

Breaking Waves: New Energy's Open Innovation Strategy for Shaping the Maritime Industry

An Exploratory Case Study

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Master's Thesis in Strategy & Management

MSc in Economics and Business Administration

Independent work as part of the RaCE Program

NORWEGIAN SCHOOL OF ECONOMICS

This thesis was written as a part of the Master of Science in Economics and Business Administration at NHH. Please note that neither the institution nor the examiners are responsible – through the approval of this thesis – for the theories and methods used, or results and conclusions drawn in this work.

Executive Summary

This thesis explores how an established firm can leverage an organizational setup for open innovation, in order to become more sustainable. The phenomenon is investigated through an exploratory case study, examining New Energy, a company owned by the established Wilhelmsen group. Through semi-structured interviews and observation, the findings are related to the literature on open innovation, corporate venture capital, and innovation at the edge.

The study's findings are twofold. Firstly, the study identifies how New Energy's setup and dynamics align with the open innovation approach. New Energy was established as an open innovation initiative, leveraging its network by opening its company borders and accessing resources from internal and external actors. By effectively balancing an external and internal focus, New Energy creates a unique opportunity to access diverse resources, fostering industrial synergies and collaborations that contribute to Wilhelmsen's sustainability agenda. The study also suggests that New Energy's dual focus reduces resistance within Wilhelmsen and is beneficial when establishing relationships with external partners.

Secondly, the findings demonstrate how New Energy encompasses elements from literature on both corporate venture capital and innovation at the edge, with a stronger alignment with the edge approach. In line with the edge literature, New Energy has an external focus and pursues innovative projects alongside Wilhelmsen's traditional operations. In addition, New Energy experiences capital restrictions, incentivizing the company to utilize its network. However, the findings also reveal some unique features not extensively covered in existing literature. These distinctive features are primarily linked to the New Energy team, as New Energy focuses on having passionate people with a wide range of competencies. This has led to close team dynamics and enables New Energy to access valuable resources in the network. Additionally, the Executive Vice President's characteristics and position in the group management team contribute to a close relationship with Wilhelmsen. These features are important in New Energy's efforts to shape the maritime industry.

Overall, the findings provide valuable insights into the innovative characteristics of New Energy, contributing to a more comprehensive understanding of how established firms can respond to a changing business environment.

Preface

This thesis is written as part of the Master of Science in Economics and Business Administration at the Norwegian School of Economics (NHH), where we are pursuing a specialization in Strategy and Management. The study is one of several case studies within the RaCE research program, a collaborative research project between NHH and Samfunns- og næringslivsforskning AS (SNF) focusing on how large established firms effectively can respond to and navigate radical technology-driven changes.

First and foremost, we would like to express our heartfelt gratitude to our supervisor, Christine B. Meyer, for her exceptional guidance, support, and encouragement throughout the research and writing process. Her extensive expertise, patience, and dedication were essential to the production of this thesis. Additionally, we would like to acknowledge and thank her for introducing us to the case company that served as the foundation for our research. We are truly grateful for her crucial role in both guiding us and providing us with such a valuable opportunity.

Furthermore, we would like to express our sincere appreciation to the interview participants representing New Energy and its subsidiaries. Their generous commitment to time, honesty, and willingness to share their insights played a crucial role in the success of our research. Their expertise, firsthand experiences, and valuable contributions provided unique perspectives that greatly enhanced the depth and relevance of our findings.

Lastly, we want to express our gratitude to our fellow students for the incredible five years we have spent together here in Bergen. We are thankful for the friendships we have formed and the memories that we will carry with us beyond our time at NHH.

Bergen, June 2023



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1 Introduction

The maritime industry encompasses all seaborne industries and plays a vital role in global trade and transportation. Shipping constitutes a part of the maritime industry and is a considerable contributor to global anthropogenic emissions. The proportion of global emissions attributed to shipping has demonstrated a steady upward trend over time, culminating in a share of nearly 3 percent in 2018 (IMO, 2020). Another contributor to global emissions is the oil and gas sector. Several actors in the maritime industry constitute a part of the fossil fuel supply chain, as they contribute to logistics and infrastructure. Hence, actors in the maritime industry are significantly contributing to global emissions.

As a response to the emissions, several relevant institutions have established sustainability goals for the maritime industry. The Norwegian government has set a goal to reduce the emissions from the shipping and fishing industry by 50 percent by 2030, compared to 2005 (Meld. St. 13 (2020-2021), p.15). Similarly, the International Maritime Organization (IMO) has set a goal to reduce greenhouse gas emissions from international shipping by 2050. Correspondingly, the creation of the UN's sustainable development goals (SDGs) put pressure on the industry. This pressure is further compounded by the increasing awareness of climate change among a wide range of stakeholders. As a result, the maritime industry is bound to implement rapid and radical changes in its practices in the coming years.

The maritime industry is a traditional and capital-intensive industry, and radical changes demand significant resources (European Commission, 2021). Hence, companies in the industry have to find clever ways to access the needed resources. Collaboration with external partners is a way to access new resources and competencies. The open innovation approach is a way of collaborating, which entails sharing knowledge outside company barriers. Open innovation allows for more collaboration, where focus on transparency and sharing are central elements. The approach allows companies to make greater use of external ideas and technologies in their own business (Chesbrough, 2003). In the past, companies tended to prioritize internal knowledge protection for value creation, but there is now a growing trend toward adopting an open approach (Chesbrough & Bercovitz, 2020).

The case company in this thesis operates within the maritime industry and is faced with the significant challenge of becoming more sustainable. The company acknowledges that the sustainability challenge is too comprehensive for them to effectively tackle the issue alone. The

adoption of an open innovation approach has emerged as a potential solution, as it provides the case company with access to external resources needed for addressing the sustainability challenge. Thus, an external focus has been emphasized.

When opening the company borders, a company should choose an organizational setup that aligns with the open approach. Several organizational setups are suitable for this purpose. In the context of the case company, corporate venture capital and innovation at the edge seem to be concepts of relevance to explain its unique setup. Corporate venture capital is an investment practice where established companies invest in ventures that align with their business objectives (Chesbrough, 2002; Drover et al., 2017). Innovation at the edge is a setup that allows for innovation to emerge at the borders of the existing business while being dependent on external partners (Hagel, 2019).

With the case company as the focal point, this thesis aims to explore how an established firm faced with a demanding challenge can function as a facilitator and contributor to change. Hence, the thesis examines the following research question:

“How can an established firm leverage an organizational setup for open innovation, in order to become more sustainable?”

The qualitative case study explores how an established firm in the maritime industry can leverage a setup for open innovation by creating synergies and cooperation with a wide range of companies. The thesis has the following structure: First, an overview of the relevant theory about innovation, open innovation, corporate venture capital, and innovation at the edge will be presented. Further, an introduction to the case company is presented to give the contextual background. Then, the methods used will be described, including details about the research design, data collection, data analysis, and research quality. Next, the findings and analysis will be presented, followed by a discussion with links to the literature. Finally, the thesis includes concluding remarks with a summary of the study, limitations, and recommendations for future research.

2 Research Setting

In this chapter, the reader will be presented with contextual information regarding the case company, Wilhelmsen New Energy. Wilhelmsen New Energy is a subsidiary of Wilh. Wilhelmsen Holding ASA and the chapter therefore starts with a description of the parent company. The content is derived from interviews and secondary data sources mentioned in the methodology chapter.

2.1 Wilhelmsen

The Wilhelmsen group hereby referred to as Wilhelmsen, is a global maritime industry group founded in Norway in 1861. Wilhelmsen provides essential products and services to over half of the worldwide merchant fleet and supplies the largest and most complex vessels in the world with crew and technical management. Wilhelmsen has one of the biggest maritime networks in the world, with approximately 15,000 employees in over 60 countries and 2,200 locations globally (Table 3, Source 5.1). With the vision of shaping the maritime industry, Wilhelmsen has committed to developing new and daring solutions linked to renewables, zero-emission shipping, and marine digitalization. To reach the goal of shaping the maritime industry, Wilhelmsen has a strong focus on innovation.

Innovation is a well-established concept within Wilhelmsen. For example, the business area within Wilhelmsen that sells maritime products and services globally has invested in startups for several years. Wilhelmsen wants to introduce, develop, and adapt to innovative methodology in a more traditional organizational landscape, including scaling start-up companies and encouraging open innovation. The aim has been to organize the work so that it does not take away from ongoing operations. In 2021, Wilhelmsen established Wilhelmsen New Energy AS, hereby referred to as New Energy. New Energy is an attempt to meet the changes in the industry in an innovative and forward-looking way (Table 3, Source 4). New Energy is the chosen case company for this thesis, and the following sections will describe New Energy in more detail.

2.2 New Energy

New Energy has been established as a separate company in which Wilh. Wilhelmsen Holding ASA, the holding company of Wilhelmsen, has 100 percent ownership. In this way, the idea is that New Energy can work separately from Wilhelmsen, and simultaneously have easy access

to resources from the parent company when needed. Based in Lysaker, Norway, New Energy focuses on innovation, developing new opportunities, and collaborations supporting the energy transition in the maritime industry (Table 3, Source 4). This is done through a network of companies seeking new and sustainable business opportunities within the maritime sector. The network is created by both investing in and entering partnerships with a wide range of companies. New Energy has divided its portfolio into two focus areas: Shipping & Technology and Infrastructure & Offshore Wind.

New Energy is located at the same organizational level as Wilhelmsen's Maritime Services and Strategic Holdings & Investments. Maritime Services holds Wilhelmsen's traditional core business and includes Ship Services, Port Services, Ship Management, Global Business Services, Wilhelmsen Chemicals, and Insurance Services. These business areas generate the most revenue and have been the "cash cows" for Wilhelmsen for a long time. Strategic Holdings & Investments represents the large and strategic holdings and investments that support parts of Wilhelmsen's traditional business (Table 3, Source 1). An organizational chart of the setup is illustrated in Figure 1.

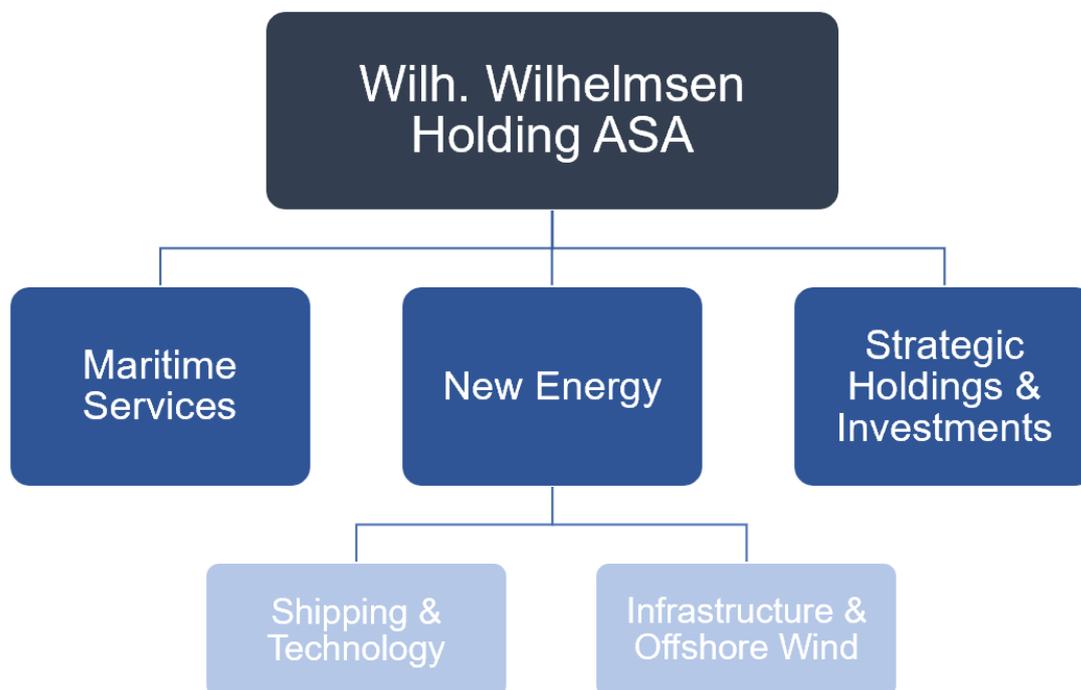


Figure 1: Organizational Chart of the Case Company (Table 3, Source 1)

3 Literature Review

This section presents relevant literature which provides the theoretical foundation for the analysis of this case study. The emphasis will be on literature related to innovation and how firms can organize for innovation. Specifically, the existing literature within the areas of open innovation, corporate venture capital, and innovation at the edge will be reviewed with the research question.

3.1 Innovation

Innovation is a broadly discussed concept, with multiple definitions. According to Baregheh et al. (2009), innovation can be described as a complex, multi-stage process through which organizations convert ideas into new or improved products, services, or processes to achieve advancement, competitiveness, and successful differentiation within their respective markets. Ridley (2020) further describes innovation as a process where one constantly discovers new ways of reorganizing the world in a useful way. The crucial word in this definition is “useful,” as there are numerous examples of innovations that fail as a consequence of being too expensive, advanced, or unfinished (Meyer et al., 2022). In line with Baregheh et al. (2009), Johnson et al. (2017) argue that innovation is more complex than invention. They propose that invention only involves using knowledge to develop new products, processes, or services, whereas innovation involves putting these newly developed products, processes, or services into actual commercial use. In practice, it is challenging to distinguish between what constitutes innovation and what can be characterized as an improvement or invention, and the distinction is somewhat fluid (Meyer et al., 2022). This thesis does not seek to have a too strict approach to innovation and thus draws on the definition presented by Baregheh et al. (2009).

The initial data collection in the early phase of the research project indicated that the organizational setup New Energy has created has similarities to characteristics of several different organizational approaches for innovation. Since this thesis seeks to investigate how an established firm can leverage an organizational setup for open innovation, it is appropriate to investigate relevant literature on this subject. Hence, in the following chapter, literature related to open innovation, corporate venture capital, and innovation at the edge will be presented.

3.1.1 Open Innovation

Henry Chesbrough is known to be the founding father of open innovation, after introducing the term in 2003 in *Open Innovation: The New Imperative for Creating and Profiting from Technology* (Chesbrough, 2003; Chesbrough & Bogers, 2014). The author proposes a new paradigm challenging traditional business theory. The paradigm includes that companies should open company barriers and purposively manage knowledge flows to achieve competitive advantage (Chesbrough & Appleyard, 2007; Chesbrough & Bogers, 2014; Chesbrough et al., 2006). Following the definition, purposively managed knowledge flows imply different directions of the flows. Three directions are recognized by the literature on open innovation; outside-in (inbound), inside-out (outbound), and coupled open innovation (Chesbrough & Bogers, 2014; Gassmann & Enkel, 2004). Outside-in encompasses the flow of information from external sources to the focal firm, leveraging the information through internal processes. Inside-out refers to the knowledge flow from the focal firm to external actors, leveraging internal knowledge through external processes. Coupled open innovation includes a combination of inflows and outflows between the actors involved in the open innovation process (Chesbrough & Bogers, 2014).

In traditional business strategy, the focus has been on the importance of creating barriers to competition, rather than promoting openness. Chesbrough and Appleyard (2007) address how the open innovation approach is contradictory to traditional business strategy, which has guided firms to develop defensive positions against competition and power. However, in the last two decades, firms and industries have started experimenting with new business models and collective creativity through open innovation (Chesbrough & Bercovitz, 2020). This shift of focus from ownership to openness comes with a reassessment of the processes that are related to value creation and capture (Chesbrough & Appleyard, 2007).

The concept of openness has been defined in multiple ways, resulting in conceptual ambiguity in a business context (Dahlander & Gann, 2010). To address this issue, Dahlander and Gann (2010) have developed a comprehensive framework that aims to define and classify the dimensions of openness. The framework identifies four distinct versions of openness: Sourcing, acquiring, selling, and revealing. The first two versions of openness, sourcing and acquiring, are versions of inbound innovation that involve the use of external sources of knowledge and innovation. The last two versions, selling and revealing, represent the pecuniary and non-pecuniary versions of outbound innovation, respectively. These versions relate to how

internal resources are shared with the external environment. The four versions of openness offer several advantages, including accessing a wide range of ideas, expertise, knowledge, complementary resources, new revenue streams, and increased collaboration. Altogether, the different versions of openness enhance the company's ability to innovate and compete in the marketplace (Dahlander & Gann, 2010).

Although adopting an open approach can enhance a company's ability to innovate, various aspects should be considered before adopting it. Dahlander and Gann (2010) argue that the literature on openness does not sufficiently address potential drawbacks that can follow the approach. For example, a firm that takes on an open approach can experience difficulties related to integrating external and internal knowledge. In addition, managing multiple partnerships can be a complex and resource-intensive process (Dahlander & Gann, 2010; Dahlander et al., 2021).

According to Chesbrough (2019), open innovation remains a process with limitations that can affect its performance. One of the limitations is related to how internal organizational factors can pose challenges when adopting an open approach. For example, it can be challenging to connect activities at the front end of the innovation process to the back end of the process. The front end represents the early stages of the innovation process of idea generation and knowledge sourcing, which usually includes linking the firm to relevant startups. The back end refers to internal challenges in the focal firm, which can impede the success of innovative technology (Seran & Bez, 2021).

Seran and Bez (2021) discuss the "multiunit back-end problem" that organizations face in connecting their front end with the back end. This challenge arises when multiple rival business units within the organization collaborate with startups. Internal rivalry can impede knowledge sharing and openness, which are essential to driving the innovation potential of startups. Furthermore, Seran and Bez (2021) argue that intra-organizational factors, such as internal investments in R&D, technological overlap, and trust or cultural compatibility between the company and the startup, influence the organization's ability to effectively identify and apply valuable external knowledge. As such, "the multiunit back-end problem" shows that internal business units' failure to engage and collaborate can endanger the whole success of attracting and applying startup technology. Therefore, a company that adopts an open approach by engaging with startups should be conscious of tensions between the internal business units.

Chesbrough (2019) argues that for companies to succeed with the open approach they also need to properly identify the capacity of their open innovation process. The capacity is based on the number of projects that the process can handle. If a company fails to recognize its capacity, it can lead to blockage in the process, as more projects come into the process than out. By examining different companies with open innovation processes, the author identified three crucial factors when connecting the front end to the back end. The three factors are related to people, funding, and getting support from senior management (Chesbrough, 2019).

Managing people in an open innovation process can be challenging as they represent the link between building connections externally and internally (Chesbrough, 2019). Based on several case studies, Chesbrough (2019) found that when choosing the right people to work with outside-in innovation, it is beneficial to start with people with a significant history in the company, rather than outsiders with strong external connections. People with strong internal ties are better suited to start the process as their backgrounds are valuable when representing the company to potential partners. It is crucial for the success of the open innovation process that the open innovators have support, budget, and transfer of personnel from the internal business units. It is easier for a person with a significant history in the firm to gain these resources and support. In terms of funding, Chesbrough (2019) states that companies should consider how flexible their budget should be related to the open innovation approach. The author further argues that budgets with room for variation are most suitable for companies with an open approach, as innovation opportunities might arise unpredictably throughout the fiscal year. When it comes to senior management, the company adopting the open innovation approach should be aware that the management usually has limited time, thus opportunities offered through the approach might seem too vague or distant for them to prioritize.

Felin and Zenger (2020) claim that the advice to become increasingly more open, in line with the open innovation approach is incomplete. They believe that it is not sufficient to open up to an infinite expanse of external sources without taking the central first step of deciding what to be open to, and why they should be open to it. Altogether, the authors address three aspects that should be considered when a firm follows guidance to become increasingly more open. The first consideration is how firm-specific they should be when opening the boundaries of the firm. A non-specific approach to open innovation can lead to an inefficient search for relevant resources and reliance on chance encounters. A second consideration is related to the price tag of the information outside the company boundaries. Felin & Zenger (2020) further argue that companies that adopt the open approach should be aware that other firms, including

competitors, may also choose to adopt the approach. These other companies likely recognize the value of accessing external resources, which in turn makes the external resources more costly to access. The last consideration is related to the importance of firm boundaries. The companies that consider adopting an open approach should assess whether they believe a more closed approach would generate greater value. Overall, open innovation can bring many benefits to a company, but companies must consider whether the approach is suitable for their specific characteristics and needs. Failing to do so may lead to unintended consequences, like loss of potential revenue and resources.

There exist multiple organizational structures and setups for firms that wish to access external knowledge and foster open innovation (Felin & Zenger, 2014). Felin and Zenger (2014) discuss how attributes from a firm's innovation problem further define its choice of governance structure. They argue that different problems demand different approaches when searching for solutions through optimal governance choices. Innovation problems differ in their need for knowledge exchange and knowledge discovery. The authors further distinguish between two key dimensions of the problems; problem complexity and the availability of the dispersed knowledge. One of the governance structures that are mentioned in this context is corporate venture capital (CVC). The approach to open innovation is defined as a category of governance forms that support solving innovation problems of intermediate complexity that benefit from accessing knowledge that may not be easy to access for the focal firm. Another externally focused innovation approach is innovation at the edge (Hagel, 2019). Although the edge approach depends on external partnerships to obtain new information, how they access information varies.

In the following sections, the governance structures of corporate venture capital and innovation at the edge will be explained, as the nature of the setup of the case company has similarities with these approaches.

3.1.2 Corporate Venture Capital

Corporate venture capital is a strategic investment practice whereby established companies primarily invest in startups that align with their business objectives (Chesbrough, 2002; Drover et al., 2017). CVCs enable the incumbent firm to access external sources of innovation and improve its internal innovation process (Chesbrough, 2002). CVC can be seen as a form of open innovation, where established companies collaborate with startups and other external

partners to generate new ideas, products, and services. Through CVC, the incumbent firm can provide a startup with resources, expertise, and access to networks to develop and commercialize its innovations, leading to higher growth and profitability for both the startup and the incumbent firm (Chemmanur et al., 2014).

Research shows that CVCs also invest in a variety of firm stages, with the majority of investments being early-stage firms and growth-stage firms (Drover et al., 2017). Therefore, the practice helps the established firm to stay ahead of their competition by enabling them to tap into external ideas and technologies, as well as invest in emerging markets (Drover et al., 2017). In summary, the practice has become a popular strategy for established firms to enhance their innovation capabilities, thus giving them a competitive advantage.

CVCs have some similarities to the Venture Capital (VC) practice. However, there are structural differences between the practices that impact investment activity (Chemmanur et al., 2014). CVCs operate as independent subsidiaries of their incumbent firm, which invests in new ventures on behalf of their parent company. This affects how limited CVCs are compared to VCs, as CVCs are less constrained when it comes to time frame and access to capital (Chemmanur et al., 2014). CVCs are usually not limited in their ability to draw capital from the parent company if needed. In contrast, VCs are usually structured with a contractually enforced limited lifespan and are constrained by the initial capital committed by their limited partners. VCs also choose to invest more frequently in companies of different stages to reduce risk (Metrick & Yasuda, 2010).

Despite the autonomy of CVCs, their structure might impair their ability to foster innovation. CVCs are subject to a centralized resource allocation which can be affected by corporate socialism. Another difference is the compensation structure in the different practices. VCs usually operate with performance-based compensations, whereas CVCs usually do not operate with compensation based on financial measures. The lack of performance compensation in CVCs can lead to a more open approach and give them a higher tolerance for failure (Chemmanur et al., 2014).

Because CVCs function as subsidiaries, they can be tempted to use the parent company's deep industry expertise to exploit the startup they invest in, rather than support them and help them grow (Chemmanur et al., 2014). Katila et al. (2008) argue that a corporation is not just acquiring a piece of the new firm when investing but is rather exchanging resources for access to new technologies that can be used in the company's existing technology development. Investments

in portfolio companies are a complement to, or sometimes a substitute for, the corporation's R&D (Katila et al., 2008). Contrarily, VCs are known to contribute greatly to the development of the firms they invest in, as the potential financial returns incentivize them to contribute to the growth of the company (Chemmanur et al, 2014). This can be done by helping them foster collaboration with different companies, and by creating alliances between the firms in the portfolio (Lindsey, 2008). In addition, VCs can hold positions on the portfolio companies' boards. On the other hand, many corporate investors do not want to hold board positions to avoid conflict between their corporate strategic interests and fiduciary responsibilities to the new firm (Katila et al., 2008). By not having a role on the board, they can more easily pursue corporate interests. The authors argue that corporate investors are less aligned with the firm's success and are more interested in the new firm's resources for their use. Therefore, CVCs are more likely to misappropriate resources than other investment practices (Katila et al., 2008).

The main difference between VCs compared to CVCs is arguably that VCs primarily seek to maximize returns to their investors. CVCs on the other hand pursue both the strategic objectives of the parent company, in addition to the financial objectives (Chemmanur et al., 2014). Chemmanur et al. (2014) argue that CVC-backed firms achieve a higher degree of innovation compared to VCs, as the firms they invest in are characterized by being newer, riskier, and less profitable. The two possible mechanisms behind this are CVCs' ability to pair entrepreneurial firms that fit with the parent firm's technology, and the greater tolerance it has for failure compared to VCs (Chemmanur et al., 2014).

3.1.3 Innovation at the Edge

The concept of innovation at the edge has been addressed in a limited amount of literature. To shed light on how to organize, manage and foster innovation at the edge, this section primarily references insight reports from Deloitte Center for the Edge (e.g., Hagel, 2019; Hagel et al., 2012; Hagel et al., 2019) and complements them with the relevant research literature. In essence, innovation at the edge involves an outside-in approach, allowing innovation to emerge in the edge of the existing business while avoiding interruption of the day-to-day operations (Hagel, 2019). The overall goal of the edge approach is not to transform the traditional operations. Rather, it centers on recognizing an "edge" within the current operations that possesses the ability to expand rapidly, to the point where it becomes the new core of the business.

Innovation at the edge starts with the distinguishment between the core and edge of an established firm. In essence, the core is focused on existing business opportunities, while the edge will be loosely connected to the existing operations (Meyer et al., 2022). One framework that can be used to make this distinction is the Innovation Ambition Matrix, developed by Nagji and Tuff (2012). The Innovation Ambition Matrix illustrated in Figure 2 depicts the three levels of innovation ambition that established firms can pursue: Enhancing core offerings (1), exploring adjacent opportunities (2), and undertaking transformative initiatives that are distant from the core business (3). The vertical axis of the Innovation Ambition Matrix represents customer markets, while the horizontal axis represents the company's product offerings. The "core" of a company lies in targeting existing markets and customers with current products and assets. "Adjacent" initiatives aim to appeal to adjacent markets and customers by introducing incremental products and assets. Conversely, "transformational" initiatives concentrate on reaching new markets and customers by offering new products and assets.

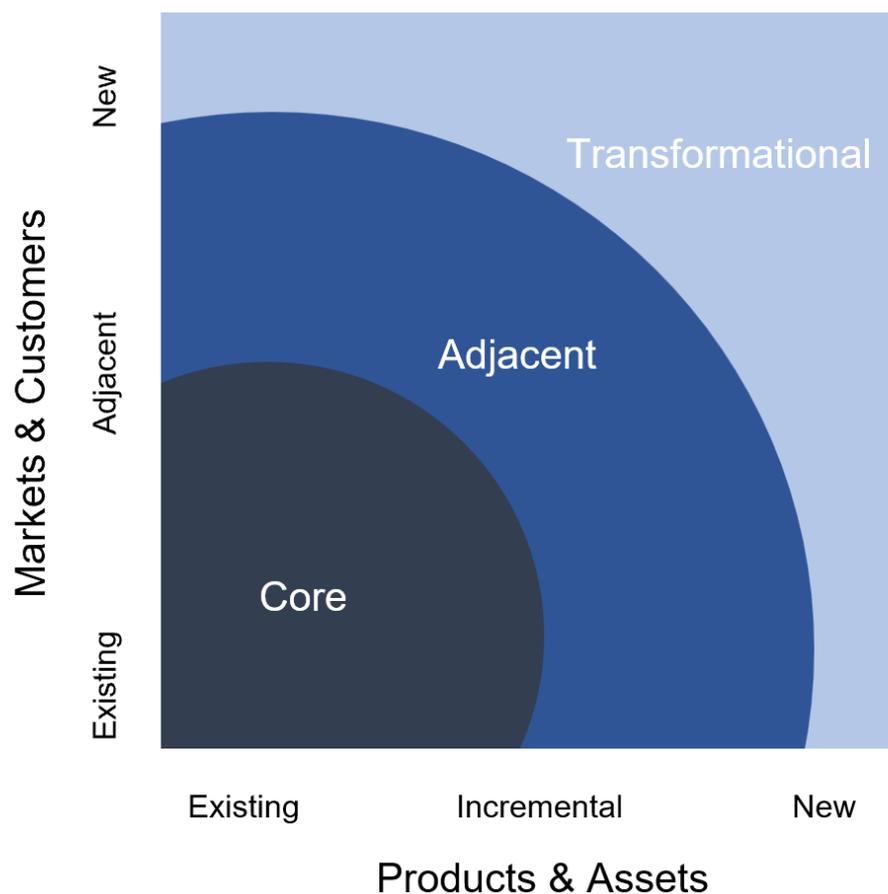


Figure 2: The Innovation Ambition Matrix (Nagji & Tuff, 2012)

Innovation at the edge, as proposed by the Deloitte Center for the Edge, is expected to fall under the transformational category in the Innovation Ambition Matrix. However, in this thesis, the term “edge” also encompasses initiatives situated in the adjacent category of the matrix, as research on innovation outside the established firm’s core generally has a wider view of what constitutes an edge (e.g., Zook, 2004). For example, Hagel et al. (2019) argue that a company’s edge could come in the form of new products, customer segments, or markets. Zook (2004) expands on this by proposing that diversification efforts beyond a firm’s core can include products, geographic regions, value chains, distribution channels, customer segments, and adjacent new business opportunities. However, it is important to note that the new edge should not endanger the existing core business by cannibalizing traditional revenue streams. Rather, the emphasis should be on expanding the overall market and, in the long run, making the edge become the new core business (Meyer et al., 2022).

Hagel et al. (2019) propose a framework that offers a practical approach for executives in large companies to implement major change by pursuing edge opportunities. The framework comprises 12 essential design principles that offer contextual information and guidance on how to successfully achieve change by pursuing an edge. In Table 1, the key design principles are summarized into five key concepts, considered to be the most relevant for the thesis. The following sections will elaborate on the chosen key concepts of innovation at the edge.

#	Key concept	Characteristics
1	The Edge	<ul style="list-style-type: none"> - Minimal initial investment - Ability to grow and expand the edge - Avoiding cannibalization of the core - Potential to transform the core - Alignment with long-term disruptive market shifts
2	External Focus	<ul style="list-style-type: none"> - Creation of an external ecosystem to address obstacles to scale the edge - Orientation toward external partners - Avoidance of being dependent on internal resources
3	Starving the Edge	<ul style="list-style-type: none"> - Minimal core resources and funding to the edge - Incentives for edge team to be self-reliant and engage external participants or ecosystem
4	Performance Measurements	<ul style="list-style-type: none"> - Include short and long-term performance goals - Evaluate the external ecosystem - Performance measurements should incorporate ambiguity
5	Staffing for the Edge	<ul style="list-style-type: none"> - Identification of “change agent” sponsor - Hiring passion before skills

Table 1: Innovation at the Edge Key Concepts

First, Hagel et al. (2019) state that the strategy of identifying an edge opportunity aims at reducing the risk of uncertain returns related to changing the core. To define an edge, the company should explore a wider market, without making large acquisitions. Further, they argue that the edge can be distinguished from other market opportunities by four distinct characteristics, both short and long-term. In the short-term, an edge should require low initial investment, as high investments can create internal resistance. Further, the edge should not cannibalize the existing core of the company but rather expand the market. In the long-term, an edge should be aligned with the disruptive forces that are specific to the industry the firm operates in. Technological innovation, changing customer needs, and changes to public policy are presented as the three underlying forces the edge should be in alignment with. The edge should also have the potential to grow and scale rapidly. In summary, the company should define the edge by evaluating its current initiatives that align with these four characteristics (Hagel et al., 2019).

Second, Hagel et al. (2019) argue that innovation at the edge demands an external focus to prevent eliciting resistance from the core and that relying on the core's resources may be inefficient for the edge. Furthermore, edges often experience a disproportionate share of the costs associated with services received from the core, which can exceed the actual level of support they receive. The authors suggest creating or establishing an external ecosystem or network to address obstacles scaling the edge, particularly regarding capacity, expertise, and resources. Engaging in partnerships with external organizations is a strategy for expanding edge initiatives while maintaining a separation from the core (Edwards, 2012). This external approach can be more cost-effective and enables edges to avoid political pressure, typically associated with the utilization of the core's resources. In addition, an external network will provide the edge with access to valuable resources that are not available within the core. However, Hagel et al. (2019) stress the significance of leveraging certain capabilities from the core business, as being part of an established company would otherwise be meaningless.

Third, the edge team should be starved, meaning that the core should provide the edge with fewer resources while simultaneously asking for better results. More specifically, this means that the edge initiative will receive as little funding or other resources as possible. The rationale behind starving the edge is that innovation processes that rely on substantial long-term investments may divert funding from established core activities, which can elicit resistance from the core. The purpose of starvation is therefore to promote and motivate external focus and self-reliance to increase the return on investment, in addition to reducing the risk of causing resistance. It is noted that starving does not constitute under-funding and it is recommended that the established firm uses a venture capital approach where one seeks to provide the least amount of funding that still enables milestones to be reached (Hagel et al., 2019).

Fourth, innovation at the edge teams should be subject to some form of performance measurement, as measuring results is important to evaluate the progress of the edge. However, traditional metrics or Key Performance Indicators (KPIs) related to revenue and costs must not dictate edge activity (Meyer et al., 2022). When measuring the edge's performance, metrics should consider the ambiguous environment and include short-term and long-term goals. The metrics should also measure the performance of the ecosystem created or supported by the edge team (Hagel et al., 2019). As the edge is engaged in a completely different activity than the core business, one possible challenge the edge team can face is legitimacy issues regarding traditional metrics, which can set the edge in a defensive position (Meyer et al., 2022).

Fifth, innovation at the edge demands mobilization of the right resources and participants. This concept includes both at the management level and other hirings. At a management level, innovation at the edge requires support from the top management in the established firm. In addition, it is crucial to secure the support of a high-ranking sponsor at the executive level. This individual will act as a “change agent” within the company and must possess the bravery and conviction to question existing norms and the ambition to significantly transform the organization’s future. At a team level, the edge team must consist of individuals who are passionate, motivated, seeking new challenges, and are eager to learn. Some characteristics that can help identify passionate workers include a questing disposition, connecting disposition, and a willingness to embrace failure. It is also recommended that the edge team should be small and acquire agile and autonomous working methods (Hagel et al., 2019).

To summarize, the literature on innovation at the edge presents a suggestion for how established firms can structure, manage, and organize innovation. Established firms can foster innovation by creating a small edge team, consisting of passionate individuals who work autonomously while using external relations. To facilitate innovative working methods and risk-taking, the edge team should be starved of resources from the core business, while simultaneously receiving sponsorship from a top management “change agent” (Hagel, 2019; Hagel et al., 2012; Hagel et al., 2019). Innovation at the edge is an externally focused approach to innovation that relies on the edge receiving resources from a network of external companies. Although there is little empirical research on the approach of innovation at the edge, the presented literature suggests that it can be an effective way for established firms to innovate (Meyer et al., 2022).

4 Methodology

The upcoming chapter outlines the methodological decisions undertaken to address the research question. The chapter is organized as follows: The initial section introduces the research design. Subsequently, an explanation regarding the collection and analysis of the data is presented. Finally, the chapter provides a discussion of research quality and ethical considerations.

4.1 Research Design

Research design is a general plan for the implementation of the research project and describes the methodological choices for how the research question is to be answered (Saunders et al., 2019). The authors emphasize the importance of having a clearly defined research design that relates to the actual research question. The research question for this thesis is as follows: *“How can an established firm leverage an organizational setup for open innovation, in order to become more sustainable?”* Hence, the following subchapter will present the plan for how this question is going to be answered.

The concept of open innovation is well-known within the field of organizational research (Chesbrough & Bogers, 2014). However, the open innovation literature is somewhat limited when it comes to how established firms can leverage an organizational setup for open innovation. Additionally, open innovation is not extensively explored in the context of the maritime industry, which is an industry experiencing major changes. Therefore, this thesis seeks to explore these phenomena.

An exploratory study is suitable for clarifying the understanding of a phenomenon and discovering findings yet to be discussed in existing literature (Saunders et al., 2019). Exploratory research is flexible and adaptable to change, and researchers must be willing to change direction and make alterations to the research question and methodology as new insights occur. The exploratory approach is likely to have a research question that begins with “how” or “what,” which can be useful to strengthen the understanding of the problem or phenomenon to be researched (Saunders et al., 2019). Since this thesis aims to explore a relatively unexplored phenomenon, and for the research literature on open innovation and organizational setups for innovation to be expanded, an exploratory approach seems suitable.

4.1.1 Research Approach

The research approach deals with how one develops a theory and draws conclusions during the research process (Saunders et al., 2019). There are three approaches to theory development: Deductive, inductive, and abductive. Whereas a deductive approach uses existing theory to evaluate hypotheses and develop knowledge of the chosen topic, an inductive approach is suitable when one seeks to understand a phenomenon and draw conclusions by going from the specific to the general (Saunders et al., 2019). The abductive approach is a combination of deduction and induction and involves moving back and forth between theory and data. This allows for exploring a phenomenon and building new theory or modifying existing theory (Saunders et al., 2019; Tavory & Timmermans, 2014).

This thesis adopts an abductive methodology, as it combines both inductive and deductive approaches to research. The research is framed within the presented literature of open innovation, corporate venture capital, and innovation at the edge, which initially suggests a deductive approach. However, the findings were derived inductively from the interview and observation data. By utilizing an exploratory design, the study allowed the data to guide and shape the analysis while incorporating existing theory. This approach enabled a fusion of data-driven insights with established theoretical frameworks.

4.1.2 Purpose and Strategy

The objective of this study is twofold. Firstly, the research seeks to gain an understanding of how an established firm can leverage an organizational setup for open innovation, in order to become more sustainable. Secondly, the research endeavors to lay the groundwork for future investigations into these particular areas.

The chosen strategy for achieving these objectives is a qualitative, embedded case study. The study has a qualitative nature, as it aims to use non-numeric and contextual data such as interviews, public information, and articles, rather than numeric and tangible data sources. In addition, it is beneficial to use qualitative data when conducting a study of exploratory nature. Qualitative research allows for open-ended questions and descriptive responses that contribute to the development of new and in-depth insights into a phenomenon (Saunders et al., 2019). Comprehending these areas is crucial to understanding how New Energy works to leverage a setup for open innovation, which makes a qualitative approach suitable. In addition, a

qualitative study goes well with the abductive and exploratory approach, based on the motivation to generate insightful contributions to the field of research (Saunders et al., 2019).

As mentioned above, the research question in this thesis is answered through a case study. Yin (2018) proposes that it is best suited to study a topic in its real-life setting by conducting a case study. In addition, a case study is a fitting approach for exploratory research, as it can help to achieve an in-depth understanding of people's behavior. By deriving theory from cases, one can provide context that contributes to making sense of the collected qualitative data (Flyvbjerg, 2006). Nevertheless, it is important to draw attention to the fact that case study findings cannot be viewed as representative outside of the case context (Saunders et al., 2019). The concern of representativeness is however less applicable in this thesis, as the purpose of the research project is to gain new insights into the chosen field, rather than finding a general and representative answer.

A single case study was chosen as the preferred strategy. This allows for immersing oneself in a specific context, which was deemed the most relevant way to enhance the quality of the findings (Dubois & Gadde, 2002). The decision of the preferred strategy was also based on the belief that acquiring an in-depth understanding of one specific context would be more valuable than obtaining superficial knowledge of multiple cases. Therefore, it was decided to study the multi-organizational network New Energy has established. Including the New Energy team, three subsidiaries within the network were studied, making it an embedded single case study (Yin, 2018). In addition, the case study is cross-sectional as all data was collected over a short period. The thesis has a unique research setting with a specific and case-based context. However, by clearly explaining the results and approach of a case study, the insights gained from such a research project can still be interesting and applicable in other contexts, which adds value to the project (Saunders et al., 2019).

4.2 Data Collection

This thesis is a part of the overarching research project Radical Technology-Driven Change in Established Firms (RaCE) at NHH. The research project aims to understand how established firms can adapt to radical technology-driven change. The purpose of this thesis is to broaden the understanding of how an established firm can leverage its organizational setup for open innovation. As such, the thesis is part of a series of case studies that examine how established firms can drive innovation through collaboration.

Writing the thesis for RaCE made it possible to get an in-depth analysis of New Energy, a leading company within its industry. The involvement with RaCE proved to be important to get in contact with the company and its subsidiaries. The communication channel with all participants involved in the thesis was facilitated via a dedicated point of contact in New Energy. The contact person facilitated the initial correspondence with informants from the team and subsidiaries via e-mail. This step could have served to enhance the researchers' credibility with the informants.

Getting access to the appropriate participants for the interviews effectively enabled data collection. The following section includes a description of the data collected, how it was collected, and the preparation before the data collection.

4.2.1 Primary Data Sources

In line with Saunders et al. (2019), both primary and secondary sources of data have been used to allow for data triangulation. The primary data in this study was collected through semi-structured interviews and one observation. The interviews were conducted from the end of January 2023 to the end of March 2023. In line with Eisenhardt and Graebner (2007), the informants were from the New Energy team and subsidiaries of different sizes and maturity to ensure diversity, mitigate bias, and get different perspectives of the phenomenon in question. Due to the limited time available for conducting this research, eight informants were interviewed, and one observation was conducted. The informants were the five people in the New Energy team and three informants from the different subsidiaries in the network. This should be sufficient, as the purpose is to give an in-depth understanding of the case context (Saunders et al., 2019). An overview of the primary data sources is presented in Table 2.

Informants	Description in the text	Primary Data Sources
New Energy	Team member 1	2 interviews
	Team member 2	1 interview
	Team member 3	1 interview
	Team member 4	1 interview
	Team member 5	1 interview
Subsidiary 1	Subsidiary representative 1	1 interview
Subsidiary 2	Subsidiary representative 2	1 interview
Subsidiary 3	Subsidiary representative 3	1 interview 1 observation

Table 2: Primary Data Sources

4.2.1.1 Semi-Structured Interviews

Saunders et al. (2019) mention three forms of interviews with varying degrees of formality and structure; structured, semi-structured, and unstructured interviews. The need for flexibility during the data collection process led to the decision to use semi-structured interviews. The choice was also motivated by the expectation that the researchers' understanding of the phenomenon in question would develop over time.

Semi-structured interviews are used in this study so that questions, procedures, and focus may be altered, and new variants of these may emerge during the research process (Saunders et al., 2019). When conducting semi-structured interviews, the interviewer should ask follow-up questions that have not been prepared, to get an in-depth understanding of the phenomenon (Rallis & Rossman, 2011). The flexible nature of the approach ensures that the most relevant themes are covered during the interviews and that new themes can be discovered over the interview process (Saunders et al., 2019).

Nine semi-structured interviews were held digitally to be flexible on time, as the different companies interviewed are located in different cities. Each interview lasted between 45-75 minutes depending on the informants' availability and knowledge. In preparation for the interviews, a list of different themes and key questions was developed to ensure consistency and prepare topics that would be of relevance based on the literature review. The list was altered between each interview as new topics were discovered. Most of the questions were open-ended to let the informants speak freely and to encourage dialogue to get insights into the context of

the answers. After each of the interviews, the data was assessed against the interview guide. When needed, the questions were altered according to the new insights.

Slightly different sets of questions were prepared for the different interviews, depending on whether the informant was a part of the New Energy team or a representative from one of the subsidiaries. This was to adequately address the different perspectives the participants might have. However, the themes and questions were similar in form and context to ensure consistency, as the main purpose of the interviews was to understand the informants' perspectives on the same phenomenon and to be able to compare their answers.

4.2.1.2 Interview Preparation

The success of an interview depends on the preparation level (Saunders et. al., 2019). Thus, the interview process started by collecting the necessary information and testing different digital tools. Thorough preparation of the interviews is crucial to ensure that the collected data is comprehensive and meaningful, which in turn facilitates the subsequent data analysis. The data collection started with a review of existing literature on open innovation, corporate venture capital, and innovation at the edge to ensure that the relevant themes and topics in the interview guide were covered. Additionally, an initial meeting was arranged with the contact person in New Energy to gain insights into the company's operations, organizational structure, and culture. The appointed contact person also assumed the position of informant throughout the study. One informant was interviewed twice, while all other informants were interviewed once. To minimize the impact of the contact person's influence on other informants, the researchers assumed responsibility for all communication after the initial contact.

The interview guide (Appendix A) was prepared in Norwegian, given that this is the mother tongue of both the researchers and the informants. As a part of the e-mail communication to schedule the interviews, the RaCE "Informed Consent Form" was enclosed to guarantee confidentiality. All informants were properly informed of the interview procedure and requirements before signing the consent document.

All interviews were conducted using the Microsoft Teams video meeting feature, and both audio and video from the interviews were recorded using included tools in the application. To ensure contingency measures for digital disruptions, an audio-recording application on an iPhone was used as a backup solution. Video recording proved advantageous as it enabled focused attention on the informants during interviews and facilitated the utilization of precise

quotes from the interviews in the subsequent analysis (Saunders et al., 2019). This also made it possible to capture all non-verbal communication from the interviews.

4.2.1.3 Observation

As a second source of primary data, one company visit was conducted during the research project. The objective of the visit was to observe one of New Energy's subsidiaries, to identify how they work with other subsidiaries, how they work with New Energy, and to identify general working methods that exist within the network. This was done to validate the information from the interviews provided by the subsidiaries. The information collected from the observation is therefore not explicitly described in the Findings and Analysis chapter, but rather used to validate findings from the interviews. In addition, the observation was useful to get insights and information from participants that were not included in an interview setting.

The observation was exploratory in nature and aimed to understand the context of the setting and describe events and behaviors in their entirety (Saunders et al., 2019). The observation was informal in nature and the role of the observers was "observer-as-participant". The role enables the observer to enter the workplace as an outsider, to mainly observe and remain passive in their role. The role further enables the participants to be aware of the observer's existence and purpose during the data collection. However, the role also permits the observer to undertake discussions with the informants to clarify and improve the researcher's understanding during the observations (Saunders et al., 2019). This allowed for clarifications about working methods and communication with other actors connected to New Energy. In line with Saunders et al. (2019), notes and comments were taken during the observation process. Consequently, the observation data used for triangulation is based on notes taken during the observation process.

4.2.2 Secondary Data Sources

The secondary data used in the thesis was collected to allow for data triangulation with the primary data. The purpose of this is to increase the general research quality (Saunders et al., 2019). The secondary data used in the thesis comes from several sources, listed in Table 3. In addition, corresponding links to the secondary data sources in Table 3 are referenced in Table A1 in Appendix B. In particular, information from PowerPoint presentations, annual reports, websites, and news articles has been used in the thesis. While the secondary data sources have not been presented as detailed as the primary data sources, these sources were influential in shaping the contents of the findings and discussion.

#	Content	Secondary Data Sources
1	PPT presentation about the company and strategy	New Energy
2	PPT presentation about value-based evolution	New Energy
3	PPT presentation about the company and strategy	Subsidiary 2
4	Information page about New Energy and its subsidiaries	4: Wilhelmsen's website
5	Information page about Wilhelmsen	5.1: Wilhelmsen's website 5.2: Wilhelmsen's website 5.3: Wilhelmsen's website
6	Wilhelmsen's Annual report for 2022	6: Wilhelmsen's website
7	Wilhelmsen's ESG report for 2022	7: Wilhelmsen's website
8	News Articles	8.1: Finansavisen 8.2: Seatrade Maritime

Table 3: Secondary Data Sources

4.3 Data Analysis

This thesis moves from data to theory, and theory to data, to get a meaningful and data-driven theory development (Saunders et al., 2019). Thus, an abductive approach within the framework of exploratory design is used. This allowed the data to direct and shape the analysis and let insights into existing literature be included in the study. The data collection was an iterative process, where the interviews shaped the direction of the thesis. The interviews were transcribed directly after each interview, which allowed for the detection of necessary changes to the prepared lists of themes and key questions for the following interviews.

There exists a wide range of different approaches to qualitative data analysis. However, there exist some fundamental features cut across most of them; an initial focus on reading through and describing the collected data thoroughly, followed by systematically coding and searching for connections and patterns underlying the data (Silverman, 2016).

In qualitative research, data collection and data analysis are an interrelated and interactive set of processes. This allows for recognizing important themes, patterns, and relationships during the data collection process. Consequently, the researcher needs to actively re-categorize and

re-code existing data (Saunders et al., 2019). The next section includes a description of how the data collected was transcribed, coded, and finally analyzed.

4.3.1 Transcription

The first part of the data preparation process included transcribing the audio recorded to text, to ensure correct interpretation of the informants' statements (Flick, 2014). The transcriptions were done manually, word for word, within two days after conducting the interviews. The transcriptions were conducted in Norwegian, as this was the language used during the interviews. The recorded video footage was utilized to provide contextual information. The contextual information included relevant pauses, laughter, sarcasm, or any other non-verbal communication of importance to address the nuances and context of the answers (Saunders et al., 2019). The process of transcribing the interviews provided the researchers with familiarity with the data, thereby facilitating further analysis.

4.3.2 Coding

After transcribing all interviews, the documents were coded to transform the data into meaningful findings. Coding is a method used to categorize data with similar connotations by labeling each data unit with a specific code, which is a word or phrase that describes the section of text (Saunders et al., 2019). Each quote from the interviews was coded, except for informal conversation and practical information at the beginning and end of each interview.

All interviews were conducted and transcribed in Norwegian, and all quotes used in the thesis are thus translated. During the translation process, the focus was on subtext and literary devices that were used to get a translated version as close to the original transcript as possible. Language nuances and contextual understanding can impede access to the true meaning behind each quotation. As such, it is imperative to exercise a high degree of precision to ensure that the translation is as accurate as possible. In addition, consistency in the process was ensured to enhance the trustworthiness of the data. To further minimize any potential misinterpretations the translations were reviewed by a third party to confirm no loss of contextual or intended meaning. By employing these measures, the researchers aimed to produce an accurate and comprehensive analysis of the data while minimizing the risk of translation-related errors.

The primary data was analyzed based on the coding method introduced by Gioia et al. (2013). The method is structured with three different levels of coding, first-order, second-order, and aggregated dimensions. The first order consists of raw data that is categorized into several concepts or categories. According to Gioia et al. (2013), there should be little attempt to filter out concepts in this phase, and the codes should adhere closely to the terms used by the informants. The first-order analysis started with searching for repeated phrases, thoughts, cause-and-effect themes, and contradictions to understand the informants' thoughts about the phenomenon in question. Examples of these concepts are "Focus on building broad competencies" and "Frequent communication between the New Energy team and subsidiaries."

In second-order analysis, the understanding of the phenomenon is improved by connecting first-order codes under second-order themes. The focus in this part of the analysis is whether the emerging themes suggest features that will describe and explain the phenomenon in question. The emerging themes were given labels or descriptors. Examples of the second-order themes are "Network structure," "Investment strategy," and "Innovation."

Lastly, the codes were merged and combined into aggregated dimensions that reflect the key concepts from the data material. After successfully categorizing the raw material, the method suggests using this basis for building a data structure. This is an essential step to visualize how the analysis progressed from raw data to specific themes through the analysis (Gioia et al., 2013). The data structure is visualized in Figure A1 in Appendix C.

4.4 Research Quality

It is vital to keep a critical view of the quality and trustworthiness of the work when conducting a research project. The following section discusses various metrics of quality and the strengths and weaknesses of the research methods that have been applied in the study. Saunders et al. (2019) present reliability and validity as the main "canons of scientific inquiry" (p. 213). However, reliability and validity are most assessed and emphasized as quality criteria in quantitative research (Saunders et al., 2019). Qualitative research tends to have a more pragmatic nature compared to quantitative research methods, and the concept of trustworthiness is therefore considered to be a more holistic alternative that is better fitted for qualitative settings (Guba, 1981). The trustworthiness quality measure can be divided into four sections, which are all related to validity and reliability (Saunders et al., 2019). Dependability is replaced for reliability, credibility for internal validity, and transferability for external validity, while confirmability is substituted for objectivity (Lincoln & Guba, 1985). Since this

study intends to enrich the literature on open innovation, the integrity and trustworthiness of the study have been of great priority. As the project has a qualitative nature, the four trustworthiness measures seem to be a preferable way to assess the research quality.

4.4.1 Credibility

Credibility emphasizes ensuring that the informants' socially constructed realities match the realities presented by the researcher (Saunders et al., 2019). To secure the credibility of the findings, follow-up questions were asked during interviews to confirm that the informants' statements were perceived correctly. To avoid misapprehension, the interviews were recorded so that the transcriptions could include additional information from non-verbal communication. In line with Saunders et al. (2019), informant verification was secured by having the informants make citation checks. The feedback was then corrected and implemented after the reviews. Incorporating quotes from the informants in this thesis is also advantageous, as it provides the reader with evidence to support the claims (Cope, 2014). These considerations were taken to ensure that the informants' statements reflect reality.

Furthermore, to enhance the credibility of the results through verification of the findings, the primary data from interviews and observation was triangulated with secondary data (Guba, 1981). The secondary data sources used in the thesis are PowerPoint presentations received in interviews, websites, annual reports, and news articles. To validate the informants' interpretations, the secondary data were examined both before and after the interview process. Furthermore, the participants were from different hierarchical levels within New Energy, and also from subsidiaries. This provided various subjective perspectives, thus supporting the credibility of the research project. One potential weakness is that the participants from the subsidiaries were asked to attend the interviews by the contact person in New Energy. This could potentially have influenced their degree of openness in the interviews, as the contact person represents the parent company. In addition, the informants may have felt the need to not refer negatively to the parent company, knowing that the contact person may identify those who have given the statements. However, observing consistency in descriptions given by all the participants, including participants from subsidiaries, it was deemed sufficient to assume that the renditions from other people connected to the New Energy network would not have any significant variations. In addition, only themes that were mentioned by multiple informants were considered to ensure the data's significance.

Finally, credibility was enhanced by the application of investigator triangulation. This implies the involvement of multiple researchers in the same study. Both researchers conducted an individual analysis of interview data before comparing the findings. This, in combination with working with a thesis partner and reflecting together, minimized the likelihood of the thesis presenting a one-sided perspective (Carter et al., 2014).

4.4.2 Transferability

Transferability concerns the degree one can generalize the study's findings (Saunders et al., 2019). As this thesis is a qualitative case study primarily based on qualitative data obtained from a small non-probability sample, it lacks the potential for generalizability (Saunders et al., 2019). However, the purpose of qualitative case studies is to develop new theory rather than test it (Eisenhardt, 1989; Eisenhardt & Graebner, 2007). The reason for selecting the case presented in this thesis is its specific context, as the aim is to develop theory and gain better insights into how established firms can leverage a setup for open innovation. The emphasis has been on understanding and reproducing the case context as precisely as possible while simultaneously maintaining the informants' anonymity. By providing a full description of the research question, design, context, and findings, one enables the reader to evaluate the findings considering the specific context, but also the transferability to other contexts (Saunders et al., 2019). The abductive approach that connects data and theory to the contextual background also supports the readers' ability to transfer the findings to different contexts (Guba, 1981).

4.4.3 Dependability

Dependability is the parallel criterion to reliability and refers to the extent it is possible to reconstruct the same findings based on the data (Saunders et al., 2019). Dependability in interpretive research can be secured by recording all the changes of the emerging research so that it can be understood and evaluated by others. The researchers have taken steps to ensure dependability by establishing a clear and transparent trail of evidence that readers can follow to examine the process and methodology employed in the study. This provides readers with the opportunity to assess the way the interpretations were made. Moreover, the dependability of the study is strengthened by "peer audit" (Guba, 1981). Constructive feedback was thus received from the supervisor and peer feedback sessions that were conducted within the RaCE program during the research period.

4.4.4 Confirmability

Confirmability pertains to the capacity of the researcher to present the data objectively, without allowing their biases to sway the conclusions drawn (Cope, 2014). There are different views on objectivity in qualitative research. The usual criterion for objectivity is an intersubjective agreement or establishing objectivity through a methodology (Lincoln & Guba, 1985). Whereas Eisenhardt (1989) has a positivistic view that researchers should seek to uncover objective truths, Magnani and Gioia (2023) have a more interpretive view where a phenomenon should be examined in a holistic context.

This thesis has a positivist approach to objectivity and seeks to find as objective a representation of the case as possible, in line with Eisenhardt (1989). While it may be unrealistic to achieve full objectivity, researchers can take measures to reduce subjectivity. Moreover, the research methods employed are comprehensively explicated to elucidate the process of arriving at conclusions, inform future studies and enable replication of the research. The utilization of a thorough and transparent research design contributed to reducing subjectivity throughout the study. Moreover, the research process was overseen by the thesis supervisor, ensuring satisfactory research quality. The development and revision of the interview guide were crucial in maintaining objectivity during interviews and the analysis. The research findings are supported using direct quotes from the participants, which contributes to illustrating how their reflections have been interpreted, and hence how conclusions were derived.

4.4.5 Ethical Considerations

Research ethics are the behavioral standards that act as guidelines for the researcher, concerning the rights of the participants and others affected by the research (Saunders et al., 2019). Research ethics is a crucial part of research, as it may influence the research quality. The researchers have therefore had a conscious approach by actively applying the research ethics principles throughout the research process. The thesis is heavily dependent on human participants. Thus, the protection of participants has been considered in all aspects of the research.

To ensure an understanding of what the participation and the study entailed, all participants were provided with descriptions of the study's background and objective before the interviews.

Furthermore, information regarding data collection and analysis methods was given. The participants were also asked for consent before being interviewed and recorded, and were subsequently able to conduct citation checks. In addition, all people participating in the interviews received the official RaCE “Informed Consent Form” (Appendix D), explaining how participation in the research project is voluntary and that they can withdraw their consent at any given time. To ensure confidentiality and protect the informants’ identities, their names and positions have been anonymized to protect potentially sensitive information. Subsidiary names have also been anonymized, while New Energy is identified as the case company of the thesis. Gibbs (2007) argues that the confidentiality aspect in qualitative research is challenging, as there may lie a great number of valuable insights in the details of the context where the data was collected. Due to the small size of the New Energy team, people within New Energy or its subsidiaries will likely be able to identify informants based on quotes used in the thesis. This is especially true since the contact person in New Energy assisted in finding informants, making identification easier. Nevertheless, the researchers have done their utmost to provide enough context and background to derive value from the findings while avoiding recognizing the participating people.

The collected data has been securely stored and encrypted in secure digital locations to prevent unauthorized access to the findings. The sensitive information will be deleted from its storage locations and transferred to RaCE for further research purposes upon completion and submission of the thesis.

5 Findings and Analysis

The following chapter presents the findings and analysis of the research project. The findings are explained and illustrated using quotes and specific examples retrieved in the data collection process. In addition, a model is presented to give a clear overview of the findings covered in this section.

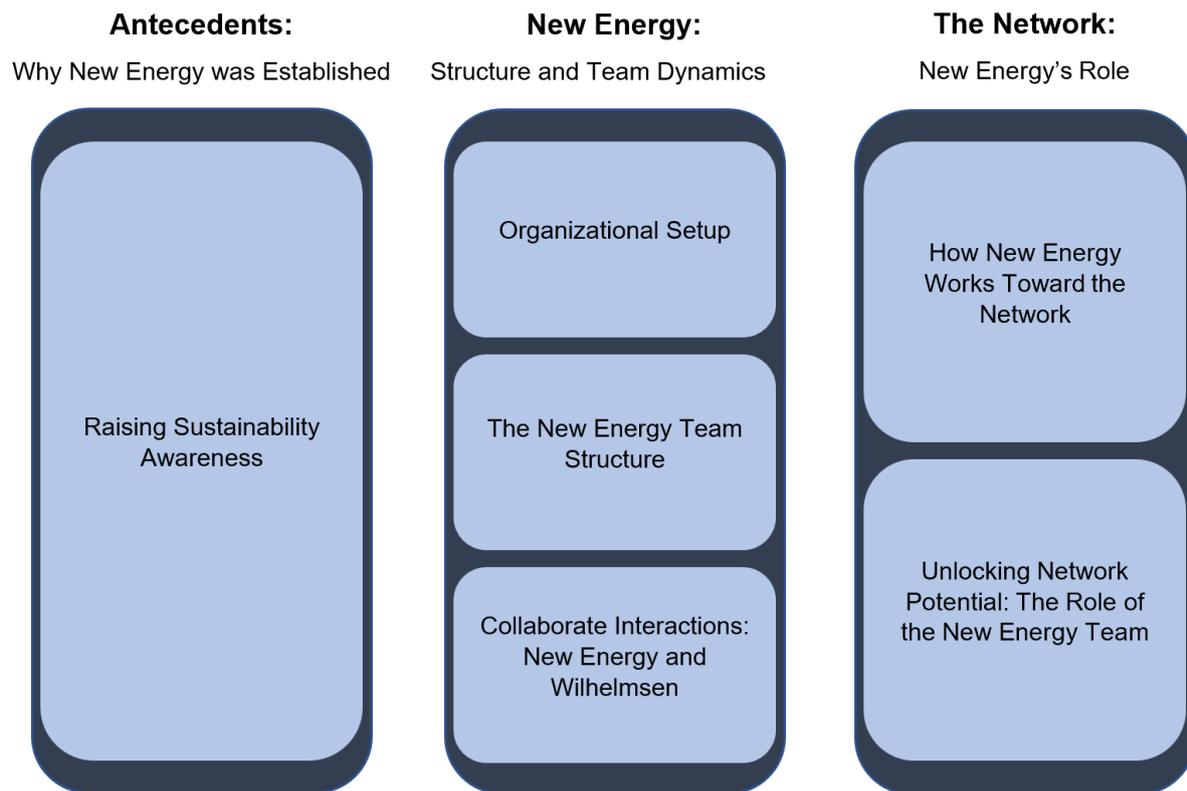


Figure 3: Model of Findings

Figure 3 presents a model illustrating three overarching themes presented in the Findings and Analysis chapter: Antecedents, New Energy, and The Network. The antecedents section encompasses the reasons for why Wilhelmsen established New Energy, and the internal factors that enabled the establishment. The New Energy section involves the network and team structure, in addition to the internal working methods within New Energy. The last section, the network, addresses how the New Energy team works toward the network to foster innovation.

5.1 Antecedents: Why New Energy was Established

The interviews revealed that a shift in Wilhelmsen's macro environment prompted the company to reassess its core activities and future business areas. The increased focus on

sustainability among key stakeholders led to a reassessment of the company's strategy. This in turn led to a careful evaluation of their internal resources. In addition, as Wilhelmsen acknowledged that becoming more sustainable would demand comprehensive resources they decided to seek outside company borders to access the needed resources. As a result, Wilhelmsen's proactive stance toward climate change culminated in the establishment of New Energy. The following sub-chapter will therefore explore the rationale behind and the process of Wilhelmsen's establishment of New Energy.

5.1.1 Raising Sustainability Awareness

It was explained how Wilhelmsen was surrounded by several stakeholders, including shareholders, large institutions, customers, politicians, and society. Although the stakeholders had a wide range of interests, Wilhelmsen identified that their stakeholders were starting to develop an increased focus on sustainability. As mentioned in the Introduction, IMO and the Norwegian Government set objectives to reduce global emissions from the maritime industry. In addition, Wilhelmsen saw that their shareholders, customers, and employees became more concerned with sustainability. Altogether, the convergence of interests led to pressure on Wilhelmsen to proactively address climate change.

“We have a multitude of stakeholders, encompassing shareholders, employees, customers, politicians, and the society around us [...]. The presence of these stakeholders influences the direction of the company, and at times, these forces converge. That is what we have seen, and the backdrop is CO₂ and climate change.” – Team member 1

In addition to the increased pressure from the alignment of interest in the external environment, people in Wilhelmsen acknowledged that they were actively contributing to the emissions happening in the industry. As a global maritime industry group, Wilhelmsen was involved in polluting activities related to shipping and infrastructure for fossil fuel production. The acknowledgment, in addition to the pressure from the stakeholders, were factors in Wilhelmsen taking a proactive decision to change.

“Within the industry, every actor bears significant social responsibility [...]. As a shipping company, we have no choice. We have a 160-year-plus lifespan, and to continue to be a part of global trade, we depend on the world to function properly. We have to contribute.” – Team member 1

Wilhelmsen's decision to proactively address climate change was also motivated by their recognition of a broader social responsibility, beyond the company's immediate activities and operations. This was grounded in Wilhelmsen's role and history in the maritime industry, as an old and influential company.

“Given the scale of the company, we have a responsibility that transcends survival. We have a responsibility given our vision, and we approach it seriously [...].” – Team member 1

Internal processes and characteristics within Wilhelmsen were also important to sufficiently meet the changes. As a response to growing social responsibility and pressure from their stakeholders, Wilhelmsen decided to take on an active approach to the changes happening outside the company borders. This testifies to a dynamic culture within Wilhelmsen, that enabled them to make organizational changes. As a result, they started by setting a new vision: Shaping the maritime industry.

“We have a vision to shape the maritime industry, which not only entails adapting to the changing landscape but also taking a proactive stance. We aspire to influence and shape our surroundings. With such a vision, completely different expectations are placed on what you do as a company.” – Team member 1

Before the establishment of New Energy, Wilhelmsen had a long history of working with innovation. For example, they created Maritime Innovation Lab in 2017 (Table 3, Source 5.2). The proactive attitude toward change and innovation contributed to Wilhelmsen choosing to view the need to change as an opportunity, rather than a threat. The strategy department in Wilhelmsen was crucial in this process, identifying options for how Wilhelmsen could organize the company to face the challenge.

The process started with an extensive analysis of renewable energy segments relevant to Wilhelmsen. Further, the strategy department analyzed which segments to focus on, based on existing operations and infrastructure in Wilhelmsen. Wilhelmsen also recognized the necessity to maintain oil and gas-related operations for a certain period, although they knew that this industry would gradually subside. Hence, Wilhelmsen sought to explore new business prospects with New Energy that could capitalize on its current resources and contribute to a more sustainable industry. They analyzed to determine compatible business prospects, with a focus on developing new sustainable value chains. Following this analysis, Wilhelmsen

selected offshore wind, hydrogen and ammonia, and seabed mining as their priority focus areas, considering the segments' alignment with existing resources and competencies.

“We have several activities along the coast. These activities possess the potential for diverse utilization when the areas no longer can serve the oil and gas industry. The range of opportunities includes the construction of apartments, land-based sea farming, and seaweed and kelp production.” – Team member 1

“We analyzed the value chains associated with offshore wind, solar, hydro, hydrogen and ammonia, and some others such as bioethanol and biodiesel, waves and tides, and seabed mining. After analyzing the value chains [...] we concluded that wind, hydrogen, ammonia, and seabed mining are the most interesting for us.” – Team member 1

The strategy team explored various organizational approaches to pursue new business opportunities, aligned with the defined focus areas. Initially, they examined competitors' strategies for addressing climate change. They observed that other companies utilized KPIs in response. However, Wilhelmsen considered KPIs ineffective for navigating these challenges and wanted to pursue a different approach to avoid operational constraints. They also identified unique organizational characteristics, leading them to choose a distinct direction. In particular, Wilhelmsen acknowledged that they were smaller and had less capital than their competitors. Moreover, they believed in leveraging internal resources to initiate an organizational transformation. This led Wilhelmsen to pursue a strategy of transferring people internally to develop the new initiative.

“In 2016-2017, the SDGs became more popular and a part of companies' agendas. We could either do as many businesses did; decide what the most important objectives were, and choose some KPIs related to this. It's nothing wrong with this approach, but you can also choose to look at how the world is changing and see it as an opportunity rather than a threat. We chose to look at it as an opportunity and make it an integrated part of our strategy instead of just using KPIs [...]. As soon as you start to use KPIs, you begin to limit yourself.” – Team member 4

“We contemplated adopting a structure similar to one of our competitors. However, we decided to diverge from this approach. Unlike them, we wanted to use people from Wilhelmsen to develop new business models. In addition, we did not want to rely on capital markets like they do [...]. We cannot risk failing as much as them. We are a lot smaller. We wanted to do it internally at a lower cost and lower profile, with a certain level of discretion. We believe this approach gives us more flexibility to navigate the complexity of the competitive landscape.” – Team member 1

In addition to identifying how their competitors organized to face the pressing changes, the strategy department in Wilhelmsen considered building something from scratch organically. However, they knew that this would be a costly and time-consuming process.

“Companies can choose to develop new business opportunities organically. You can start new ventures yourself, but it’s a time-consuming process and you need to hire quite a few people [...].” – Team member 2

Wilhelmsen’s strategy department concluded that the challenge could be addressed through an independent company focusing on innovative initiatives. The concept involved creating a separate company, New Energy, which would operate with great autonomy, leveraging both internal resources from Wilhelmsen and external investments to develop new sustainable value chains. Recognizing the strategy department’s crucial role in proactively addressing climate change, Wilhelmsen saw the benefit of transferring the team to New Energy. Wilhelmsen’s ability to internally transfer personnel reflects its flexible culture, utilizing resources across the entire group.

“New Energy is a direct result of the strategy that was created for Wilhelmsen. When it was decided that it was going to be a new business area connected to Wilhelmsen, they transferred the whole strategy and M&A team [...].” – Team member 4

Transferring the strategy department to New Energy had multiple benefits. The idea of New Energy originated from the strategy team, aligning their knowledge and competencies with the new company’s objectives. Leveraging pre-existing relationships within Wilhelmsen, the team consisted of individuals who had previously worked together, promoting a strong foundation of familiarity and trust. This facilitated robust team dynamics. Moreover, internal transfers enabled Wilhelmsen to initiate innovative work more efficiently, avoiding the costly and time-consuming process of external hiring and introducing them to the Wilhelmsen culture.

“It was easy to bring the team that had created the strategy, as they knew the macro situation, the ideas, and the direction of the firm [...]. I think this made the process go faster, as we did not need to create a lot of new procedures [...]. I think a crucial part of the process being so smooth was that the team was already close and had worked together previously.” – Team member 4

A challenge in establishing New Energy was reactions from various business departments in Wilhelmsen. As a wholly owned subsidiary, New Energy relied on support from the group management, as well as resources from different business areas. Initially, the strategy department faced resistance when initiating the establishment of New Energy. The other

business areas in Wilhelmsen struggled to grasp the value of the new company. Moreover, they perceived New Energy as chaotic, fearing excessive freedom and access to capital. However, the strategy team believed that New Energy would serve as an intermediary, connecting the different activities within the group and promoting a sustainable future for Wilhelmsen.

“It was some internal struggles because people in Wilhelmsen did not understand what we were doing. They still might not understand it, but maybe they have started to understand it now. I think they believe that we are chaotic. This is not true, we are the lubricant in the whole machinery that makes sure that everything works together.” – Team member 4

“We did not face resistance from the management of the Wilhelmsen group when establishing New Energy, but rather from the other business areas in Wilhelmsen. They were concerned that we would get too much freedom [...]. They saw that we were not getting the same requirements in terms of documentation, which made them question why we could get permission to do something like that.” – Team member 4

Despite facing initial resistance, Wilhelmsen successfully established New Energy in 2021. The subsequent section provides an insightful exploration of New Energy, offering a comprehensive understanding of the company and its overarching objectives.

5.2 New Energy: Structure and Team Dynamics

The following section explores the structure and dynamics of New Energy’s team and organizational setup. New Energy’s organizational setup has a network structure. Describing the network is necessary to explain how New Energy can leverage the network, in order to become more sustainable. By analyzing the New Energy team’s composition and dynamics, the section also aims to understand how New Energy aligns its structure with its strategic objectives.

5.2.1 Organizational Setup

It is appropriate to first present the organizational setup New Energy has created. This will make it easier to understand the subsequent sections that deal with how the New Energy team is structured and works internally and externally.

Wilhelmsen has provided New Energy with a mandate to create a network, consisting of several components. One component of the network is New Energy. When referring to New Energy, this thesis has the greatest emphasis on the team working in New Energy. The team is

responsible for facilitating and managing the network, illustrated by the dark blue circle in the center of Figure 4. The second component of the network is Wilhelmsen, represented by both the group management team, Holding, and the other business areas in the Wilhelmsen group. Figure 4 illustrates Wilhelmsen through the Wilhelmsen logo, a blue flag with a “W” inside. A team member explains how New Energy benefits from having Wilhelmsen in the network.

“We have the opportunity to use the Wilhelmsen group, which is present in almost 70 countries, in every port in the world, and has a large system that has taken 160 years to build.” – Team member 4

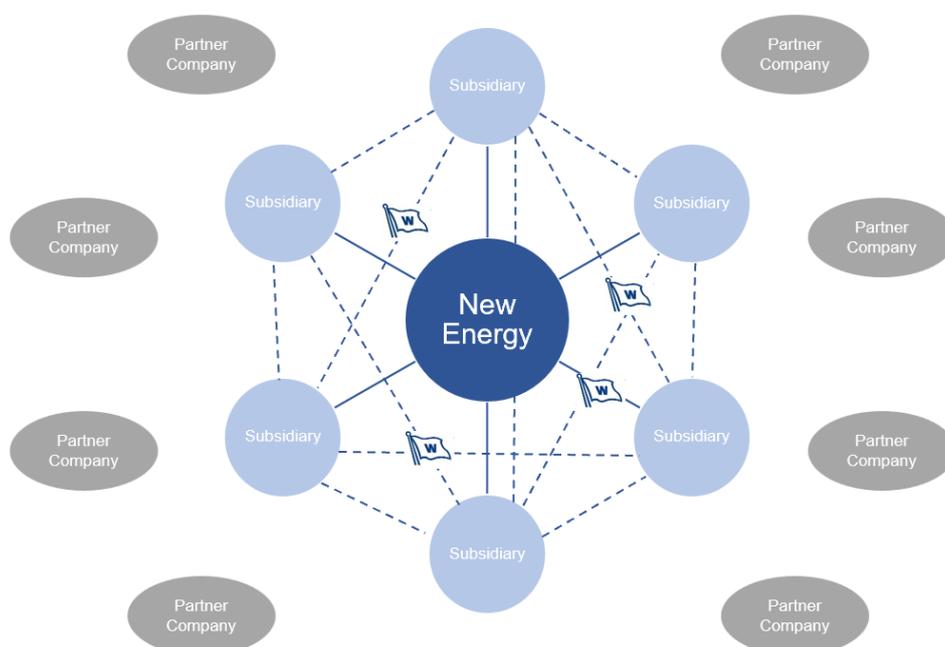


Figure 4: Network Structure (Table 3, Source 1)

The next component of the network is New Energy’s portfolio of subsidiaries. The subsidiaries are illustrated by the light blue circles in Figure 4. New Energy has two types of subsidiaries. Firstly, they have subsidiaries that they own directly, with everything from wholly-owned companies to companies in which they only have small holdings. Secondly, the portfolio consists of companies that are owned indirectly, which means that the companies are wholly or partly owned by one of New Energy’s subsidiaries. Both companies owned directly by New Energy and indirectly through subsidiaries are a part of the network.

The last network component is New Energy’s partnerships with other external companies, illustrated by the grey ovals in Figure 4. The partnerships are relationships in the form of

strategic partnerships, involvement in joint ventures, or customer-supplier relationships. One team member explains how New Energy invests and enters partnerships:

“We have made several investments within emerging value chains [...]. We have invested in a diverse range of companies to achieve what we want [...]. We also have several partnerships with companies actively engaged in this transformative journey, each contributing to varying degrees. When all these companies are considered collectively, they form an expansive network.” – Team member 1

In summary, the findings have revealed that the network consists of the New Energy team, Wilhelmsen, subsidiaries, and partner companies. It is important to note that this is a simplified picture and that the network is more complex than illustrated.

5.2.1.1 Selecting Network Members

As explained, New Energy’s subsidiaries and partners are a significant part of the network. Therefore, it is necessary to understand how the New Energy team proceeds when investing and entering partnerships. By having a well-composed network, New Energy enhances its ability to successfully fulfill the network’s overarching purpose. New Energy’s process of selecting network members encompasses its investment strategy and the process of evaluating potential partners. These two processes are closely related, although the outcome differs. Hence, the strategy of selecting network members has a critical role in ensuring the success and effective management of the network.

New Energy makes investments and enters partnerships with companies that fit into its new value chains. As such, investments and partnerships are directly linked to the vision of shaping the maritime industry.

“With our vision, New Energy has made several investments [and partnerships] within the value chains [offshore wind, hydrogen and ammonia, and seabed mining].” – Team member 1

Another important aspect of New Energy’s process of selecting network members is that the companies in the network must be able to create industrial synergies. New Energy believes that industrial synergies can be achieved by piecing relevant companies together in the network. New Energy wants the network to be an arena for the companies to openly share resources and competencies through collaboration. By investing in and entering partnerships with companies that possess complementary skills and resources, New Energy increases the possibility of synergies between network members, which fulfills the purpose of the network.

“It is really important for us to create industrial synergies that potentially give an increased activity in multiple of our current activities [...]. The investments have been closely related to our strategy. It has fostered industrial synergies with the rest of our system.” – Team member 5

Another important aspect of New Energy’s selection process concerns the competencies of the team members. The team needs an adequate understanding of the network members to be able foster collaborations. The team’s competencies are particularly important in their investment strategy, as the New Energy team assists the subsidiaries with business expertise. Hence, to succeed with the purpose of the network, the team needs to invest in, and enter partnerships with, companies that match the team’s competencies.

“The companies want to collaborate. Therefore, I think that you should know the companies quite well and understand what they do so that you can facilitate cooperation. That is why you should take the time to familiarize yourself with them.” – Team member 3

“We are organized almost like a private equity fund or corporate venture fund, that works with a corporate structure. We have a thin layer of corporate workers with skill sets that are typical for the management of portfolio companies.” – Team member 5

Even though New Energy’s processes of selecting subsidiaries and partners have many similarities, some aspects are only relevant to New Energy’s investment strategy. When Wilhelmsen decided to organize New Energy as a separate company with the mandate to invest in green companies, it was also decided to provide New Energy with a set amount of capital. The limited capital further directed New Energy’s investment strategy.

“We are going to invest 500 million dollars, and we have invested approximately 200 now [...]. We are concerned that we cannot only invest in ventures, but we must also invest in companies that generate profits.” – Team member 1

As such, New Energy seeks to have a portfolio of companies of different maturity. Today’s portfolio follows the business life cycle methodology and includes companies in the startup, growth, and maturity phase. The idea is that the companies in the growth phase should be relatively self-sustaining and viable, while the mature companies should generate profits to enable investments in startups (Table 3, Source 1). Over time, New Energy wants the mature companies to be transformed, to “jump” the decline phase of the business life cycle curve, and continue to generate revenue in a greener way. The underlying concept is that the

transformation toward a more sustainable maritime industry should not solely rely on green ventures, but also include the adaptation of mature companies to foster sustainability.

“Our portfolio is based on a business life cycle, where we have several ventures [...], growing, [...] and mature companies [...]. The idea is that the companies’ development should not flatten out at the top of the cycle. When they reach maturity, they must “jump the curve” and create a new life cycle.” – Team member 1

“We had to find growth segments and different areas where the company could grow. This led us to choose our three areas to facilitate growth in our portfolio. We needed companies with growth potential, but the problem with these companies is that it can take years before they start to generate revenue [...].” – Team member 5

As mentioned, New Energy has limited access to capital from Wilhelmsen, which in turn affects New Energy’s investment strategy. The investment strategy is characterized by a fight for capital internally. The team believes that this makes them more disciplined in their approach, which in turn can lead to more valuable investments.

“It is quite disciplining to have limited capital because it means that you have to fight for capital internally. So, what the New Energy team has of investment opportunities must be compared with other projects in New Energy, the Wilhelmsen Group, or direct returns to shareholders in the form of dividends or buybacks. The group management must evaluate these projects against each other. The fight for capital is not a negative thing, it is a very good thing. Because that means you have to build up your case very fundamentally and robustly. And it also may mean that you have to be flexible in terms of ownership share and use partnerships where necessary.” – Team member 2

The New Energy team has a dynamic approach to their ownership fractions. For example, limited capital can make it impossible to have full ownership, which in turn leads New Energy to either invest with lower stakes or enter joint ventures with partner companies. Another aspect that determines ownership fractions is the impact different subsidiaries have on the value chain they operate in. Overall, New Energy’s varying ownership fractions influence the degree of control they have over its subsidiaries.

“Several of the value chains we want to build do not exist today [...]. Consequently, our contribution to those value chains remains uncertain and is likely to change over time. As a result, we must have a different mindset regarding our ownership fractions [...]. Regarding [subsidiary], its technology and operations are limited, and the value chain to be created encompasses more than what the subsidiary currently does. Hence, our ownership fraction is quite restricted.” – Team member 1

“Our investments serve as a forward-looking strategy, and we acknowledge that it requires a substantial amount of capital. Considering our limited access to capital, we must adopt a rather pragmatic approach regarding our ownership fractions. We can’t own everything ourselves, as it would restrict our ability to pursue our objectives.” –

Team member 1

New Energy’s portfolio reflects a pragmatic approach to buying and selling companies. The team continuously evaluates the composition of their portfolio, with their overarching objectives. Consequently, some subsidiaries will be removed from the portfolio over time.

“The portfolio is like putting together puzzle pieces, where certain pieces fit seamlessly together while others may not align today, but maybe in 10 years. We know that sometimes we are going to make mistakes. We have to accept that. [Subsidiary] for example, is a company that does not fit into the portfolio, and therefore we’re going to remove it.” – Team member 1

“It could be that the company needs too much capital, that we must make some strategic choices, or that we would rather use our capital in another case. It may be a strategic change in direction from the group management, or that we do not believe that a company will succeed. It can also be that we have nothing to contribute to, or pure resource allocation. The five of us on the team might not feel that we have the capacity to follow up with all the companies, and then we have to clean up the portfolio [...]. All these discussions come naturally.” – Team member 4

5.2.2 The New Energy Team Structure

As described, New Energy represents the core of the network, mainly due to its managerial function and role as an owner. Analyzing the team structure provides insights into their functioning, decision-making processes, communication, collaboration, and their impact on team efficiency and success. This will in turn provide insights into how the team works toward the network. Therefore, the following section highlights the New Energy team structure. Characteristics of the team members are also presented to give an in-depth understanding of the team.

The New Energy team consists of five individuals. As illustrated in Figure 5, the team has three levels. At the highest level, there is an Executive Vice President who has the overall responsibility, and who also is part of the Wilhelmsen group management team. At the middle level, there are two Senior Vice Presidents. These team members have responsibility for the

two business areas, Shipping & Technology and Infrastructure & Offshore Wind. The lowest level consists of two Strategy Managers.

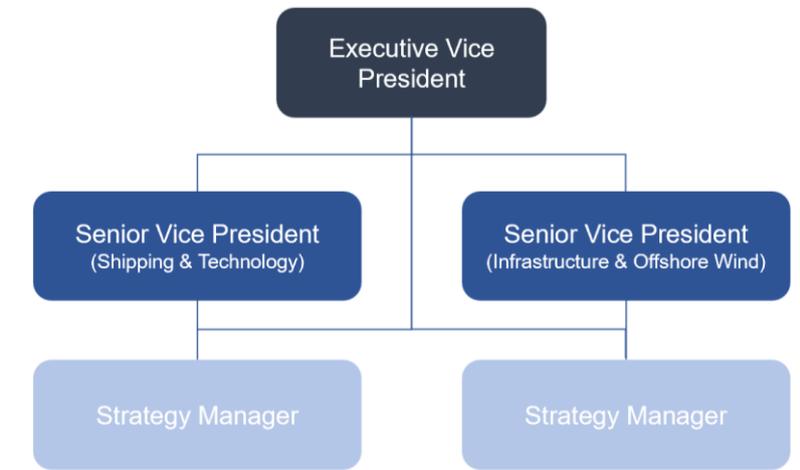


Figure 5: New Energy Team Structure

“We are a small team in New Energy [...], and the leader is also part of the Wilhelmsen group management team [...]. We are five people on the team who run and manage the investments.” – Team member 1

“The structure seems well thought out, and a thorough job has been done on finding someone who matches at all levels. There are two Strategy Managers and two [Senior Vice Presidents] who lead one segment each [...], and then there is [the Executive Vice President] at the top.” – Team member 3

“[One Senior Vice President] has shipping and financing expertise and is responsible for Shipping & Technology. [The second Senior Vice President] has a transactional background and is responsible for Infrastructure & Offshore wind.” – Team member 4

Although Figure 5 describes a team hierarchy where the team members formally have clear roles, the reality is different. The team has a relatively flat hierarchy, probably because the team is small and the members know each other well and work closely together. This will be further explained in the subsequent section on collaborative interactions in the team. Because of the somewhat flat structure, the team members’ roles entail distinct responsibilities that in turn foster competency development and enable the Strategy Managers to mature in their roles.

“We give the Strategy Managers very clear mandates and responsibilities, which require them to perform. They are given responsibilities with clear expectations. It’s not like the more senior team members cannot produce PowerPoint slides or Excel sheets, but these tasks are given to the Strategy Managers to let them grow into their

roles. I don't think it would be easy for anyone to take over [a Senior Vice President's] role. It is better to let the Strategy Managers grow into the role." – Team member 4

A team member explains how everyone's opinions are listened to regardless of level in the team. This strengthens the impression that the actual hierarchy is flatter than the organizational structure suggests.

"People are interested in hearing everyone's opinion. It's not like the leader is the only one that should talk and then everyone should act accordingly." – Team member 3

The interviews revealed that having a small team is an intentional decision. Team members should have a clear understanding of each other's roles and responsibilities, as well as an overview of their colleagues' work tasks. In addition, there are concerns regarding team expansion. The team believes that expanding the team can impair the current team dynamics and that difficulties might arise when coordinating a larger group of individuals.

"It is difficult to coordinate many people. We are five, which is close to the limit of where you can have an open and frequent dialogue where everyone knows everything. The more people, the less control you have [...]. When the core team gets too big, it becomes difficult to manage." – Team member 4

When asked about the outlook for the team size, a team member explains that the team probably can be expanded by hiring a few people at the lowest level. They are cautious about expanding the team further as they believe it could potentially disrupt the existing team dynamics.

"We could probably hire a couple more people without ruining the dynamics. [The two Strategy Managers] have many years of work experience already, so if we employed some trainees, it would not have ruined the dynamics or the "hierarchy." But I don't think the team should get much bigger than that." – Team member 5

When New Energy was established, the goal was to build an optimal team. The people that initially were hired to work in New Energy were transferred from Wilhelmsen. However, one member of the initial team has changed positions, and one new person has been recruited externally. This suggests that the current team is composed of members that are well acquainted with Wilhelmsen's culture, alongside people that offer new perspectives and expertise.

"The team is a mixture of people who have been in Wilhelmsen for a long time and some that joined later." – Team member 1

"[The more senior team members] have worked in the Wilhelmsen system for many years. [The Strategy Managers] have been here a shorter period." – Team member 2

Although the New Energy team mainly consists of people who already worked at Wilhelmsen before the establishment of New Energy, they have been conscious to compose a team that complements each other in terms of competencies. The team consists of people with expertise in strategy, M&A, and business development. The New Energy team believes that building a diverse team contributes to fostering innovation.

“We try to have a balance between shipping, consulting, and M&A experience because people with different backgrounds think and work differently. If everyone is too similar, there will be no innovation.” – Team member 4

“We have expertise in strategy, M&A, and business development. We know the capital market and can help companies with funding. We can coordinate and demand new business models, based on our overview of the network.” – Team member 1

In addition to the more business-specific competencies, there is also a focus on having the right kind of personalities in the team. There is a particular focus on the members having strong interpersonal qualities and being positive, open, and passionate.

“New Energy requires a special type of people with passion, interest, and desire to work together. I think we have gathered a group of people who are keen to work and explore together, and who are curious and have a very positive vibe.” – Team member 2

“A person who works best alone does not fit in the team. You must have what I call “extroverted nerds.” They need to be detail-oriented and enjoy working with other people. This is something we look for when recruiting new team members. You shouldn’t have a person who is far too extroverted or far too introverted, you need a balance.” – Team member 4

“You must dare to build a team, and let people become friends that challenge each other. However, we don’t hang out as friends outside work, but we have become a very close group at work [...]. We protect each other, and that’s important. We spend a lot of time doing social things together as well. A team needs to be like this, because in a team with completely free mandates, therein lies the innovation.” – Team member 4

5.2.3 Collaborative Interactions in the New Energy Team

The data collection process included the identification of various collaborative interactions within the network. Figure 6 illustrates five interactions: New Energy’s internal working methods (1), interactions between New Energy and Wilhelmsen (2), collaborations between New Energy and its subsidiaries (3), collaborations between New Energy and partner companies (4), and interactions where New Energy facilitates collaboration between different

actors, for example, subsidiaries working together or with Wilhelmsen (5). These five interactions were the most prominent dynamics mentioned in the interviews, with a focus on those involving New Energy. The next section will describe the New Energy team’s dynamics and operations, represented by interaction number 1 in Figure 6.

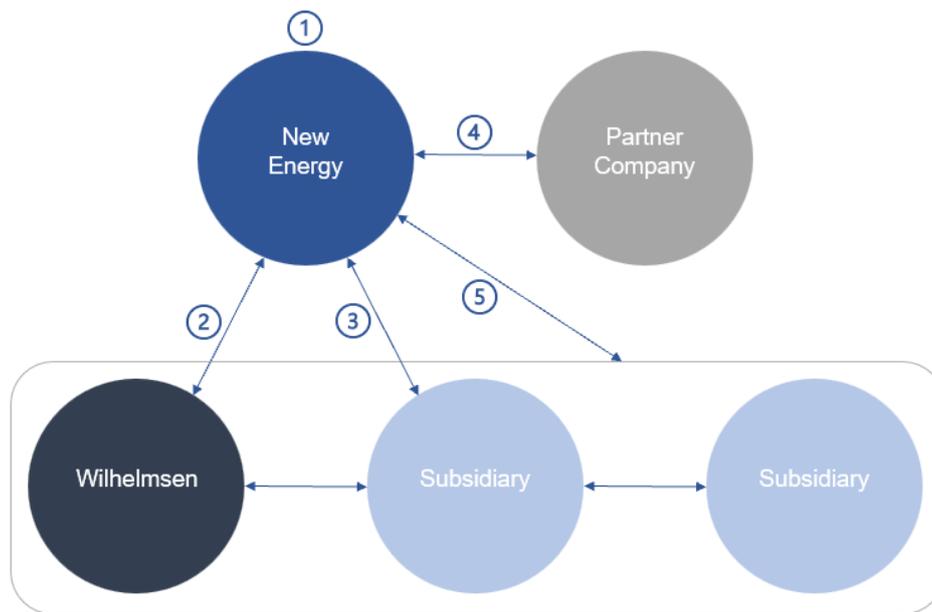


Figure 6: Collaborative Interactions in the Network

The main tasks for the New Energy team are to focus on current investments and relationships and to search for new investment opportunities. This suggests that the team’s main tasks are related to working toward the network.

“I typically split my time between helping existing companies, developing our segment or group strategy [and looking for new opportunities]. It can be through discussion with team members, preparing strategy documents, visiting the companies, and having workshops on how they can grow faster, be more efficient, look at potential acquisitions, or develop their strategy. I also spend a lot of time on new investments. It involves going to conferences and meeting people and companies, talking to experts, competitors, and financial circles, and collecting as many perspectives as possible.” – Team member 2

While the team members primarily focus on their network-related tasks, there exists a focus to preserve internal team dynamics. The team collaborates closely, provides mutual assistance, shares knowledge, and takes on tasks when needed. Frequent dialogue and shared office space

facilitate continuous updates. The team emphasizes their flexible and collaborative nature, fostering competence growth and enhancing the quality of their work toward the network.

“If we learn something new, we can invite experts to present it to us. If someone in the team has learned something themselves, we take a short session or a meeting to share our knowledge. We often present it to the team and sometimes record it so that they can look at it when they have the time.” – Team member 4

“We are not big fans of meetings, but we have a meeting every Monday. Here we update everyone on what we are going to work on the following week. But we sit closely together at the office, so if someone gets a phone call, or works on something, you hear about it. Sometimes one of us can have a professional question, and the others will answer and contribute with their competencies. So, everybody works with everybody across the team [...].” – Team member 4

“It is important that everyone is flexible enough and knows everything about everyone. If we meet someone from our group network, and [The Executive Vice President] asks any team member to talk to them, it works, because everyone is capable of helping each other out. It also means that when we have to discuss and figure out how to tackle certain problems, everyone can participate. This works very well.” – Team member 2

The collaborative activities in the New Energy team can seem somewhat chaotic and require people who want to work in such an environment. However, there is a high degree of satisfaction with how the team is organized and operates.

“I think that the internal organization works well. New Energy is completely dependent on having people who are positive and not concerned with hierarchy. And that’s cool because it means that everyone can work closely together.” – Team member 2

An important aspect of the collaborative interactions in the team is the Executive Vice President’s leadership style. The leadership style affects the working methods and dynamics in the team, in addition to how New Energy works toward the network. The team experiences a lot of autonomy and trust from the Executive Vice President. In addition, they are encouraged to collaborate and to be independent and curious, as they believe that this promotes innovation.

“[The Executive Vice President] connects everyone for everyone to learn [...].” – Team member 2

“The team members are like hunting dogs [...]. The team leader in New Energy is the owner, and the others are supposed to go out and search [for new business opportunities]. Sometimes the team searches too far [...]. Sometimes, however, they search too close to the owner and will not find anything. So, there is a balance. One

must be able to search too far without being punished for it. We have this perspective in the Wilhelmsen culture.” – Team member 4

“[The Executive Vice President] gives the team free mandates and a lot of trust [...]. The team is very happy with the hands-off management, with very clear mandates and responsibilities. With responsibility, there are clear expectations of what you should deliver.” – Team member 4

The described leadership style was chosen to make the team members feel a sense of responsibility, enabling them to identify potential collaborations and feel empowered to initiate projects. The team believes that making the team members feel responsible will in turn foster motivation and creativity in the network.

“We have been conscious about building independent individuals that have freedom and opportunities to thrive within their space [...]. We want them to create their own framework and present how they want to solve a task before they do it, to let them use their creativity. If you don’t do this, you will never evolve as a company. You work faster if you have the freedom and mandate to work [...]. This has been a conscious way of thinking about leadership in New Energy, and how we work.” – Team member 4

5.2.4 Collaborative Interactions Between the New Energy Team and Wilhelmsen

The New Energy team engages in close collaboration with the Wilhelmsen group, as illustrated by collaborative interaction 2 in Figure 6. This encompasses interactions with Wilhelmsen’s wholly owned companies, the group management team, and individuals from various business departments within Wilhelmsen Holding. The New Energy team collaborates with Wilhelmsen in multiple ways. For example, the team seeks to foster collaboration and synergies between Wilhelmsen and other actors in the network. In addition, New Energy both receive and provide resources to Wilhelmsen. A team member explains how it is natural to draw on Wilhelmsen when New Energy needs resources:

“We do not only think about New Energy when accessing new resources. We think about the whole Wilhelmsen portfolio of companies. So, we use Wallenius Wilhelmsen, Ship Management, and Ship Services.” – Team member 4

When asked about how they involve and work with Wilhelmsen, one of the team members explains how they currently work with them. The work is a combination of developing new

competencies, as well as sharing knowledge. The knowledge sharing between New Energy and Wilhelmsen is fairly open, even though several companies in the group are listed.

“We use the internal units in the Wilhelmsen group. With one of our subsidiaries that works with tenders, it’s natural to use Wilhelmsen Ship Management when estimating Opex to use in the offer to the customer. Then you have Wallenius Wilhelmsen, they are a listed company and therefore separated from the rest of the group. However, we can talk to them and ask how they work on different issues, for example, related to the RoRo shipping market. [...]. We also have a partnership with several external companies on an offshore wind project. In the project we use resources from the group, for example, have the Wilhelmsen communications team supported in the preparation of press releases.” – Team member 3

The Wilhelmsen group also sees the value of including the team members from New Energy on different projects, to access their competencies. The team members in New Energy, in turn, look at this form of collaboration as a way to develop their existing competencies and learn from the expertise that exists in the business areas within Wilhelmsen.

“I am involved in helping the internal group units. Now, I am supporting the treasury team on a Wilhelmsen Ship Management financing deal. I work on this together with a person from the ESG team in Wilhelmsen Holding. I was asked to-support this-because of my competencies and my background. This is also a great way for me to learn more, and gain experience that can be valuable for New Energy in the future. In my experience, people in Wilhelmsen are eager to contribute to different workstreams and support the rest of the group when needed.” – Team member 3

Wilhelmsen provides New Energy with free mandates and autonomy, which means that New Energy can make choices without always having to confer with its parent. This enables New Energy to make rapid decisions. One subsidiary representative addresses how this is highly appreciated. The subsidiary is a joint venture, whereas the other owner is a large Norwegian group. The representative describes the different dynamics when comparing New Energy with the other owner:

“It’s a big difference between the two owners of the company. Wilhelmsen is a family-owned company, with one man at the top [...]. The other owner is a group that is 50 percent owned by the government. The leader of New Energy is a member of our board, and the other board members are leaders from the other company. When it comes to making decisions, it’s a big difference between our two owners. The leader of New Energy can make decisions in the meeting if needed. The other owner has a lot of bureaucracy, which makes them slower.” – Subsidiary representative 3

New Energy also facilitates collaboration between Wilhelmsen and New Energy's subsidiaries. One way this occurs is through projects, where the actors form project teams.

"We have created a new organization that is going to work on an application. A lot of people are involved in the organization. These are people from technical, commercial, financial, HSE, communication, and ESG [departments in Wilhelmsen or subsidiary], You name it! So, we have created a structure that is independent of where the different people come from in the network, and there are at least two people from Wilhelmsen that have a direct role in that project." – Subsidiary representative 2

Overall, New Energy perceives a significant level of interest from Wilhelmsen, and the resistance it encountered before its establishment has decreased. The emphasis on sustainability, in particular, has caused engagement from other areas within Wilhelmsen.

"I worked in Wilhelmsen, but I wanted to work with renewables. Therefore, it was easy for me to transfer [to New Energy]. Some people in Wilhelmsen probably want to work with us because they also want to make that switch." – Team member 5

The group management team in Wilhelmsen comprises top executives from Wilhelmsen, and their key role is to develop and align strategy, culture, and competence across all the companies in the group (Table 3, Source 5.3). The Executive Vice President of New Energy holds a crucial role as a member of the Wilhelmsen group management team. This position ensures a strong connection between New Energy and Wilhelmsen, facilitating effective communication and updates between them. Moreover, members of the New Energy team believe that the leader's position in the group management team enhances the support and resources they receive when collaborating with external actors in the network. Additionally, the Executive Vice President contributes to strengthening the relationship between New Energy and Wilhelmsen. This support is vital as New Energy's stratecontributes involves leveraging both internal resources from Wilhelmsen and external resources from the network.

"To succeed, we need a leader like the Executive Vice President, who is very confident and believes in the project. The leader has trust from the group management team, who do not [punish us] if we fail and allow us to develop further." – Team member 4

"A manager without the board's support cannot initiate such a project. There must be an agreement as people will turn around when it becomes uncomfortable [...]. The starting phase is the most difficult [...]. We need people with integrity, who are respected by people from other business areas. It is important to know something about the culture of Wilhelmsen because you have to know how the company works. If not, you will not be accepted, and you'll just become a private equity investment arm in the

company. Then you won't be able to pull on the rest of the company, and that's what you want." – Team member 4

The Executive Vice President has a long history in Wilhelmsen, yet possesses a creative, motivational, and innovative approach. The approach of openness has influenced the overall culture, creating a positive impact on everyone in the network. The leader's charismatic, visionary, and innovative nature has fostered a strong personal connection with team members, leading to frequent discussions on various topics. Their close collaboration and regular communication further contribute to the network's effectiveness.

"The leader is one of the oldest people in the company, but also one of the most creative and innovative. This makes it very fun to work with the leader. The leader is open and motivating and has influenced the culture. This rubs off on the rest of the network. I think the leadership style is positively affecting everyone. We also get positive feedback about this from the subsidiaries." – Team member 5

*"The leader of the New Energy team is a very charismatic, visionary, and innovative person, and we have hit it off. We have good personal chemistry, and therefore I use the leader a lot to discuss different topics. This can be everything from strategic questions to specific challenges. We work closely together as a team, and sometimes I wonder if the leader sits in the room next door *says it jokingly*. So, we communicate really often."* – Subsidiary representative 2

5.3 The Network: New Energy's Role

This section focuses on New Energy's operations toward the network, divided into two parts. Firstly, it presents a selection of collaborative interactions to provide insight into the team's engagement with other actors in the network. As the facilitator of the network, the New Energy team has an important role in securing a well-functioning network. Therefore, the second part explores New Energy's leadership style and commitment to fostering a culture of innovation, to achieve its objectives.

5.3.1 How New Energy Works Toward the Network

New Energy leverages its network by primarily engaging with external actors which provide relevant resources for New Energy's vision of shaping the maritime industry. The network comprises subsidiaries and partner companies as external actors. However, the actors' collaborative characteristics differ, influencing how New Energy interacts with them. New Energy also aims to facilitate collaboration between actors in the network. The following

section describes the intricate nature of how New Energy utilizes its organizational setup to engage with external actors.

5.3.1.1 How New Energy Works with Subsidiaries

As mentioned, most of New Energy's work is directed toward the network. One of these external collaborative interactions is how the New Energy team works with the subsidiaries. This interaction is illustrated by collaborative interaction 3 in Figure 6.

As New Energy invests in companies, the New Energy team holds positions on the respective boards. However, the team provides their subsidiaries with resources and support beyond their role as owners. Hence, the New Energy team members consider themselves active owners.

“All the team members hold positions on several boards. We work as active owners. We won't be involved in all the details and “day-to-day” work, but we will help our subsidiaries from the board down with our expertise [...].” – Team member 3

The knowledge shared by New Energy with its subsidiaries is highly valued. The subsidiaries perceive collaborative interaction with New Energy as a means to access knowledge from industry experts. The subsidiary representatives recognize that without being included in the network, they would not have access to these resources due to limited capital.

*“If we were to build all the needed competencies in-house, we would need an expensive administration [...]. The ability to let the competencies flow between the companies and have an open source is an advantage. One of the team members in New Energy is good at finance and strategy. If we were to have those competencies in-house, this would cost us 3 million NOK yearly. Now I can just make a phone call and get it for free *smiles jokingly*.”* – Subsidiary representative 2

The New Energy team has frequent communication with their subsidiaries. Communication varies depending on the most pressing needs of the subsidiaries. As mentioned, the interactions also differ depending on how the team members contribute. One team member explains:

“We talk to the portfolio companies daily, some all the time. The communication may be linked to projects in which we are engaged. We have a certain amount of expertise in Wilhelmsen that the portfolio companies do not have [...]. It could be that we are advisers for capital raising or an M&A matter.” – Team member 1

As stated in the quote, one way the New Energy team works with the subsidiaries is through projects where the team can contribute with their competencies. Yet, the team members do not wish to function as project managers.

“We are not necessarily project managers. We do not want to take responsibility away from the subsidiaries, so we would rather contribute to projects with a supportive role.”

– Team member 1

The New Energy team does not want to function as project managers, because they already hold positions as board members in the subsidiaries. The team’s intention is for the subsidiaries to have complete ownership of the projects, as the team believes that their role as owners might impair the subsidiaries’ autonomy in the projects. Further, the team believes that the subsidiaries’ autonomy should be protected, as this is an important element in fostering innovation in the network.

“It’s always a bit tricky when we are involved in our portfolio companies’ projects, as they might expect us to take the lead as owners. So usually, we have a conversation clarifying our expectations before we start the project. We usually tell them clearly that a person from the subsidiary must be the project manager, and that they are going to own and drive the process forward [...]. The subsidiaries need to own the project. It will not work if the leader of New Energy pushes a project or an idea down to the CEO of a subsidiary. If the leader has an idea for the subsidiary, the subsidiary must agree to the suggestion before pursuing it. Then we can be used as resources, not the other way around.” – Team member 2

Generally, the subsidiary representatives perceive collaboration with the New Energy team as valuable. In particular, the representatives find it beneficial to make use of New Energy’s business-related expertise. The overall impression among the subsidiary representatives is that they are satisfied with the skillsets New Energy provides.

“I feel that the team has good and proper resources to help when needed.” – Subsidiary representative 2

The subsidiary representatives agree that they benefit from the expertise of the New Energy team. However, the findings show that they believe New Energy lacks some competencies when working to support them. One of the subsidiary representatives highlighted that it would be helpful for them if New Energy had more competencies related to technology.

“The New Energy team should have someone with a tech and business background if they want to work with tech companies and use them as differentiators in the portfolio. They are excellent at modeling the business, but I believe they should have someone who understands technology and its impact on the business. They don’t need to know how to code, so maybe someone with a background in the tech industry.” – Subsidiary representative 1

5.3.1.2 How New Energy Works with Partner Companies

Illustrated in Figure 6, New Energy's interactions with partner companies are represented by collaborative interaction 4. Partnerships are typically established based on New Energy's needs in a new project or emerging opportunities within Wilhelmsen's existing relationships. Wilhelmsen's long history within the maritime industry is valuable for New Energy, as they already have connections with a wide range of companies. In addition, the Wilhelmsen brand is widely recognized, which affects New Energy positively.

“The Wilhelmsen brand is strong. People think it's nice to have Wilhelmsen on their team. We have a reputation for being nice people. If you come from a company that is known for being tough, it might be harder to collaborate with partners. It must be seen as if you're there to help them and there needs to be an alignment of interest. We succeed with New Energy, and they know that.” – Team member 4

“Before we start to collaborate with a partner, we analyze what the needs are. In addition, we assess whether any obvious partners are suitable to work with. We have many connections with companies from previous collaborations, that could be potential partnerships. When opportunities appear, we need to assess whether it is necessary to seek external collaborations.” – Team member 1

A critical factor for entering partnerships is often the identification of mutual value by both parties. Mutual value often exists when the two parties have complementary resources, which in turn creates incentives for collaborating through partnerships.

“Partnerships are typically entered because both parties see a mutual value in collaborating, and there are complementary assets involved [...]” – Team member 2

New Energy's partnerships often have a more formal character compared to collaboration with their subsidiaries. An aspect of this formality is that the relationship between New Energy and partner companies is less hierarchical, compared to New Energy's subsidiaries. This is because the partnerships do not involve ownership, which makes the parties more equal. The formality requires the New Energy team to use different working methods. One of the differences is related to how New Energy communicates with partners. For example, if the New Energy team is not satisfied with the work a partner company does, they do not explicitly communicate this to them, as the New Energy team believes it to be harmful to the relationship. This contrasts with how New Energy works and communicates with its subsidiaries and Wilhelmsen.

“When working with partners, communication is very different. You have to be more conditional and formal. We work on projects with them as well and the working methods

in the projects are quite different. Usually, you have one person from each company that is put together to agree on a report or to investigate an opportunity. This requires a lot of diplomatic capabilities. You must be patient, and you have to be focused. You represent the whole group, so you must properly represent them so that the Wilhelmsen group looks good through your presence.” – Team member 2

“A challenge of working with companies that you do not own is typically that you have set the level of expectation somewhere and then you receive something that is slightly below the level of expectation. You cannot engage with them in the same way as you would with an employee in Wilhelmsen or a subsidiary.” – Team member 2

One example of a creative way New Energy worked with a partner company is related to how New Energy included the company in a due diligence process. The due diligence process was project-based, evaluating whether New Energy wanted to invest in the company or not.

“An example of this is before we invested in a subsidiary, we created a project group where we worked on mapping the market potential for their technology. That’s a pretty creative way of doing a due diligence process because then you use the target company you potentially are going to invest in as a partner and a resource. So, we worked together as colleagues, even though we knew that the outcome of the report would partly dictate if we were going to invest or not.” – Team member 2

5.3.1.3 How New Energy Facilitates Multi-Relational Collaborations

Figure 6 highlights collaborative interaction 5, illustrating how New Energy facilitates collaboration among multiple actors in the network. One of New Energy’s objectives is to promote autonomy within the network, encouraging and initiating collaboration without always being directly involved in the collaborative work. From the interviews, the most mentioned multi-relational collaborations were between Wilhelmsen and subsidiaries and collaborations between subsidiaries. The focus of the interviews was primarily on New Energy’s role as the creator and facilitator of the network. While New Energy might not always participate directly in the subsidiaries’ collaborations, they act as facilitators, and therefore, New Energy’s perspective is included in this context. Describing these interactions remains relevant to the network’s purpose of fostering industrial synergies.

In attempt to foster multi-relational collaborations in the network, the New Energy team organizes gatherings two times every year. The gatherings are organized to introduce participants to the network, new trends in the industry, or other topics of relevance to the network. In addition, the gatherings are meant to spark collaboration between the network

members. The team believes that the gatherings also can contribute to giving the members a sense of belonging, which in turn they believe creates safety, openness, and innovation.

“We have at least two gatherings per year with company managers from our portfolio. The gatherings serve as a platform where we present our strategy and express our business objectives. We also have company presentations and deep dives into various topics [...]. It can be seabed minerals, value-based evolution, ESG, or open AI. We aim to demonstrate our relevance as owners and provide them with resources and opportunities they would not access otherwise. The gatherings foster network opportunities and foster stronger connections among participants. They will expand their networks and get to know each other better [...]. We recognize that if they lack a sense of belonging, they don’t bother sharing anything.” – Team member 1

“The gatherings are examples of how we try to facilitate collaboration. We invite the subsidiaries to talk to each other, which provides them with an understanding of what they are working on, and what challenges they have.” – Team member 5

One of the subsidiary representatives highlights the value of being included in the gatherings. The representative believes that the gatherings are beneficial to uncover new opportunities across the network. In addition, they believe it to be beneficial as it can be demanding to understand the wide range of technologies that are present throughout the network.

“The gatherings are important, as the portfolio is so broad. Some parts of the gatherings are for reflection, but there is also a lot of information and opportunities there. The fact that companies in the portfolio are so different from each other makes it important to meet. Otherwise, it is easy to miss opportunities. I think that meeting people that way, with a bit of structure and formality, adds value.” – Subsidiary representative 3

Although the gatherings organized by New Energy are highly valued within the network, one subsidiary representative has concerns regarding their limited effectiveness in fostering successful collaboration. Further, they argue that it requires more work before the subsidiaries can start to collaborate and create synergies. Other subsidiary representatives share the same opinion. Although they appreciate getting to know the other companies in the network, they address how collaboration with other actors requires that they work together over a longer period. However, they acknowledge the value of getting to know the other companies.

“The gatherings are nice, and many people there are interested in your work. However, they need more than their interest to understand and adopt our technology. A company

must have a pressing challenge that our technology can help solve for them to be motivated to collaborate [...].” – Subsidiary representative 1

“The gatherings are really useful, and I enjoy them, but you cannot build a team by meeting two times a year [...]. When we have a project, we put together a team across the network. We must give them a lot more time to work together. You have to work together daily, at least for a period. But the gatherings are useful to get an update on the network’s projects, getting informed on trends in the industry, and brainstorm ideas. Sharing what you are doing sparks ideas. It’s also useful to get to know people so that the threshold to reach out to them is reduced.” – Subsidiary representative 2

One of the goals of arranging the gatherings is for the network members to initiate collaboration. The network members can initiate collaboration either independently or with New Energy’s guidance. When a connection is established between two actors, their collaborative interaction can happen without New Energy being directly involved. Usually, as soon as the companies are introduced, they feel comfortable collaborating.

“If we were to enter into a new collaboration with a company in New Energy’s portfolio, we would go directly to the other company, and not through the New Energy team.” – Subsidiary representative 3

The New Energy team expresses how they want to create synergies in the network, to pursue their vision of shaping the maritime industry. A way for New Energy to create synergies in the network is by facilitating collaboration among the actors involved. This also supports their wish to preserve the subsidiaries’ autonomy in the network. The New Energy team does not intend to impose collaboration. Hence, the team allows network members to freely choose how and when to collaborate.

“We think it’s important how the companies in the portfolio collaborate. It’s my job to make sure that subsidiaries talk to each other, but how they solve problems is up to them. For example, I can help if they have a conflict, but the decision of who is going to deliver what to the project is something they have to deal with. We think it is important that innovation is going to happen outside of the portfolio, and New Energy is just a facilitator.” – Team member 4

“I try to introduce the subsidiaries and then my job is done. They talk to each other and plan the process. We also try to create arenas for them to collaborate [...]. In some cases, we also encourage and foster cross-pollination, and in some cases, they find each other without our direct involvement.” – Team member 5

When the New Energy team was asked about how the subsidiaries work together, one of the team members highlighted that the collaborations differ in terms of scope. The New Energy

team makes conscious efforts to stay informed about all collaborations taking place in the network. Sometimes the collaboration between the subsidiaries involves sharing knowledge, other times it is more complex in nature.

“It is hard to give examples of concrete business ideas that have come out of these collaborations, but there is a lot of contact between the subsidiaries. For example, we have a subsidiary with competencies related to subsea. We also have connections with a company that works with specific subsea technology. These companies often have common challenges, and thus they can call each other and share their knowledge. Instead of asking us for advice, they go directly to the other subsidiary to discuss common challenges.” – Team member 2

While some of the subsidiaries already have established communication channels in the network, some of the subsidiaries are still trying to identify effective ways to collaborate to yield success stories. Finding appropriate projects for multiple subsidiaries to collaborate on can be a time-consuming effort, as the subsidiaries seek projects that can lead to tangible outcomes. However, one of the subsidiary representatives suggests that establishing an arena for managers in the subsidiaries to discuss common challenges could be a possible solution.

“[...] I feel that we are still looking for a success story to promote internally in the network. We are still looking to find projects to collaborate on to show that we were able to do something great together. We have not had that many successes yet. We have started to collaborate with some of the other subsidiaries, but as I said, I am still looking for a success story.” – Subsidiary representative 3

“As of today, there is no structured management group with the managers from New Energy’s various subsidiaries. I think it would have been useful to tighten this management structure by creating a common arena. I think this because we probably have several common challenges that could be interesting to discuss. Possibly, this could make it easier to get help from peers in the network also. A management team can contribute to that.” – Subsidiary representative 3

While network members may experience challenges in identifying collaborative opportunities, it is important to note that the network is still in an early phase. As the network matures, there is a potential for new opportunities to emerge.

5.3.2 Unlocking Network Potential: The Role of the New Energy Team

In the final part of the Findings and Analysis chapter, the strategies employed by the New Energy team to guide the network toward its purpose are outlined. As the network creator, New

Energy leads the network toward sustainability and the vision of shaping the maritime industry. New Energy aims to foster innovation through collaboration and openness among the network actors. The interviews highlight the complexity of the network structure and the diverse interactions within it. Managing and coordinating these interactions to achieve the network's overarching objective is a comprehensive task. This section explains how the team manages the complex network to drive innovation in an industry facing a pressing challenge.

The New Energy team's leadership focuses on continuous learning, collaboration, and value-based principles. They emphasize the importance of sharing, listening, and trust as prerequisites for effective management of the network. People are considered crucial, with an emphasis on aligning personal values with those of the Wilhelmsen group. Their leadership draws on extensive experience and a commitment to leading with integrity within the network.

“To foster collaboration, one must acknowledge the limits of knowledge and remain open to new solutions. Actively sharing, listening, and trust are important prerequisites. We have to be able to listen to people and share with people. So, sharing, listening, and trust are basic prerequisites. When these elements are established, a solid foundation for collaboration is formed.” – Team member 1

“People are the most important thing when we are working in the network. We assess based on something called value-based leadership, and people need to have values that align with the Wilhelmsen group. We are a very old group that has acquired certain experiences about how one should lead. And we are very concerned about that, especially in New Energy.” – Team member 2

One subsidiary representative addresses how the network has become an organized structure for collaboration in the maritime industry. The representative believes that New Energy's managing role in the network makes it easier for the subsidiaries to collaborate. This is because New Energy encourages and promotes collaboration in the network.

“The structure is probably tighter and better now that New Energy has been established. It was more by chance that subsidiaries met each other before the establishment. By placing the companies under New Energy, you have got a natural management team, and I think that such a structure can force you to cooperate. It doesn't just happen by chance.” – Subsidiary representative 3

An important part of New Energy's managing role in the network is to create and foster synergies with the actors. This is partly due to their ability to access information from all participants in the network. This can in turn lead to identifying complementary resources or

projects that can foster synergies. Hence, the team has a broad perspective of the network and the capacity to discover new opportunities and secure that valuable collaborations continue.

“We look at the macro picture, and we set a direction. We see something that our subsidiaries don’t necessarily see, as they primarily focus on their daily operations. To use this perspective, we must see how things are moving. If we hear about challenges in the network, we dive into our toolbox, our portfolio of companies. Further, we put them together and tell them about new opportunities for them.” – Team member 4

“We already collaborated with [another subsidiary] before New Energy was established. But New Energy was involved later and motivated that [the other subsidiary] continue seeing value in our collaboration.” – Subsidiary representative 1

As the New Energy team is involved in multiple collaborative interactions in the network, the team members juggle multiple roles. All team members function as board members in the subsidiaries, as project members on different projects in the network, and as advisers based on their expertise. The New Energy team uses its business expertise to guide and help foster synergies in the network. The team members are very aware of the different roles they have, and how they should interact with the different actors depending on the specific context.

“We have a responsibility for being board members and creating synergies, but also looking at new opportunities and developing existing activities. We operate as advisers, as well as promoters.” – Team member 1

“It is important to wear “two different hats,” and to be aware that it takes time to build a relationship of trust. The subsidiary administration is aware that we are both an owner and a board member when working with the subsidiary.” – Team member 4

Culture plays a vital role in New Energy’s utilization of the network’s potential. As the managerial team of the network, New Energy recognizes that they cannot fully control the culture. However, they seek to shape it by leading by example and promoting a desirable culture. They believe that their individual characteristics and team dynamics, shaped by the culture in Wilhelmsen, have an important impact. Embracing openness and trust, they seek to inspire other actors in the network to adopt the same approach.

“I think it is cultural and depends on what kind of people you deal with. I think the people in New Energy are similar in that we are open, and we wish that there should be openness in the network as well. As long as we are sitting at the top of the organization, I think it is hard for the subsidiaries to not follow the culture we are trying to establish.” – Team member 5

Interviews reveal a network culture characterized by sharing, trust, and openness. These qualities are linked to common industry challenges and a safe environment within the network. A subsidiary representative highlights the contrasting dynamics when collaborating with external companies, which often have more “silo-thinking,” referring to an unwillingness to share information. Such external collaborations demand formalities and limit transparency. In contrast, the New Energy team seeks to create a safe space that encourages network actors to freely share information.

“My impression is that the subsidiaries are open and have a positive attitude toward sharing experiences and competencies in the network. That’s fun and motivating. It feels like everybody involved in the network are colleagues. I don’t know if it feels like this because we are a part of Wilhelmsen or New Energy. Maybe it’s because everyone works in a space where things are changing rapidly. I also think that we have a sort of Norwegian approach in the sense that we are not supposed to be competitive in the network and that we share everything.” – Team member 2

“In my experience, the companies are generally open to sharing experiences and resources inside the network. I do not think this is the same outside the network, as it might be more “silo-thinking.” We have also had collaborations with people with silo-thinking, and this can work fine, but then you typically work on other kinds of projects [...].” – Subsidiary representative 2

“When we come up with ideas for the subsidiaries, we provide them with a safe environment to explore, compared to them getting ideas from potential competitors [...]. It’s a lot safer for the subsidiaries because we are owners as well. We don’t have any intention of making it more challenging. The more the companies meet each other, the greater feeling of safety is created. The more they get to know each other, the more they let their guard down and dare to discuss more freely.” – Team member 4

Altogether, the interviews reveal that openness is crucial for the network to sufficiently foster innovation. However, an open culture can cause some difficulties. A subsidiary representative explains how they must trust their owners for collaboration to work optimally.

“It can be difficult to have an open culture in the network. If I had been a control freak, I would have demanded that the leader of New Energy only talked to me. However, if the leader of New Energy wants to talk to people further down in our organization, that is fine by me. I believe this makes us more dynamic, but I do not feel comfortable if New Energy was to start projects in the organization without me knowing. I have to trust that I have aligned interests with the leader of New Energy, and that important information is shared with me [...].” – Subsidiary representative 2

Openness can also be affected by challenges related to confidential information. Due to certain companies in the network being publicly listed, restrictions may apply to the disclosure of specific information. This in turn can affect how open certain actors can be toward their peers.

“For the listed companies in the network, it is more challenging to be open and we must be more careful when considering what kind of information is inside information, confidential or publicly known before sharing information between the portfolio companies [...].” – Team member 3

In addition to an open culture, the network has an acceptance of failure. This encompasses various levels, for example, failed investments or projects. The New Energy team perceives failure as an inherent part of their strategy, driven by the risks associated with innovative projects and investments. Acknowledging the risks involved in the new value chains, New Energy accepts that not all projects or investments will succeed. They communicate this openly within the network and believe that this acceptance is widely recognized. New Energy considers its approach toward failure as a vital aspect of its innovative operations.

“Failing is okay. We must have this approach when investing in new areas with high risk. We know that not everything we invest in is going to be a huge success [...]. Some might fail, but we can live with that. Because all you need is for two of the companies to become successful to be able to pull the rest of the portfolio, and that’s more than good enough for us.” – Team member 5

“If we don’t fail, we haven’t taken enough risks. And if you don’t take any risk, you won’t get rewarded. That’s just a basic principle. With the high growth companies, some of them are going to fail. That has to be acceptable to generate good returns.” – Team member 2

One example of New Energy’s attitude toward failure is related to its position in the offshore wind market. Although they acknowledge that they have a weaker position than their competitors, they believe that they should take a bet to be a part of the energy transition.

“For example, we have a company that bids on two offshore wind licenses in the North Sea, and they are bidding against the biggest operators within the wind segment in Norway and Europe. We need to accept that there is a risk here So, we have tried to primarily use our internal resources, used third parties as little as possible, and benefited from our partners’ competence [...].” – Team member 2

Even though New Energy has acceptance toward failing and encourages subsidiaries to bet on riskier projects, they argue that they still must have a nuanced approach. Many of the

subsidiaries in the network demand a lot of capital to succeed. However, the time frame for when or whether they will become profitable differs and needs to be continuously evaluated.

“We had a company last year that was dependent on a contract extension that did not get it. We had to discontinue that activity. Sometimes it is better to end things than to maintain a level of activity. In some cases, we must be more financially sustainable, and go other places where we can find profitability.” – Team member 5

“One of the biggest dilemmas as an investor is subsidiaries that frequently come back and ask for capital [and when to stop providing capital if they don’t show results]. When they ask for capital frequently it can be challenging in terms of capital allocation, taking up a lot of “bandwidth” internally. When our objective is to invest to drive innovation forward, it is incredibly complex to decide when and if to stop supporting a subsidiary.” – Team member 2

In summary, the first part of the findings reveals that Wilhelmsen established New Energy as a response to meet increasing stakeholder pressure and changes in its business environment. This part also includes the process of establishing the company as a subsidiary of Wilhelmsen. The second part explores the network structure of New Energy and provides insights into the collaborative dynamics within the New Energy team, as well as the interactions between New Energy and Wilhelmsen. Finally, the findings highlight the New Energy team’s efforts to engage with external network members and leverage the network to drive innovation.

6 Discussion

In this chapter, the findings derived from the analysis will be discussed and contextualized with existing literature. The thesis aims to understand how an established firm can leverage an organizational setup for open innovation, in order to become more sustainable. By analyzing the specific context of New Energy's network and working methods, the empirical analysis will be used to discuss the research question. Important findings will be summarized along with core views within the research field of open innovation, corporate venture capital, and innovation at the edge. Additionally, the findings are utilized to offer new perspectives where the existing literature lacks insights.

Despite the research question being related to an established firm, New Energy is provided with mandates and autonomy that make it more precise to use New Energy as the focal point of the discussion. This stems from the understanding that for Wilhelmsen to become more sustainable, the network's operations must align with the goals and vision of New Energy. Therefore, the following section will discuss how New Energy can leverage the network. In this setting, the word "leverage" will specifically emphasize how New Energy can achieve the objectives of shaping the maritime industry and help Wilhelmsen to become more sustainable, by facilitating collaboration and synergies in the network.

6.1 Open Innovation

As this thesis focuses on how an established firm can leverage an organizational setup for open innovation, it is beneficial to discuss whether the characteristics of New Energy's setup and working methods align with the literature. Therefore, the first part of the discussion will shed light on the interplay between New Energy's practices and existing literature on open innovation. The following discussion analyzes how New Energy's setup and working methods align with elements from the literature. Three central themes are presented in this section, as these encompass important elements from the open innovation literature that were highlighted in the Findings chapter.

6.1.1 Bridging Internal and External Knowledge Flows

Several authors within the field of open innovation argue that companies should open company barriers and purposively manage knowledge flows to achieve competitive advantage

(Chesbrough & Appleyard, 2007; Chesbrough & Bogers, 2014; Chesbrough et al., 2006). Chesbrough and Bogers (2014) address that it exists three directions of knowledge flows; outside-in (inbound), inside-out (outbound), and coupled open innovation. New Energy arguably operates with coupled knowledge flows in its efforts to adopt an open approach. In the findings, this is exemplified by how New Energy obtains resources both internally from various companies in Wilhelmsen and externally from actors in the network. The coupled flows enable New Energy to access resources from both inflows and outflows of information from both internal and external actors. New Energy's dual focus further enables the company to access a wide range of knowledge, beneficial in its efforts to leverage the network.

New Energy's efforts to combine external and internal resources can be related to the literature on open innovation. Seran and Bez (2021) argue that the extent to which internal business units engage and collaborate with startups can impact the success of attracting and applying start-up technology. As such, companies operating with an open approach depend on the organization's ability to effectively identify and apply external knowledge. As New Energy has a dual focus, the company recognizes the importance of involving internal units in Wilhelmsen to properly benefit from forming external ties through a network. For example, New Energy facilitates joint projects where Wilhelmsen and subsidiaries collaborate. As such, New Energy's attempts to engage internal business units to work with startups have similarities with the open innovation literature.

The open innovation process usually includes connecting the front-end and back-end of the innovation process. This can be challenging due to potential internal rivalry that can impede knowledge sharing and openness, which are essential to drive the innovation potential of startups. Further, factors such as trust and cultural compatibility between the focal firm and the startups influence the organization's ability to effectively apply valuable external knowledge (Seran & Bez, 2021). The findings describe how New Energy aims to leverage Wilhelmsen's existing resources and expertise in the network. Thus, New Energy works to connect the front-end with the back-end of its open innovation process. During the establishment of New Energy, the team experienced skepticism from other business departments within Wilhelmsen, potentially hindering knowledge sharing and openness crucial for startup innovation. Despite the initial skepticism, the New Energy team has observed a growing willingness from internal business units to provide resources. New Energy believes that this is fostered by increased trust, complementary resources, and an innovative culture in Wilhelmsen. For example, there is a growing interest from people in Wilhelmsen that want to take part in the initiative and

contribute to projects in the network. The internal transfer of personnel in Wilhelmsen to the New Energy team and the Executive Vice President's long history in Wilhelmsen arguably led to increased trust from the internal units. As such, New Energy has been conscious of building bridges with Wilhelmsen. Consequently, the business departments in Wilhelmsen acknowledge the value of being a part of the New Energy network. Altogether, New Energy's close connection with Wilhelmsen is crucial in the company's efforts to connect the front-end with the back-end of the open innovation process.

Chesbrough (2019) addresses a common issue related to the senior management of the focal firm when adopting an open approach. The author argues that senior management often has limited time and that opportunities offered through the approach can seem too distant and vague for them to prioritize. In addition, Chesbrough (2019) highlights the benefits of transferring people with a significant history in the focal firm when working with open innovation, as these are better suited to represent the company to external partners. The findings reveal that New Energy has experienced few issues related to limited time and lack of support from the group management team. This is arguably due to the Executive Vice President's unique role and characteristics. The Executive Vice President holds a position in the group management team and can promote and highlight new opportunities coming from New Energy. The leader's distinctive qualities of being a creative, trusting, and motivating individual, in addition to their extensive history in Wilhelmsen, have earned the leader's trust and support from the group management team. This plays a crucial role in New Energy both overcoming internal resistance and accessing external resources from the network. In addition, the findings describe how the strategy team in Wilhelmsen was transferred to New Energy, facilitating a seamless integration of team members who were already familiar with each other and the culture in Wilhelmsen. The people in New Energy influence both team dynamics and the support received from Wilhelmsen. This strategic move was likely significant when fostering favorable team dynamics and processes in line with the literature.

6.1.2 Openness and Information Sharing

A crucial aspect of the open innovation approach is the willingness to share knowledge across company borders (Chesbrough et al., 2006; Chesbrough & Appleyard, 2007; Chesbrough & Bogers, 2014). For companies to share knowledge, the value of being open has to exceed the value of being closed off (Felin & Zenger, 2020). The network structure of New Energy

provides its subsidiaries and partner companies with a sense of belonging and security. This impression arguably improves their willingness to share information, as the risk of being exploited diminishes. In the interviews, New Energy and the subsidiary representatives addressed how they experience a high degree of openness in the network. However, the degree of openness varies depending on the sensitivity of the information that is shared. For example, several of the subsidiaries and companies from the Wilhelmsen group are listed. This means that they have sensitive information which cannot be shared openly. Despite these limitations, the other actors within the network still experience a willingness to be open. The findings indicate that the limitations imposed on listed companies do not hinder their contributions to the network. This is because the information needed from these companies is typically not of a sensitive character. However, the New Energy team is aware of how sensitive information can limit the degree of openness in the network. As a response, the team works consciously to promote openness and knowledge sharing.

The degree of openness in the network varies depending on the relationships between the actors. Partnerships in the network are described as being more formal and less hierarchical, which impacts communication and the degree of openness between the network actors. In addition, the actors involved might have different incentives when it comes to contributing information, as some of the actors might profit more from the information than others. The network aims to promote open innovation for the green transition in the maritime industry. However, some companies in the network may not be fully committed to this transition, which can affect their willingness to share their expertise. Still, both the New Energy team and the subsidiary representatives address how interactions in the network are more informal and collegial than external collaborations, thus leading to increased openness. Altogether, the findings reveal that the New Energy team believes that the openness in the network is sufficient for the actors to share necessary information to leverage the network.

Felin and Zenger (2020) argue that the relevance of being open might not exceed the value of focusing on existing operations. Further, network actors can experience collaboration with other actors to be too complex and resource intensive (Dahlander & Gann, 2010; Dahlander et al., 2021). Although the New Energy team wishes to facilitate and promote sharing in the network, they do not believe in forcing the actors to share information. As such, New Energy's approach is dependent on the network actors recognizing the value of being open. Hence, the knowledge flows in the network are highly dependent on the actors' values and attitudes toward openness. The findings highlight how several of the subsidiary representatives understand the

greater value of being open in the network. However, one subsidiary representative addressed the issue of others not seeing the value of their contributions, given the complexity of their expertise. One of the subsidiary representatives highlighted how the most pressing challenges for a network member might take away from its capacity to be open. Other challenges being more pressing for a subsidiary can in turn affect whether the company chooses to be involved in a collaborative project or not. However, when the most pressing challenges coincide with available resources in the network, the open approach might seem more appealing. Therefore, the network actors' attitude toward information sharing, and their common challenges, have a major influence on New Energy's ability to leverage the network.

6.1.3 Facilitating Open Innovation

Chesbrough and Bogers' (2014) definition of open innovation involves purposefully managed knowledge flows, inside and outside a company's boundaries. As facilitators, the New Energy team connects and influences actors to foster collaborations that can lead to industrial synergies. The New Energy team contributes by managing knowledge flows across the network. However, due to limited time, the team encourages network members to communicate and collaborate directly. The New Energy team initiates contact and inspires network members to recognize the range of opportunities within the network. As mentioned, the network members have the autonomy to act on highlighted opportunities, fostering a shared responsibility for managing knowledge flows and driving open innovation.

The findings on New Energy's investment strategy support arguments from the literature on open innovation. Felin and Zenger (2020) highlight the importance of being firm-specific when adopting an open innovation approach. The findings reveal that New Energy invests in companies compatible with its existing operations. The investment strategy is firm-specific in that it focuses on investing in companies from value chains complementary to Wilhelmsen's existing operations. For instance, New Energy invests in companies that can make use of Wilhelmsen's infrastructure, and properties that can be repurposed when fossil fuel-related operations subside. In addition, the investment strategy being firm-specific arguably increases the likelihood of network actors seeing the relevance of collaborating. This firm-specific investment approach aligns with the open innovation literature.

As of today, New Energy's network consists of a wide range of actors. The disadvantages of this are a risk of the network members not seeing the relevance of collaborating and not being

able to grasp the scope of the network. For example, the findings revealed that subsidiaries that work with technology may feel that they do not fit into the portfolio and that the other companies in the network do not see the relevance of their technology. To foster greater understanding among the network actors, New Energy organizes gatherings. Several of the subsidiary representatives highlighted how they do not think that the gatherings are sufficient to start collaborating with other actors. This is because they believe that developing connections and finding overlapping areas of interest takes time. However, they addressed how the gatherings are useful in minimizing the threshold of reaching out to the companies in the network. It is relevant to note that New Energy is currently in an early phase, which implies that the network members may find it more challenging to establish connections at this stage. Altogether, the gatherings seem to contribute to New Energy's effort to foster collaboration and drive innovation in the network.

The findings shed light on how team members in New Energy adopt multifaceted roles to foster innovation. This is an aspect that is not extensively addressed in the literature, but the findings indicate that the complexity of the teams' roles can affect network dynamics. The team members function as board members, advisers, and project members, providing New Energy with comprehensive knowledge and insights. This enables the team to address collaborative opportunities in the network. However, the complexity of the roles can impede the open innovation process, as the roles encompass conflicting dimensions. As board members, team members can exert control over subsidiaries, limiting their autonomy and innovation. As participants in inter-organizational projects, the team avoids being project managers, as this can conflict with their responsibilities as board members. To address this potential conflict, the team emphasizes the importance of subsidiary autonomy and leadership in projects to foster innovation within the network. Preserving subsidiary autonomy ensures that they can seize opportunities whenever they appear, without New Energy's involvement. The different roles can arguably affect the perception of the New Energy team, which can make it difficult for the subsidiaries to efficiently use the team as a resource. Not knowing how to utilize the team can also limit collaboration in the network, which makes the process of leveraging the network more challenging for New Energy.

As mentioned, Seran and Bez (2021) argue that intra-organizational factors such as trust and culture compatibility influence the organization's ability to apply external knowledge. The findings highlight New Energy's efforts to shape the network culture as a critical factor in leveraging its potential. As facilitators, the team seeks to foster a collaborative culture by

promoting factors such as openness, trust, and safety. In addition, the team has a pragmatic attitude toward failure, which they communicate to the network members. By communicating this, the team hopes for the network actors to engage in innovative activities and collaborations. However, the extent to which the New Energy team can influence the culture is a subject for discussion. Shaping a network culture is a challenging task that requires an alignment of interests among the actors. Therefore, the team's influence on the culture is limited by the need to include actors in the network who share similar interests and values. The team acknowledges the importance of allowing actors to work autonomously, which further limits their control over the culture. Nevertheless, the findings reveal that the actors experience an innovative culture in the network that can contribute to New Energy's efforts to leverage the network.

Altogether, New Energy has several characteristics aligning with the open innovation literature. The characteristics encompass how the team works with external and internal actors, the degree of openness in the network, and how New Energy works to facilitate innovation. Together, these characteristics influence how New Energy can leverage its network.

6.2 Organizational Setup

The last part of the discussion will consider New Energy's organizational setup. The focus will be on uncovering aspects of New Energy's setup that coincide and differ from the literature. As the findings have described the setup as a network, it would have been natural to consider the literature on strategic networks. However, while several examples from the innovation literature were reviewed, corporate venture capital (Chesbrough, 2002; Chemmanur et al., 2014; Drover et al., 2017) and innovation at the edge (Hagel et al., 2019) were found to be most relevant.

The following discussion analyzes how New Energy fits with five selected themes. The five themes have been chosen based on the five key characteristics for innovation at the edge in Table 1. This was chosen as the findings indicate that New Energy's organizational setup coincides most with innovation at the edge. However, the themes have been expanded somewhat to also include specific areas from the CVC literature that appear relevant in the findings. The comparative analysis, focused on New Energy's setup, therefore helps to identify unique elements and aspects that coincide with the literature.

6.2.1 Organizational Structure

The first theme is the structure of New Energy's organizational setup. This is an area where literature on CVC and innovation at the edge deviates. CVCs operate as independent subsidiaries of their incumbent firm (Chemmanur et al., 2014), whereas edge initiatives operate at the edge of the core organization, inside the company borders (Hagel et al., 2019).

As New Energy is structured as a separate company, it can be argued that New Energy coincides with the CVC approach. However, one can also draw comparisons between New Energy's structure and innovation at the edge. In line with the first key concept in Table 1, New Energy can be considered an edge, while Wilhelmsen represents the core (Nagji & Tuff, 2012). This can be justified by the fact that New Energy is an innovative initiative that takes place somewhat alongside the traditional operations in Wilhelmsen. The New Energy team perceives their role as "the lubricant in the machinery," leading the overall sustainability efforts of Wilhelmsen. Hence, New Energy may have the potential to transform the core, in line with the literature. The alignment with the edge structure depends on whether New Energy can be considered an internal part of Wilhelmsen or not. New Energy is organized as a separate company and operates with autonomy, which creates a distance from Wilhelmsen. However, New Energy can be considered an internal part of Wilhelmsen, as the company is closely connected with the group. The findings reveal that the New Energy team experiences a collegial culture with Wilhelmsen, strengthening their connection. As New Energy can be considered an internal part of Wilhelmsen, New Energy's structure aligns with edge literature.

As Hagel et al. (2019) argue that edges should pursue radical and transformational innovation, it can be discussed whether New Energy can be considered an edge or not. The findings show how New Energy operates in existing, adjacent, and new markets, as the company has subsidiaries in both new and existing value chains. New Energy also has new and traditional assets, which indicates that New Energy is not a purely transformational initiative. However, as this thesis includes adjacent initiatives in the edge definition, New Energy can be considered an edge in this setting.

The first key concept in Table 1 also involves some important strategic aspects of the edge structure. Examples are avoiding cannibalization of the core and aligning with long-term disruptive market shifts. On the one hand, there is a risk of cannibalization, as New Energy operates in the same industry as Wilhelmsen, and their investments are firm-specific. On the other hand, New Energy operates in other areas of the maritime industry than the traditional

areas in Wilhelmsen do, thus avoiding cannibalization. The idea is nevertheless that New Energy's operations should not replace traditional operations, but rather that these operations should move in the same direction as New Energy over time. This is illustrated by the "jump the curve" strategy, where New Energy seeks to transform traditional subsidiaries to become more sustainable. New Energy is also aligned with long-term disruptive market shifts that have caused an increased focus on sustainability and innovation. Hence, several of New Energy's structural characteristics are in line with both CVC and edge literature.

6.2.2 External Focus

The second theme to be considered is New Energy's external focus. CVC and innovation at the edge are approaches that both have an external focus. CVCs invest in ventures to enable the incumbent firm to access external sources of innovation and improve its internal innovation process (Chesbrough, 2002). The second key concept of innovation at the edge in Table 1 also presents the involvement of external partners as an important part of the approach. These external partners typically bring in additional resources, expertise, and capabilities that can be leveraged to enhance the edge-scaling initiatives. The literature suggests that the edge should create an external ecosystem or network to overcome scaling challenges and avoid relying on the core's resources (Hagel et al., 2019).

The findings indicate that New Energy relies heavily on external partners, as the company has created a network to access resources and limit the degree to which they are dependent on Wilhelmsen. As a result, New Energy's organizational structure shares similarities with both CVC and innovation at the edge. However, whether all actors in New Energy's network can be considered external partners is not clear, as the network includes companies partly or fully owned by New Energy. New Energy considerations of subsidiaries as internal or external actors may vary depending on ownership fraction. In addition, several of the subsidiaries are highly dependent on New Energy for capital and resources, strengthening their connection. Nevertheless, New Energy wants the subsidiaries to have autonomy and operate independently, even if New Energy functions as an owner. Hence, it is unclear whether subsidiaries are considered external or internal actors.

A key feature of the edge approach is that the edge is given autonomy from the core's practices to seek external resources (Hagel et al., 2019). CVCs also experience autonomy from their parent companies, being organized as a subsidiary (Chemmanur et al., 2014). As mentioned,

the findings show how New Energy works autonomously from Wilhelmsen, exemplified by its status as a separate company. This enables New Energy to make autonomous decisions aligned with its interests, leveraging its independent status while fostering collaboration with Wilhelmsen and subsidiaries when beneficial. These characteristics coincide with both the edge and CVC approaches.

6.2.3 Capital Restrictions

The third theme to be discussed is New Energy's capital restrictions, which is an aspect where the literature on CVC and innovation at the edge deviates. Table 1 presented starving the edge as the third key concept for edge initiatives. Innovation at the edge is anchored in supportive management. However, the management should provide the edge with minimal resources for the edge team to be self-reliant and engage external resources, so-called starving the edge (Hagel et al., 2019). The findings show that the initiative to create New Energy received robust support from the group management team. The findings also suggest that New Energy is starved of resources by Wilhelmsen, as New Energy has received a set amount of capital. Wilhelmsen also encourages New Energy to engage external participants and resources from the network. All these aspects are in line with the literature on innovation at the edge (Hagel et al., 2019). However, it is reasonable to discuss whether New Energy is starved or not. Although team members describe a fight for capital internally, New Energy still receives a substantial amount of capital, enabling the team to invest in companies. In addition, New Energy receives help and resources from its parent company when needed. Hence, it is reasonable to argue that New Energy is not starved. Additionally, the Executive Vice President of New Energy holds a position in the group management team, thus having the opportunity to influence Wilhelmsen's wish to support New Energy. Therefore, New Energy has both coinciding and deviating characteristics with the edge approach related to capital restrictions.

As explained, New Energy has some financial limitations imposed by Wilhelmsen. This resembles the VC practice more than the CVC practice, as VCs usually are constricted by initial capital provided by their limited partners (Chemmanur et al., 2014). This coincides with edge literature, as Hagel et al. (2019) recommend using a standard VC approach for edge initiatives. The findings describe how Wilhelmsen has provided New Energy with a fixed amount of 500 million dollars. The New Energy team experiences support and trust from the management in Wilhelmsen, but they are open about having a pragmatic attitude toward investing in new ventures, as their access to capital is somewhat limited. This implies that New Energy cannot

afford to squander its financial resources, which suggests that New Energy deviates from CVC literature in this context. However, whether the capital provided can be considered limited depends on the contextual factors relative to New Energy's investment objectives.

6.2.4 Strategic Objectives and Performance Measurement

The fourth theme to be discussed is New Energy's strategic objectives and performance measurements. While the literature on CVCs is more concerned with how the financial and strategic objectives are combined, edge literature has an emphasis on how the edge should measure its performance. The following section will highlight how the different literature areas have a somewhat deviating focus regarding objectives.

CVCs usually pursue both the strategic and financial objectives of the parent company (Chemmanur et al., 2014). New Energy arguably demonstrates this duality, as one of New Energy's objectives is to contribute to Wilhelmsen's sustainability agenda. In addition, New Energy strives to contribute to shaping the maritime industry. However, New Energy is conscious about using the capital provided by Wilhelmsen and states that the New Energy team cannot invest in companies without ensuring profitability. This in turn affects New Energy's investment strategy and its portfolio. The literature on CVC addresses how the practice usually involves searching for new investment opportunities that align with the parent company's business objectives (Chesbrough, 2002; Drover et al., 2017). New Energy invests in a variety of companies of different maturity, of which the majority are growth-stage companies. This aligns with the literature on CVC.

The fourth edge key concept in Table 1 emphasizes how an edge should measure performance. Hagel et al. (2019) argue that the edge should develop both short and long term objectives. In addition to measuring these objectives, the edge should measure its external network. However, traditional KPIs related to revenue and costs should not be used (Meyer et al., 2022; Hagel et al., 2019). The findings show how New Energy chose not to use ordinary KPIs, as it is perceived as limiting the company's innovative efforts. Apart from this, the findings have little information about whether New Energy uses alternative ways of measuring performance. In line with the edge approach, New Energy has long-term objectives. For example, they work to build new value chains and invest in startups with a long time frame. New Energy also has short-term objectives, exemplified by wanting to win customer propositions and bidding

rounds for offshore wind projects. This also shows that New Energy has set targets for actors in the network, which indicates that New Energy shares similarities with the edge approach.

6.2.5 People and Roles

The last theme is related to the people working in New Energy. The fifth key concept on innovation at the edge in Table 1 highlights the importance of a “change agent” sponsor. This is an influential individual at the executive level who demonstrates courage to challenge the status quo and drive fundamental transformation within the organization. When comparing the literature with New Energy, one can identify the Executive Vice President as an obvious “change agent.” With a role in both New Energy and the group management team, and a personality that is described as committed and confident, the leader has an important role in New Energy’s innovative projects.

Further, the fifth key concept of the edge approach in Table 1 emphasizes hiring passion over skills. In line with edge literature, New Energy has identified passionate workers with a questing disposition, meaning that they are curious and eager to learn. In addition, the team members have a connecting disposition, wanting to connect and collaborate with new industry partners. The findings illustrate how the New Energy team consists of individuals with a high degree of commitment, motivation, and satisfaction in working together. New Energy is actively creating an enjoyable work environment with a close team, emphasizing the recruitment of “extroverted nerds.” It can therefore be argued that how New Energy selects people working in the team aligns with edge literature. However, New Energy deviates from this perspective by prioritizing acquiring both passion and skills in its recruitment process. As facilitators of the network, New Energy has a complex role in promoting collaboration and assisting in business-related challenges. This necessitates possessing the appropriate capabilities, such as shipping, consulting, and M&A experience. While the edge literature lacks comprehensive coverage in this area, New Energy recognizes that passion and skills both are important. Hence, New Energy deviates somewhat from edge literature and shows unique features by emphasizing the team members’ skills equal to their passion.

The findings describe how New Energy is a small team of five people. Having a small team is in line with edge literature and enables close collaboration and agile working methods. Even though the team’s size is more linked to the organizational structure, the team members play a vital role in enabling New Energy to leverage the network effectively. By working closely

together, the team finds it easier to see collaborative opportunities and deliver high-quality work. In line with edge literature, the findings show how the team structure and the personal characteristics of the team members are beneficial to leverage the network.

The people working in New Energy adopt different roles to support the network members. The literature on the CVC practice addresses how CVCs as subsidiaries can be tempted to use the parent company's expertise to exploit the startup they invest in, rather than support it (Chemmanur et al., 2014). Contrarily, VCs are known to support the companies they invest in because of their financial incentives, for example by helping them initiate collaborations with other portfolio companies (Chemmanur et al., 2014; Lindsey, 2008). In addition, CVCs usually do not want to hold board positions to avoid conflict between their interest and responsibilities (Katila et al., 2008). New Energy arguably aligns more with the VC approach in this regard, as the findings reveal how New Energy works to help the network members succeed by fostering collaboration in the network. Although New Energy's objectives are not purely financial, the company believes that supporting its network members is for the greater good of the network. In addition, the team members in New Energy function as board members in their subsidiaries, and actively manage potential conflicts related to their roles. Altogether, the New Energy team members' roles align more with the VC literature.

In summary, New Energy's organizational setup combines elements of corporate venture capital and innovation at the edge, which are not mutually exclusive but rather complementary. This combination creates a unique setup for open innovation. However, the discussion reveals that New Energy aligns more closely with the edge approach. The organizational structure, external focus, capital constraints, and performance measurements all coincide with the edge approach. Additionally, New Energy possesses unique features, primarily related to the people working in the company. The emphasis on passion and skills, the diverse roles of the team members, the role and traits of the Executive Vice President, and the concept of transferring an entire team from the established firm to the innovative initiative are particularly noteworthy.

7 Final Remarks

This final section provides a summary of the thesis, emphasizing the findings related to relevant literature. Following this, a discussion regarding the limitations of the research project and suggestions for future research are presented.

7.1 Conclusion

Established firms often face challenges in effectively utilizing innovation to navigate changes in their environment. The adoption of an innovative approach in such situations typically requires significant investments, time, and resources, while outcomes remain uncertain. Moreover, established firms may perceive these innovative approaches as potential threats to their existing operations. Nevertheless, there exist various strategies that established firms can employ to address disruptive market changes and embrace innovative practices.

The purpose of this master's thesis was to explore the research question: *How can an established firm leverage an organizational setup for open innovation, in order to become more sustainable?* Thus, the thesis aimed to contribute to, and lay a foundation for, theory on how established firms can use an open innovation approach to meet changes in their environment. To answer the research question, the study was conducted as a case study, investigating New Energy, the subsidiary of Wilhelmsen. To gain an in-depth understanding of the research question and case context, interviews with the five team members in New Energy and three subsidiary representatives were conducted, and secondary data was analyzed.

The existing literature covering open innovation was reviewed along with the theories on corporate venture capital and innovation at the edge, to gain a greater understanding of the findings. It was determined that these theories were suitable for framing and understanding the dynamics and structure of New Energy's organizational setup.

The thesis provides valuable insights into how New Energy was established as an open innovation initiative. Through its network, New Energy has opened its company borders and is actively working to access resources from both internal and external actors. New Energy effectively balances an external focus, engaging in resource and knowledge exploration in the network, while also using the resources and broad knowledge of Wilhelmsen internally. Bringing these two focuses together into the network presents a unique opportunity to leverage a diverse range of resources. The purpose of accessing a wide range of resources is to foster industrial synergies and collaborations that collectively will contribute to shaping the maritime

industry. By leveraging the network in this way, New Energy actively contributes to Wilhelmsen's sustainable transformation. The study also found that the dual focus may contribute to reducing resistance from Wilhelmsen and establishing valuable relationships with external partners.

Through its strategic initiatives, New Energy has fostered a comprehensive network encompassing the New Energy team, Wilhelmsen, subsidiaries, and partner companies. The findings indicate similarities between the theoretical frameworks and the observed practices within New Energy. While there are several similarities to the CVC practice, the discussion showed that New Energy has the most common features with innovation at the edge. For example, New Energy working on the side of Wilhelmsen's traditional operations and the engagement with the network coincides with the edge approach. Also, New Energy's capital restrictions, objectives, and performance measurements are commonly used in innovation at the edge. The findings also highlight some unique features of New Energy's structure that deviate from or have received limited coverage in the existing edge literature.

The findings highlight the importance of the New Energy team, revealing that the team's size, competencies, personalities, and composition are crucial in leveraging the network. The team's small size fosters close collaboration and effective team dynamics, and the team members' unique approach to employing multifaceted roles enables New Energy to access a wide range of valuable resources. Moreover, the team's internal transfer from Wilhelmsen also made the establishment of New Energy more efficient, which seems beneficial to the innovation agenda. The unique feature of comprising passionate and innovative people who also have the desired skills seems to be advantageous for leveraging the network. The significance of the Executive Vice President's role also emerges as crucial. With a long history in Wilhelmsen and a position in the group management team, the Executive Vice President contributes to New Energy receiving increased support and resources. The leader's personal qualities and character traits foster commitment and innovation and enable New Energy to tackle potential resistance. As such, the team and the leader are crucial in leveraging the network to its potential.

Although New Energy is still in an early phase, the interviews show that the team has great faith in the innovative company. As several of the subsidiaries and projects have a long-time frame before becoming profitable, it is still too early to point to concrete results of New Energy's investments and work to create synergies. Despite this, the research has highlighted

how an established firm can leverage an organizational setup for open innovation, in order to become more sustainable.

This thesis has the potential to contribute to both theory and practice in several ways. For example, it provides insights into the unique features of New Energy's network and innovative working methods. Moreover, it illustrates how established firms can create networks and utilize innovative approaches to navigate changing business environments. However, there are still many unexplored aspects of how an established firm can leverage an organizational setup for open innovation. Researchers are encouraged to build on the foundation of this thesis to further investigate New Energy's unique approach to innovation.

7.2 Limitations

The thesis has some limitations that should be addressed. Firstly, the thesis only examines one single case company and its network in the maritime industry, which makes it more challenging to apply the research findings to different contexts. However, as explained in the Methodology chapter, the focus of the thesis is mainly to develop theory and a foundation for future research, not to test existing theory. Consequently, the specific context and methodology have been clarified in detail to enable the readers to judge for themselves if the findings can be transferred to other contexts. Nevertheless, to make future research more robust, it would be beneficial to investigate different cases and industries through a multiple-case study.

Secondly, innovation at the edge is a relatively unexplored academic topic, and the sub-chapter dealing with innovation at the edge is primarily based on reports from the Deloitte Center for the Edge. Rather than reproducing and explaining the theory, the focus has therefore been to describe key concepts and how one should establish innovation at the edge. This may constitute a limitation, as it can make it more challenging to compare the findings to different studies.

Thirdly, the researchers have only chosen to examine a certain number of theories about innovation in the Literature Review chapter. As the thesis aims to investigate how New Energy leverages an organizational setup for innovation, it could be beneficial to investigate a larger selection of theories about innovation. Several other well-known theories deal with how companies can work with innovation, for example, strategic networks, ambidexterity, agility, and spin-offs. For future research, it would be relevant to examine an even larger selection of literature on innovation.

Fourthly, due to time and capacity considerations, interviews have not been conducted with partners or with representatives from Wilhelmsen. Therefore, the findings do not go into much detail about how New Energy works with partnerships. The section dealing with Wilhelmsen is also somewhat short, causing potential nuances and details to be absent, which possibly might affect the totality of the context. This can therefore constitute a limitation. In addition, understanding how the New Energy team works has been the biggest focus of the research, and the section dealing with how the other actors in the network collaborate is therefore not as long as the remaining parts of the findings.

Lastly, the fact that the contact person in New Energy assisted in finding informants in the subsidiaries may constitute a limitation. As a representative of the parent company, the contact person functions as a leader toward the subsidiaries. The initial contact and request for interviews were made by the contact person. This means that the informants from the subsidiaries were aware that the contact person knew that they would be interviewed. Although the informants' statements have been anonymized, and the researchers have spoken to several people from various subsidiaries, it is conceivable that the informants have refrained from telling information they do not want to be linked to them. Such information could be valuable for the thesis, and the situation, therefore, constitutes a possible limitation. As described in the methodology chapter, the researchers have tried to create a safe interview situation to receive as much valuable information as possible from the informants.

7.3 Future Research

This thesis has answered the following research question: *“How can an established firm leverage an organizational setup for open innovation, in order to become more sustainable?”* Although it is an interesting area to investigate, and the findings have been valuable, several other areas of the case are possible to study more in-depth. This thesis provides a broad focus on the organizational setup of New Energy, and therefore future research can provide insights into more narrow areas of the case. For example, internal reactions and resistance from Wilhelmsen when establishing New Energy is a possible area to investigate. Another possibility is to have a deeper focus on key characteristics related to leadership or teams. These are therefore suggestions for future research.

The findings in this thesis concern a specific case of how an established firm leverages an organizational setup in the maritime industry. Even though New Energy has several

connections to foreign parts of the industry, the company primarily operates in the maritime industry in Norway with Norwegian subsidiaries and partners. New Energy also has complementary knowledge to most of its subsidiaries and partners. One possibility is therefore that aspects that are specific to culture and industry may influence the interactions between the companies. Future studies on similar cases outside the specific context might therefore be beneficial to investigate.

As described, the approach New Energy uses has several similarities with the existing academic literature on innovation, with some exceptions. A limitation of this thesis is therefore that only a specific number of theories for innovation have been examined. In future research, it can therefore be possible to investigate other innovation theories, so that the basis for comparison becomes greater.

This thesis has only dealt with a snapshot in time when studying New Energy, making it a cross-sectional case study. For future research, one interesting approach could be to conduct a longitudinal case study, following a case over a given period. In this way, it will be possible to study effects, changes, and development, and the type of study may also provide more control over the variables being studied. Interesting approaches for future studies could therefore be to follow innovative companies in other industries over a specific period. Another possibility could be to conduct a new study of New Energy. New Energy is still in an early phase and cannot yet show many tangible results in terms of innovation. This is mainly because many of the innovative projects and investments have a long time frame. As discussed in the thesis, New Energy has long-term plans and goals for what they want to achieve. A possible future study could therefore be to investigate New Energy's future innovation results.

8 References

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9 Appendix

9.1 Appendix A – Interview Guide

Kindly note that Appendix A is the original version of the interview guide, which was later developed following the initial interviews. This enabled the researchers to examine key themes more closely and explore phenomena that emerged during the first interviews.

Rolle og bakgrunn:

- Kan du fortelle kort om din nåværende rolle og bakgrunn?
- Kan du fortelle kort om [New Energy/datterselskapet] og hva dere jobber med?

New Energy-nettverket

- Kan du beskrive hvordan New Energy sitt nettverk er organisert?
- Hvordan oppfatter du målet og visjonen til New Energy?
- Hvordan ser du for deg at New Energy vil utvikle seg i fremtiden?

Spørsmål til medlemmer av New Energy:

Bakgrunn:

- Kan du fortelle om hvorfor New Energy er organisert slik det er?
- Ble det vurdert alternative måter å strukturere New Energy og nettverket på?
- Kan du fortelle om den overordnede strategien til New Energy?
- Hva var motivasjonen din for å starte i New Energy-teamet?

Nettverk-, portefølje- og investeringsstrategi

- Kan du fortelle litt om investeringsstrategien til New Energy?
- Hvor mange datterselskap og eksterne partnerskap har New Energy per i dag?
- Hvordan går dere frem når dere skal investere eller inngå partnerskap? Hva vurderes?
- Planlegger dere å fjerne noen selskaper fra porteføljen eller gjøre nye investeringer?
- Hvordan forholder dere dere til feiling?

Team, ledelse og styring:

- Hvordan er teamet i New Energy organisert?
- Hvordan arbeider dere innad i New Energy?
- Hvordan vil du beskrive kulturen i teamet?
- Er du fornøyd med organiseringen og hvordan dere jobber?

Samarbeid:

- Kan du fortelle hvordan dere jobber ut mot datterselskap og eksterne partnere?

- Hvordan jobber dere for å skape samarbeid mellom selskapene i nettverket?
- Skjer det samarbeid mellom datterselskaper som dere ikke er direkte involvert i?
- Har dere oversikt over alt som foregår mellom datterselskapene?
- Hva ønsker dere at samarbeidene skal føre til?
- Har dere utarbeidet retningslinjer for hvordan samarbeid skal fungere?
- Hvordan foregår kompetanseutvekslingen i samarbeid? Er det høy grad av åpenhet?
- Hvordan og hvorfor arrangerer dere ledersamlingene for nettverket?
- Hva er avgjørende elementer når dere inngår samarbeid med eksterne selskaper?

Spørsmål til datterselskap:

Bakgrunn og erfaringer:

- Kan du fortelle om bakgrunnen for at [selskapet] ble en del av Wilhelmsen?
- Hva var deres forventninger knyttet til å skulle bli en del av New Energy?
- Hva har endret seg i [selskapet] etter at dere ble med i New Energy-nettverket?
- Hvordan oppfatter du New Energy-teamet?
- Opplever du at New Energy er aktive eiere?
- Hvordan synes du at kommunikasjonen med New Energy fungerer?
- Hva er fordelene med å være del av New Energy sitt nettverk?
- Er det noe som burde vært annerledes med nettverket eller New Energy-teamet?

Arbeid med New Energy:

- Hvordan og hvor ofte jobber dere med New Energy? Hva består arbeidet i?
- Har [selskapet] jobbet på et prosjekt med noen fra New Energy-teamet?
- Hvordan foregår kommunikasjonen med New Energy-teamet?
- Har dere kontaktet New Energy for å få hjelp med noe? Kan du fortelle om det?
- Har New Energy kontaktet dere får å få hjelp med problemstillinger eller invitert dere til å delta på ulike møter og prosjekter? Kan du fortelle om det?

Samarbeid med porteføljeselskaper:

- Hvordan er erfaringene rundt det å delta på New Energy-samlingene?
- Samarbeider [selskapet] med noen av New Energy sine porteføljeselskaper? Hvilke?
- Hvorfor samarbeider dere? Hva får dere ut av samarbeidene?
- Har dere utarbeidet retningslinjer eller regler for hvordan samarbeidet skal fungere?
- Har dere opplevd utfordringer med å samarbeide med andre porteføljeselskaper?
- Er det stor grad av åpenhet? Hvor transparente er dere med andre i nettverket?
- Er New Energy alltid involvert når dere samarbeider med andre porteføljeselskaper?
- Samarbeider dere med selskaper som ikke er med i New Energy-nettverket?

Avslutning:

- Er det noe du vil legge til som vi ikke har pratet om?

9.2 Appendix B – Secondary Data Sources

#	Secondary Data Sources
4	Wilhelmsen. (n.d.-a). <i>New Energy</i> . Wilhelmsen.com. https://www.wilhelmsen.com/new-energy/
5.1	Wilhelmsen. (n.d.-b). <i>About Wilhelmsen</i> . Wilhelmsen.com. https://www.wilhelmsen.com/about-wilhelmsen/
5.2	Wilhelmsen. (n.d.-c). Sustainability report 2017. Wilhelmsen.com. https://www.wilhelmsen.com/investors/reports-and-presentations/sustainability-report2017/innovation/
5.3	Wilhelmsen. (n.d.-d). <i>Group management team</i> . Wilhelmsen.com. https://www.wilhelmsen.com/about-wilhelmsen/governing-elements/board-and-management/group-management-team/
6	Wilhelmsen. (n.d.-e). <i>Annual report 2022</i> . Wilhelmsen.com. https://www.wilhelmsen.com/globalassets/investor-relations/annual-report/WWH-annual-report-2022.pdf
7	Wilhelmsen. (n.d.-f). ESG report 2022. <i>Wilhelmsen.com</i> . https://www.wilhelmsen.com/globalassets/investor-relations/annual-report/wwh_esg-report_2022.pdf
8.1	Segrov, B. (2021, March 24). <i>Analytikerne positive til satsing på fornybar energi</i> . Finansavisen. https://www.finansavisen.no/nyheter/shipping/2021/03/24/7647468/wilhelmsen-med-storsatsing-pa-fornybar-energi
8.2	Howard, G. (2021, March 26). <i>Wilhelmsen unveils new structure and renewable energy ambition</i> . Seatrade Maritime News. https://www.seatrade-maritime.com/ship-operations/wilhelmsen-unveils-new-structure-and-renewable-energy-ambition

Table A1: Secondary Data Sources

9.3 Appendix C – Data Structure

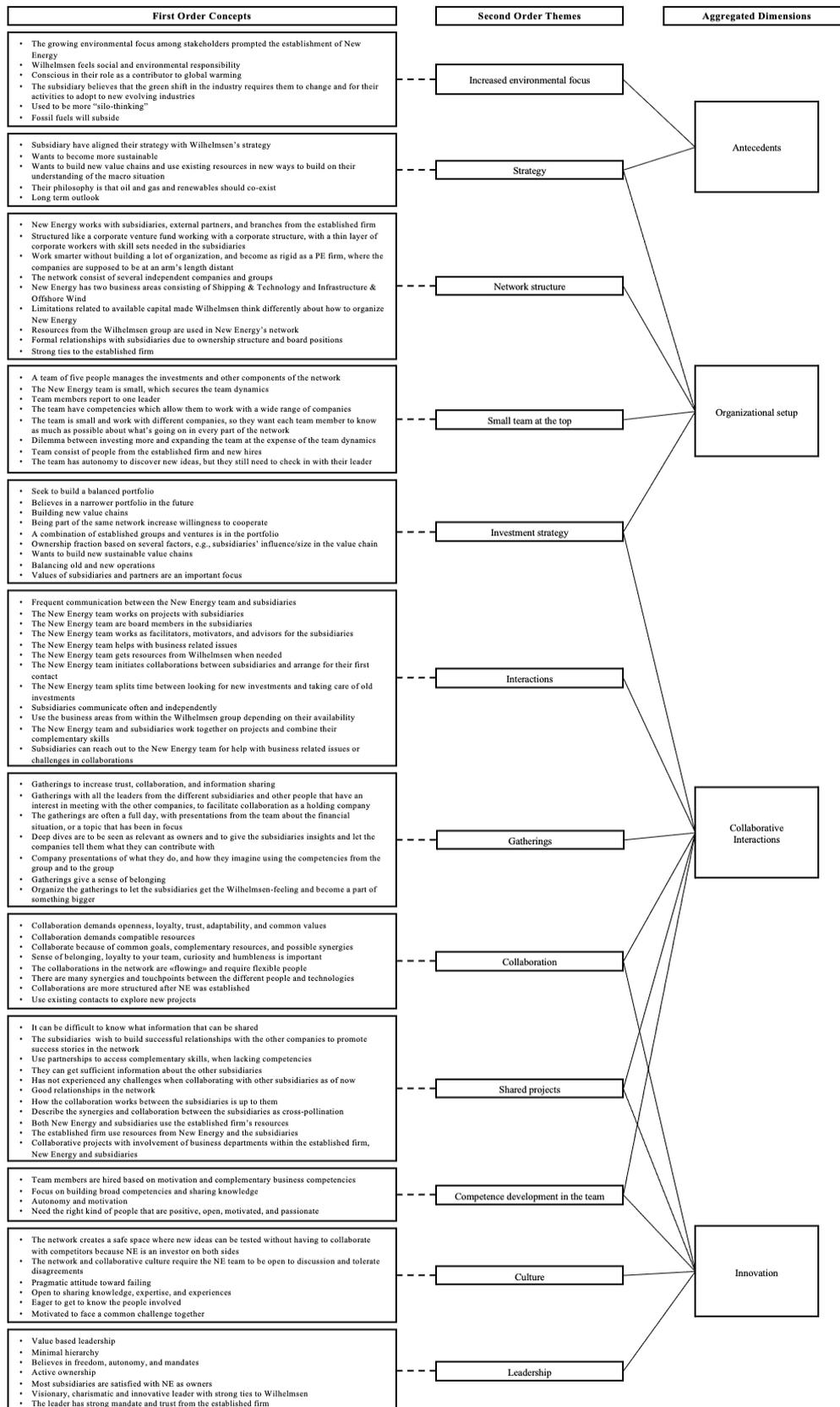


Figure A1: Data Structure

9.4 Appendix D – Informed Consent Form

Informed consent form –Participation in RaCE research program NHH Norwegian School of Economics

Background and aim

This research is a part of the RaCE project at SNF and NHH Norwegian School of Economics. The goal is to examine how established firms respond to and manage radical technology-driven change. We are targeting individuals within established firms that have information on and experience with organizational changes.

What participation in the study entails

We invite you to participate in an interview lasting up to 90 minutes. If you permit, the interview will be recorded and later transcribed. The audio file will be deleted after transcription and the transcribed version will be anonymized.

How is information about you handled?

Personal information will be treated confidentially. Any information that could identify individuals will be removed (e.g. your name). Transcriptions will be allocated a code instead. Name and contact information, including this form, will be kept separate from any interview data. Only persons participating in the RaCE project at NHH/SNF will have access to the anonymized interviews.

Your firm/organization will be anonymized.

The project will be completed in June 2023.

Voluntary participation

Participating in the project is voluntary. You can withdraw at any time without any further explanation. If you choose to withdraw, all information about you and your interview will be deleted.

Should you have questions regarding the research project, please contact Marte Thomsen tlf: (+47) 944 81 749 email: Marte.Thomsen@student.nhh.no or Inger Stensaker (+47) 997 92 127 email: inger.stensaker@nhh.no. Should you have other questions please contact: personvernombud@nhh.no

On behalf of SNF/NHH, Sikt –Kunnskapssektorens tjenesteleverandør has approved the procedures followed by the RaCE research project are in accordance with current rules and regulations for handling data. Sikt can be contacted by email: personverntjenester@sikt.no.

Your rights

As long as you can be identified in the data material, you have the right to:

- Access in which personal information is registered in your name
- To correct personal information about you
- To have personal information about you deleted
- To receive a copy of your personal information (data portability)
- To file a complaint to personvernombudet or Datatilsynet regarding use of personal information on you

What gives us the right to use personal information about you?

By signing this form, you consent to participate in the study.

Informed consent form:

I have received written information and I am willing to participate in this study.

Signature Date.....

Printed name.....

Please return the signed form ahead of your interview to: marte.thomsen@student.nhh.no or
kristin.hansen@student.nhh.no