential customers, and other industrial partners.

[4] https://www.fleetmon.com/

Although they have not yet signed more than one customer (SolstadFarstad), they did for instance meet their company lawyer in these offices. After a while with working together at the NSA offices, he even bought a few shares in the company.

For YXNEY, some important partner selection criteria have been mutuality and customer benefits. This involves that both partners have to get something out of the partnerships, or that it is in their shared customers' interest that they form a partnership, to give increased value-proposition for their customer. They also value openness between business partners, and states that the largest actors in this industry are quite difficult to get information out of, but smaller actors are more likely to help each other with providing mutual amounts of valuable information to help each other reach the next step in the process.

Owner	Sann AS: 51%, Lysdahl Engineering AS 43%, Other team members: 6%
CEO	Gjord Simen Sanna
Founded	2016
Headquarter	Oslo
Number of Employees	2
Industry	Maritime Industry, Oil & Gas, Engineering Consultants
Products	Software
Customer Segments	Offshore Shipowners, Oil & Gas companies
Operating Markets	Norway
Partners	SolstadFarstad, FleetMon, Aqualis, Innovasjon Norge, ENOVA, Kystverket, Norwegian Shipowners Association
Key Partners	SolstadFarstad

Table 5.2: Key facts about YXNEY Maritime AS (YXNEY, 2018; Proff.no, 2018).

5.1.3 ZEM Energy AS

ZEM Energy is a Norwegian system integrator that delivers battery systems designed for different types of vessels, especially within the segments of rescue boats, fishing vesels and ferries. ZEM Energy was established in 2009 by Dr. Jan-Olaf Willums and Salman Farmanfarmaian. ZEM stands for Zero Emission Maritime solutions, and is originally a project that spanned out of the electrical car company Think.

When the company entered the industry in 2009, they started as a technical consultant firm, advising how to create and use battery technology within the car industry. Before that time, Dr. Jan-Olaf Willums had been involved in World Economic Forum in Davos, discussing the challenges and possibilities of implementing batteries in automotives in the early 2000's. They quickly realized that this could also be applied to the maritime industry as well. Since then they have mainly focused on the maritime transportation industry, delivering systems to Eidesvik and "Vision of the Fjords" for Brødrene Aass AS.

The core team has been involved in the integration of batteries into trains since 1993, and consists of dedicated executives, with key technical experience[5]. Willums and Farmanfarmaian met when they were involved in venture capital investments. This is how they got in contact with ZEM's current CEO, Egil Mollestad, as they invested in Think. Even though the Think venture did not succeed in the end, the team holds extensive technical knowledge within the usage of the battery technology. Bringing together a strong technical team from Think with them into ZEM, they have shifted focus from automotives to the maritime industry. Their previous experience has provided ZEM Energy with a legitimacy within the implementation of this technology in the NMI, and together with DNV GL (Veritas) they have contributed to training the industry in the possibilities of batteries in the NMI.

ZEM operates within the maritime industry, and deliver their products and services to system integrators and shipowners. For most of their larger projects they deliver to end system integrators such as, ABB and WestCon. On smaller projects on the other hand, they deliver directly to the Shipowners, such as the rescue vessels for NorSafe and fishing vessels for Moen Marin. With these partners, ZEM have signed mutually exclusive contracts in return of financing product development on ESS in these segments. Both of these companies now have electrically driven vessels with ZEM's battery technology, and all three parties are bound to deliver their products to eachother, and not to any other competitors in their segments.

Their partnership agreements with larger companies such as Nidec ASI gives ZEM access to a dozen engineering and assembly personnel which they can use when needed to fulfill complex design challenges, battery assembly procedures, safety assessments and support [6].

[5] www.zemenergy.com/team
[6] www.zemenergy.com/team

Together the two companies develop "combined Power and Energy" battery solutions, based on LG cells and modules, to the maritime market in the Nordic countries. To date, ZEM has already won six ships contracts for the jointly developed systems based on this cooperation [7].

They further highlight AKASOL as an important partner for the joint development of the battery AKAZEM, specialized for maritime implementations. AKASOL is a German expert for lithium-ion battery systems. The product is designed to meet smaller vessels space and power requirements to reduced costs, that opens many new applications.

Their vision is to capitalize on technologies that others have already built their business around. By partnering with Nidec and AKASOL, ZEM operates as a total system integrator for smaller vessels, without them having to develop any of the hardware themselves, but can rather specialize in the implementation of the systems for marine applications.

Their partnerships with Veritas, the Cleantech Vest (NCE) cluster, Grønn Kystfart, and their founding of Maritime Battery Forum, gives the company valuable market insights on technology development and market development from their customers.

Owner	Nordic Enterprise AS (46.81%), Salman Farmanfarmin (30.51%), Egil Mollestad (16.72%), Westcon power & Automation AS (5.97%)
CEO	Egil Mollestad
Founded	2009
Headquarter	Hoevik
Number of Employees	7-8
Industry	Maritime industry, Offshore, System Integrator, Engineering Consultants
Products	Battery Solutions
Customer Segments	Shipowners
Operating Markets	Norway
Partners	AKASOL, Nidec ASI, DNV GL (Veritas), Moen, Norsafe, Groenn Kystfart Program
Key Partners	AKASOL, Nidec ASI, DNV GL, Moen, Norsafe

Table 5.3: Key facts about ZEM AS (ZEM AS, 2018; Proff.no, 2018).

[7] https://www.zemenergy.com/single-post/2017/06/01/Nidec-ASI-sa-and-ZEM-partner-to-deliver-batteries-to-the-maritime-market

5.1.4 Corvus Energy

Founded in 2009, Corvus Energy provides purpose-engineered energy storage solutions for marine, oil gas and port applications. Corvus Energy started as a R&D project in Vancouver, Canada, based on nearly fifty years of combined history in the marine and battery industries. The company founders, are engineers who had worked with energy storage and fuel cells. They had extensive experience in marine and industrial applications, as well as in the design and production of energy storage systems and advanced battery management systems, when they came together to create a ruggedized lithium ion module for use in heavy industrial applications [8]. They create viable alternative power supplies for hybrid and fully electric applications throughout the world.

The company delivers battery systems for large and small vessels in the maritime transportation industry, and possess all technical expertise for in-house production of the batteries. Corvus was the company that delivered the battery system on the worlds first fully-electric car ferry MF Ampere. This was their first project, and came out of innovation activities in the NCE Marine Cleantech Cluster, where Corvus worked closely with system integrators (Siemens and Wartsila) and shipyards (Eidesvik) and shipping companies (Norled). The CEO of Corvus hihglights that this have been important for their success. They have also delivered the battery system for Viking Lady, the worlds first offshore supply vessel to utilize fuel cell technology. Their customers are primarily system integrators such as, ABB, Siemens, NES and WestCon. These actors being system integrators. Westcon is a system integrator who offer complete electrical installations for vessels, classification, as well as a wide range of products and services, such as complete power automation systems [9]. Siemens is focused on electrification, automation and digitization and is one of the largest providers of energy-efficient, resource-saving technologies. Siemens is also a leader within power generation [10].

In 2011, after completing a few projects, professional investors joined the management team, to speed up the commercialization of the technology. Today, Corvus Energy has completed over a hundred projects, and has the largest installed base of Energy Storage Systems with the largest number of projects completed in the maritime industry. With a professional management team, and since the development of their second generation batteries in 2017, they have gained a high level of commercial success. This is reflected in their revenue, which in 2015 was about 4M CAD, in 2016 is grew to 17M CAD, and last year the reached a revenue of over 60M CAD. Their industrial investors have been crucial for this rapid growth, and today on the owner side are Statoil Technology Invest, Hydro and BW Group.

[8] http://corvusenergy.com/about_us/

[9] https://westcon.no/wpa/en/

[10] https://www.siemens.de/ueberuns/seiten/home.aspx

The investors have been especially important in order to shift from a project-to-project based business, to develop generation two of the battery, and scale up business to deliver profitable projects for their customers. When finding investors, an important selection criteria for Corvus was that they could contribute with more than money. All the investors are actors with a strong position in the market as well as a solid brand name. With their long experience from the industry they provide valuable market knowledge, and Corvus states that this has been very important for them along the way.

Furthermore, Corvus also rely on good relations with their customers, the system integrators, who are responsible reselling their products to the end users. They state that they spend a lot of time - especially in the beginning - educating the system integrators about the technology and its usage, as that this is very important that these system integrators become good ambassadors for the product. The NMI is strongly regulated, hence, they also cooperate with classification companies such as DNV GL and Danish Maritime Authority. This in order to influence the regulations they will need to comply with.

Owner	Statoil (18%), Hydro (28 %), BW Group (30 %), Canadian group of investors (24%)
CEO	Geir Bjoerkeli
Founded	2009
Headquarter	Bergen (Center of Excellence in Vancouver)
Number of Employees	110 (25 in Norway)
Industry	Merchant maritime, Offshore, Port service
Products	Energy Storage System, Battery Systems
Customer Segments	System Integrators
Operating Markets	North America, Australia, China, Northern Europe
Partners	DNV GL, ABB, Siemens, Vard, Kongsberg, WestCon, NES, NCE Marine CleanTech, Statoil, Hydro, BW Group
Key Partners	Statoil, Hydro, BW Group, NCE Marine Cleantech

Table 5.4: Key facts about Corvus Energy Inc (Corvus Energy Inc, 2018; Proff.no, 2018).

5.2 Cross-Case Analysis

In order to complete the cross-case analysis, findings from the firms' transcribed interviews were compared within the following categories: Pre-Entry Resources, Entry Strategy, and Strategic Partnerships. Thus, in this section we will look into the founders background, their network prior to entry, motives for forming strategic alliances, the contributions from their partners and how these have contributed to the case firms legitimacy in the industry. Tables that summarize the empirical findings will be presented. Figure 5.2 is meant to give context to the time aspect of the accomplished milestones of the case firms, and illustrate their growth after their time of entry.

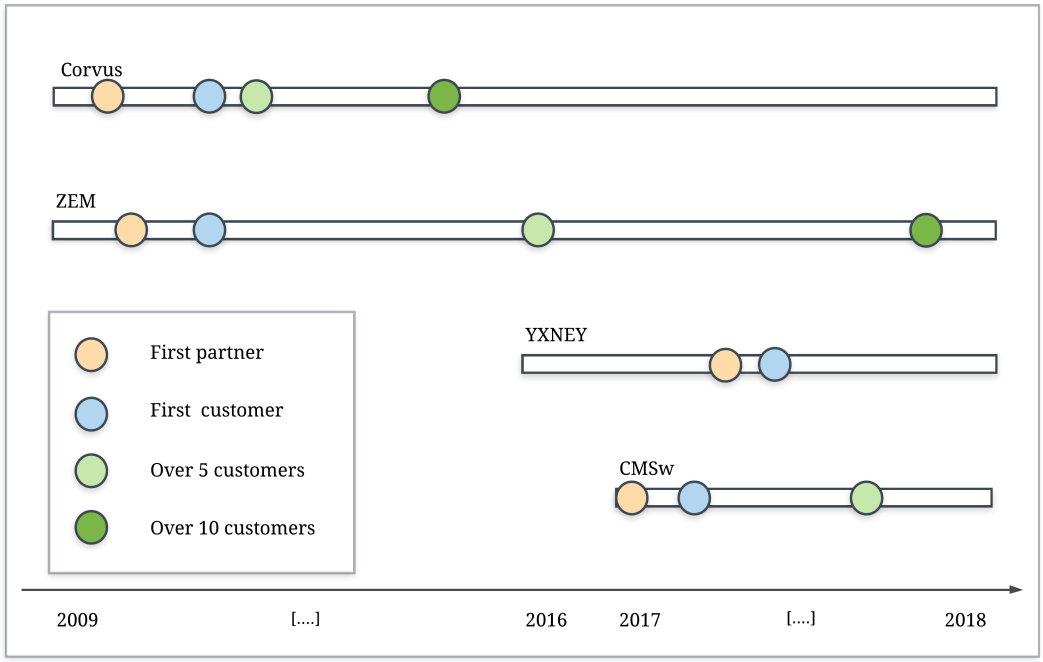

Figure 5.2: Timeline of milestones accomplished by case firms

In Table 5.5 we have made a short summary of comparable factors for each case firm. In the following sections we will elaborate on what every factor intails, but this table presents an overview of the factors.

Factors	CMSw	YXNEY	ZEM	Corvus
Degree of Complexity (concerning the technology)	Medium	Low	High	High
Production facilities	Yes	No	No	Yes
Capital intensity	Uncertain	No	Yes	Yes
Industry background	Yes	Yes	Yes	Yes
Network	Large (investor is a personal relation)	Small (wish they had more personal relations)	Large (first projects and customers through personal relations)	Large (customers and investors through personal relations)
Industrial investors	Yes	No	Yes	Yes
Growth	Rapid	Medium (through first customer)	Slow	Slow (fast 2 last years)
Legitimacy	Through Investor	Through Customer	Through Veritas/DNV GL	Through R&D and investors

Table 5.5: Comparable factors for each case firm.

5.2.1 Pre-Entry Resources

Background
One main finding is that all founding teams have extensive industry experience, and strong technical skills that have been transferable to their new ventures. In all cases the founding teams have been former work colleagues. The case firms have built their business on their prior technical ”know-how”, which serves as a major resource in the ventures. Their technical skills is pointed out to be an important contributor for increasing their credibility in completion on projects. The case firms highlight that their industry experience and background have been important for customers, in that they trust that the case firms have the necessary competence and understanding of the industry requirements.

”Our prior industry experience have been paramount for understanding and exploit the potential of cost and emission reductions in complex offshore operations, that could not be identified by third parties.”
CEO, YXNEY.

Multiple case firms have in addition experienced how their superior technical know-how have been a major contributor for winning large contracts early on, when competing with the industry giants. Corvus also states that their industry background was an important factor for investors to believe in the possibilities of Corvus. According to CMSw they would have needed ”ten new years to build the same network in the NMI” that they now have, if they had not had ten years of experience within the industry before they established their firm.

Network
The case firms explain that their network have been a critical factor for entering the industry, and that they have used their network actively to build their venture. The network have been important in order to get understanding of the market and reaching the right decision makers. From this, pre-established relationships was mentioned as a crucial factor in terms of getting financial muscles, winning their first projects and being able to move at a high pace. Several of the case firms have experienced how the founders personal relations from previous work experience have been important for winning contracts. The sales director of Corvus highlights the network as one of the most important factors for success of new ventures entering this industry. Furthermore the CEO of Corvus states that without personal relations, it would not be possible to enter the maritime industry. YXNEY Maritime stands out as the only the case firm that lacked the necessary network prior to entry, and had to use cold calling as a mean for getting to the right people and gaining market insights. They reveal that they wished that they have had a stronger network prior to their industry. The analysis highlights the importance of ”who you know”, to reach the right decision makers in this industry.

”We had a technical network within the industry, however, in order to get customers you need a commercial network. As engineers, we did not have a strong commercial network.”
CEO, YXNEY.

Table 5.6: Cross-case analysis results related to pre-entry resources.

Findings (Categorized)		
Case Firm	*Founding team background*	*Pre-Entry resources that have been transferable for entering the industry*
CMSw	Founders met through work. CEO, Erlend has extensive background from electrical engineering and as a Switchboard Engineer. The Co-Founder Marius Dyrseth, has worked with batteries and as a Electrical Engineer.	Strong technical skills (in-house production and development). Strong network (Especially important with pre-relations to their investor).
YXNEY	The Founders, Gjord Simen Sanna and Carl Christoffer Lysdahl worked together in Kongsberg Maritime. The founders have several years of experience with positioning of ships.	Strong technical competence.
ZEM Energy	The founders met through working together in Think. Founders have long experience within applications of batteries in automobiles. Jan-Olaf has experience as a venture capitalist. Egil Mollestad has extensive knowledge about batteries and implementation of batteries in automotives.	Strong technical competence and market insights. Strong network (trust from industry actors).
Corvus	The founders have experience from the maritime industry. Employees have extensive industry experience and understanding of the market as well as understanding of how the batteries will be used in the vessels.	Strong technical skills and R&D (The company is based on 50 years of research on battery technology). Strong network.

5.2.2 Entry Strategy

Timing of Entry
Both Corvus and ZEM entered the industry right after the financial crisis where there in addition existed an underlying skepticism towards new and unproven technology. This have affected at what pace these two firms have been able to grow at, starting as consultants and a research project, doing one project at a time. These two firms have been dependent on funding programs, and on educating the industry about the implementation of battery technology in the NMI. They have been first to market, hence it has been important to build up an industry acceptance for their new technologies.

Both YXNEY and CMSw entered the industry in a period where the market was in a cyclic downturn; margins were stressed, industry actors were cutting costs, seeking new innovative technologies that could increase efficiency. Additionally there was a change in market acceptance for battery technologies, and more regulations from government enhanced the transition to these technologies. This have contributed to more openness and optimism towards new entrants introducing new technologies, and supporting technologies of battery and energy storage systems. Several industry giants have ”green funds” and seek to invest in these new entrants. This change in market have contributed to a faster market penetration for CMSw and YXNEY.

Barriers of Entry
The case firms highlight quality and being compliant to industry requirements and meeting specifications as extremely important industry criteria. Every link in the value chain must be compliant, you cannot loose face by not meeting demands. The industry is characterized as having a high degree of complexity[11], and being very capital intensive. This poses a challenge for new ventures, with limited financial resources. Projects are mostly tailor made, and how much of the value chain different actors cover vary a lot between projects. E.g. the larger actors such as ABB could be everything from a component supplier, to a total system integrator. Some case firms refer to the industry using the term ”cowboy industry”. This can loosely be explained as an industry with a loosely defined value chain, where your customers are also your competitors. Furthermore, it is highly regulated, but there are also a lot of industry specific norms embedded in the culture of the industry actors. It can also mean that there is a small number of decision makers, and that these hold a lot of power when it comes to directions that the industry will take.

The complexity of projects, and the capital intensity of the projects further lead to high risk for companies if they fail on delivering. The operating vessels are extremely cost sensitive, hence, the supplier need to respond quickly when problems occur, due to the amount of money that it costs the shipping owners of not being able to operate the vessel. Therefore, they are risk averse, and want to reduce uncertainty. This poses a barrier for new ventures as their guarantee of delivery and quality of their product are more uncertain. Another challenge is the operational margins, and the new ventures are very volatile

[11] With degree of complexity concerning the technology that the firms deliver we mean that there is a difference between delivering a supporting service and a ”total” technology that replaces and old system or is a brand new large technology system. E.g. the difference between what YXNEY delivers, and what Corvus delivers.

to correct pricing of projects. ZEM for instance experienced a downturn in their revenue last year, due to incorrect pricing on a project and development costs. New ventures are especially vulnerable for this uncertainty without strong financial muscles.

"An established actor can afford to fail on a project, due to their good reputation, such as Rolls Royce. As a new venture, you cannot afford to fail on a single project. If you do, you are done."
CEO, CMSw.

All case firms describes the industry as having a historical reputation of being slow-paced and conservative. However, they further explain that there seem to be a shift in the attitude towards new environmentally friendly technologies, and an increased optimism regarding implementing these. There is an agreement that the maritime industry have opened their eyes and are seeking to upgrade their fleets. This could partly be because they want to keep their global competitive position, but also a result of local legislation that are prohibiting emissions in ports.

"The maritime industry is a conservative industry, if you look for supporting evidence of your beliefs, you will always find it. There is a consensus in the industry that nothing works until the opposite is proven. Despite this, we are under the impression that more people in the industry understands that "batteries are coming"."
Sales Director, Corvus.

5.2.3 Strategic Partnerships

Motives for engaging in strategic partnerships
According to YXNEY their need for partners was discovered quickly, as they experienced that they were too small as a completely stand-alone entrant. Furthermore, forming partnerships have been essential to access data that their solution is dependent on. CMSw started looking for partners when they were in need for funding for technological development. They highlight that their lack of sales and marketing experience, is also a motive for establishing partnerships with actors that can help them on this matter.

ZEM came from the car battery industry, and was made aware of the possibility to transfer large parts of this battery technology to the NMI through their pre-entry relations with Veritas (now DNV GL). One of the founders of ZEM had been renting office spaces with Veritas for many years prior to establishing ZEM, and this relation turned out to become a very valuable partnership for ZEM. The CEO of ZEM says that the relation between one of his Co-Founders and Veritas was much of the reason to why they decided to pursue the possibilities within the NMI.

Corvus, being a capital intensive venture, was in a "valley of death"[12], and were experiencing strong competition from other entrants when they targeted more professional industrial investors, that could contribute beyond the financial. This in order to get deeper market insights as well as increase the level of professionalism in the firm.

ZEM seem to be the only firm that are involved in a R&D partnership. Through their partnerships with Nidec, AKASOL, Moen and NorSafe, they have developed ESS for several applications within maritime niches, without the need of their own production facilities. Additionally, this development have been financed by their partners, in return for exclusivity. This to seize the opportunity quickly without many years of extensive R&D, and take up competition with other entrants. Another reason for why they have formed partnerships is to get market insights, and insight on technology development. They get these market insights mostly through partnerships with their customers, such as WestCon and the different clusters (NCE) and Maritime Battery Forum. ZEM reveals that they look to the benefits of scaling up business, that their competitor have gained through signing professional investors. Thus, ZEM are now seeking investors to leverage from the benefits of strong financial resources that these partners can provide.

[12] A death valley curve is a slang phrase used in venture capital to refer to the period of time from when a startup firm receives an initial capital contribution to when it begins generating revenues. During the death valley curve, additional financing is usually scarce, leaving the firm vulnerable to cash flow requirements.

Table 5.7: Cross-case analysis results related to motives for partnership formation.

Findings (Categorized)		
Case Firm	*Motives for forming partnerships and what they intail*	*Case firm motives*
CMSw	*Economic:* Funding of development and risk reduction (E.g. a guarantee of delivery). *Strategic:* sales strategy.	Early need of financial support to develop their product. Financial muscles to guarantee delivery. They form marketing alliances with their partners, which can help getting them new contracts and clients.
YXNEY	*Organisational:* Learning and competence building. *Strategic:* Access to data.	They rely on access to quality data and large data sets. Needed to understand customer needs, and get customer feedback. Dependent on financial support. Missing sales and marketing experience. Partners to gain market insights and contribute with sales strategy. have been important.
ZEM Energy	*Political:* More impact to influence the industry guidelines. *Strategic:* Information about new possibilites like customers, investors. Development of technology for marine purposes.	Claim they did not actively search for partners, but this has become a part of a strategy that has developed over time. Formed partnership to develop battery and storage system for maritime implementation that ZEM could use. Another reason for why they have formed partnerships is to get market insights, and insight on technology development.
Corvus	*Strategic:* Market insights. Scaling up business, increase level of professionalism. *Economic:* Funding (Guarantee delivery)	Corvus started as an R&D project, and the need for partners grew when they saw the need for capital to develop the second generation of their product. In other words, they needed funding in order to keep their competitive advantage. Furthermore, they needed to professionalize the way they were managing the company in order to scale up production. This led to the forming of several partnerships with professional investors.

Defining Partners
One important finding from the analysis is the case firms loosely definition of partners. Common for the case firms are that most of their partners are within their value chain. This being either suppliers, or customers. There seem to be an underlying understanding that due to the complexity of the industry, partners also could be your competitor on some projects. All case firms are dependent of key resources to deliver their products/services, and they highlight the providers of these, as important partners. E.g. YXNEY defines partners as suppliers of resources, such as data. ZEM and Corvus are the only ones to consider clusters as a valuable partner. However, Corvus states that the NCE Cluster was important for entry and getting their first project, but now plays a more important role for getting information about the market and the technological trends. This is supported by ZEM. The other case firms do not show much interest in joining any of the Norwegian clusters. The classification company DNV GL is highlighted as an important partner for ZEM and Corvus, in the way that they seek to influence and get information about battery technology requirements.

"Customers are essential in the entry phase. The partnership with SolstadFarstad gave us the opportunity to understand the customer before we had established a customer relation."
CEO, YXNEY

Partner Criteria
There is an agreement among the case firms that they would not consider partners that would only contribute with financial resources. Furthermore main partner criteria are quality, response time, and execution capabilities. These criteria seem to be key factors in all links of the value chain. Hence, delivering approved quality products that are compliant with specifications are extremely important criteria when forming partnerships. CMSw highlights the quality of the product, and therefore the reputation of the partner, as the most important criteria for cooperation.

"Due to the complexity of the industry, and ship building process, there is high risk concerning the failing of a project. For new ventures it is therefore important to have partners that will cover your back, support you no matter what in the beginning, and who will not turn away because of one project that went wrong."
CEO, CMSw.

This is also supported by ZEM and Corvus. They want good quality names in the business, and some of the most important criteria when choosing a partner is the fact that the partners can support them when they need it the most. Furthermore, the above mentioned case firms states that they want strong partners in the form of capital, so that that their customers have trust in that they can deliver. All case firms view trust from your customers, as a critical factor of success for a new venture.

YXNEY also enhance that important criteria are openness and a culture of sharing, when selecting partners. They state that some of the larger actors are very secretive, so when they needed to cooperate with a large actor, they targeted SolstadFarstad very determined to get them as a partner. In addition to openness, they also highlight the criteria of having a shared vision and similar goals with their partner (SolstadFarstad and YXNEY have a shared goal of reducing fuel consumption and emissions on ships), and this was a decisive factor for establishing partnership with SolstadFarstad. Furthermore they value quality systems and the ability to deliver what they promise, when choosing partners.

Table 5.8: Cross-case analysis results related to partnership formation and selection criteria.

Findings (Categorized)		
Case Firm	*Defining Partners*	*Partner Selection Criteria*
CMSw	CMSw defines partners as every actor they interact with. Suppliers, customers and investors.	Marketing and sales advantages. Important criteria are quality, compliance with classification requirements and have the ability to act fast.
YXNEY	YXNEY defines partners as companies that have a ship management system.	Openness and willingness to share is the most important criteria. Synergies that their partners can contribute with market position of the firms.
ZEM Energy	ZEM defines their partners as all actors up and down their value chain.	Important criteria is that their partners gives something in return. This could be resources such as market insights, or the partner being a door opener, or serving as a matchmaking channel to other actors in the industry. E.g. WestCon and the different clusters (NCE) and Maritime Battery Forum.
Corvus	Corvus defines partners as the owners or investors in the company, the system integrators, that are their customers. They also view classification companies as partners.	Corvus also looked for industrial partners that could add more value than just financial to the company. It was an important factor that their partners were operating in the maritime industry.

Contributions from Partners
The analysis display that the main contributions from the partners are that: The case firms can use partners as a guarantee of delivery, in addition they signal associations with quality brands. Furthermore, all of the founding teams have strong technical skills, but mostly have little or no experience with marketing and sales, and point out that their partners are important contributors on giving information about the markets, and on marketing and sales strategies. All companies often refer to their partnerships in sales and marketing contexts. This can be a specific trait for this industry.

"Showing that you work with established partners means everything to us."
CEO, CMSw.

YXNEY, who only had a technical network within the NMI, have been dependent on accessing leads and new contacts through their partners. Furthermore, they strongly depend on data sets as a resource for their value offering. Their partnership with SolstadFarstad have also been essential to understand customer needs and for the development of their product. ZEM is also involved with product development, these are important agreements that will enhance growth within the segments of e.g. electric driven lifeboats and passenger ferries. Corvus states that their partners were crucial in order to increase the level of professionalism, that the firm was in need of in order to keep their competitive edge, and to grow. The case firms agree that partners are important for rapid growth, and that they would not have been able to take on so many projects and scale up business in the pace they had without their partners.

"SolstadFarstad has been the most important partner for us as they showed us trust before we established a customer relation. They gave us insight in their data, and in return we provided them with a solution in the future."
CEO, YXNEY.

Building Legitimacy
When asked in the interviews what strategies the case firms use in order to build legitimacy, they all agreed on the importance of referring to their partners in sales meetings and other marketing contexts, in addition to building up goodwill among their customers by doing favors, as their main strategies. There is a consensus between the case firms in that:

"If you cannot show quality performance each time you deliver, technical competence to solve any unexpected problems you encounter, and reliability in your deliveries, you will not survive in this industry."
Chairman, ZEM.

Referring to their partners is a strategy in order to display quality of their brand. They want to attract both new partners and customers by having a high quality brand name. Building a strong reputation is something that takes time as a newly established actor in the industry. They refer to their list of partners to win trust among new partners and customers.

YXNEY points out that the process of building legitimacy had taken a lot more time than they estimated. They did a lot of favors towards partners to build trust and land a partnership contract. Sometimes even when they did not even have the time to take on "extra favors" this was still a priority. This is supported by the other case firms as well. This tells us something about the importance of building close relations to certain partnerships in this industry. When they established a partnership with their customer SolstadFarstad, the founders wished that they had an acknowledged partners to refer to, because they knew that trust was important in this process.

Another source for legitimacy that was highlighted by the case firms were their strong technical background. For CMSw this, in addition to the support from their renowned investor, was critical in order to get their first customers.

"It was important from the beginning, and we already started out with some legitimacy as we had desired backgrounds and a strong and renowned investor."
CEO, CMSw.

CMSw also states that achieving legitimacy is what they value the most. The CEO of the company says:

"When we reach an agreement on a price, delivery time and a product delivery with a customer, we will do anything to maintain all conditions. This is what will make us a serious partner in customers and partners eyes, and this is how win contracts in this industry - because you deliver legitimacy and quality, not just a good price."
CEO, CMSw.

ZEM also supports this, and state that the technical skills of the team behind the idea was a major contributor for gaining legitimacy in the beginning. They have used their skills to educate people in the industry about batteries, and this has given them a reputation of expertise within the field, which in return builds legitimacy. People trust their CEO as a person, and this is important. Another important factor for building their legitimacy have been their strong relation to DNV GL (Veritas) over the past decades. They have worked with them on several projects, and with ZEM's expertise on batteries they have gained trust from the industry, which is also critical for building legitimacy.

For Corvus, it was important to show that their technology started out as a research project. Corvus' Sales Director stated that starting this research built some legitimacy on its own. Furthermore their on-boarding of professional investors, added in a new important layer of legitimacy. They highlight the importance for their customers to trust that the company will exist in the long run.

"A new venture will have difficulties on proving this without a track record, and their partners are a major contributor on enhancing their legitimacy in the market."
Sales Director, Corvus.

These partners are especially important for Corvus because they place a guarantee of delivery on Corvus' product. They also provide very relevant industry experience, as well as a understanding of the market that is yet another important factor that have increased Corvus' legitimacy.

All case firms have a high focus on using partnerships to win credibility and to build legitimacy. They all agree on that this is especially important being a new venture in the NMI. The CEO of Corvus further states that the personal relations and their industry background have been critical to build legitimacy in this industry. Without their prior relations, it would be impossible to enter the NMI.

"To succeed in this knowledge-based industry, you need to have an expertise within the technology you are delivering, but you also need to have to know the industry well enough to know which partners you can target to form an alliance."
CEO, ZEM.

Table 5.9: Cross-case analysis results related to partner contribution and legitimacy.

Findings (Categorized)		
Case Firm	*In what way have their partners been unique. What are the unique contributions from their partners*	*Building Legitimacy through their Partners*
CMSw	Their investor, Erik Ianssen, is the most unique partner. He has been the most critical partner in order for the firm to take on large projects so quickly. He contributes with financial muscles, market insight, network and a large customer base. He serves as a guarantee for delivery. He engages the firm in delivering systems to the vessels that his ship yard are building.	Erik Ianssen reputation have given customers a sense of trust in that CMSw will deliver. All their suppliers are compliant with specifications, and this provides some degree of quality to their systems. When CMSw display their partners it gives them credibility in the market that creates ripple effects in the industry, and increases their legitimacy.
YXNEY	SolstadFarstad is their only unique partner, contributing with feedback during product development, being the pilot customer. They have also been a critical factor in order for YXNEY to scale their end user base so quickly.	The founders' industry experience and passion for vessels is what have mainly helped them to gain trust in the industry. They focused on understanding their customers need, and gaining trust through favors.
ZEM Energy	DNV GL has been an important partner for them, quickly involving them on projects. The partnership with Nidec and AKASOL, is unique in that they can operate as a system integrator, without developing any hardware themselves.	An important factor for building their legitimacy have been their strong relation to DNV GL (Veritas) over the past decades. They have worked with them on several projects, influencing guidelines for safe implementation of batteries in ships, and with ZEM's expertise on batteries they have gained trust from the industry, which is also critical for building legitimacy.

Continued on next page

Table 5.9 – continued from previous page

Case Firm	*In what way have their partners been unique? What are the unique contributions from their partners?*	*Building Legitimacy through their Partners*
Corvus	Corvus state that they had never been where they are today without their professional investors. Besides funding, their investors have been important in order to increase the level of professionality in the organization, as well as market insights. It has also been important for Corvus with these partners' network as they already operate within the maritime industry.	The partners are especially important for Corvus because they place a guarantee of delivery on Corvus' product. They also provide very relevant industry experience, as well as a understanding of the market that is yet another important factor that have increased Corvus' legitimacy.

5.2.4 Summarized Findings - Cross-Case Analysis

For a new venture entering a mature industry, pre-entry resources can be a crucial asset. The NMI is a typical conservative and slow-paced industry, and it is often characterized as an industry that values technically competent people and companies with a high focus on delivering quality technologies. In this study, all four case firms have had a background from the NMI before co-founding these new ventures. This fact, along with other studies on entry barriers within the NMI, tells us that this type of background experience is a very important pre-entry resource for a new venture. Furthermore, they highlight the importance of having a relevant network within the industry in order to get customers, partners and to achieve rapid growth.

The maritime industry is often referred to as a cyclical industry. A cyclical industry is a type of industry that is sensitive to the business cycle, such that revenues are generally higher in periods of economic prosperity and expansion, and lower in periods of economic downturn and contraction. Companies in cyclical industries can deal with this type of volatility by implementing layoffs and cuts to compensate during bad times and paying bonuses and hiring in good times. New ventures are particularly vulnerable when the downturns happen, but this is also a typical good timing of entry for many new ventures.

Corvus and ZEM both stated that they were "too early for the market" when they both entered the NMI in 2009. The industry was then still experiencing a period of economic prosperity, and especially Corvus needed a few years to become economically profitable. YXNEY and CMSw are younger firms and entered in 2016 and 2017, when the industry was downsizing. Both founding teams of these ventures came out of larger companies within the industry where they saw a possibility for a new technology in this market.

They have both reached their first customers faster than Corvus and ZEM, which may be connected to their timing of entry. When an industry is experiencing a downturn, it is often more likely to welcome to new actors, new technologies and other business models in general.

All four case firms have one or several established strategic partnerships, where ZEM and Corvus have higher number of partners. This could be connected to the complexity of the projects they are involved in, and the fact that ZEM and Corvus have longer track record. The case firms have targeted their partners deliberately, for either resources or to be associated with the legitimacy that their partners hold in the NMI. Corvus, and CMSw have investors owing 50 percent or more of the company. This might be a consequence of both the complexity of the industry in addition the fact of their in-house production facilities. Furthermore, establishing partnerships through personal relations have been important for the case firms. Building strong relations with their partners is a high priority for the firms.

All four case firms agree that the most important factors when selecting a partner in the NMI is this partner's legitimacy in the industry, and that they can contribute beyond the financial resources. This being mostly their market insights, and access to their good reputation. Having a strong partner is essential to gain trust in that they will deliver what they have promised.

If a company can prove that it can deliver quality products to the time that was promised, they build their legitimacy and brand name, which is one of the most important competitive advantages in the NMI. For new ventures, legitimacy is difficult to achieve, especially in the small amount of time they might have when thinking about their economical runway. This is why partnerships with larger actors who already have legitimacy in the industry is crucial. All four case firms agree that this is what they wish to achieve when they use their partners externally. They all state that they use their partners actively when competing for new projects. They all agree that this value is also one of the biggest factors when choosing new partners to collaborate with.

Our in-depth analysis of the cross-case analysis have resulted in several key takeaways. These are summarized in Table 5.10.

Table 5.10: Summarized findings from the cross-case analysis.

Cross-case Analysis Category	Summarized findings for each category
Pre-Entry Resources	(i) Pre-experience from the industry and technical know-how seem crucial for gaining credibility.
	(ii) The founding teams were established based on background from industry.
	(iii) Pre-established relationships from the industry is a critical factor for entry.
Entry Strategy	(i) Entering right after a financial crisis, in the beginning of the recession in the industry, where the industry was cutting costs and not investing in new unproven technology made the growth phase slower for ZEM and Corvus.
	(ii) Introducing a unproven technology, the importance of educating the industry seem like a critical factor for successful entry.
	(iii) Entering the industry during the cyclical downturn, when the industry was seeking for new innovative solutions have made it possible for rapid growth of both CMSw and YXNEY.
Strategic Partnerships	(i) The case firms define their partners as providers of necessary resources. This being data, capital, access to customers, market insight or technology.
	(ii) The case firms define partners as someone who contributes with more than just funding.
Partner Criteria	(i) Firms with a higher degree of complex technologies choose partners that have quick response time, are compliant with classification requirements, that guarantee quality and can give support in rough times.
	(ii) Firms with lower complexity of the technology choose partners with shared goals and similar organizational culture.
	(iii) All case firms choose partners with strong brand names and good reputation.
Partner Contribution	(i) The main contribution from partners is that they can guarantee delivery, and that this reduce uncertainty and risk for the customers.
	(ii) Partners give association with quality brands.
	(iii) Partners contribute with market insights and sales strategies.
	(iv) Partners are crucial for scaling up production and rapid growth.
Building Legitimacy	(i) All case firms agree that if you cannot show legitimacy or stability, they will not survive in this industry.
	(ii) Gaining goodwill by doing favors is critical for building trust among partners.
	(iii) Industry background and technical skills is a major contributor for gaining legitimacy.
	(iv) Personal relations in the industry increases legitimacy.

Chapter 6

Discussion

In the following section, we will discuss empirical findings in context with theoretical findings and industry characteristics of the NMI. This in order to answer the RQs concerning industry entry for new ventures in a mature industry. From the first RQ1[1] we study how the industry barriers of a mature industry influence the new ventures entry process. Further, we seek to answer RQ2[2], by studying main topics discovered through empirical and literature findings for how new ventures can utilize partnerships to enter the NMI. These being: Scarcity of Resources, Competitive advantage, Social Capital, and Growth Strategies. In addition we seek to point out some critical factors for alliance success discovered in this study. Lastly, we have in this study discovered the importance of legitimacy for new venture entering a mature industry. Thus, when answering RQ3[3] we will discuss how new ventures can utilize partnerships when pursuing different legitimacy strategies presented by (Kuratko et al., 2017).

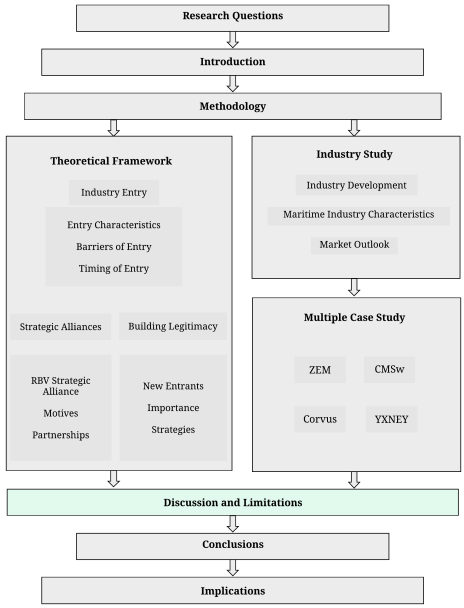

Figure 6.1: Structure of the Discussion.

[1] What entry barriers do new ventures face when entering a mature industry?
[2] How can new technology ventures utilize partnerships to enter the NMI?
[3] In what way can the new ventures utilize partnerships to build legitimacy?

6.1 What entry barriers do new ventures face when entering a mature industry?

A mature industry is, among other factors, characterized by having high barriers of entry. When markets mature, technology standards are clear, market shares stabilize (Swaminathan, 1998) and there exist strong relations between the actors. The NMI, being a cyclical industry introduces barriers of entry that are related to the timing of entry. Entry is not easy during the peak of the industry cycle, where already established supplier/customer relations seem to be preferred. There exists few incentives to change suppliers in this period, and incumbents preferably stick to doing business as usual. The case firms that entered during a recession period had to work hard on changing the mindset in the industry to get market acceptance, as the industry was cutting costs, and not investing in new unproven technologies. Hence, we argue that entry in this period strongly affect the entry barriers of a new ventures. The barriers of entry seem lower during a cyclical downturn, where the industry is challenging status quo, and questioning their solutions and the partners they have. This results in more openness to invest in new technologies which poses an opportunity for new entrants.

Furthermore, mature markets are dominated by generalist firms that try to maximize their performance by drawing on the largest possible resource space (Swaminathan, 1998). That is, the center of the market. Literature suggest three environmental changes that can lead to niche formation; technological innovation, governmental changes and change in consumer preferences. In the NMI, these three environmental changes are all present, and thus poses opportunities for new ventures to enter. The case firms have exploited the possibilities of implementing batteries in vessels, and with the industry downturn governments have strongly influenced the growth of this market, resulting in the formation of new niches e.g. battery driven ferries. Even though niche formation poses opportunities of entering a mature industry, there are still barriers the new ventures face. We argue that the exploitation of niches to overcome entry barriers of direct competition from incumbents seem to apply for new ventures entering the NMI. When entering a mature industry, new ventures face a threat from established incumbents, in that they can copy their product or services by choosing to develop it themselves. Chen & Miller (1994) state that highly visible firms are more likely to elicit competitive responses, and state that the more responses a firm's actions provoke, the worse its performance. Literature indicates that in an industry like the NMI that is characterized by inert processes and large clusters and systems, a young entrant firm can be vulnerable towards large competitors in a too early phase if the focus on high visibility becomes to large. If the visibility of the firm becomes to high, the challenges of withstanding the competitive response from incumbents becomes higher.

The case firms experience varied degree of threat from incumbents. When pursuing a disruptive innovation that is not initially well-understood or developed, it is essential to increase customer knowledge for successful development and commercialization (P. Anderson & Tushman, 1990; Abernathy & Utterback, 1978). The case firms ZEM, Corvus, and CMSw have all followed a high visibility strategy, and highlight the importance of educating their customers, and being visible and influencing the industry development.

They are now experiencing that larger firms such as Siemens and Rolls Royce are developing their own versions of their technology, and that this poses a threat for the case firms. These incumbent firms are typically known for taking a large market share if they want to. However, the case firms are confident that they have established a good reputation, and will continue to operate within their niches. Through exclusive agreements with customers threats from incumbents can be reduced. We also argue that new ventures benefit from keeping high visibility when commercializing a radical disruptive technology, because having established a good reputation and foothold within the industry is crucial for when incumbents choose to enter the market.

The low visibility of the new venture and its product is most likely to be very beneficial when commercializing an incremental disruptive technology (Carayannopoulos, 2009). In the case of YXNEY, they have kept a rather low visibility in the market, focusing on establishing themselves in the industry through their partnership with their pilot customer, and grow through them. They follow a low visibility strategy, and thus we argue that new ventures introducing incremental technologies, face higher risk of being replaced by incumbents in the early phase of entry. We suggest that these firms should keep low visibility until the have become stronger both technologically and from a resource perspective. This will improve their chances of withstanding competitive response of incumbents.

A term that have received much attention in literature about young firms is the increased mortality risk that new ventures face in terms of liabilities of newness. These novelties are connected to the uncertainty customers have about the new venture, to the technology of production, and lack of business skills and start-up experience (Shepherd et al., 2000). Case firms highlight the barriers they met regarding lacking trust and having no track record of performance to show to. These types of barriers are referred to as antitrust barriers (McAfee et al., 2003) and seem extremely present in a mature industry. When introducing new unproven technology to an industry, ancillary barriers arise, which results in a lack of confidence among customers, distributors and suppliers that the new venture depend on to survive (Zimmerman & Zeitz, 2002). The case firms have especially experienced lack of trust in context of delivering their product, much because of the novelty of the technology.

Meeting the high industry standards, and operating in such a complex industry is challenging for new ventures, and especially when you have limited resources and time to prove yourself. Regulations and classification requirements are strict in the NMI, and technologies must be approved and comply with requirements, and quality standards in the industry. Thus, the NMI is reluctant to taking a lot of risk, as the financial consequences of failing projects are fatal. Funding programs from ENOVA and IN are crucial for reducing the financial risk of incumbents that seek to explore new technologies.

In general the entry rate of new ventures is quite low in the NMI, much because of the industry characteristics, and the high barriers of entry. New ventures that have had customers, and proven technology have still failed due to the lack of financial capital. This is compliant with what Geroski (1995) states about entry being easy, but survival is not. The industry is characterized by having an extensive need for capital, and new ventures are especially volatile to failing on a project or price setting the project wrong. This is especially crucial as they have no track record and little legitimacy.

Literature highlight the importance of having relevant industry background where the founders can contribute with valuable market insights, product and technological understanding, for both the creation of technology intensive ventures and the survival of these (Helfat & Lieberman, 2002; Agarwal et al., 2004). Furthermore the network of a case firm is strongly related to pre-entry experience of its founders. Empirical findings in this study show that the industry background of the case firms have been critical for them to enter this industry. Thus, we argue that relevant industry experience and the founders network is closely connected to the ventures' social capital. Lack of social capital can be a barrier as the NMI is closely connected, and the key is who you know.

Having the right network is crucial for new entrants in a mature industry. The four case firms in this paper have all agreed that their social capital have been a main contributor for accessing important resources, or customers, and thus contributing to enforcing competitive advantages. Here, the personal relations of the founders have been important to get funding, and getting larger projects more quickly. This is in accordance to what literature refer to as bridging (Adler & Kwon, 2002). New ventures that are established by a team with more experience, and larger networks will have a stronger social capital. Consequently they will gain more trust, get more connections, more goodwill and are consequently more likely to succeed (Berg et al., 2008). Based on Berg et al. (2008) and empirical findings, we see the importance of founders pre-established relations for overcoming antitrust barriers in the NMI.

Jeje (2015) argues that overcoming the above discussed barriers are less likely to be met by an individual new venture, as they are constrained by operational, financial and technological challenges. If there's a resource gap between the firm and the required resources in the industry, the new venture would consider a strategic alliance with someone with these capabilities to cover the gap (Helfat & Lieberman, 2002). Thus, we argue that the survival chances of a new venture, entering a mature industry can be enhanced by pursuing a strategic alliance strategy.

6.2 How can new technology ventures utilize partnerships to enter the NMI?

We have established that in order to overcome entry barriers in the NMI, one of the most cited reasons is to establish strategic alliances that give access to complementary assets and skills to manage scarcity in resources (Franco & Haase, 2015). Alliances form when firms are in vulnerable strategic positions, for which they need additional resources that can enhance their competitive advantage, or when firms are in strong social positions such that they have the resources necessary to know, attract, and engage partners (Franco & Haase, 2015). Empirical findings of this study show that there are many different ways a new venture defines their partners. A common factor is that partners are contributors beyond financial capital.

The case firms highlight that there are many actors that can contribute with money, but the most important thing is what they can contribute with of knowledge, market insights, and technical know-how. All the case firms have partners that contribute with at least one of the following: Technological development, product development, market insights and sales strategies. These partners are investors, people from their network, suppliers or customers. When forming partnerships, the case firms were highly aware of the value that their partners could offer into the partnership, and this was an important criteria when choosing their partners. The motives of engaging in strategic alliances highlighted by literature and empirical findings will further be discussed, to answer how new ventures can utilize partnerships to enter the NMI. Our findings reveal that the industry background and the technical competence of the founders, have strongly increased their social position, and contributed to attracting customers and partners. Both ZEM and Corvus have experienced that even though being small firms, they have been approached by established actors in the industry to form partnerships. We argue that this is due to the firms social position, that they have established through prior relations and experience.

Scarcity of Resources
Rapid technological changes, or the abrupt emergence of a competence-destroying technology can radically restructure an entire organizational field, and a firms competitiveness. Literature have up until now mostly focused on the importance of fostering VRIN resources in a firm. However, recent studies highlight the importance of attaining versatile resources, as this provides the venture with higher flexibility to respond to environmental changes. The case firms ZEM, YXNEY and CMSw have all attained resources and partners to stay versatile. YXNEY and ZEM who have outsourced the hardware development to supplier partners, and are not restrained from inert R&D processes that own production facilities might lead to. This also reduces costs and risk if the environment were to change, and allow them to quickly respond to new customer needs.

The Penrosean view states that versatile resources increase a firm's combiniative possibilities and thus expand its productive opportunity, and ability to adapt to these environmental changes (Nason & Wiklund, 2018; Penrose, 1959). CMSw states that one of their competitive advantages is that they can quickly respond to changes and update their software. Empirical findings highlight that the new ventures are concerned with staying flexible and offer solutions based on customer needs, as well as they use their partners to keep in front of technological changes.

Not all companies can provide the technology that they need to effectively compete, therefore technology transfer in strategic alliances is viewed as a factor of success in a strategic alliance (Franco & Haase, 2015). Another reason for forming alliances is outsourcing of business functions, which can include outsourcing of marketing, production, accounting, sales, or for companies that are looking for the best quality of technology, or cheapest labor or production costs (Elmuti & Kathawala, 2001). ZEM seeks to benefit from these advantages by pursuing a vision of building their business on technologies developed by others, and implement these in new areas.

Furthermore, the financial risk involved with pursuing a new product or technology could be too big for a company to undertake on their own. Hence, a strategic alliance could be a way of spreading risk among the partners, along with achieving economies of scale (Haase & Franco, 2015). This is supported by the case firms who have partners that have financed development of their products and services, as they were to small to take this risk on their own. By forming alliances with other companies, the case firms have been able to accomplish bigger projects more quickly and profitably than if they tried to do it on their own. This motive is supported by Elmuti & Kathawala (2001) findings.

Competitive advantage
Corvus faced "a valley of death" when the first generation of the battery they deliver were outdated by new ventures that used existing technology that held the same specifications to a much lower price. They established partnerships to respond to this threat from the market, and are now more flexible with professional industry investors. Nason & Wiklund (2018) states that firms can use strategic alliances to utilize services rendered from resources they do not own, in order to expand their productive opportunity set.

Elmuti & Kathawala (2001) argues that for new ventures, the only way they can stay competitive and even survive in today's technologically advanced, ever-changing business world, is to form alliances. Although alliances may enable firms to adapt and learn, substantial evidence suggest that gaining resources from alliances can be slow and difficult (Larson, 1992; Eisenhardt & Schoonhoven, 1996). Alliance formation rate is thus likely to be lower in the growth-stage markets, than in emergent-ones.

Social Capital
Another important criteria that have been highlighted by the case firms is the reputation or brand name of their partners. Geringer (1991) highlights the reputation of the partner as a decisive variable influencing new venture partner selection. This is supported by our empirical findings as the case firms highlight that they use their partners to be associated with high quality brands, in order to leverage from their partners social position to gain credibility to their technology and guarantee of delivery. Empirical findings also reveal that being able to deliver, and the guarantee of that you have the financial resources to exist long enough to provide service and maintenance, is crucial for success in the NMI. Corvus and CMSw have especially experienced how their partners have contributed with such guarantees. ZEM looks to Corvus, and the positive effect they've had with industrial investors, and are now seeking industrial investors themselves. Thus, we argue that new ventures entering the NMI need to select partners that increase their social capital to be able to survive.

Furthermore, the relational dimension of social capital, that is connected to trust seem to be very important in the NMI. The quality of prior personal relations of the founders seem to be more important the higher the complexity of the technology, but is highlighted as a crucial asset. Literature argue that interaction and cooperation are more likely to happen among people who know one another (Eisenhardt & Schoonhoven, 1996). All ventures emphasizes the importance of gaining goodwill through favors in the beginning. We argue that for new ventures with an incremental innovation, without a strong personal network, doing favors is especially important in order to build trust and thus, increase their social capital. Trust between parties is a crucial factor for alliance formation, and consequently the chances of survival. Case firms emphasize the importance of their prior personal relations seem crucial in order to get funding, and for rapid growth. Strong social position enhances alliance formation by capitalizing on advantages such as contacts, reputation, and status that creates opportunities for alliance formation (Eisenhardt & Schoonhoven, 1996). Our findings support this fact, and argue that the personal network of the founders of a new venture entering the NMI is a critical asset that poses opportunities for alliance formation.

Alliances can also improve the strategic position of new ventures when they developing more complex technologies, or in alliances that are involved in joint product development. In addition to the resources that the partner can contribute with, is that they reduce risk and costs on the new venture in development, and that an alliance partner with a strong reputation can contribute to enhancing the perception of the technology as more viable. Thus, we argue that new ventures with a higher degree of innovation might benefit from establishing alliances with partners that can increase the viability of the technology.

Growth Strategies
Barney (1991) argue that firms whose resources are neither valuable or inimitable will be unable to pursue similar growth strategies to the same extent. Firm growth is broadly defined as the increase in a firm's size from one point in time to another (Nason & Wiklund, 2018; Penrose, 1959). Growth is important for economic development and employment, allows new firms to establish legitimacy in order to survive (Stinchcombe & March, 1965; Nason & Wiklund, 2018) and constitutes a signal of success (Eisenhardt, 1989; Eisenhardt & Schoonhoven, 1996).

Our study reveals that the case firms partnerships have been crucial for rapid growth of the new ventures, and have increased their ability to take on large projects at an early stage. Through the partnership with SolstadFarstad, YXNEY have accessed the worlds largest offshore vessel fleet, which puts them in a unique position in the market. ZEM has contracts of exclusivity with two of their customers (NorSafe and Moen Marine) in two niches, that contribute to the future growth. Furthermore, they have not had the need for either their own production facilities or many years of R&D, but could quickly benefit from their partners' economies of scale. Hence, they could enter the market at a much lower price than their competitor. This has been a part of their strategy, to utilize partners that have the technology they need, and who has a strong quality brand. Corvus and CMSw have through their partners exponentially increased the number of projects over the last years, solely because of their investors. Thus, we argue that through alliances new ventures can attain VRIN characteristics and pursue rapid growth strategies.

Furthermore, the other case firms also enhance the importance of partners to be able to grow at a more rapid pace than they would have been able to to on their own. They state that without their partners, they would have been doing business taking on one project at a time. This motive is supported bye literature, and Elmuti & Kathawala (2001) argues that growth strategies and entering new markets are among the top reasons for forming alliances. This is because firms do not have the time to establish new markets one-by-one, hence forming alliances with an existing company already in that marketplace can consolidate the market position of the new venture (Elmuti & Kathawala, 2001; Franco & Haase, 2015).

Successful Alliances

Alliances with dissimilar objectives, inability to share risks, and lack of trust often lead to the failure (Elmuti & Kathawala, 2001). All four case firms highlights trust, commitment and complementary assets as key factors for a successful inter-firm alliance performance. The degree of cultural and organizational compatibility between co-operating firms is another important factor for the success of the alliance. This seems to be an important criteria for the case firms, both for themselves towards a potential partner to form an alliance with, but this is also something they value within the firm. Furthermore, these are assets that are created and leveraged through relationship, and that impact the behaviour of the actors (Berg et al., 2008). A shared vision between the actors also enhance success of alliances (Nahapiet & Ghoshal, 1998; Berg et al., 2008), and YXNEY and CMSw highlight that the shared vision and cultural fit between partners is important criteria for success in their partnerships. Another factor that is highlighted among the case firms is trust. Haase & Franco (2015) states that building trust is a difficult aspect of strategic alliances, as trust needs to be built between individuals and not between companies. We argue that trust is more likely to occur between people who know each other, and these partnerships are more likely to succeed.

6.3 In what way can the new ventures utilize partnerships to build legitimacy?

Lacking legitimacy and struggling to achieve this, is a common problem for most new ventures, especially when trying to enter a mature industry. Perhaps even more for new ventures that are developing a radical new technology or seek to disrupt a market by creating a new category (Aldrich & Fiol, 1994). When attempting to answer how new ventures utilize partnerships to build legitimacy, theoretical and empirical findings displays a paradox relationship between forming partnerships and building legitimacy for new ventures. This discovery will be further discussed in the implications of this thesis.

These discoveries aside, theoretical and empirical findings also shows that new ventures attempting to enter a mature industry like the NMI would benefit from having a higher awareness around how they already have or will have to build legitimacy for a successful entry. Forming strategic partnerships is an important part of each strategy, but first and foremost they focus on what type of different legitimacy entry strategies that exist. We will use these strategies from Kuratko et al. (2017)'s study as a theoretical framework and the empirical findings from each case firm in this thesis to exemplify how literature suggests legitimacy strategies can be used as a tool in mature industry entry.

These strategies are particularly relevant within the context of an entrepreneurial ecosystem because they focus on a venture's relatedness to its external environment. Zimmerman & Zeitz (2002) suggest there are four basic legitimization strategies available to new ventures: conformance, selection, manipulation, and creation.

6.3.1 Kuratko's Legitimacy Strategies

Conformance strategy
Kuratko et al. (2017) describes a new venture who uses a conformance strategy to gain legitimacy as a new venture that conforms, and does not question, change, or violate the social structure, but rather "follows the rules". YXNEY, who is a supporting service provider, is a new venture that has benefited from using a conformance strategy as an entry strategy. As a provider of supporting service technology, it can be difficult, and possibly even unnecessary to challenge norms and rules that may exist in an industry to try to build legitimacy. This is because of the supporting service nature of the technology, and the fact that it is not disruptive. It could be hard for them to attract customers if they had chosen another strategy to gain legitimacy, because customers would not change their way of doing business if they do not need the technology to survive. If a new venture delivers a "nice to have" product, and not a "need to have" product, a conformance strategy could be an appropriate way to build legitimacy. Thus, we argue that new ventures delivering a supporting service product tend to follow a conformance strategy to build legitimacy.

Selection strategy
A selection strategy involves locating in a favorable environment such as an entrepreneurial ecosystem (Suchman, 1995). ZEM is a good example of a new venture who used this kind of selection strategy as an entry strategy into the NMI. The founders behind ZEM started out delivering their battery technology in the car industry, but because of network and after some changes in several markets, they saw that they could deliver this technology in the Maritime industry where there were other demands and less competition on this exact field. This change of customer segment entailed that they needed to make themselves legitimate all over again. Being operative, and even successful, in another industry does not necessarily mean that you can carry this legitimacy with you if you change or add on to your customer segment (Zimmerman & Zeitz, 2002). ZEM also waited to see how they could deliver their product in the best way possible in this new industry, with starting out as consultants who educated the NMI on battery technology before they actually started delivering their energy storage systems. The delivery was based on acknowledgement from actors in the NMI who wanted to buy a product from the brand name ZEM, which again means that they were starting to gain some legitimacy - and this legitimacy was based on ZEM being able to locate a favorable environment to set up their business.

CMSw also used parts of a selection strategy as an entry strategy into the NMI. Both founders had a background from the industry, and knew the norms and the culture within this mature industry quite well, which lead to them having specific knowledge about a hole in the market where their switchboards could fit in. From this, the founders knew that they already had established some degree of legitimacy, but most importantly they knew their weaknesses. This lead to them partnering up with their investor Eirik Ianssen very early, and they entered the NMI in a place in the value chain where they already knew there existed a possibility to enter.

Manipulation strategy
Manipulation is the attempt to make changes in the current ecosystem environment to achieve consistency between an organization and its environment (Zimmerman & Zeitz, 2002). After entering the NMI using mainly a selection strategy to achieve some immediate legitimacy, one could say that ZEM used the manipulation strategy in their entry as well. Both ZEM and Corvus started mainly as consultants on battery technology applications within the maritime industry, and both actors state several instances where they needed to be lobbyists with a pro-battery-technology agenda for potential customers, for politicians or other key regulation persons, and so on. They used their expertise in the area to build their legitimacy, and the fact that both companies had previous experience from other countries may also have contributed to them gaining legitimacy from actors in the NMI. Both ZEM and Corvus managed to make changes in the current ecosystem environment which they both entered.

Creation strategy

A creation strategy requires that an entrepreneur creates a new social context by creating new rules, norms, values, scripts beliefs, models, etc. One could say that Corvus actually have ended up using most of the elements within the definition of a legitimacy creation strategy. Corvus was first-to-market within this type of ESS technology for the NMI, and although this carries a lot of value for a new venture, it can also carry some extra barriers the new entrant would need to overcome. Corvus started as a R&D-project in Canada in 2009, but they recognized Norway as a better location for commercializing and selling the finished product based on this research. When they started, they had to break down many barriers concerning this new technology and work hard to educate the industry on ESS. Since their beginning in 2009, there have been a rapid technology development on battery performance, that led to the demise of their first generation of battery. Corvus experienced new entrants introducing batteries with higher performance at a lower price. Consequently this forced Corvus to develop their second generation, that has set a new standard for this type of ESS in the industry. Corvus are now experiencing that they are getting a high level of legitimacy in the industry, and are often referred to by actors in the NMI as a company that always delivers what is promised.

6.4 Limitations

In this section we will discuss limitations of using the NMI to generalize findings related to entry for new ventures into a mature industry.

This exploratory study is associated with several limitations. The empirical findings in this thesis are based on the information from four new firms located in one country, Norway, and in one industry, the NMI. This fact might limit the generalizability of the findings. In addition to this, the four case firms despite several differences (See Table 5.5 in chapter 5), can all be categorized within energy storage systems or supporting technologies of these, with applications within the niches of short sea maritime transport. This might limit the generalizability of the findings as well.

Additionally, the interviews were conducted with one of the founders [4] of each new venture, which can cause some untruthful statements because a founder of a company might wish to show their firms in the best light possible. It might enhance the dependability of this study if performed with several actors in each case firm, as well as actors, partners or customers connected to each firm. Still, we argue that to get as "real", thorough and honest answers to all three RQ's as possible, it was important to conduct the interviews in the way there were held, especially considering the limited time frame in which this study was conducted.

The transferability of this study might be reduced by the fact that the NMI has additional characteristics than the traditional definition of other mature industries, e.g. emerging green technologies, and new laws and regulations that we now see arising as a consequence from environmental changes in the world's climate.

[4] Here we consider the Sales Director in Corvus to be a part of the founding team in Norway. He was one out of four members in the starting team in the Norwegian Sales Division of Corvus.

Chapter 7

Conclusions

From our first RQ1[1], it is evident that there are many entry barriers for new ventures trying to enter a mature industry. The most prominent barriers are scarcity of resources, antitrust barriers and financial stability. Strategic alliances with investors, suppliers or customers, can help new ventures overcoming these barriers, because this has a direct connection with legitimacy in the industry, which in the mature NMI is strongly associated with a new firms' survival.

This brought us into answering the second RQ2[2], where the empirical findings show us that partners strongly contributes with increasing the legitimacy of the firm and overcoming antitrust barriers. New ventures can leverage on reputation and the financial stability of their partners. These are critical factors in getting customers' trust in that you can guarantee delivery, and continue to deliver. New ventures can strongly benefit from pursuing partnerships within their pre-entry network. The first partnerships are more likely to occur between people who already know each other. This relation increases trust between the

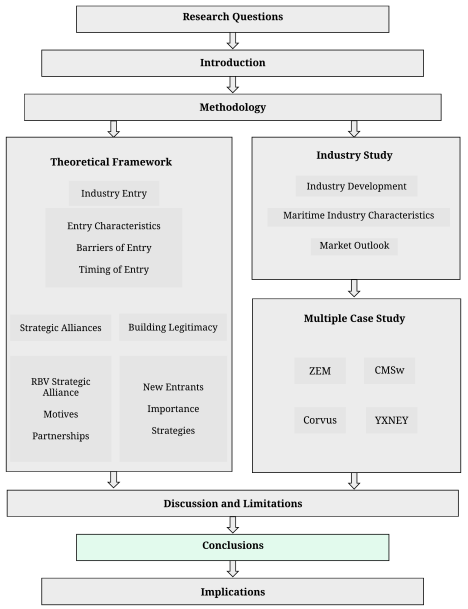

Figure 7.1: Structure of the Conclusions.

[1] i. What entry barriers do new ventures face when entering a mature industry?
[2] ii. How do new ventures utilize partnerships to enter the NMI?

partners, that further increases legitimacy. We therefore conclude that the social capital of the founders plays a crucial role in order to enter the NMI. This is especially pressing for new ventures introducing technologies with high degree of complexity.

Lastly, the findings from RQ3[3] showed that depending on the pre-entry resources and the complexity of the technology of the firm, they utilized their partners differently. We used the theoretical framework of Kuratko et al. (2017) and argued that all four case firms used elements from several of the legitimacy strategies in the framework. Simply put, the more complex technology as a product, the more the firm can utilize elements from a Manipulation or a Creation strategy. The less complex or leaning towards a supporting service technology as a product, the more the firm can utilize elements from a Selection or a Conformance strategy.

[3] iii. How do new ventures utilize partnerships to build legitimacy?

Chapter 8

Implications

8.1 Implications for new ventures

Throughout the thesis discussion, we present how the mature industry characteristics can affect new ventures trying to enter a mature industry such as the NMI. We believe our study to be valuable for managers in new firms considering to enter mature industries in general, and the NMI in specific. We argue that managers in firms entering mature industries should be aware of the characteristics of the cyclical, highly technological and capital intensive NMI. As a result, new firms should strive for an adaptable and flexible organizational structure, to cope with such industry traits. This should be emphasized for entrants into the NMI.

According to our analysis, relevant pre-entry resources is crucial to be able to enter the NMI successfully, and of these resources, relevant technological competence and network are the most important ones.

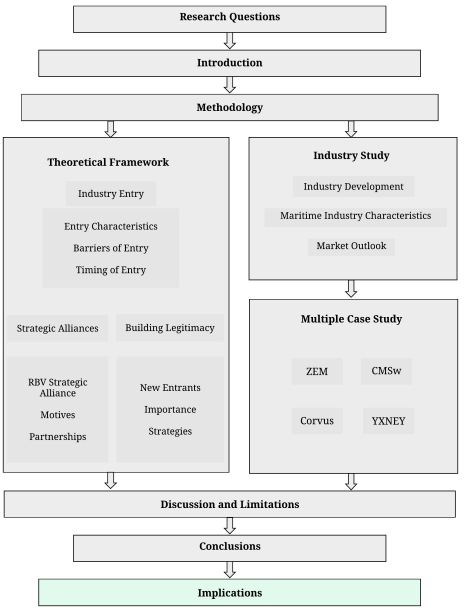

Figure 8.1: Structure of the Implications.

Only new ventures where founders have relevant pre-entry resources are recommended to enter the NMI. We argue that this is because valuable pre-entry resources is identified as one of the main factors for successful industry entry in the NMI.

Due to the NMI being a complex and conservative industry, we recommend that new ventures introducing technologies of high complexity or disruptive innovations, are recommended to pursue a high visibility strategy to overcome the threat of incumbents, and increase industry actors knowledge. This will increase their viability. New ventures introducing innovations of more incremental characteristics could benefit from pursuing a low visibility strategy. We argue that this could be beneficial during product development phase, and to build good relations with key customers, to reduce threat from incumbents that could easily copy them. Based on our findings new ventures entering a mature industry should seize the opportunity of entering through emerging niches in that industry. This has been especially valuable for the case firms in this study to ensure growth, and reduce risk from incumbents.

One of the most important implications in this study is that partnerships are crucial for entry and survival in a mature industry. None of the case firms in this thesis could imagine themselves surviving if it was not for their different partnerships. Partners are a necessity for financial stability and the legitimacy of the new firm, and this largely increases chances of success. In the early phase of entry, partners provide important guarantees of financial stability to overcome the capital barriers and are moreover important for the ability of completing large projects more quickly. Furthermore, partners seem crucial for the professionalism of the new ventures, and to achieve economies of scale. We argue that in light of the cyclical industry characteristics, and the rapid technological changes, new ventures are recommended to establish partnerships that enhance their versatility to respond to environmental changes and to achieving economies of scale.

This study also suggests that that new ventures preferably should establish partnerships with people within their pre-entry network. We argue that this is because of the trust between these parties, and that such prior relations are crucial for the establishment of partnerships, and that such partnerships increase the legitimacy of the new ventures in a much higher degree than without pre-established social relations. The case firms in this thesis actively used their partnerships to build legitimacy during their entry process. We argue that a clear strategy about how each partners contribute in building legitimacy, new ventures can achieve more rapid pace towards economic growth.

During the discussion around RQ3 in this thesis, the authors mentioned the discovery made about the paradox relationship between forming partnerships and building legitimacy for new ventures. This paradox is the discovery of the fact that you need partners to gain legitimacy, but you need legitimacy to attract partners. Prior to the research period, the authors were under the impression that new ventures needed to form partnerships and that through these partnerships, they would increase their legitimacy. Legitimacy is important to attract partners, but furthermore it plays a crucial part in the further growth and survival of the new ventures entering a mature industry. However, legitimacy is also a crucial pre-entry resource that the new venture need to have in order to enter a mature industry. Here, pre-entry experience, technical knowledge and pre-entry relations are critical factors in establishing their first partnership. These partnerships are discovered to occur mostly within the new venture's personal network and is an important contribution to increasing of the their level of legitimacy.

Establishing the first partnerships is the beginning of a simultaneous process where other partnerships further increase the legitimacy of the firms. We argue that the first strategic alliance is the most important partnership for a new venture entering a mature industry like the NMI. Referring to trusted partners signal legitimacy for a new venture, and increases the chances of survival significantly.

The process of building legitimacy starts prior to entry and is a continuous process during and after entry. The higher degree of legitimacy, the faster the attraction of partners to further grow.

8.2 Implications for future research

For further research we suggest for qualitative case studies on mature industry entry with a broader range of firms. This can be done by studying a broader range of new ventures within the NMI, and perhaps across the Norwegian borders. In addition to this, one can also choose a broader scope within the industry than new ventures within ESS and supporting technologies of ESS.

We also suggest to study firms in other mature industries, with other characteristics than the NMI. This way, generalizability form mature industry entry of new ventures would increase. We experienced that the case firms were under the same impression of the importance of partnerships and legitimacy, and furthermore the importance of having a strong social capital prior to entry. This has mostly come as a consequence prior industry experience. Thus we argue that it may be interesting not only to focus on new ventures with relevant industry experience, but also include new ventures without prior experience in a future study.

This study have moreover only focused on new ventures that are currently operating within the NMI, and more specifically within ESS and supporting technologies. It could be interesting for future researchers to investigate new ventures that did not make it in this industry, and explore the reasons for their failure. We argue that this could give further valuable insights on the topic of entry barriers in a mature industry and strategic alliances.

Lastly, we have only studied this topic from the new ventures perspective. We argue that such partnerships play a crucial part for new ventures entering and surviving in the NMI. It could be interesting to investigate the topic from the perspective of an incumbent in order to understand how established firms utilize partnerships with new ventures to strategize for the increasingly rapid technological changes and environmental changes in the industry. We also suggest further research to investigate how legitimacy of new ventures are perceived among incumbents. We argue that if the benefits of an strategic alliance are mutually beneficial for both parts, it would increase the innovation activity in the NMI - and this could help keep healthy competition in the industry in Norway, as well as potentially strengthen Norway's position in the global maritime industry.

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Appendix

Interview Guide[1]

Information given to the interview objects

- Introduction of the thesis and the research purpose
- Introduction of the authors
- Ask if they would prefer to be anonymous in the study
- Ask if it is OK to record the interview
- Ask if they would be available for follow-up questions, validate citations, and read through case firm descriptions to validate facts.
- Introduction of the case firm

Background and Pre-Entry

1. Can you describe your role in the firm and pre-entry background?
2. How many employees are you?
3. How did the team meet?
4. Who was part of the team from the beginning?
5. How is the ownership structure in the firm?
6. If you have investors in your company, when did you start getting them?
7. Did you have a specific strategy to get investors?
8. What industry would you yourself say that you are in?
9. What type of customers do you have?
    9.1. Where in the value chain are these customers?
10. When did you get your first customer?
    10.1. How long was this after you officially started your company?

[1] This is the translated version of the interview guide. The interviews were originally held in Norwegian.

Entry Strategy and Defining Partners

1. What was your strategy when you entered the industry?
2. Who do you considers to be your partners?
3. How do you define your partners?
4. Who do you have such partnerships with today?
    4.1. What kind of actors are these?
5. What does the different partnerships provide to you?
    5.1. What do you get from them?
6. What do they get from you?
7. Have you experienced any entry barriers as a newly established company?
    7.1. Can you give us some examples?
8. Are there any of these barriers that you believe to be specific for this industry?
9. Have your partnerships helped you to overcome these barriers? In what way?

Searching for Partners

1. When did you realize the need to form partnership?
2. How deliberately were you searching for partners from the beginning?
3. Were you seeking partners within one of the clusters?
    3.1. Why / Why not?
4. What were your motives for forming partnerships?
5. What were your partner criteria when considering different partners?
    5.1. Did they have any criteria to you?
6. Could you explain the process of finding partnerships?
    6.1. How did you get in contact with the decision makers at the partnering firms?
    6.2. How easy was it to establish the partnerships?
    6.3. Has this varied from the different partnerships that you are involved with?
7. Why do you believe that your partners wished to form a partnership with you?
8. How do you experience that your prior industry background have had an influence on how and whom you have formed partnerships with?
9. How have your industry background and expertise been relevant in gaining legitimacy in your industry?

Partner Contributions

1. How do you work with partners within your company?
2. What kind of deals or contracts do you hold with your partners? Is it e.g. a letter of intention or a contract?
3. Does both parties hold a shared vision or strategy, or do you play on each other to realize your own strategies?
4. How have you worked to gain trust with your partners?
5. Have you experience a lack of trust? Why or why not?
6. Has building trust between the two parties been a part of the strategy from the beginning?
7. Do you ever sit together (physically) and work together?
8. How long do you see the partnership lasting? Can you see a clear end of the collaboration?
9. Does the partner or partners own any part of your company?
10. Does it occur that they demand ownership? If so, when do you consider to get them over to the ownership side of your company?
11. How open are you towards your different partners? Do you share potential challenges along the way in the projects?

Partner contributions (Externally)

1. Could you give expamples where you refer to your partners externally?
    1.1. In what contexts is this beneficial?
    1.2. What advantages to you get from referring to your partners?
2. How deliberately do you think of external benefits of the different partnerships before you establish partnerships?
3. Do you refer to your partners in customers/investor meetings?
    3.1. Do you experience that this has this been helpful in getting customers/investors?

Without Partners / Future Partners

1. What do you think would have been different for your situation today if you had not had your partners?
2. Are you seeking to establish new partnerships today?
    2.1. Why / why not?
    2.2. With whom?