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Master Thesis

Sustainable Entrepreneurship

The impact of motivation, prior knowledge and network on sustainable business opportunity recognition



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Abstract

This research aimed to create more knowledge and understanding of the opportunity recognition process for sustainable entrepreneurs in Nordic countries. By validating the two factors proposed by Patzelt and Shepherd's (2011) model, prior knowledge and motivation, and examining the role of new factors such as networks, co-founders' knowledge, and regulations, the authors contributed to a better understanding of how sustainable opportunity recognition works in practice. The findings show that a combination of different types of prior knowledge and altruistic motivations towards the environment plays an essential part in this process. Moreover, networks are a crucial factor in providing entrepreneurs with access to new knowledge and information that can lead to higher changes in sustainable opportunity recognition. Besides adding the factor of networks, this study identified other important factors, such as co-founders' knowledge and regulations. By considering these factors, it is possible to understand better the sustainable opportunity recognition process of entrepreneurs.

Keywords: sustainable entrepreneurship, sustainable opportunity recognition, sustainable entrepreneurship knowledge, motivation sustainable entrepreneurship, sustainable entrepreneurship and networks



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1. Introduction

It has been evidenced in many ways how human activities cause global warming and how greenhouse gas emissions continue to increase the global temperature, for example, due to the current lifestyle of humans and their consumption patterns, as well as unsustainable use of energy, land, and natural resources (IPCC, 2023). These extremely high levels of greenhouse gas emissions are causing global environmental crises and methane concentrations have increased the most since measurements began (World Meteorological Organization, 2022). The overall situation is alarming and proves that it is urgent to act to prevent further global warming. This is why the promotion of sustainability has become a key priority for many individuals, organisations, and governments worldwide. An innovative and promising approach has emerged to create businesses that not only generate profits but also contribute to addressing environmental and social issues – sustainable entrepreneurship.

Opportunity recognition is relevant for sustainable entrepreneurship because it is the first step in creating a successful sustainable business (Corner and Ho, 2010; Hanohov and Baldacchino, 2017; Eller et al., 2020). Entrepreneurs must be able to identify viable business opportunities that align with their values and goals and react to trends such as the growing consumer demand for sustainable goods and services or the increasing number of businesses adopting sustainability initiatives (Todeschini et al., 2017; Terán-Yépez et al., 2020). By studying sustainable entrepreneurship and opportunity recognition, it is possible to gain insights into how entrepreneurs can create businesses that drive environmental, financial and social sustainability. At the same time, this can contribute to solving some of the world's most pressing problems. This knowledge can be used to support and foster sustainable entrepreneurship and promote a more sustainable future which makes sustainability entrepreneurship an exciting and promising field of study.



1.1. Background

The upcoming section provides an overview of the three prominent fields of sustainability, entrepreneurship, and opportunity recognition and explores how they are interrelated. Subsequently, the research gap in this area will be identified which highlights the need for further investigation.

Sustainable Development

Sustainable development is among the most widely discussed and relevant issues of our time. One of the most famous definitions of sustainable development is from The United Nations (1987) Report of the World Commission on Environment and Development: Our Common Future, where it was outlined as “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (The United Nations, 1987¹). In the same report, it was also explained that sustainable development is not a fixed state, but rather a continuously evolving process, that involves aligning resource exploitation, investment strategies, technological advancements and institutional reforms with present and future needs (The United Nations, 1987).

In sustainable development, both environmental concerns and economic development are considered. It refers to an approach of growth that balances economic prosperity with environmental protection and the fulfilment of human social needs. It encompasses three key dimensions of sustainability, often referred to as the triple bottom line of people, planet, and profit, also known as ‘the triple P’ (Dentchev, 2009; Bos-Brouwers, 2009; Choongo et al., 2016). The triple bottom line can be used as a framework that encourages entrepreneurs to take a more holistic approach to their operations and consider the impacts they have on people and the planet, in addition to generating profits, whereas traditionally, entrepreneurship has been focused mainly on generating financial value.

¹ The quote comes from chapter 2 Conclusions. The Report of the World Commission on Environment and Development is using unnumbered pages.



Sustainable Entrepreneurship

Shane and Venkataraman's (2000) definition of entrepreneurship is presented as "opportunities to create future goods and services [which] are discovered, evaluated, and exploited" (p.218). Entrepreneurship has a crucial impact on economic growth and historically, entrepreneurial pursuits have been mainly driven by the desire to generate financial value (Schumpeter, 1934; Vuorio, Puumalainen and Fellnhofer, 2018; Anand et al., 2021). As Diandra (2020) summarised, entrepreneurship has been defined in various ways, with some viewing it as the process of successfully starting and managing an organisation, and others defining it as the development of a mindset and set of skills. Despite these differing perspectives, the final goal of entrepreneurship is to create job opportunities and drive economic development (Diandra, 2020).

Recently, the role of entrepreneurship has evolved to focus not only on financial value creation but also to address environmental and societal issues (Dean and McMullen, 2007; Kramer and Porter, 2011; Vuorio, Puumalainen and Fellnhofer, 2018). Global challenges such as the climate crises and poverty have shifted the focus of entrepreneurship. Integrating social and environmental missions alongside traditional business objectives became more and more important (Anand et al., 2021). Conventional entrepreneurs are different from sustainable entrepreneurs in their way to deal with value creation and in their desire to achieve a wider range of values rather than only economic values (Cohen and Winn, 2007; Dean and McMullen, 2007; Vuorio, Puumalainen and Fellnhofer, 2018). Even though profit generation remains an important aspect of sustainable entrepreneurs, other key objectives, for example, promoting environmental conservation, providing employment, and improving people's quality of life, also play a central role (Hanohov and Baldacchino, 2017; Anand et al., 2021). Sustainable entrepreneurs are seen as crucial in addressing current systemic issues and when it comes to promoting the development of a more sustainable society (Muñoz and Dimov, 2017).



The combination of sustainable development and entrepreneurship has been proposed to drive sustainable change, offering the possibility to create innovative solutions for social and environmental challenges faced by our society (Anand et al., 2021). Entrepreneurs who can recognise opportunities to generate profits while also tackling environmental and social issues are essential for driving the necessary innovation (Cohen and Winn, 2007). Thus, more and more entrepreneurs are taking action as they mitigate their negative impact on the environment and incorporate social and environmental values into their core business plans (Cohen and Winn, 2007; Dean and McMullen, 2007; Anand et al., 2021).

To avoid confusion it is essential to define ‘sustainable’ entrepreneurship more precisely. It is acknowledged that both environmental and social entrepreneurship constitute an integral component of sustainable entrepreneurship, and many definitions of sustainable entrepreneurship overlap with social and environmental entrepreneurship (Shepherd and Patzelt, 2011). It can even be concluded that sustainable serves as a supreme term. An essential distinction that is highlighted for this paper is that “research on social entrepreneurship investigates the development of (noneconomic) gains for individuals or societies, but it does not include sustaining current states of nature, sources of life support, and community” (Shepherd and Patzelt, 2011, p.143). The literature about social entrepreneurship tends to cover the development of social benefits, rather than the preservation of the natural and communal environment as a result of entrepreneurial activity (Patzelt and Shepherd, 2011).

This research is guided by Patzelt and Shepherd’s (2011) definition where sustainable entrepreneurship is defined as “the discovery, creation, and exploitation of opportunities to create future goods and services that sustain the natural and/or communal environment and provide development gain for others” (p.632). Scholars state that entrepreneurial efforts can play a critical role in conserving ecosystems, mitigating climate change, combating environmental degradation and deforestation, enhancing agricultural



practices and freshwater management, and preserving biodiversity (Cohen and Winn, 2007; Dean and McMullen, 2007; Patzelt and Shepherd, 2011). By investigating this aspect, it is possible to research the mechanisms and outcomes of entrepreneurial action in relation to the natural and communal environment. This allows the researchers of this paper to precisely define the research questions and contribute to the existing knowledge on this topic. Hence, the definition focuses on the environmental component.

Entrepreneurship and Opportunity Recognition

Given the significant impact of entrepreneurial activity on our environment, investigating the factors that lead sustainable entrepreneurs to recognise opportunities seems of both practical and theoretical importance. Since by definition, entrepreneurship is the process of identifying and taking advantage of profitable business opportunities (Shane and Venkataraman, 2000), opportunity recognition fulfils a crucial part in the success of entrepreneurs and their ventures – including sustainable entrepreneurs (Hanohov and Baldacchino, 2017). Without the ability to recognise opportunities, entrepreneurs would not be able to create new businesses, bring new products and services to market, or grow existing businesses: “Underlying all entrepreneurship types are entrepreneurial opportunities.” (Vuorio, Puumalainen and Fellnhofer, 2018, p.316)

Accordingly, for entrepreneurship research, opportunity recognition is important as it provides a theoretical foundation for understanding the entrepreneurial process. In this context, the opportunity-based entrepreneurship theory has been put forward in the scientific sphere, providing a framework for understanding and explaining the processes involved in the creation of new ventures. Entrepreneurs are motivated to initiate businesses based on perceived opportunities in the market that they believe can be exploited effectively (Cohen and Winn, 2007). This highlights the importance of recognising opportunities and the role it plays in entrepreneurship.



By studying the ways in which entrepreneurs recognise and evaluate opportunities, researchers can get insights into the factors that lead to entrepreneurial success, as well as the challenges that entrepreneurs face. Then, this information can be used to develop theories and frameworks that can guide future entrepreneurship research, entrepreneurial education, and support programs (Cohen and Winn, 2007; Patzelt and Shepherd, 2011; Hanohov and Baldacchino, 2017). Thus, in understanding the factors in entrepreneurship research, some of the central questions revolve around the drivers and enablers of opportunity recognition, particularly around factors that lead entrepreneurs to identify business opportunities and sustainable business opportunities (Cohen and Winn, 2007; Argade, Salignac and Barkemeyer, 2021).

After elaborating on the background of this research area, the next section introduces the identified problems and research gap, which provides the basis for the current study and contributes to the existing literature.

1.2. Problem Discussion

Research is unanimous that opportunity identification serves as the starting point of the entrepreneurial process (Corner and Ho, 2010; Eller et al., 2020). According to Hanohov and Baldacchino (2017), a significant amount of research has been devoted to the subject of opportunity recognition in entrepreneurship (see e.g. Baron, 2006; Granovetter, 1973; Shane and Venkataraman, 2000; Tang, Kacmar and Busenitz, 2012). However, the area of opportunity recognition in sustainable entrepreneurship, which differs in focus from traditional entrepreneurship, has received comparatively limited attention (Hanohov and Baldacchino, 2017). In line with Eller et al. (2020), “the field of sustainable opportunity identification is still in an early stage” (p.1388) due to the fact that previous studies have mostly examined opportunity identification in general. The literature in this field is scarce and mostly theoretical, primarily consisting of untested proposals and concepts (e.g. Cohen and Winn, 2007; Patzelt and Shepherd, 2011), with only a few



empirical studies available. This leads to a widening divide between the theory of opportunity recognition and empirical research practices to study the phenomenon (Ploum et al., 2018). Furthermore, sustainability opportunities possess “unique features that deserve further attention” (Muñoz and Cohen, 2018, p.312). For instance, according to Patzelt and Shepherd (2011), sustainable entrepreneurial opportunities allow entrepreneurs to both preserve the natural and social environment and provide positive outcomes, including financial gain and growth, for both the entrepreneur and other stakeholders.

By conducting empirical research in practice, it is possible to bridge the gap between theory and practice by gaining a better understanding of how sustainable entrepreneurship works in practice, how sustainable entrepreneurs actually recognise opportunities and create value in the marketplace. This emphasises the significance of further exploring this matter.

The Model of Sustainable Business Opportunity Recognition

Even though Hanohov and Baldacchino (2018) claim that a comprehensive and scientifically supported theoretical framework that can explain the process of identifying sustainable business opportunities does not yet exist, Patzelt and Shepherd (2011) made a significant contribution by laying the theoretical foundation for such a model. Their model of Recognition of Sustainable Development Opportunities focuses on investigating how motivation and prior knowledge are part of sustainable opportunity recognition. It examines motivation consisting of perceived personal threats and altruism as drivers for recognising sustainable opportunities. Also, the model highlights the significance of not only business-related knowledge, such as knowledge of markets and technology but also knowledge of the environment, in enhancing an individual’s ability to identify sustainable opportunities. Over the years, their framework has been explored in various contexts, and different conclusions have been drawn regarding its practical



applicability, demonstrating the ongoing relevance of this area of study (Gray et al., 2014; Choongo et al., 2016; Hanohov and Baldacchino, 2017; Muñoz and Dimov, 2017; Ploum et al., 2018; Eller et al., 2020; Argade, Salignac and Barkemeyer, 2021). It could be said that Patzelt and Shepherd's (2011) research has been highly influential in the field and has been used as a starting point for further research.

While the Patzelt and Shepherd (2011) model provides a valuable framework for understanding sustainable entrepreneurship, there are several limitations that must be acknowledged. Ploum et al. (2018) argue that it is rather a starting point and “remains a very broad and conceptual concept” (p.1584) as well as Munoz and Dimov (2017) who claim that the model needs to be improved. Hanohov and Baldacchino (2017) state that the conceptual model consists “mainly of propositions which are yet to be empirically tested” (p.334). Moreover, the authors of the model themselves argue that the “model is conceptual and requires empirical testing” (p.646). Further research is thus necessary to investigate the appropriateness of the model for explaining the process in various contexts and conditions. To address this question, it is recommended that further research is conducted, for instance, in different countries or sectors (Hanohov and Baldacchino, 2017).

Research in the Nordic Context

The Economist Magazine highlighted in their report in 2011 that one of the most interesting findings of the Global Entrepreneurship Index is that four out of five Nordic countries, including Finland, Sweden, Norway, Denmark, and Iceland, are in the top ten indicating that it is possible to have both thriving enterprises and a large welfare state (Schumpeter, 2011). The latest report, published in 2019, still showed four out of five Nordic countries in the top twelve (Global Entrepreneurship Index, 2019). Furthermore, in a research study by the Global Entrepreneurship and Development Institute (GEDI), the Nordic countries achieve high rankings: The GEDI Institute collects data from 137 countries and provides entrepreneurship and business



statistics on countries' entrepreneurial ecosystems through the Global Entrepreneurship Index (GEI). The index takes into account the resources, infrastructure, attitudes, abilities and aspirations of the local population as well as how each country performs in both the international and domestic context (Global Entrepreneurship Index, 2019). The GEI supports the importance of conducting research in Nordic countries as the index has shown exceptional performance in a global context compared to entrepreneurs from other countries (Global Entrepreneurship Index, 2019). Steigertahl and Mauer (2023) got similar results in their research. According to them, the most promising entrepreneurial talents in Europe come from Nordic countries since these countries have been able to build successful entrepreneurial ecosystems. They state that not only the financial support offered to entrepreneurs in these countries but also the collaboration between the Nordic countries, in which they set common goals and join forces, has led to successful results (Steigertahl and Mauer, 2023).

However, Patzelt and Shepherd's (2011) model of Recognition of Sustainable Development Opportunities has not been researched or explored in the Nordic context. It has previously been tested with a sample of entrepreneurs in different geographic contexts, for instance in Zambia (Choongo et al., 2016), and in Germany (Hanohov and Baldacchino, 2017), but never before in a Nordic context. It is imperative to address this research gap, given the Nordic countries' outstanding performance in the global arena. Moreover, investigating whether the authors' framework applies to other contexts such as the Nordic context could bring more knowledge on how entrepreneurs are recognising opportunities in Nordic countries.

Networks of Entrepreneurs

As previously stated, the model proposed by Patzelt and Shepherd (2011) has limitations due to the exclusion of certain relevant variables, creating a gap in the research. The role of individual networks and their impact on the recognition of entrepreneurial opportunities was identified as another



relevant variable for further investigation (Ozgen and Baron, 2007; Patzelt and Shepherd, 2011). The following section provides details on why networks should be considered as an additional factor.

Opportunity recognition could be defined as a process that takes place at any point in the business life cycle, both before establishment and afterwards (Singh et al., 1999). It has been proven that individual networks have a positive effect on recognising entrepreneurial opportunities and these kinds of sources could for example be mentors, industry networks, professional forums, residential areas, education, or work status (Arenius and Clercq, 2005; Ozgen and Baron, 2007). Furthermore, information holds a major function in opportunity recognition since entrepreneurs should be able to collect, interpret, and apply information, for instance, about different types of industries, markets, technology, and policies. Other people can provide beneficial information for entrepreneurs that can be useful in recognising opportunities for viable new ventures (Ozgen and Baron, 2007).

1.3. Aim of the Study

The study aims to develop further the knowledge about how sustainable entrepreneurs recognise opportunities with the guidance of Patzelt and Shepherd's (2011) Model of Recognition of Sustainable Development Opportunities. The model proposes that for recognising opportunities for sustainable development, opportunity recognition is founded on the basis of two relevant factors: prior knowledge and motivation. As this study uses a qualitative research approach, there is potential to explore additional factors that may influence the opportunity recognition process of sustainable entrepreneurship beyond the two known factors of prior knowledge and motivation. So, this study aims to not only validate the two factors proposed by Patzelt and Shepherd's (2011) model but also to explore the role of networks in the opportunity recognition process. Then, this study will explore whether additional factors are relevant that has not been the focus of research before. Additionally, this study will be conducted in the Nordic



countries, which represent a previously untested geographic context. This will help to build on the current understanding of the opportunity recognition process in the context of sustainable entrepreneurship. The findings can be used by entrepreneurs, policy-makers, and academics who are interested in sustainable entrepreneurship as this provides new, practical insights into how sustainable entrepreneurs discover opportunities and what factors and drivers are sources for such opportunity recognition of sustainable entrepreneurs.

1.4. Research Questions

This study is motivated by the importance of opportunity recognition in sustainable entrepreneurship and the lack of empirical research in this area. Given the constraints of the model by Patzelt and Shepherd (2011) identified in the previous sections, their framework will be utilised as a starting point and subsequently, explored further in another geographic setting – the Nordic countries. Furthermore, the scope of the study will be expanded by considering an additional factor, namely networks, that is relevant to sustainable opportunity identification, going beyond knowledge and motivation. This research study will explore what can be classified as networks in this context and how this factor together with motivation and prior knowledge impacts sustainable opportunity recognition.

Concluding from the problem discussion, the following main research question and two sub-questions are derived:

How are prior knowledge, motivation and networks impacting the opportunity recognition process of sustainable entrepreneurs in Nordic countries?

- What implications for theory are there when adding networks as a factor in sustainable opportunity recognition?
- What other factors are relevant for the opportunity recognition of sustainable entrepreneurs in Nordic countries?



1.5. Research Contribution

To conclude from the problem discussion above, this thesis makes a two-fold contribution: Firstly, it seeks to validate the model by conducting an empirical analysis in the context of Nordic countries, which include Finland, Sweden, Norway, Denmark and Iceland, while putting on the lens of knowledge and motivation. By examining the model in practice, this study aims to contribute new knowledge and practical insights to the extent to which the model holds up to real-world conditions and identify potential areas of agreement or disagreement with the proposed framework. Secondly, it extends the boundaries of the study by Patzelt and Shepherd (2011) by adding another relevant lens; network. Additionally, this study will explore further potential factors that might be relevant in the process of sustainable opportunity recognition. Patzelt and Shepherd (2011) identified several potential avenues for future investigation and acknowledged in their study that “many factors beyond the knowledge and motivation variables” of their model “such as the individuals’ networks [...] may influence individuals’ recognition of sustainable development opportunities” (Patzelt and Shepherd, 2011, p.634). The authors decided to exclude those other factors from their study because “investigating all these factors is beyond the scope” (p.634) of their study. Nevertheless, including other factors brings a more comprehensive picture and a better understanding of entrepreneurial opportunity recognition in the sustainability field. Therefore, these findings contribute to the literature on sustainable entrepreneurship by investigating drivers of sustainable opportunity recognition.

1.6. Research Outline

The introduction chapter is followed by a comprehensive literature review of opportunity recognition in sustainable entrepreneurship, an overview of the model by Patzelt and Shepherd (2011) as well as of the factors of motivation, knowledge and networks. The methodology section describes the strategy,



design, method, and analysis of this research. To achieve the research aim, the study collected empirical data through in-depth qualitative interviews with sustainable entrepreneurs which is presented in the empirical analysis chapter. Here, the results are divided by each factor and hereafter, they are analysed and compared to the existing theory. Finally, the discussion chapter critically examines the findings of this study and elaborates on the research contributions and limitations, providing practical implications for sustainable entrepreneurship in Nordic countries and future research recommendations. At last, the conclusion summarises and reflects on the research process.

2. Literature Review

In this research, opportunity recognition will be used as an umbrella concept (chapter 2.1.). The focus of this literature review will be the three factors that existing research has repeatedly identified as influential in the recognition of sustainable opportunities: prior knowledge, motivation, and network (Shane and Venkataraman, 2000; Ryan and Deci, 2000; Arenius and Clercq, 2005; Choi and Gray, 2008; Klyver, Hindle and Meyer, 2008; Sarma, Attaran and Attaran, 2022). Therefore, prior knowledge will be one of the lenses and is put into the literature context in chapter 2.1.1. The other lens will be motivation and chapter 2.1.2. explains which aspects of motivation play a major role when it comes to sustainable opportunity recognition. The model of Patzelt and Shepherd (2011) is well known in this opportunity recognition research field and explains further why motivation and prior knowledge are crucially important. Henceforth, its relevance and limitations have been justified in chapter 2.2. by reviewing previous studies that used the model. Chapter 2.3. presents the last lens in this research which is also a new variable in the model, the entrepreneurial network. Previous studies have shown that networks are of major importance in opportunity recognition.



This chapter will present the importance of strong and weak ties in networks as well as the networks and culture.

2.1. Sustainable Entrepreneurship and Opportunities

Sustainable entrepreneurship is a rapidly growing field that has gained increasing attention from scholars and practitioners alike. As stated in the introduction, it is a concept that links traditional entrepreneurship with the environment and society (Cohen and Winn, 2007; Terán-Yépez et al., 2020). Sustainable entrepreneurship has evolved from being a subfield within the broader domain of entrepreneurship to an independent and distinct field in its own right (Muñoz and Cohen, 2018). The growing interest in this area has resulted in the development of scientific journals dedicated to the field, for instance, *Sustainability* or the *Greener Management International Journal* (Terán-Yépez et al., 2020). This shift reflects a growing recognition of the importance of entrepreneurial action in promoting sustainability and its potential to generate economic and non-economic gains for entrepreneurs, investors and societies (Patzelt and Shepherd, 2011). The emergence of sustainable entrepreneurship as a research stream is therefore critical in exploring how entrepreneurial action can be used to sustain nature and ecosystems while providing benefits for different stakeholders.

Studying the factors that influence the recognition of sustainable opportunities is crucial in sustainable entrepreneurship (Hanohov and Baldacchino, 2017). Identifying such opportunities and the relevant factors or drivers that lead to opportunity recognition is a key step in creating successful and impactful businesses with positive outcomes. Early research has been able to identify three decisive conditions for entrepreneurial opportunities: market inefficiencies, discovery and invention, as well as changing conditions in social, political, demographic, and economic forces (Drucker, 1985). In 2007, Cohen and Winn expanded this list by introducing additional conditions: changes in the natural environment which includes climate change and resource scarcity, along with their corresponding impact



on society. Furthermore, they proposed that environmental degradation is a result of four natural-based market imperfections, which include inefficient firms, externalities, flawed pricing mechanisms, and lack of perfectly distributed information (Cohen and Winn, 2007; Sarma, Attaran and Attaran, 2022).

Some authors claim that – despite the growing significance of sustainable entrepreneurship –, there appears to be limited research on the topic of sustainable opportunity recognition (Vuorio, Puumalainen and Fellnhofer, 2018; Terán-Yépez et al., 2020; Argade, Salignac and Barkemeyer, 2021; Sarma, Attaran and Attaran, 2022). Instead, the field is “dominated by the narratives and promises of consultants” (Sarma, Attaran and Attaran, 2022, p.2).

Regarding the factors and drivers, previous research has revealed that sustainable opportunity recognition is preceded by critical internal organisational factors such as prior knowledge, and motivation (Patzelt and Shepherd, 2011; Hanohov and Baldacchino, 2017). In regards to motivation, Argade et al. (2021) draw on Schumpeter’s theory which suggests that traditional entrepreneurs are primarily motivated by the creation of financial value, while social entrepreneurs are primarily motivated by sympathy and altruism. Furthermore, research has demonstrated that environmentally related imperfections and market failures represent opportunities for sustainable entrepreneurs (Dean and McMullen, 2007; Sarma, Attaran and Attaran, 2022). Nevertheless, Argade et al. (2021) made an important point when they claimed that research on the influence of individual motivation throughout various stages of the entrepreneurship process is scarce, particularly in the realm of sustainable entrepreneurship.

The next two chapters will put on the lenses of prior knowledge and motivation and explore these two factors that existing research has recognised as having a notable influence on sustainable opportunity recognition.



2.1.1. Prior Knowledge in Opportunity Recognition

It is evident from research that entrepreneurs' existing information, comprising entrepreneurial knowledge, knowledge from previous work experience, and knowledge in specific fields, plays a vital role in identifying potential business opportunities (Shane and Venkataraman, 2000; Shane, 2000; Baron, 2006; Vaghely and Julien, 2010; Sarma, Attaran and Attaran, 2022). People possess different information and knowledge, which are shaped by their life experiences, such as knowledge gained through prior work or education experiences (Shane, 2000; Sarma, Attaran and Attaran, 2022). This prior knowledge plays a key part in enhancing the entrepreneur's ability to comprehend, interpret, and apply new information in unique ways that are difficult for those lacking such prior knowledge (Shane, 2000). Consequently, specific market problems or characteristics and methods of creating particular products or services may only be known to certain individuals at any given time, while others remain unaware (Venkataraman, 1997; Shane, 2000). The discovery process may be driven more by the recognition of knowledge that already exists rather than by the search for needed knowledge (Kirzner, 1997; Shane, 2000).

For the business opportunity discovery, two distinct forms of knowledge can be drawn: first, the knowledge gained through entrepreneurial experience and expertise; and second, the knowledge acquired in a specific field of interest that the entrepreneur possesses (Sigrist, 1999; Ardichvili, Cardozo and Ray, 2003). In the following, these two types are elaborated further.

Entrepreneurial Knowledge

According to research, entrepreneurial knowledge is an essential factor when it comes to opportunity recognition and can be defined as "knowledge of the existence of opportunities and how to exploit them" (Mejri and Umemoto, 2010, p.165). Shane (2000) identified three main prior knowledge dimensions for entrepreneurial opportunity discovery, which are "prior



knowledge of markets, prior knowledge of ways to serve markets, and prior knowledge of customer problems“ (p.452).

Firstly, knowledge about markets can include information about vendor relationships or capital and sales strategies which vary across markets. For example, a professional with prior experience in a specific market segment could provide insights in regards to the potential impact of innovation on that market. Secondly, ways to serve markets involve knowledge about how to create value for customers in a specific market, for instance, how to design, produce, and distribute products or services. Lastly, the dimension of customer problems refers to prior knowledge which helps entrepreneurs to have a better understanding of potential customers' needs and pain points. This knowledge can be gained through, for instance, direct interaction with customers or personal experience or prior employment (Shane, 2000).

In further research, entrepreneurs' cognitive frameworks are added as relevant means of opportunity recognition which is explained by discovering disconnected occurrences between events or trends and identifying patterns within these associations that could indicate potential new products or services (Baron, 2006). Prior knowledge serves as a “fundamental cognitive resource that gives entrepreneurs the insight to synthesise information that facilitates opportunity identification” (Mary George et al., 2016, p.331). Yet new knowledge also plays an essential role as the process of identifying entrepreneurial opportunities involves a learning process, where new knowledge continually arises to address the uncertainties associated with each phase of opportunity development (Dimov, 2007). The process involves dealing with uncertainties and challenges at each stage, and new knowledge emerges as entrepreneurs work to resolve these challenges (Dimov, 2007). In other words, entrepreneurs are continuously learning and adapting as they develop and pursue opportunities.



Knowledge in a Specific Field

The preceding research has focused on uncovering opportunities in a general sense. However, an inquiry into sustainable opportunity recognition necessitates a distinction. Motivated by their passion, entrepreneurs might invest time and effort in self-directed learning to enhance and strengthen their skills in a specific area (Sigrist, 1999; Ardichvili, Cardozo and Ray, 2003). Furthermore, entrepreneurs with industry-specific knowledge and expertise are more likely to recognise opportunities in that field due to their wider range of relevant examples in their memory “which may help facilitate opportunity recognition when stimuli fall within this particular domain” (Mary George et al., 2016, p.335). Hence, individuals’ prior knowledge dimensions enable them to recognise and explore opportunities that meet unfulfilled market needs or demands (Mary George et al., 2016).

Patzelt and Shephard (2011) developed a framework to show that if entrepreneurs already have prior knowledge in the area of the communal and natural environment, they are more likely to recognise sustainable opportunities and thus, to mitigate social or environmental threats through suitable product or service offerings (Sarma, Attaran and Attaran, 2022). For instance, the problem of overfishing has been tackled by an aquacultural scientist who came up with an idea for sustainable fish farming practices that facilitate the restoration of depleted fish populations in the oceans (Hart, 2010). Furthermore, indigenous cultural knowledge has been demonstrated to have the potential for sustaining indigenous cultures (Foley, 2003). Moreover, awareness of environmental threats faced by specific locations can facilitate more sustainable tourism and knowledge specific to particular industries or areas has been conceptualised as a crucial aspect of opportunity recognition (Cole, 2004; Ozgen and Baron, 2007). This demonstrates that knowledge in a specific field enables entrepreneurs to identify sustainable business opportunities within this knowledge field.



To have either a good understanding of the environment or to be skilled with business knowledge is not enough for success in sustainable business ventures. Research showed that it is essential to consider the interplay between these different spheres of knowledge and to have a balance between environmental knowledge and business skills (Patzelt and Shepherd, 2011). Moreover, while prior knowledge is necessary for opportunity recognition, it is not sufficient on its own. Other information from different sources, including education or networks such as social connections, must be integrated to help individuals recognise and create opportunities (Chandra, Styles and Wilkinson, 2009; Mary George et al., 2016).

2.1.2. Motivation in Opportunity Recognition

There is increasing recognition in academic research which highlights the importance of the entrepreneurs' motivation when it comes to sustainability opportunity recognition, beyond traditional business-related goals, where economic motivation plays the main role. This chapter will deepen the understanding of motivational factors that contribute to the opportunity recognition process of sustainable entrepreneurs.

Helping Others and Making the Change

According to Anand (2021), the growing global consciousness surrounding environmental and social issues has had a profound impact on the motivation of entrepreneurs. As such, the core objectives of entrepreneurs have expanded beyond solely business-related goals to encompass a focus on sustainability concerns (Anand et al., 2021). It has been increasingly recognised in academic research that entrepreneurs are making a lot of effort to reduce their negative impacts on the environment. There are a lot of companies that are built on the entrepreneur's motivation and vision to make even a small difference in the world (Choi and Gray, 2008).

Patzelt and Shepherd (2011) deepen the understanding of the motivation in sustainable opportunity recognition. In their research, they state that when



sustainable entrepreneurs recognise opportunities motivation has a major impact on the process. Part of this motivation is the perception of a threat to the natural or communal environment and altruism towards others. People tend to become more motivated to protect and preserve the natural and communal environment when they realise that their physical and psychological well-being is closely connected to the well-being of their environment. This can motivate entrepreneurs to look for sustainable development opportunities that can mitigate those threats and promote well-being, even if these kinds of opportunities might not always have economic benefits for the individual (Patzelt and Shepherd, 2011). Their theory also suggests that sustainable development opportunities can help to address both environmental and psychological concerns, by creating benefits for individuals and communities. This is related to altruism, which could also help sustainable entrepreneurs identify business opportunities when their motivation is focused on others' problems and a need to help others. These others can be people or animals. Empathy and sympathy are important parts of altruism (Patzelt and Shepherd, 2011). Empathetic individuals are able to relate to and understand the emotions of others, experiencing similar emotions themselves, while sympathetic individuals may understand the emotions of others but may experience different emotions themselves (Eisenberg, 2000). Therefore, it could be said that altruistic people are often driven by a genuine desire to help others, rather than seeking personal gain, which could lead them to identify sustainable business opportunities.

In Choi and Gray's (2008) research it became apparent that the main motivation for sustainable entrepreneurs to establish a company is to have a relatively modest living while making a small difference. Only a few entrepreneurs who took part in the research were driven by the pursuit of personal financial wealth. That research also showed that even if being an entrepreneur is already challenging, sustainable entrepreneurship imposes additional demands on themselves and their businesses, and entrepreneurs must be motivated to stretch themselves to meet their own standards (Choi



and Gray, 2008). Nhemachena and Murimbika's (2018) findings support that both intrinsic motivations, such as personal interest in entrepreneurial tasks like accomplishing goals and success, and extrinsic motivations, for instance, external rewards like status, money, power, and social acceptance, are important determinants of entrepreneurs performance and behaviour. Therefore, developing and strengthening these motivations can significantly contribute to the sustainability and performance of sustainable enterprises (Nhemachena and Murimbika, 2018).

Balancing between Ecological, Social and Economic Motivation

When talking about motivation for sustainability opportunity recognition the triple bottom line is something that several researchers are either referring to or questioning (Dentchev, 2009; Bos-Brouwers, 2009; Patzelt and Shepherd, 2011; Choongo et al., 2016; Muñoz and Cohen, 2018; Nhemachena and Murimbika, 2018). The concept of the triple bottom line, also known as TBL, was introduced by John Elkington's (1999) book "Cannibals with Forks: The Triple Bottom Line of 21st Century Business." As explained in the introduction, the triple bottom line is a framework that emphasises the importance of measuring a business's performance not just in terms of its financial results, but also in its environmental and social impact. The three 'bottom lines' are often referred to as 'people, planet, and profit' representing the three dimensions of sustainable development: social, environmental, and economic (Elkington, 1999).

According to Patzelt and Shepherd (2011), the conceptualisation of sustainable development opportunities prioritises the generation of financial benefits not just for the entrepreneur, but also for other stakeholders besides the individual entrepreneur. While entrepreneurs may still benefit from these opportunities, their personal economic gains are not the primary requirement for identifying sustainable development opportunities (Patzelt and Shepherd, 2011). Also, Muñoz and Cohen (2018) argue that rather than considering each of the dimensions of ecological, social, and economic systems as



separate and independent constructs, an integrated approach that accounts for the interdependence among them would advance the field and develop more comprehensive measurements. This could include, for instance, the sharing economy (Muñoz and Cohen, 2018).

2.2. The Model of Patzelt and Shepherd (2011)

The following section consists of three parts. First, it provides a brief overview of the sustainable opportunity identification model developed by Patzelt and Shepherd (2011). The second part consists of a thorough review of the literature that has employed the model highlighting its relevance as well as its limitations, through the process of comparing the studies from different perspectives and evaluating their results. The third section outlines the applicability and generalisable results of previous studies that have used the Model of Recognition of Sustainable Development Opportunities (Patzelt and Shepherd, 2011).

2.2.1. Overview of the Model

The contingency model by Patzelt and Shepherd (2011) investigates how prior knowledge and motivation support the recognition of sustainable development opportunities. According to the authors, factors such as entrepreneurial alertness, social networks, and entrepreneurial cognition are important but not enough for recognising sustainable business opportunities. They posit that a deep understanding of the natural and social environment is crucial in identifying these opportunities (Ben Amara, Chen and Hafeez, 2020). Thus, the empirical model proposed by Patzelt and Shepherd (2011) emphasises the role of not only business knowledge, such as prior knowledge of markets and technology but also knowledge about the environment, in increasing an individual's likelihood of identifying sustainable opportunities. The model highlights the importance of having both types of knowledge for successful sustainable opportunity recognition. Further, the authors claim that if people already have knowledge and expertise in a specific area, they



pay more attention to it and are more likely to identify sustainable opportunities in this area. They refer to it as valuable if entrepreneurs have some kind of heterogeneous knowledge and are “not only knowledgeable about changes in the market equilibrium but also about changes in the natural/ communal environment in which they live” (Patzelt and Shepherd, 2011, p.643).

In addition, the authors investigate motivation consisting of perceived personal threats and altruism as drivers for recognising sustainable opportunities. According to their theory, when entrepreneurs perceive the natural or communal environment as being under threat and possess a stronger sense of altruism, they are more inclined to identify opportunities related to sustainability (Patzelt and Shepherd, 2011).

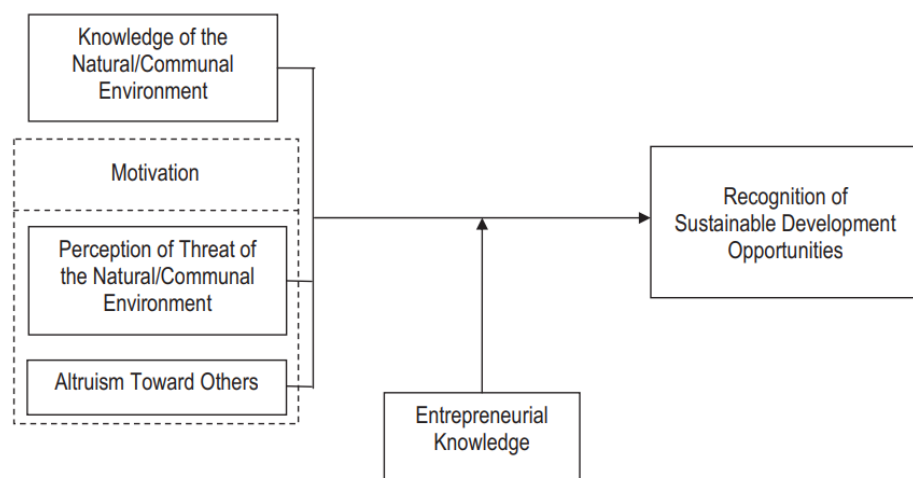


Figure 1: A Model of Recognition of Sustainable Development Opportunities (Patzelt and Shepherd, 2011).

The theoretical foundation by Patzelt and Shepherd (2011) has been highly influential since its publication (Eller et al., 2020). As already stated above, it is important to examine the drivers to engage in sustainable entrepreneurship, which this framework helps to understand.



2.2.2. Comparison of Previous Studies

The second section of this chapter provides a comprehensive review of the literature that has utilised Patzelt and Shepherd's (2011) sustainable opportunity identification model, highlighting the various ways in which it has been implemented and extended. By comparing the studies under different aspects and analysing their outcomes, this review highlights the strengths and limitations of the model, and also the areas in which future research could make a meaningful contribution. Furthermore, this review supports the position of this research.

Since its publication in 2011, Patzelt and Shepherd's model has gained significant attention and seven other authors have utilised and extended the model in their research (Gray et al., 2014; Choongo et al., 2016; Hanohov and Baldacchino, 2017; Muñoz and Cohen, 2018; Ploum et al., 2018; Eller et al., 2020; Argade, Salignac and Barkemeyer, 2021). Moreover, each of these authors has conducted an empirical study to test the applicability of the model. This chapter will shortly present the studies and compare them with each other to see where further research is needed by assessing the strengths and weaknesses of Patzelt and Shepherd's model (2011).

Study	Location	Informants	Research	Network
Hanohov and Baldacchino (2017)	Germany	Sustainable entrepreneurs	Qualitative	Two networking-related questions in interviews, not talking about networks, but socialisation shortly (p.345)
Choongo et al. (2016)	Zambia	SMEs	Quantitative	Mention networks for future studies to explore Patzelt and Shepherd's (2011) Model (p.19)
Muñoz and Dimov (2017)	Online survey	Students	Quantitative	Not mentioning networks



Study	Location	Informants	Research	Network
Ploum et al. (2018)	Netherlands	Students	Quantitative	Shortly mentioning with part of one sentence, how networks may influence individuals' recognition of sustainable development opportunities (p.1589)
Eller et al. (2020)	Germany	Mainly students, young participants early in their careers with college or university background	Quantitative	Shotly mentioning networks twice, not highlighting, (p.1389, 1398)
Gray et al. (2014)	Samoa (Oceania)	Seniors, directors, board members	Qualitative	Networks have been mentioned in their interviews several times. Talks about networks in Conclusion-part, focus on organisation adopting more altruistic values and accessing or borrowing environmental, marketing, networking and entrepreneurship knowledge and skills from network partners before developing their own expertise
Argade et al. (2021)	India	Founders	Qualitative	Personal and professional networks came up on the interviews, focusing more on self-efficacy. Networks have not been highlighted

Table 1: Research that used the Model of Recognition of Sustainable Development Opportunities by Patzelt and Shepherd (2011).



Location

Overall, the model of Patzelt and Shepherd (2011) has been tested mainly in Europe (Hanohov and Baldacchino, 2017; Ploum et al., 2018; Eller et al., 2020), but also in some other countries like India (Argade, Salignac and Barkemeyer, 2021) and Samoa (Gray et al., 2014). Choongo et al. (2016) did their research in the Zambian mining sector. They argued that the predictions of the model of Patzelt and Shepherd (2011) were limited and that it might work better in Western countries since the theories might have been affected by culture and economic circumstances. For example, altruism can be seen differently in individualistic or more communal countries (Choongo et al., 2016). Hanohov and Baldacchino (2017) highlighted Berlin's green economy and how environmentally friendly it is. With over 40 000 new start-ups being registered every year, Berlin is seen as a hub of entrepreneurship and sustainability. Accordingly, the authors decided to execute their research in Berlin (Hanohov and Baldacchino, 2017).

Informants

The model by Patzelt and Shepherd (2011) has been tested several times with students (Muñoz and Cohen, 2018; Ploum et al., 2018; Eller et al., 2020). The authors describe students as, for example, 'would-be entrepreneurs' since these are students who have the intention of becoming (sustainable) entrepreneurs. Using students as informants was also described as a possible limitation and for future research, it was recommended to focus on testing the model with actual sustainable entrepreneurs (Ploum et al., 2018). There have already been some researches where the model of Patzelt and Shepherd (2011) has been tested with entrepreneurs (Choongo et al., 2016; Hanohov and Baldacchino, 2017; Argade, Salignac and Barkemeyer, 2021), however, never in the Nordic context. As stated before, the literature reveals a research gap regarding the recognition of entrepreneurial opportunities among Nordic entrepreneurs. This research gap must be addressed, given their noteworthy performance when comparing entrepreneurs globally.



Networks

Previous research that has tested the Patzelt and Shepherd (2011) model disregarded the role of networks in sustainable opportunity recognition. Table 1 reveals that some studies do not even mention networks when it comes to opportunity recognition (Muñoz and Dimov, 2017). While some studies have briefly mentioned networks, they have not provided a comprehensive understanding of their significance (Ploum et al., 2018; Eller et al., 2020). Some interviews have highlighted the importance of networks, but previous research has not explicitly investigated their meaning or identified their significance for sustainable business opportunity recognition (Gray et al., 2014; Hanohov and Baldacchino, 2017; Argade, Salignac and Barkemeyer, 2021). Only one study has suggested that future research should focus on networks in order to extend and explore the Patzelt and Shepherd (2011) model (Choongo et al., 2016). These results support that there is a research gap in validating the model and that research is needed to deepen the understanding of how to identify sustainable business opportunities by exploring the role of networks.

2.2.3. Applicability and Generalisable Results of Previous Studies

In this chapter, applicability and generalisable results of previous studies are presented as a conclusion of their context, relevance and contributions to the sustainable opportunity recognition field. Since researchers have been testing the model of Patzelt and Shepherd (2011) in different ways and in various contexts, this chapter presents if these results can be applied to other contexts and the extent to which they can be generalised to other populations groups. The conclusion of this information may be applied to define the direction of this research.

The Matter of Context

When comparing the results of the studies mentioned in Table 1, it became clear that the majority of the outcomes that they got were not generalisable or applicable. Often research outcomes are not generalisable because



researchers recognise that their investigations are situated within a specific contextual domain. For instance, Argade, Salignac and Barkemeyer (2021) did their study in India which explains that in the Indian context, there is enormous diversity in culture, religion, geography, and language. Consequently, it can be problematic to make simplistic assumptions even in the Indian context. Furthermore, Muñoz and Dimov (2017) state that their results do not have direct generalisations. Nevertheless, they argue that through their study they have contributed to the theory of opportunity recognition and intention, which can be utilised to comprehend specific instances in real-world scenarios (Muñoz and Dimov, 2017).

Choongo et al. (2016) stated as a result of their study, it is possible that their hypotheses were rejected since the model of Patzelt and Shepherd (2011) was originally formulated in a Western context and may not be entirely relevant to developing countries due to cultural and economic differences. One example they named could be the potential variation in the impact of altruism in societies that prioritise individualism versus those that emphasise communal values. Thus, it becomes essential to assess the applicability of assumptions and theories in diverse contexts. The dissimilarities between developing and developed countries create ambiguity regarding the applicability of established theories, empirical results, and methodologies from developed countries to the unique political, social and economic context of developing countries (Choongo et al., 2016).

Therefore, according to Choongo et al. (2016), contextual differences between developing and Western countries may have contributed to their study's non-significant results. This notion is partially supported by the study of Hanohov and Baldacchino (2017), which found the model to be applicable in Berlin. Despite this, more extensive research across various nations and industries is necessary to explore this issue further (Hanohov and Baldacchino, 2017). To sum up, the differences between developing and developed countries create uncertainty as to whether established theories, empirical results and methodologies from developed countries can be applied



to the unique political, social and economic context of developing countries. While some studies found that the model is applicable in certain contexts, more extensive research across various nations and industries is necessary to explore this issue further.

2.2.4. Implications of the Model

To conclude, Patzelt and Shepherd's (2011) model has been presented along with previous studies that have tested the model in various contexts. As shown in Figure 1, the model indicates that the probability of entrepreneurs recognising sustainable business opportunities increases when they have more knowledge of natural and communal environments, when they know what might threaten the environment, and when their altruism towards others is greater. The studies cited in Table 1 demonstrate that the generalisability and applicability of the results of previous studies have been limited due to specific contextual domains, and future research should take this into account to ensure that findings are relevant and useful in different regions and situations. Thus, this study will be limited to a Western focus, in particular, to the context of Nordic countries.

2.3. Networks in Opportunity Recognition

Arenius and Clercq (2005) argue that one crucial factor contributing to some individuals being more exposed to identifying entrepreneurial opportunities is the unique structure of their network. In this way, they might be more exposed to a wider range of new information because people get information by interacting with other people, who then interact again with others, which can lead them to perceive potential entrepreneurial opportunities (Ozgen and Baron, 2007) came up with similar results in their research where they investigated correlations between opportunity recognition and the importance of entrepreneurs' mentors, industry networks, and professional forums and their part in identifying business opportunities. Klyver, Hindle and Meyer's (2008) research also found support for the importance of networks.



According to them, networks can provide resources, such as information, access to knowledge, advice and skills, all of which can aid in enhancing one's competencies. Networks can provide access to finances, and contribute to the development of social legitimacy, reputation, and credibility (Klyver, Hindle and Meyer, 2008).

2.3.1. Strong and Weak Ties

An individual's personal network consists of all the people they know and it can be divided into strong and weak ties depending on the nature of the relationship (Arenius and Clercq, 2005). Weak ties refer to relationships that are often less affect-based and more task-oriented. Commonly, weak ties are more distant roles in someone's social network, such as business contacts or acquaintances (Klyver and Arenius, 2022). Strong ties can, for instance, be close personal friends. Arenius and Clercq (2005) argued that people often have fewer strong ties, than weak ties, since strong ties need higher maintenance, which is also the reason why there exists a maximum number of strong ties that one can have with others.

According to Granovetter's (1973) theory, individuals can have strong and weak ties depending on how close their relationships with other people are. It suggests that since people may not often interact with their weak ties, these can provide better access to more unique information, than having a few strong ties (Granovetter, 1973). Klyver and Arenius' (2022) study also supports this theory, since they showed that networking, particularly with weak ties, plays a vital role in entrepreneurs' ability to recognise new business opportunities and launch their businesses successfully. One significant finding of their study was that frequent networking with strong ties could increase or decrease entrepreneurs' chances of launching their businesses, depending on their social skills. They argue that people with high social skills are more likely to benefit from networking with strong social ties, while those with low social skills are more likely to be decreasing their chances (Klyver and Arenius, 2022). Therefore, the factor 'network' seems



to have a beneficial impact on recognising business opportunities, it is important to investigate it further and see if the type of network, their structure and the information that they can provide impact entrepreneurs' ability to recognise sustainable business opportunities.

2.3.2. Network and Culture

Klyver, Hindle and Meyer's (2008) study suggest that the impact of entrepreneurial networking varies across cultures and during the entrepreneurial process. The empirical results indicate that knowing someone who started their own business in the past two years significantly increases entrepreneurship participation (Klyver, Hindle and Meyer, 2008) or, in other words, the probability to recognise a business opportunity. They also state that cultural differences exist in networking practices. Among cultures, networking patterns are influenced by other phenomena linked to each country, such as economic development, population density, physical infrastructure, entrepreneurship policy and programs, or technological development (Klyver, Hindle and Meyer, 2008). This research may contribute to the understanding of the complex relationship between networking practices, culture, and entrepreneurship and their relation to opportunity recognition in the Nordic context.

2.4. Conclusion of the Literature Review

This literature review emphasised the importance of the three critical lenses: prior knowledge, motivation, and networks, when it comes to sustainable opportunity recognition. This was achieved by synthesising existing studies and literature to establish a foundation for this research. The model of Patzelt and Shepherd (2011) has been presented and evaluated through previous studies that have explained its limitations and relevance by helping to provide a framework for this research. Overall, the literature review aimed to conclude the existing knowledge on sustainable opportunity recognition and highlight its importance which provides the foundation for this research to



explore it further. The following chapter will outline the research methods used to conduct this research.

3. Methodology

This section provides the research strategy and design as well as a detailed account of the methodology employed to address the research question.

3.1. Research Strategy

The overall concept of the thesis, called the research strategy, includes the research design as well as the chosen methods and gives guidance on how to answer the research questions.

The Type of Theory

When doing research, there are three distinct ways of seeing the relationship between research and theory that are commonly used in scientific research: deductive, inductive and abductive approaches (Bell, Bryman and Harley, 2019). The deductive approach usually involves testing a general theory by collecting data, verifying its validity and aiming to confirm or disprove an already established hypothesis. It is commonly used in quantitative research, whereas the inductive approach is often used in qualitative research. Here, the researchers observe and analyse data in an open-ended manner and try to find patterns and themes which allow them to generate new theories or hypotheses which emerge from the data itself (Bell, Bryman and Harley, 2019). The abductive approach just recently gained more attention in business research. It can be described as a combination of the deductive and inductive approaches which try to overcome their limitations. Here, researchers typically start with an incomplete observation which has to be tested using further data (Bell, Bryman and Harley, 2019).



This research project aims to gain new insights into the field of sustainable opportunity recognition, explore the factors that contribute to entrepreneurs' recognition of sustainable business opportunities and identify factors that go beyond the model of Patzelt and Shepherd (2011). Therefore, for conducting such a qualitative model testing, this study leans towards a rather deductive approach within the framework of abduction.

Ontology and Epistemology

Two relevant concepts for research methodology are ontology and epistemology. It is relevant to consider the underlying ontological and epistemological assumptions, as they will shape the research approach and methodology (Bell, Bryman and Harley, 2019).

According to Bell, Bryman and Harley (2019), ontology is the study of the nature of existence or reality and refers to the researcher's understanding of the nature of reality. It deals with questions about what exists in the world, what is real, and how things are connected. On the other hand, epistemology is the study of knowledge and how people come to know things (Bell, Bryman and Harley, 2019). Epistemology is about how, for example, researchers think knowledge is generated and what they consider as knowledge. It covers fundamental questions concerning how we know what we know. This leads to discussions about, for example, how appropriate it is to use 'natural science' to explore the social aspects of business, or whether there are alternative approaches needed to address the unique and complex construct of our social world (Bell, Bryman and Harley, 2019).

Objectivist and Constructivist Approach

Regarding ontology, there are two main concepts: the objectivist and the constructivist approach. According to the objectivist approach, there is a single, objective reality that exists regardless of how people perceive or interpret it. On the other hand, the constructivist approach suggests that reality is socially constructed and shaped by people's perspectives and experiences (Bell, Bryman and Harley, 2019; Saunders, Lewis and Thornhill,



2019). In other words, the objectivist approach suggests that there is one objective reality that can be observed and studied. The constructivist approach acknowledges that reality is constructed through people's interactions and interpretations. For this research, the authors believe that reality and entrepreneurs' opportunity recognition are subjective and constructed through their social interactions. Thus, it aligns with a constructivist approach. This approach is particularly useful when studying complex social phenomena, such as the process of opportunity recognition among entrepreneurs, which is influenced by different contextual and personal factors (Bell, Bryman and Harley, 2019; Saunders, Lewis and Thornhill, 2019).

Regarding epistemology, there are two different approaches that are relevant here: positivism and interpretivism. Positivism is the belief that scientific methods and empirical evidence are the only correct sources of knowledge. It assumes that objective rules govern the natural world, which can be noticed, measured and studied through quantitative methods. And on the other hand, the interpretivism approach argues that social phenomena are multi-dimensional. Which means that they cannot be studied using the same methods as natural sciences. Instead, it emphasises the importance of subjective experiences, perceptions, and meanings (Bell, Bryman and Harley, 2019; Saunders, Lewis and Thornhill, 2019). For this research, the authors aim to explore entrepreneurs' behaviour and experiences, where objective facts cannot provide a complete understanding. A subjective interpretation of the data is essential to understand the complex nature of human behaviour. Subsequently, this thesis paper follows the interpretivist approach to collect rich and detailed data through qualitative methods.

3.2. Research Design

The research design outlines the overall methods used to collect and analyse data with the purpose to make sure that the study is correct, reliable, and does meet its research objectives (Bell, Bryman and Harley, 2019). To investigate



the research questions of this thesis, an interview study was conducted with ten sustainable entrepreneurs from ten different small businesses from Nordic countries. These countries include Finland, Sweden, Norway, Denmark, and Iceland. The focus on the Nordic countries has been chosen because of their remarkable performance in the global entrepreneurial ecosystem (Global Entrepreneurship Index, 2019; Steigertahl and Mauer, 2023). Additionally, the model by Patzelt and Shepherd (2011) has not been explored in the Nordic context before, hence, investigating it in a new context deepens the understanding of sustainable opportunity recognition in this region.

The following chapters will provide further detailed explanations of the various elements of the research design, including the research method, data collection with ethical considerations, and data analysis.

3.3. Research Method

A qualitative research approach and, specifically, semi-structured interviews with open-ended questions, have been chosen for this research. The use of this approach allowed for a deeper exploration of the factors that influence how sustainable entrepreneurs identify opportunities. Ensuring reliability in the context of semi-structured interviews requires careful consideration of several important factors (Saunders, Lewis and Thornhill, 2019), however, the benefits of this approach outweighed the challenges. The focus was to gain insights from a smaller number of sustainable entrepreneurs rather than to get a large sample size. Having between one and three interviewees from each country helped to ensure that the collected data is representative of the Nordic context as a whole.

3.3.1. Qualitative Interviews

As earlier stated, comparing previous studies that have examined the Patzelt and Shepherd (2011) model showed that they have used both methodological approaches, quantitative and qualitative methods. However, the prevalent method of choice has been quantitative. Qualitative research differs from



quantitative research mainly because it typically involves non-numeric data analysis. It allows analysing nuances and processes more particularly to gain a deeper understanding (Fischer, Mauer and Brettel, 2017). In addition, qualitative research methods enable researchers to perceive events from the participants' perspectives (Hanohov and Baldacchino, 2017). The use of a quantitative approach based on questionnaires, however, can limit research participants to choose from a predefined list of answers, potentially resulting in relevant factors being overlooked (Saunders, Lewis and Thornhill, 2019). Consequently, this approach may have overlooked many relevant factors in previous studies that validated the model (Hanohov and Baldacchino, 2017). For instance, Muñoz and Dimov (2017) used an experimental design to validate the model by Patzelt and Shepherd (2011) that involved a scenario-based approach and quantitative measures. Although they acknowledged that their research cannot be generalised, their study contributes to the theory of opportunity recognition and intention, which can be applied to understand specific cases in real settings. Since this research aims to further explore the factors that impact sustainable entrepreneurs' recognition of opportunities, a qualitative research approach has been chosen to collect in-depth information about such factors.

Semi-structured Interviews

For this research, semi-structured interviews have been conducted since open-ended questions allow adjustment of the questions during the discussion (Fischer, Mauer and Brettel, 2017). At the same time, doing a semi-structured interview might include a number of challenges. One of them might be to identify and select applicable themes that address the research questions and the aim of the study in an effective way. As Saunders, Lewis and Thornhill (2019) explained, ensuring reliability in the context of semi-structured interviews requires careful consideration of some important factors. For example, the inability to simply replicate interviews, as each interview is unique and reflective of the specific time period in which it was done. To have reliability in this context, it is important to describe the



research process in a clear and transparent manner, which enables the reader to check the trustworthiness of the study (Saunders, Lewis and Thornhill, 2019).

3.3.2. Sampling

For this qualitative research, purposive sampling has been used to select the sustainable entrepreneurs to be interviewed. When using this sampling technique, researchers deliberately choose participants who meet specific criteria to be part of their study (Bell, Bryman and Harley, 2019). According to Saunders, Lewis and Thornhill (2019), this method enables the researchers to answer research questions and helps to meet objectives. Purposive sampling is common when working with small samples or when choosing cases that are especially informative. When using purposive samples it is important to notice that the outcome is not statistically representative of the whole target population (Saunders, Lewis and Thornhill, 2019).

Even though the number of participants in the research might seem relatively small, this is justified by the quality and depth of the data that can be gained from the interviewees. Due to the smaller sample size, the researchers could spend more time and attention on each individual interviewee and the responses. This led to a richer and more detailed analysis. It is acknowledged that due to the small sample size, this research cannot provide generalisable results about the entire population of sustainable entrepreneurs in the Nordic context. However, the focus of the research was not to make generalisations but rather to find information-rich cases. The aim was to understand the specific perspectives and experiences of the participants in the study in order to provide new practical insights and explore relevant factors, which such a deep analysis can achieve. Because of this, the number of participants in this research may be appropriate given the scope and focus of the study and purposive sampling was considered to be the most suitable.



The following sections describe specific criteria that have been considered when the authors of this thesis paper have deliberately chosen participants for the study.

Sustainability

To ensure that sustainable entrepreneurs were appropriately selected for the study, the researchers relied on the definition of sustainable entrepreneurship presented in the introduction section. This definition, presented by Patzelt and Shepherd (2011) as “the discovery, creation, and exploitation of opportunities to create future goods and services that sustain the natural and/or communal environment and provide development gain for others” (p.632), served as a guiding principle. In addition, the researchers assessed whether each company was considered sustainable and fell under this definition. It is important to note that businesses classified as social businesses were not contacted due to the definition and focus on ecological sustainability as described in the introduction.

Sustainable Entrepreneur

The participants in this study who are classified as ‘entrepreneurs’ include founders and co-founders, regardless of their company’s age. Additionally, these entrepreneurs played an important role in the company’s early stages when the sustainable business opportunity was identified. To classify what makes an entrepreneur a ‘sustainable entrepreneur’ the authors got inspired by the study of DiVito and Bohnsack (2017). According to their definition, sustainable entrepreneurs possess not only an entrepreneurial orientation but also a sustainable approach with a commitment to focus on ecologically and socially responsible business growth (DiVito and Bohnsack, 2017). The inclusion criteria for entrepreneurs in this study require them to demonstrate a sustainable entrepreneurial approach that challenges the prevalent profit orientation by including more sustainable practices. If the authors perceived the entrepreneurs’ business concepts were aligned with this criteria, they were chosen for this study. Worth noting is that all the interviewed



entrepreneurs had small-size companies, which should be considered when evaluating this study's results.

Industry

For this research, it was not important in which industry the selected entrepreneur or company is operating. Nevertheless, the aim was to have a selection of participants from different industries. This enables the authors to provide a diverse range of perspectives and experiences in sustainable entrepreneurship for this study. The outcome of the different company classifications is summarised in Table 2. The International Standard Industrial Classification of All Economic Activities (ISIC) developed by the United Nations has been used to categorise the companies participating in the study (United Nations, 2008). This allowed for a systematic classification of the businesses across various sectors such as manufacturing, rental and leasing activities, and consulting services. Since some of the companies can be assigned to more than one classification, all possibilities were added.

Country

The authors made a deliberate effort to include entrepreneurs from all Nordic countries to ensure a diverse representation. Between one to three entrepreneurs from each country have been included to achieve a balance of perspectives and experiences. By intentionally selecting participants from each country, the authors hoped to achieve a balanced perspective and capture a wide range of experiences related to sustainable entrepreneurship.

Gender

For this study, it was important to have a diverse sampling of participants to ensure a well-rounded understanding of sustainable entrepreneurship. Therefore, attention was given to selecting both female and male participants. This allowed for a balanced representation of perspectives and experiences in the field, as gender might influence an individual's entrepreneurial journey and approach to sustainable development or sustainability (Brush and Cooper, 2012).



Age

Moreover, it was important to include participants from a range of age groups to ensure a diverse sample. To achieve this, the researchers made efforts to recruit participants of different ages. Including a variety of ages was important because it allowed for a more comprehensive understanding of how opportunity recognition operates across different generations. Additionally, including a diverse range of ages helped provide a more nuanced and comprehensive analysis of the data.

During the sampling process, all samples that agreed to participate in the interview could be included in the research and none of the entrepreneurs had to be declined due to these definition criteria. Purposive sampling and a targeted pre-selection of respondents may have contributed to this.

Means of contact

During the selection processes of interviewees, two distinct approaches to connect with entrepreneurs have been used. In the first contacting phase, entrepreneurship centres and hubs from all the Nordic countries were contacted, including those that collaborated with universities to explore potential referrals. This approach proved to be helpful, as it allowed connections to interesting companies that could be contacted for further research. In the second contacting phase, entrepreneurs were contacted via emails provided by the start-up centres and hubs. At the same time, researchers continued online research on sustainable businesses in Nordic countries and continued contacting them directly via email or LinkedIn.

In terms of means of contact, email and social media, particularly LinkedIn, were utilised. LinkedIn was used due to the possibility of directly contacting the founders, as opposed to sending emails to general office email addresses. In the first email or LinkedIn message to the centres, hubs and entrepreneurs, the authors presented themselves and the Master's program they are participating in, the focus of their study and in what way the participation of the entrepreneurs could support the aim of the research study, as well as



some details about a possible interview, for instance, the way it would be carried out and the approximate length of it.

The total number of centres and hubs contacted was 13, whereas the number of sustainable businesses and entrepreneurs contacted was 34. Following these communications, 23 responses were received, which led to eleven interviews being scheduled. The interview phase took place between three and four weeks during which interviews have been conducted and further interviews have been scheduled. One of them did not take place because the interviewee did not show up, resulting in ten conducted interviews.

Table 2 summarises the interviewees, their names, which have been changed randomly instead of using their real names, their gender as well as the country and industry of the company.

Participant	Gender	Country	Industry
Iwan	Male	Norway	Marine Aquaculture, Other Business Support Service Activities, Consulting Services
Mads	Male	Finland	Manufacturing
Mira	Female	Norway	Rental and Leasing Activities
Lenny	Male	Finland	Food Service Activities
Tom	Male	Iceland	Manufacturing
Emma	Female	Norway	Rental and Leasing Activities
Lisa	Female	Sweden	Other Business Support Service Activities, Consulting Services
Bob	Male	Norway	Marine Aquaculture, Manufacturing
Jack	Male	Finland	Crop and Animal Production, Food Service Activities
Pete	Male	Denmark	Forestry, Consulting Services

Table 2: Overview of interview participants



3.3.3. Data Collection

Each entrepreneur was interviewed individually and one interview took approximately 30 to 45 minutes. The interviews were conducted through Zoom online meetings and the researchers took turns to ask questions and engage in the dialogue.

At the beginning of the interviews, the participants were informed of the interview's procedure, asked for their consent to record the meeting and their preferences for anonymity as well as the inclusion of their names and the company's name. To establish a simple and uncomplicated starting point for the conversation, simple introductory questions were asked at the outset. Subsequently, the conversation was transitioned to the main questions. A natural and fluid conversation quickly ensued with the respondents, who spoke freely and determined the extent of their responses themselves. For most of the participants, asking the prepared questions was only partly necessary, since they covered them as they spoke. However, the first few interviews showed that without telling the purpose of the interview in more detail in advance, the participants tended to talk about their business more than about their personal experiences as entrepreneurs. As a result, the researchers had to redirect the interview process more. To address this, for the following interviews, the participants were informed that the focus would be on their personal experiences rather than solely their business, without revealing the specific research questions.

It is acknowledged that since the interviews were done online via video calls this can limit the insights into social interactions and behaviours, for instance, through the lack of body language. According to Bell, Bryman and Harley (2019), interviews rely mainly on verbal narratives of behaviour. Related to this, it is important to note that the use of language in qualitative interviews can be limiting as well. This may cause some participants to self-censor their speech as they are aware that they are being studied (Bell, Bryman and Harley, 2019). It is also considered that neither the interviewers



nor the interviewees were native English speakers. This might have influenced the way participants were able to express themselves. However, it can be added, there were generally no problems understanding and interpreting what the participants said.

Interview Guide

Semi-structured interviews allow for flexibility when questions are asked. To make sure that all relevant topics are covered, an interview guide ([see Appendix](#)) was created and used throughout the interviews. This guide does not only contain a list of questions to be covered, but also includes comments to open and close the discussion, prompts to encourage further discussion, and additional follow-up questions and notes to promote a productive interview (Saunders, Lewis and Thornhill, 2019). One of the primary advantages of using an interview guide is its allowance for flexibility within the interview process since the interviewer has the freedom to spontaneously pick questions based on the direction of the conversation and the unique responses of the participant. This flexibility enables the interviewer to delve deeper into topics of interest and gain a more in-depth understanding of the participant's experiences and perspectives. Furthermore, the use of an interview guide in research is a common practice as it provides structure to the data collection process, ensuring that the same topics are covered with each participant, increasing the reliability and consistency of the data collected (Saunders, Lewis and Thornhill, 2019).

Ethical Considerations

Ethics in research refers to moral principles and guidelines of behaviour that will affect the rights of individuals who are involved and affected in the study. Ethics will protect individuals' rights and well-being (Saunders, Lewis and Thornhill, 2019). Bell, Bryman and Harley (2019) are presenting four main areas in the ethical principles in business research. These are whether there is harm to participants, lack of informed consent, invasion of privacy or deception involved. For this research, the participants were informed that the



research is part of the researchers' master thesis, that the interviewers were participating in the master's program and about the topic of the thesis. Already in the contacting phase, they were informed that the interview will be held online and that it would be a semi-structured discussion that will last approximately 30 minutes.

At the beginning of every interview, participants were asked permission to record the interview and they were told that the recordings will be used only by the researchers and no one else will have access to the raw materials, recordings or researchers' notes. Participants were also informed that all the recordings will be destroyed after the grading of the thesis. In this way, researchers wanted to ensure that the participants will not be harmed and that researchers will protect their privacy. Since 2018, the European Union's GDPR, General Data Protection Regulations, also include universities, which means that they need to follow the regulations (Bell, Bryman and Harley, 2019). Therefore in this research, the GDPR has been taken into account, for instance by not collecting participants' personal information.

Anonymity will effectively protect the personal data of the participants (Saunders, Lewis and Thornhill, 2019). To be able to avoid any kind of harm to the participants, all the participants were asked if researchers are allowed to use their name as well as their company's name at the beginning of every interview. This is because from the ethical perspective protecting the anonymity of the participants in the research has been seen as the best practice (Bell, Bryman and Harley, 2019). Although all participants agreed on using their names, the authors decided not to include them, after taking into account the most effective way to protect their personal data.

The majority of the participants encouraged the researchers to contact them again if there are more things they want to ask or if there was something they wanted to confirm. One participant asked to see the transcript after the interview, which was shared on the same day and another participant asked to be informed if researchers would use direct quotes. At the end of every



interview, researchers were asking the participants if they had any questions for the researcher to be sure that the participants had all the needed information before the interview ended. The researchers also agreed to send the final master thesis to all of the participants and informed them about the publication.

3.3. Data Analysis

To prepare the data, the recorded online interviews were transcribed using transcription software which facilitated the analysis process. The machine-generated transcription has been carefully revised manually to ensure readability and accuracy. Reception signals, fillers, pauses, and sentence interruptions were not fully included to facilitate the transcription and for ease of reading. Despite these revisions, care was taken not to compromise the speakers' original statements. Following the transcription, the interview responses were coded, summarised, and relevant excerpts and quotes were compiled in a table. Finally, common themes and patterns were identified through rigorous analysis, the outcome of which is presented in chapter 4.

3.5.1. Coding

The process of coding entails the organisation of data into categories based on similar meanings (Bell, Bryman and Harley, 2019). Each unit of data, in this case, interview transcripts, is labelled with a code that represents the essence of its content (Saunders, Lewis and Thornhill, 2019). The main aims of coding are to facilitate the analysis of the relevant data as well as enable a better understanding of the data and its associated meaning as qualitative data sets can be extensive (Saunders, Lewis and Thornhill, 2019; Bell, Bryman and Harley, 2019). For this data analysis, the interview transcripts have been read by both researchers and marked with different colours for different factors which can be called colour coding (Bell, Bryman and Harley, 2019). Additionally, the labelled parts were coded through what can



be called constant comparison: “Each item of data collected is compared with others, as well as against the codes being used to categorise data” (Saunders, Lewis and Thornhill, 2019, p.206). This is done to identify similarities and differences, promote consistency during data coding, and facilitate the analysis process. If necessary, new codes were established and existing codes were reevaluated (Saunders, Lewis and Thornhill, 2019). This also helped, for instance, to identify new factors, besides the three pre-selected factors, that emerged from the data.

3.5.2. Transcript Summary

After analysing the data and assigning codes, a table has been created to summarise the key points, which Saunders, Lewis and Thornhill (2019) refer to as a transcript summary. According to them, a “transcript summary compresses long statements into briefer ones in which the main sense of what has been said or observed is rephrased in fewer words” (Saunders, Lewis and Thornhill, 2019, p.645). This summary allowed the researchers to identify themes and patterns across the various participants’ statements, as well as to uncover connections that may not have been apparent previously due to the abundance of information. For a clear overview and to facilitate the analysis, the table has been organised by factors and further divided into subsections for each factor.

3.5.3. Thematic Analysis

The data for this research was analysed using thematic analysis, which is a commonly used method for analysing qualitative data (Saunders, Lewis and Thornhill, 2019). It involves searching for themes and there are various approaches to do so, for instance, searching for repetitions, metaphors, analogies, similarities, and differences (Bell, Bryman and Harley, 2019). In this data analysis, the focus was primarily on identifying consistent repetitions of topics. It is understood that solely having repetitions is not enough to classify something as a theme. The most crucial aspect is its relevance to the research questions and aim. Just because a significant



number of interviewees express similar views does not necessarily mean that this qualifies as a theme (Bell, Bryman and Harley, 2019).

Overall, the researchers acknowledge the possibility of their own assumptions or biases that might have influenced the findings and the interpretation of the data (Bell, Bryman and Harley, 2019). Even though the researcher bias can never be completely avoided, some steps have been taken to minimise the influence of the bias: First, the researchers made themselves aware of the bias, how it may affect their data interpretation, and considered this carefully when doing the analysis. Secondly, collaborating in a group of two allowed the researchers to cross-check ideas and assumptions and reflect together on biases and interpretations throughout the research process. Furthermore, a representative and diverse sample helps to reduce bias and increase the generalizability of findings.

4. Empirical Results and Analysis

This chapter presents the interview results grouped by each factor and analyses them in comparison to the theoretical framework and previous research. The result sections will solely present and organise the interview outcome, whereas the analysis sections will add interpretations and meanings to the interview data as well as compare it to the theory and the model. Apart from the three previously discussed factors, an additional section will be dedicated to exploring other relevant factors that emerged unexpectedly but are still meaningful to the phenomenon of opportunity recognition within sustainable entrepreneurship.



4.1. Prior Knowledge

The study revealed the crucial function of both types of prior knowledge: prior knowledge in entrepreneurship and business as well as in a specific field. This chapter will present the main findings.

4.1.1. Results

Half of the interviewees already possessed prior knowledge in the specific field of their business whereas the other half acquired this knowledge after they recognised their business opportunity. Similarly, entrepreneurs who lacked entrepreneurial prior knowledge in the starting phase showed a strong willingness to learn and acquire new skills during the business process.

Prior Knowledge in Entrepreneurship and Business

The empirical findings showed a mixed outcome of participants, with some having prior knowledge in entrepreneurship before starting their own ventures, while others were first-time entrepreneurs. The participants who had prior knowledge in entrepreneurship or business gained relevant business knowledge from previous jobs, internships, or through formal education such as business courses or study programs. This knowledge helped them in areas such as finance, marketing, and management. For example, Bob had many different roles for one company over a long time, including many roles as a manager, which brought him a lot of knowledge that he is using now for his own business: “During the period of 37 years, I had nine different roles”. Pete had a major in entrepreneurship during his Master of Business Administration program and thus said: “So let’s say that this didn’t come as a surprise to me that I really quickly wanted to start my own business”. Even if among them were start-ups and projects that failed, that also seemed to have been a learning showing that failure is part of the entrepreneurial journey. For example, Lenny was openly talking about his failures and how he learned from them and just moved on with other ventures: “Tried it, result



failed. I just felt like there wasn't any yield. So, this method is not working. Just go over it again.”

However, even those participants who lacked prior knowledge in entrepreneurship or business, compensated for it through a passionate attitude towards their business idea, a keen interest in their topic, and a high priority to make a positive impact. The participants showed high interest in nature, biking, or in sustainability topics in general, such as circular economy and concepts of reusing instead of throwing away. For example, Mira's case provides an interesting insight into the importance of passion and interest in sustainable opportunity recognition. She highlighted many times how sustainability was an important part of her private life, and she learned to take care of the planet and nature since she was a kid. Her interest in bikes, but also in living a sustainable lifestyle, motivated her to educate herself more and other people about it. Because of her passion to have an impact, she has also worked her way into business matters. She wanted to have her own business for a long time to have an even bigger impact: “I've always dreamt of starting something of my own.”

Prior Knowledge in a Specific Field

Similar to the entrepreneurs' prior entrepreneurial knowledge, the results were also for the prior knowledge and skills in the specific field of their business. Half of the interviewees already had specific knowledge and skills, which were either gained through work experience from previous jobs or through free-time activities, such as being a captain or sailing for many years. For example, because Bob has “been a sailor since 1982” he was able to gather knowledge about the environmental problem of boat cleaning, which led him to develop an eco-friendly boat washing solution. In terms of work experience, Emma, for instance, gained lots of knowledge by working for a long time in the textile industry: “I think if I didn't have kind of the knowledge behind the textile business (...) it would have been much harder.”



Some other participants did not have skills in this field through previous work or such free-time activities. Instead, they were driven by passion and invested time and effort to gather that particular knowledge themselves in order to operate in this particular business area. For example, Jack studied extensively during the Covid-19 pandemic to learn more about the business and considers himself 'self-made' in this field: "So we basically spent the whole Covid period, we just spent rearing and breeding ourselves in trays and just figuring out and learning from Google and then testing and trying multiple different ways that won't actually make sense with these insects." Similarly, Tom admitted that he has no knowledge at all in this field but taught himself everything he needed to know to start this business with his co-founder. Moreover, he stressed the importance of always keeping up, learning something new and thinking outside of the box: "If you only have knowledge in one box it is hard to think outside the box." He showed a strong attitude of learning new things: "Have an open mind, observe what's going on and don't start from the point of the boxes. Just keep an open mind and it will come." Furthermore, Pete explained that he has no forestry background at all, but has always been fascinated about it: "And I've always been fascinated by nature and I am sort of a nature lover. So it just makes sense to engage in this."

4.1.2. Analysis

When comparing the empirical findings with previous studies, it becomes evident that only partial support exists for the significance of entrepreneurs' prior knowledge in identifying opportunities for sustainability. The following section will delve deeper into this.

Prior Knowledge in Entrepreneurship and Business

The literature, along with the model by Patzelt and Shepherd (2011), suggests that entrepreneurs need prior knowledge in the field of entrepreneurship to successfully identify potential new products or services (Shane, 2000; Baron, 2006; Dimov, 2007). This knowledge allows them to



disconnect occurrences and patterns within trends (Baron, 2006). Furthermore, an important outcome of the model is that entrepreneurial alertness plays a critical role when it comes to discovering opportunities. The empirical evidence gathered from several participants in the study confirmed the importance of such knowledge and entrepreneurial alertness for opportunity recognition. For example, Tom, who has hands-on experience and a passion for innovation, was able to turn his and his co-founder's ideas into reality. Jack identified a gap in the market for a potential product that did not exist yet: "This is a megatrend, the beginning of a megatrend. And then of course, it is good that the megatrend is impactful. At the same time, probably I wouldn't have been interested", drawing on his entrepreneurial prior knowledge and mindset to generate his business idea. Pete, on the other hand, relied on his entrepreneurial knowledge gathered through a Master's degree to use the minimum viable product (MVP) approach, a common tool in entrepreneurship, to make his idea successful.

The example of Lenny who experienced failures with his other business ideas but kept on trying aligns with the idea that entrepreneurs are on a continuous learning journey which allows them to expand their knowledge. Overcoming uncertainties and challenges leads them to new knowledge as entrepreneurs work to resolve these challenges (Dimov, 2007).

Moreover, the interviews showed that professionals with prior experience in a specific market segment – an important part of entrepreneurial knowledge (Shane, 2000) – can offer valuable insights into the potential impact of innovation on that market as suggested by the literature. For example, Lisa, who had worked in the IT sector for quite some time, and Emma, with her extensive experience in the textile and design sector, had a deep understanding of their respective market segments, which helped them to identify opportunities and navigate their businesses' early stages. This finding aligns with previous research, which highlights the importance of industry-specific knowledge in entrepreneurial success (Ardichvili, Cardozo and Ray, 2003; Mary George et al., 2016).



Similar to what the literature suggests, such prior experience can also improve individuals' understanding of potential customers, their problems and needs (Shane, 2000). Bob, as a sailor, was around other sailors on a regular basis, meaning that he is around potential customers often. This direct interaction with customers enabled him to develop a better understanding of the problem and eventually, develop a better solution (Shane, 2000). Also, Emma's degree in the field of her start-up followed by many years of work experience here enabled her to develop a comprehensive understanding of the customer group and their problems (Shane, 2000). Mira did not solely have work experience in her field, but also personal experience and interactions with the potential customers which can enable individuals, such as Mira, to develop a better understanding for them.

However, not all participants possessed entrepreneurial knowledge and some others did not possess industry-specific knowledge. Instead, they showed great interest and passion for sustainability and entrepreneurship, and they were motivated to acquire the necessary business knowledge through approaches such as self-learning and learning-by-doing. Therefore, the study shows that while business knowledge can be helpful, it is not necessarily a must-have for identifying business opportunities in the sustainable field. In contrast to Kirzner's (1997) and Shane's (2000) view that the discovery process is driven by the recognition of existing knowledge, the study reveals that some participants showed a keen interest in a field, and then gathered more knowledge after recognising the opportunity. Even though there is an agreement of the interview result with the Patzel and Shepherd (2011) model, namely that prior knowledge in entrepreneurship holds a crucial function for the participants and their opportunity recognition, there were also participants who recognised opportunities even without this knowledge. Interestingly, since the participants came from various backgrounds, it can be observed that all of them possessed an entrepreneurial mindset that facilitated their ability to recognise and seize opportunities.



Prior Knowledge in a Specific Field

According to the literature, entrepreneurs are more likely to recognise opportunities when they have domain-specific knowledge (Mary George et al., 2016) or even knowledge of the ecological environments which leads to them perceiving the environment as threatened (McMullen and Shepherd, 2006; Patzelt and Shepherd, 2011).

On the one hand, the interview data confirmed this. Some participants had worked in environmental-related fields for many years before founding their company. Such experiences provided them with the knowledge that helped them identify ecological problems in that industry and develop sustainable solutions. For instance, Bob had a strong interest in sailing for many years and Iwan worked for more than ten years in the maritime industry. Furthermore, Mads had gained domain-specific experience through his background in aviation long before he founded his company: “I’ve been in aviation since, well, too many years to count.” Another example is Emma, who even admitted that she would not be as successful in her business without the knowledge she gathered behind the textile industry in her previous work. This aligns with the literature that knowledge gained through prior work enables individuals to interpret, understand and apply information in new ways and in the end, to recognize opportunities (Shane, 2000; Sarma, Attaran and Attaran, 2022). Furthermore, Lisa’s extensive work experience in the sustainability field makes her a strong example supporting the idea that prior knowledge plays a crucial role in the opportunity recognition process. Her familiarity with the industry and its challenges likely contributed to her ability to identify and pursue a sustainable business opportunity.

The fact that most of these entrepreneurs acquired knowledge in their respective fields before discovering their business ideas supports the notion in the literature that entrepreneurs with such domain-specific knowledge are more likely to recognise opportunities in their area of expertise (McMullen and Shepherd, 2006; Patzelt and Shepherd, 2011; Mary George et al., 2016).



Moreover, these findings are in line with the model's proposal that being "not only knowledgeable about changes in the market equilibrium but also about changes in the natural/communal environment in which they live" (Patzelt and Shepherd, 2011, p.643) supports entrepreneurs' opportunity discovery. Knowing about such changes seemed to create a higher awareness of potential environmental threats. Furthermore, the findings confirm Patzelt and Shepherd's (2011) proposition "that heterogeneity in individuals' knowledge of the natural/communal environment and entrepreneurial knowledge explains, to some extent, why some individuals are more likely to recognise a sustainable development opportunity than others" (p.644).

On the other hand, in contrast to what the model suggests, the study indicated that some participants had no prior knowledge about the specific field they are operating in gained through their previous career paths or university degrees. Instead, they self-educated themselves to enhance and strengthen their skills in a specific area. Some of them had a general broad knowledge of various fields or had experience from other businesses or projects, which they could draw upon to recognise sustainable opportunities. As an example, talking to Tom revealed that although he did not possess a significant amount of knowledge about the business background when he first started implementing the idea with his partner, his diverse knowledge and interests in different fields, along with his entrepreneurial mindset and willingness to take risks, played an essential role in making the implementation of the idea possible. During the interview, he stressed his diverse knowledge and interest in many different fields and his passion for being an entrepreneur, a person with courage and a 'just-do-it' spirit, and his capability to think outside the box. Tom emphasised his commitment to the idea: "I'm committed to the idea" and "I'm just helping to push it, it is like a boat that you're pushing ashore". Despite not having prior knowledge in this specific field, his passion and determination were integral to the success of the venture, which are aspects that have not been covered by the theory.



Mira's example shows that even without prior knowledge before in the field of repairing bikes or having her own business, she had enough dedication for this: "My personality is very for bettering something. I am finding solutions to problems. In my also private work, I like finding solutions. We had a problem, we saw a problem at home that our kids grow very fast." Thus, her passion and interest in the sustainability field and in starting her own business to have a bigger impact helped her to recognise sustainable opportunities.

4.2. Motivation

Besides prior knowledge, motivation was another relevant factor in the sustainable opportunity recognition process based on the model of Patzelt and Shepherd (2011). This chapter will deepen the knowledge and expand the understanding of how motivation is part of this process.

4.2.1. Results

Through a close reading of the interview data, it is evidenced that the participants have a strong personal motivation towards sustainability, which can be seen as an altruistic need to help others and make a change in their environment. Economic benefits were not the primary motive for the participants to found their own business, as is often the case in traditional entrepreneurship. This chapter explains how entrepreneurs balance between ecological, social and economic motives.

Helping Others and Making the Change

One of the main findings of the interviews was that in common for all the participants was strong personal motivations towards sustainability and that this holds a valuable role in the sustainable opportunity recognition process. For some, it was rather a lifestyle that they wanted to turn into a business while for others it was the way to operate once they recognised the business opportunities. For example, Mira explained: "Both me and my husband, we were very passionate about bikes, to make more people use the bike and also



learn children to bike. We had a big problem, but we can't do everything. We have to focus on one thing and be the best there. And we also found out, because I have talked to all our customers, and it was the bike that they saw the need for. It was a need, a need from our customers more than clothes." All participants were motivated to make even a small difference in their own ways, as Tom said when we were talking about his motivation: "Just to make this world a slightly better place. And if I can do something to facilitate that, I will do it" and later continued "I'm not going to spend my energy on bad things". One participant even said that she felt the need of saving the world.

Through a close reading of the interview data, it seemed also very important for several participants to be part of their community and help their communities by executing business ideas that would support their local environment. As Jack said, "People care about their local environment". In his business, he was motivated by supporting local use, the local environment and the sustainable way of living. Furthermore, Lenny was describing his circular economy business, its mission and how to mitigate its climate impact and said "It's urgent that communities grow in sustainable manners". The findings showed how sustainability and environmental values were important for the participants and how some connected them to social issues in their own environment. As Tom described: "We respect our planet, and we are part of it. We do not harm it. We feel it, we see it when we harm it. It appears in our environment, it appears in crop failures, storms. For me, it can't be a very personal kind of directed term, sustainability. It must be described and defined on a social level." Pete was also explaining that in his company for their customers it is important that they operate locally, so the sustainable change they are making is happening close to where the majority of their customers are located, in Europe.

By analysing the data from the interviews, it was possible to identify that the participants found motivation from altruistic matters, for two participants the main motivation for finding their businesses was their own children. They wanted to be able to affect the world their children would grow up. When we



talked about climate change and how our planet will be for their children Mira explained: “For example, about how we love being in nature, going skiing. Will our children and their children also experience days like that with a lot of snow and how amazing that is? If we don’t do something about it now and do what we can, we’re not sure how it will be for our children.” Bob was also explaining how for him being sustainable is also doing things better than the last generation has done and by collaborating to do them even better for the future generations. Once talking about previous generations he said “We can do better. And if we could reuse or regain anything in the future, that's the key”.

The results indicate that part of the participants’ opportunity recognition was a motivation to create a sustainable business after realising the global environmental issues. We had two participants who used to travel a lot for their previous work. The other participant, Pete, used to fly a lot for his business and also used aircraft for transportation even for the smallest things. He was saying that nowadays he would never do this and even mentioned that it feels “absurd”, but also pointed out that now technology is much more advantageous so there is no need for that anymore with regards to, for example, online meeting possibilities. The other participant, Iwan, worked on the sea and explained that while travelling around the world he saw that there is a clear need for this kind of business since he realised how bad conditions the sea and the bottom of the sea are. Also, the development of the climate crisis and the fact that the world has got more and more industrialised motivated him that something needs to be done. What Pete and Iwan have seen while travelling motivated them to found their own business to be able to affect the environmental issues.

For Emma realising the negative impact of the textile industry made her recognise the sustainable business idea, as she explained: “Like growing in the textile business, then I was always noticing a bit, you know, the good and the bad parts of the textile industry, and being very passionate about materials, but also see the bad sides of it. I started to think about how we



could still work in a textile business, but without having a big impact.” Furthermore, Bob realised the negative environmental impact of maintaining boats because of his hobby as a sailor. He was concerned about the pollution in the ocean when cleaning the boats for a long time. It made him realise how the way he was doing things is affecting the environment and that everyone else around him is also repeating the same mistakes: “So I think we must stop this.” Hence, it can be concluded from the data that seeing changes in the environment and in nature motivated the participants to recognise sustainable business opportunities.

Balancing Between Ecological, Social and Economic Motivation

The results of this study showed that even if economic benefits were not everyone’s prior motivation to found their own business, some entrepreneurs also recognised that there is an actual need for their business idea and it could be a way to make a profit. Iwan highlighted that “the future needs to be professionalised and there need to be large economies around these things, too. So, to have investors be interested and to have something happen on the scale it needs to happen.” He was highlighting that he is not doing this for a charity, but there is an actual business opportunity on the side of sustainable benefits. Jack, on the other hand, was sensing that his business idea will be the next megatrend and wanted to be on board with that. Later in the conversation, he explained that the economic side is not their main motivation and he is in balance with the economic risk he is taking: “I mean, at worst, we lose a job, and we have to get another job. Kind of, so you don't kind of take it too seriously, but so that then you can kind of focus on just taking the risk.” By not placing too much emphasis on the economic side of things and viewing the risk as manageable, he is able to focus on the actual sustainable business idea and the potential benefits it can bring to society and the environment.

Through an in-depth exploration of the data, it was possible to see that some participants were so motivated by sustainability-related matters that for them



making a profit was not taken for granted. For example, Mira was explaining that “with the circular economy, it is not like you get money right away. It takes time, a long time”. Some entrepreneurs were getting help from their partners to balance their economic situation, Emma, for instance, told “I mean, luckily I have the opportunity to pursue this kind of dream and this work without really needing to earn a lot of money now.” For them the sustainability aspect was so much more important than earning money, but she also explained that eventually, she needs to see if the business will be economically beneficial and if she is able to make profits.

Mads was the only one we interviewed who founded his business with other motivations than sustainable matters in mind, but rather economical. He said: “When we founded our company, it wasn’t with sustainability per se in mind”. His main goal was to address larger problems that he has identified in the aviation industry. The sustainability side of their business and the strong positive impact in regards to carbon dioxide reduction was rather a sort of “spinoff”. Nevertheless, for him “it’s a very natural aim to try to find some solutions that are beneficial to the environment rather than hurting the environment”. Even though having an environmental impact did not play a role for him in the beginning, he added: “Sustainability in the broadest term is in the back of my mind all the time.”

Therefore, in light of these findings, it can be seen that for all the participants’ motivation plays a key part when it comes to sustainable business opportunity recognition. The results highlight motivations’ importance and relevance to the individual. Participants were motivated by altruistic matters, for many of them their community and environment around them were highly motivating and they wanted to make sustainable changes on them.

4.2.2. Analysis

Overall, the majority of the participants were motivated by sustainability over economic benefits. Some of them recognise business opportunities as



well but others admitted that they would continue doing what they are doing even if they would not be able to make a profit out of it.

Helping Others and Making the Change

The data from the interviews supported the findings by Patzelt and Shepherd (2011) as they stated that when sustainable entrepreneurs recognise opportunities motivation has a major impact on the process. They explained that part of this motivation is the perception of a threat to the natural or communal environment and altruism towards others (Patzelt and Shepherd, 2011). The interview outcome showed that social impact was important for the participants' personal motivation, for instance, when participants were talking about their communities and people around them. They explained how they wanted to make a positive change for people close to them. For some participants becoming a parent made them realise sustainability from a new perspective and gave them a more altruistic approach to it, such as thinking about their own children's future in this world. This seemed to be a great motivation for Mira, as she explained: "When we started thinking about the environment, and this planet is where our children will grow." As concluded in Patzelt and Shepherd's (2011) research altruistic individuals are usually motivated by a sincere desire to help others, rather than seeking personal gains, and when entrepreneurs possess such a mindset, they might be more open to identifying sustainable business opportunities.

Once people realise that their physical and psychological well-being is closely connected to the health of the environment, they often become more motivated to protect and preserve the natural and communal environment. This can also motivate entrepreneurs to seek out sustainable development opportunities that can mitigate those threats and promote well-being, even if these kinds of opportunities might not always have any economic benefits for the person (Patzelt and Shepherd, 2011). Some participants described their motivation to protect their natural environment after realising its condition. For example, Iwan described the need for his business after travelling around



the world and realising the condition of the sea and explained: “We have 94% of the waste going into the ocean which goes below the surface. And all the focus we saw was above the surface. Waste like beach zones and also several continents, a waste floating around, but if that’s 6%, how much is there underneath? So we did see a market for it actually. We did see that we needed to clean up and somebody needed to do it.” Realising the poor condition of the environment, in this case, the sea increases Iwan’s motivation towards protecting the sea by cleaning to the bottom of it.

Bob also explained how he realised the state of his close by environment, the sea, while sailing and maintaining his boat. He also noticed that other sailors and boat owners around him were using a similar maintenance technique when he was operating as Harbormaster. Therefore, he recognised the negative effects between this behaviour and the harmful impact it had on the environment. All of this motivated him to find more sustainable solutions to sail and maintain his boat and in this way, he founded the sustainable business opportunity, as he described it: “I’ve been part of polluting the ocean and also the marinas with all this maintenance or all these antifouling products. So I said to myself back in 2013, there must be other solutions that can make this more environmentally friendly.” These results support the finding of Patzelt and Shepherd (2011) and emphasise the relation between individuals’ connection to the natural environment they are part of and how once they understand this connection, they are more motivated to recognise sustainable opportunities and more likely to protect their environment.

Balancing Between Ecological, Social and Economic Motivation

The empirical findings support the results of previous studies on the importance of the entrepreneurs’ motivation when it comes to sustainability opportunity recognition over traditional business-related goals, such as making a profit. For example, the core objectives of entrepreneurs have expanded beyond solely business-related goals to encompass a focus on sustainability concerns (Anand et al., 2021). After some of the participants



recognised their sustainable business opportunities, they followed Elkington's (1999) Triple Bottom Line approach, where business performance is a combination of financial, environmental and social impact. Based on the data from the interviews, the environmental part was the most important factor for the participants while being aware of potential business opportunities. Nevertheless, a few of them were also focused on making a profit out of it, as Iwan said: "I've gained a lot of knowledge because our approach was the business of it and we saw that with this, we have a lot of environmental organisations and so on. They do a lot of good work, but we saw that this needs to be professionalised and we can actually make money on this as well. So I think that's the way to go. We need to make an economy afterwards rather than just having it on a voluntary basis." Even though this shows economic gains, in the end, having an economic approach makes the business also more sustainable. A business that is financially sustainable is more likely to survive and continue to operate in the long run. Thus, the findings from the interviews and the intentions of the participants coincide with the theory.

Furthermore, the results support Choi and Gray's (2008) research outcome. The authors found that one of the main motivations for sustainable entrepreneurs to establish a company is to have a relatively modest living while making a small difference. Some of the participants highlighted the fact that even if they want to generate income from their businesses the sustainability aspect is the most important. This shows that it is important for entrepreneurs to find a balance between ecological and economic motivations. Lenny explained that "the entrepreneur is not running for money. In my perspective, they are running for a goal and achievement". Later he continued explaining how he still wants to make a profit through his sustainable business model but that is not the main motivation to have this business. As Patzelt and Shepherd (2011) described, while entrepreneurs might still benefit from these sustainable opportunities, their personal economic profits are not the primary requirement for identifying sustainable



development opportunities. There were also some participants who said directly that they would do what they were doing even if they would not be able to make any profit, this shows how strong their motivation is towards sustainability. Bob put it this way: “I know it is not just for money because the money is not that important, not to spend all that money if all that money comes home. I’m more concerned about the environment and the next generations postop, that’s my task.”

In their research, Nhemachena and Murimbika (2018) showed how intrinsic motivations, such as personal interest in entrepreneurial tasks like accomplishing goals and success, and extrinsic motivations, for instance, external rewards like power, status, money and social acceptance, are important determinants of entrepreneurs performance and behaviour. When analysing the data of our research, it is possible to see that all of the entrepreneurs were motivated by intrinsic motivations such as a passion for sustainability and personal values. None of the participants mentioned extrinsic motivations such as status, money or power, during the interviews.

Therefore, the findings of this study support the results of previous studies about the motivations of sustainable entrepreneurs and how it plays an important role when it comes to sustainable business opportunity recognition. The economic factors are not the main motivation source for the participants when they recognise sustainable business opportunities, but rather altruistic motivations towards the natural or communal environment they are part of. As Patzelt and Shepherd (2011) explained, even if entrepreneurs were to benefit from the sustainable opportunities they recognise, their personal economic gains are not the most important factor, but rather the benefits to a broader range of stakeholders and the environment around them.

4.3. Networks

This study was conducted not only to validate the two proposed factors by Patzelt and Shepherd (2011), prior knowledge and motivation, but also to



explore the role of networks in the opportunity recognition process. Specifically, the study aimed to investigate how the entrepreneurs' networks influenced their ability to recognise and pursue sustainable business opportunities. The upcoming chapters will present how the participants emphasised the importance of their networks in this process and then analyse these perspectives and link them to relevant theories.

4.3.1. Results

The findings of this study showed that both strong and weak ties in entrepreneurs' networks were valuable sources in the process of recognising sustainable business opportunities. At the end of this chapter, the relationship between networks and culture will be opened briefly.

Strong ties

Through an in-depth analysis of the interview data, it is possible to see how the entrepreneurs' strong ties played an important role in the sustainable opportunity recognition process. In consideration of these findings, three main groups stand out from the others, which are co-founders, mentors, partners and family members.

Co-Founders

In his current business, Pete has had a fairly unique experience, as he said: "What's quite unique for me, is this kind of co-founder partnership, where we are five, four very practically, friends and partners. And typically in start-ups, it is quite rare to be four or five. And this is perfect because we are actually different in terms of not just the mindset, but the expertise. And so we complement each other very well." This is a really good example of strong ties and how they can support entrepreneurs, especially when they are recognising sustainable business opportunities. Since they all have their own strengths, they are able to support each other. Pete put it in that way: "I mean, being four friends, very close guys being involved on a daily basis. That's fantastic. It was a real strength for me."



Mads was also highlighting the importance of his co-founder when they recognised their business opportunity. He was explaining how their specialities are working well together, and how the other co-founder has a very extensive background in the field they are operating, as he described it “We complement each other”. He was highlighting the importance of the other co-founder’s networks and explained: “The main reason why we succeeded is we found the right kind of people who not only are very motivated because I see this as an exciting new area to work with. And that really is a game changer.” This statement emphasises the significant value that networks had for him when he recognised his business opportunity and how he has been able to found his business. He continued by saying: “With my partner’s university background, he’s been able to identify very promising individuals within academia and that has helped us a lot. We really rely on extremely good, young, innovative, professionals that are really excited about the business.” This underlines how strong ties in networks can provide access to new resources, such as expertise and talented individuals.

Tom described his partnership with the other co-founder also in a way that they complement each other and how their different personalities are supporting each other when they have been recognising their sustainable business idea and founded their business together: “I’m just there to catching the idea and finding the correct canals for putting it in perspective and making or creating space for it in the world, until it appears there.” Strong ties in the network can help entrepreneurs to overcome challenges and identify business opportunities.

Mentors

Three of the participants in this research talked about their mentors when explaining how they recognised their sustainable business idea. Lenny found mentorship support within a start-up ecosystem. He was explaining the different types of benefits and advice his mentors were able to provide in his initial phase, such as “How you can pitch, how you can find a fund for your



company, what are the regulative issues, or what are the financial issues you have to deal with”. He took part in an eight-week start-up journey where he was able to work with mentors. In the end, he got the opportunity to pitch his idea. Working with these mentors helped him in the opportunity recognition process as he just had an initial idea, but struggled to execute it on his own. His new networks helped him to actually recognise the opportunity and how to make a business out of it as well as opened many new doors for him.

For Pete, mentorships have served as a valuable part at the beginning of his career and in founding his businesses. Besides his father he had three other mentors that he described as “I think there are three role models in my early ages, how they were taking decisions, how they were actually trusting their own intuition, how they were managing the learning process from their mistakes, or they were actually really good at somehow staying cold-blooded, whenever they were making mistakes. I think that has been quite interesting, learning milestones for me.” He’s been using this knowledge since he has been founding his businesses.

Jack has been able to create strong ties that have been really helpful for him when founding his business. Jack was describing them as follows: “We also know a lot of business people, angels and investors all around Finland. They’re friends, so it’s very easy to ask for help. And we do have mentors, and we do have advisors. We have participated in these accelerator programs, like every six months, or at least once a year. We are in some accelerator program where there are new mentors (...) we don’t think they’re critical, but it’s always good to hear completely different opinions.” For him having mentors has been really valuable when founding this business, since they, among the other people, have been able to help them a lot, also being critical towards him and his ideas. He continued by saying: “I could rely on my network, on the start-up world, the angels and all that, it was fairly easy for us to get funding to the point what we needed. And then more and more kind of building the connections to the new industry.” Before he founded his business, Jack got into conversations with other connections from his



network, including potential customers, as he explained: “All of our customers are something that we couldn’t have imagined that we could ever find ourselves because they come from so different backgrounds that you don’t expect so it’s kind of forming a network.” Therefore, it could be said that in his business the network has played a crucial role while recognising this sustainable business opportunity and founding the company, or at least without them, it would have been more difficult.

Partners and Family Members

As evidenced by the findings of this study, when talking about networks and strong ties that people have, family members and partners should not be disregarded. They can have valuable expertise to the entrepreneurs, but they can also share similar interests and values, as well as offer emotional or financial support. Based on these results, in some cases, family members and partners were willing to provide financial support to the entrepreneurs when they recognised the sustainable business opportunity, either by loaning them money or other forms of financial assistance. Lenny was explaining how his brother financed the testing of his first business idea and was able to gather the team, who already had knowledge in the field. Furthermore, Emma described how her partner is supporting her to finance her business by providing economic security: “I have the opportunity to pursue this kind of dream and this work without really need to earn a lot of money now. Luckily my husband is going to take, taking care of me.”

In other cases, entrepreneurs were co-founding their businesses with their partners and family members. Mira highlighted how she is sharing her passion with her partner. They recognise a problem and were able to find a solution to it and in this way came up with their business idea. Mira was also emphasising the significant implications of her father and how he was able to affect her values and how this relationship played a critical role when she have a keen interest in sustainability: “So maybe since I was a kid, I learned how important and I like to take care of the planet, take care of the nature. I



grown up with that. So maybe that is something that has been with me all the time.” Later, she emphasised how important it is that her partner is also sharing similar values and how being sustainable has been the main role when recognising this business opportunity. Now they are also able to employ another family member.

For Iwan, this has also been the case. When talking about networks and his family and friends, he explained: “They haven’t done any financial support or something like that, but I actually have several of my friends employed and also my father.” In Bob’s company, the co-founders’ children are married, and they also share the same grandchild, in this way, the business partners found each other. Their previous experiences and knowledge were complementing each other as he was describing the other co-founder “He has been running a lot of start-ups and a lot of big businesses during his life.” In consideration of these findings, it can be concluded that family members and partners can be considered an important part of entrepreneurs’ networks and their expertise and shared values can provide valuable support. They can contribute to identifying and developing sustainable business ideas.

Weak ties

Results of the interview data showed that weak ties were valuable sources for some of the entrepreneurs in the process of recognising sustainable business opportunities. The main groups that stick out were industry, field, start-up networks and centres. As Pete summarised it: “You need to be a natural networker. Because that’s how you get opportunities.” Also, cultural differences in networking have been present at the end of the chapter.

Industry and Field

The findings of this study showed that many of the participants are cooperating within their field and have been able to build networks, including other companies and environmental organisations. Emma made use of the weak ties of her network a lot. In her previous job in the textile industry, she was able to build valuable connections with the other operators



in the industry and since she found her own business, these networks have been crucial. It has been helping her to build partnerships with the brands she is renting now: “Networking, it’s crucial. In everything. Always leave in good words.” To explain better how important the networking part has been for her, she continued “I think if I didn’t have kind of the knowledge behind the textile business and a bit of contour contact and networking, it would have been much harder”. When talking about other companies in her field she was emphasising the importance of cooperation: “We always try to help each other.” Emma also explained how she has been following the development of the industry. What is happening with other sustainable companies helps her to develop her own business idea for example through LinkedIn, seminars and lectures, “I always talk with people and there’s always someone who knows someone who knows someone and then you link to it.”

When talking about networks, Iwan was explaining: “It was very important because we fund everything ourselves with the advisory business that we do and that’s based on our network.” He continued by explaining how networking with environmental organisations is also important for his business idea and how is it possible to develop it to match more for their needs: “Network is very important and also for us now, we are networking a lot with the environmental organisations and trying to see what it is they need (...). We need to have a large network and we need to see what’s moving out there.” Iwan then continued by describing how he is constantly following the field and what is happening there to be able to network and cooperate with the other companies in the field: “To be able to team up with them and have a complete package.”

Jack has been constantly building his network while building his business. Once he recognised that there might be a need for their business, he started to get to know the whole industry better and then to talk with possible customers, so that he would be able to understand their needs better: “But we have gone to a completely different direction of actually talking to farmers.



What do you need? What do you want so that we can actually sell you a direct solution that you do it yourself? What is missing?” As he explained, the whole industry is still new and emerging. Five years ago he had solely a few contacts in the industry on his LinkedIn. Now Jack’s network has been growing to more than 500 contacts purely from his industry and his company is operating in 50 countries. In light of these findings, it is possible to see the importance of networking and how weak ties have a key function in it.

Mira and her partner piloted their sustainable business first with some other business ideas but then came up with a better idea. She decided to first use her networks and talk to their current customers to see if there was a demand for this idea in the market. She said: “I have talked to all our customers, and it was the bikes that they saw the need for. It was a need, a need from our customers more than clothes.” This network greatly supported her in trying out a new idea. They ended up having a waiting list for their customers since they were not prepared for such high demand. For Bob as well their existing networks on the field were valuable since sailing has been a free time activity for him. Through his sailing network, he got to know many people in his field. Moreover, he was able to build a strong network due to his previous work: “I had nine different roles and responsibilities just to meet a lot of people around me.” Also by operating as a harbormaster and visiting many marinas in different countries, he built up his network even more. These networks helped him when he recognised his business opportunity and proved that there was a demand for his business idea.

Network and Culture

The results of the interview data related to the relationship between networks and culture will be presented next, by showing the importance of start-up networks and centres for entrepreneurs, as well as briefly presenting the relation between networks and culture.



Start-up Networks and Centres

There were many participants in this research who were emphasising the importance of networks in start-up centres and hubs when recognising and developing their sustainable business ideas. Lisa described how she has been benefiting from sustainable mobility networks in her area, from an incubator, the Swedish Innovation Agency and governmental organisations that support small businesses. She described the importance of these networks “There’s such a fantastic infrastructure for start-ups in Sweden, with networks and possibilities to matchmaking, you may pitch for international companies, and they organise everything for you. There’s funding that is specially assigned to impact companies.” She was first invited to give a presentation to other start-ups about her expertise in applications to the EU and national government. The reward of this presentation was business advice and help to develop her own business ideas further together with business developers and advisors: “We had a really good idea. And then we were part of the incubator.” Even if she already had a sustainability network on their own, this community was helping them by providing new contacts and building her networks even further.

When Lenny recognised his sustainable business opportunity and started to develop it, the start-up ecosystem also played an important role. After sharing his business idea with his lecturer at the university, his lecturer recommended participating in an eight-week program that offered him mentorship, lectures and networking opportunities. At the end of the program, he participated in a two-day marathon which ended with the opportunity to pitch his business idea to investors where his business idea took the second place: “Angel Investor just came and said ‘Hey, it’s a good idea. I would like to hear more.’” During this time he was able to meet and build his team: “When I shared my idea, the process of team building started. There are other entrepreneurs who also got an idea during that two days marathon, but they said hey, we like your idea. And they were really skilled about their background.” Therefore, the start-up ecosystem and the networks



it provided played a crucial role when Lenny recognised and developed his sustainable business ideas. While describing the encouraging atmosphere, he said: “One network opens another network, another network opens (...). They try their best to give value to your idea, not steal it.” Later he kept highlighting the importance of the community and networks around him, the trust he identified, and how priceless it has been while developing his business idea.

Culture

When analysing the data, it became evident that the only participant who talked about the combination of his culture, networking and opportunity recognition was Tom who is from Iceland. He was explaining how entrepreneurship is common in his country: “Everybody has a business in Iceland. It’s not a big thing. Like, 80% of all companies in Iceland are run by one or two people.” According to him, it is a great place to pilot different types of business opportunities: “Iceland is actually a good pilot country. If you have an idea, because we’re a small society, we’re a small nation, but we are a state, and we have all the infrastructure that larger nations have.” Then he continued by highlighting the networks and said: “People are not very far from each other. So you can maybe implement an idea. It is easier in a smaller society here.”

Overall, it seems to be undisputable how important and valuable networks are in sustainable opportunity recognition for all the entrepreneurs who participated in this research. Both strong and weak ties are playing crucial roles. Many of the participants highlighted the importance of constant networking before and after founding their businesses. Networks have helped most of the participants to recognise their sustainable business opportunities, but also to develop their idea further.



4.3.2. Analysis

In consideration of the results of this research, it is indisputable that networks have a significant impact on recognising sustainable business opportunities. The in-depth exploration of the interview data is supporting the previous research that has proven the importance of individual networks in the sustainable opportunity recognition process (Arenius and Clercq, 2005; Ozgen and Baron, 2007).

The results of this study support Arenius and Clercq's (2005) conclusion where they highlighted the importance of networks in the process of entrepreneurial opportunity recognition. According to their study, the unique structure of the entrepreneurs' networks provides them with a wider range of information. This might then lead to a higher potential of receiving entrepreneurial opportunities. They also argued that the networks of the individual could provide them access to knowledge through their interaction with other people and which might then lead to higher chances of opportunity recognition (Arenius and Clercq, 2005). After analysing the data from the interviews, it is possible to see that the results of this study are emphasising the theory. For example, the entrepreneurs' mentors and co-founders of their companies have provided them with extensive information, which has helped them to recognise business opportunities. For instance, Jack described how he knows a lot of business people, angels and investors all around Finland. He considers these people as his friends and in this way, it is been really easy for him to ask for help from them. He also has mentors and advisors and he has been participating in accelerator programs. According to him, these networks had an essential role in this process when recognising his business opportunity and while finding his customers, since he wouldn't be able to find these customers on their own with his business partners. This shows a great example of how the unique structure of his networks provides a wider range of information and a higher potential of receiving entrepreneurial opportunities.



Strong and Weak Ties

Mentors could be considered as strong ties to the entrepreneurs since in these relationships people have high levels of trust and it is common that the interaction between mentor and mentee is frequent. Mentors' assistance can take many forms, for instance, it could involve the mentor providing relevant information that has been gathered through the years to a younger and less experienced mentee (Ozgen and Baron, 2007).

Three out of ten of the participants in this research were talking about their mentors and the major impact they have had on them while recognising their sustainable business idea as well as developing them. For example, Lenny found mentors from the start-up ecosystem and explained how working with these mentors helped him in the opportunity recognition process as he had an initial idea but struggled to execute it independently. He described the process as "It was intense, mentorship and course for eight weeks, at the end of it we got a demo day, where we pitched our idea." He got a lot of help from his mentors to recognise and develop his sustainable business idea. This is a good example of how entrepreneurs' strong ties can help them to overcome challenges in the opportunity recognition process. As Ozgen and Baron (2007) said in their research, mentors can help entrepreneurs develop the skills they need to recognise emerging business opportunities, for example, mentors can help entrepreneurs to be more alert to new business opportunities and facilitate their ability to identify them (Ozgen and Baron, 2007).

Most of the participants in this study also knew other entrepreneurs who were able to support them while recognising their business opportunities and founding their businesses, either through their strong ties, like mentors and co-founders of their companies, or through their weak ties like start-up centres and networks. These findings support Klyver, Hindle and Meyer's (2008) results which emphasised how knowing someone who already started a business would increase entrepreneurship participation or, in other words,



the probability to recognise a business opportunity. As described in the results, there were several participants who highlighted, for instance, their co-founders' abilities and how they have been complementing each other, for example, Pete, Mads and Tom.

When comparing the results of the interviews in this study, both strong and weak ties appeared to be valuable in the sustainable opportunity recognition process. It is difficult to conclude which ties are more important, since in some cases, it differentiates a lot, depending on the participant that was interviewed. This appears, for example, from the results of Klyver and Arenius (2022) who clearly saw in their research that networking particularly with weak ties was more important in entrepreneurs' ability to recognise new business opportunities. Some of the participants in this research had these kinds of experiences, for example, Lisa benefited a lot from the weak ties in her network, such as sustainable mobility networks in her area, as well as an incubator, the Swedish Innovation Agency and governmental organisations all played their part while recognising opportunities. Jack's company on the other hand benefited more from his strong ties that were valuable in the opportunity recognition process, for instance, mentors, business advisors and the new networks they were able to provide such as connections to find more customers.

Network and Culture

The results indicate support for Klyver, Hindle and Meyer's (2008) theory of the important resources that entrepreneurs' networks can provide, which could be both material and immaterial resources, such as information and knowledge. As an example, Emma has been networking a lot and has been able to exploit the help of her networks while recognising her business opportunity. She gave an example and explained how her networks have helped her to build partnerships with the brands they are cooperating with now. Overall, she was emphasising the importance of her networks several times.



By analysing the data from the interviews, it was possible to see that only one participant emphasised the connection between networking practices, cultural context, and entrepreneurship. Tom's explanations support Klyver, Hindle and Meyer's (2008) theory about the relevance of population density, physical infrastructure, entrepreneurship policy and programs when it comes to finding networking patterns. According to Tom, it is very common to be an entrepreneur in Iceland. He described that it is a good pilot country for business ideas since they are a small society and nation, but they have all the infrastructure that larger nations have. He was also emphasising the close ties in people networks, which could be explained by the small society. Otherwise, when analysing the interview data, there were no outstanding differences between the cultures of the participants, but this could be explained by the fact that the study was not focused on identifying the relationship between network and culture or that the participants were not emphasising them during the interviews.

Therefore, based on the analysis of the interview data it is incontrovertible that networks have a remarkable impact on recognising sustainable business opportunities, which also supports the previous research. Entrepreneurs' networks are providing them with a wider range of information, and access to new knowledge which might lead to higher chances of opportunity recognition. Based on the results these could be entrepreneurs' strong ties like mentors, and co-founders, but also weak ties such as networks in start-up ecosystems or networks in the field the entrepreneur is operating.

4.4. Other Factors

Besides the three factors previously discussed, other influential factors emerged during the interviews that have received limited attention in both the model of Patzelt and Shepherd (2011) and existing literature: *knowledge from co-founders* and *regulations*. In the following two sections, these newly identified factors will be explored in relation to their relevance for opportunity recognition among sustainable entrepreneurs.



4.4.1. Knowledge from Co-Founders

According to the insights gathered from the interviews, co-founders' knowledge played a crucial role. The majority of the interviewed entrepreneurs had co-founders who brought complementary skills and knowledge to the business. Specifically, the participants highlighted how having a co-founder with expertise in a particular market segment or possessing other necessary knowledge complemented their own skills and experience. They appreciated the variety of skills and backgrounds of their co-founders, which helped develop the business and added more value to it. For example, Mads said about his co-founder's knowledge: "So yeah, we found each other. We complement each other. He's a specialist when it comes to baggage handling and I'm a specialist when it comes to air cargo logistics." In general, the participants appreciate the support they receive from their co-founders. In one case, the interviewee even stated that his partner initially had the idea for the business, but needed help to make it real and actually implement it.

During the interviews, it became apparent that also the age and experience of the co-founders played an essential part and influenced the sustainable entrepreneurship process. For example, Jack said that the co-founders' "benefit is that they are older – this is not their first rodeo or not even the second". This indicates that they had been through similar business ventures before and were able to use their past experiences to help guide them in the company's starting phase. Co-founders with a certain level of experience and maturity were considered advantageous for building a successful, sustainable business. Besides age and experience, sharing similar values and priorities turned out to be beneficial for some participants in their process of recognising sustainable opportunities. The case of Mira, for instance, revealed that she and her husband shared the same understanding and commitment to sustainability: "And it helped that this is also for my husband very very important, he just wants to live sustainably. I think it helps that we are two, that both me and my husband think this is very important. So, it is



easy for us.” Sharing values and a similar lifestyle seemed to help Mira in identifying her sustainable solutions.

Furthermore, Bob explained that teaming up with his son-in-law’s father who had an engineering as well as entrepreneurial background provided benefits in the initial phase: “He has been running a lot of start-ups and a lot of big businesses during his life. So he’s an engineer, a ship’s engineer.” As an engineer, the son-in-law’s father likely has technical knowledge that could have been helpful when evaluating potential business ideas related to engineering. Additionally, his entrepreneurial knowledge might have provided Bob with insights into the practical aspects of developing his sustainable business idea further.

Also, Pete has other experts in his teams who complement his knowledge: “And 20% of our team are actually forestry experts or forestry scientists”. This particular expertise complemented Pete’s business knowledge, and by working together and sharing their knowledge, the team was able to develop a more comprehensive understanding of the problem and eventually come up with a solution. Moreover, the interview with Tom uncovered that he initially lacked the expertise about a certain material needed to implement the business idea, but his co-founder had the necessary knowledge. Despite this knowledge gap, Tom had the courage to start the business and was willing to learn. He took on the challenge of self-learning and became knowledgeable in the field.

4.4.2. Regulations

The interview study showed that the second previously unexplored factor, regulations, seemed to influence the entrepreneurs’ opportunity recognition processes in two distinct ways: First, the lack or absence of regulations can trigger a need to change existing regulations and encourage entrepreneurs to identify innovative solutions to address sustainability challenges. Hereby, comparisons between regulations in different countries can provide valuable insights that can drive entrepreneurial opportunities. Second, new regulations



and standards themselves can create opportunities by setting requirements and standards for businesses to operate in a sustainable manner.

Missing or Insufficient Regulations

The interview with Bob illustrates how the absence of regulation can inspire individuals with a sustainability mindset to take action and drive change on their own. In the early stages of his business venture, Norway lacked regulations concerning boat cleaning and the amount of waste that is allowed to be discharged into the water, leading to ocean pollution. Bob recognised the problem of wastewater and its detrimental effects on the environment. He observed that no effective or satisfying solutions existed for boat cleaning due to the absence of regulation. Hence, this served as a catalyst for Bob and his co-founder to take action. To combat the existing market inefficiencies, he developed his own sustainable solution. He is really eager that his project “goes along with all the EU and then national rules and regulations” and those that will still come: “So, if I can make some sustainable and environmentally free alternatives by a few years to come, I will align the new rules and regulations by 2030.”

Further noteworthy findings emerged from the interview with Mira. She did not directly refer to the absence of regulations as a trigger for her sustainable business idea, however, she expressed the importance of collaborating with politicians to make a change through regulations and to push more circular economy models. She showed optimism that cities can become more sustainable through regulations that support the aim of becoming more bike-friendly instead of car-friendly. During the initial phase of her business idea, Mira’s drive to have a positive impact on the way politics and companies work (“all the companies have to change the way they do things now”), and influence regulations may have contributed to her idea.

In contrast, Jack benefited from the absence of regulations in a way that he could experiment with new ideas more easily without facing high bureaucratic hurdles. He explained that in the EU there are higher standards



when food is produced from insects: “In EU legislation, you have to use high-quality substrate, which basically, humans and animals can already eat.” However, in India, the regulations are different or not as strict, allowing for the upcycling of animal manure into protein to feed insects: “But you go to India, and what we’re doing in India, our customers are upcycling cow manure back to protein. So in countries where, you know, they don’t have these legislative, like bottlenecks (...).”

Moreover, the interview with Bob showed that he is also comparing regulations between countries to see where improvements can be made. For instance, he points out: “In Sweden, as an example, you’re not allowed to wash your car on your own ground at home. Using anything other than a water hose is forbidden. Yeah, in Norway you can do whatever you like, you know, you can use a lot of chemicals, but it will change.” And so he seems to compare solutions for the business field he is operating in. As a sailor and as a business owner, he travelled a lot and talked with other stakeholders to learn from their solutions: “I went to Barcelona last autumn and met with a French lady from Brussels. And she’s working with the notice, you know, EU regulations, ships, and also recreational boats.” He could see that there is a change happening, but “it’s only the Western world because there are a lot of countries that do not really care and have no rules and regulations, and are extremely polluting”. Differences in regulation may prompt him to develop a more environmentally friendly alternative which could potentially be marketed in other countries.

Regulations Providing Opportunities

For some other participants, existing or new regulations seemed to contribute to the discovery of sustainable business opportunities, as demonstrated, for instance, by the experience of Lisa. The beginning of new EU regulations requiring companies to include ESG performance in their annual reports might have led Lisa to identify a business opportunity. She elaborated on the new European law “that says that climate has to be a part of the annual



report”, which applies not only to larger corporations but soon also to smaller businesses. This requirement opens up the potential for businesses to offer services and solutions that help companies to meet these new standards and to operate in a more sustainable way. The presence of such regulations can serve as a driver for entrepreneurial innovation in the pursuit of sustainability.

The interview with Mads even revealed that regulations seemed to be one of the main reasons for his more sustainable business approach. Sustainability was no choice in his field, but he had to comment on his company’s sustainability performance as part of the contract was related to this: “We had a contract that was over 120 pages long. Probably at least 15 or 20 pages were dedicated to sustainability issues.” The sustainability requirements in the contract may have encouraged Mads to think more creatively about how to address sustainability issues in his business, potentially leading to the discovery of new sustainable business opportunities.

5. Discussion

This chapter critically discusses the findings of the study, which overall aimed to contribute to the understanding of how sustainable entrepreneurs recognise opportunities. More precisely, this study had several research objectives which were to explore the two factors proposed by the model, namely prior knowledge and motivation, and to extend the boundaries of the model by exploring new factors and their implication for the theory, such as the role of entrepreneurs’ networks, co-founders’ knowledge, and regulations. Additionally, this research aimed to investigate whether exploring the model in a previously unexplored geographic context could bring more knowledge on how entrepreneurs are recognising sustainable business opportunities, which led the study to focus on the Nordic countries.



The model by Patzelt and Shepherd (2011) served as guidance in pursuing these research aims. The authors acknowledged the conceptual nature of their model and suggested further empirical testing. This research found support for their assumptions about motivation and prior knowledge after conducting such empirical testing. Similar to the model, the findings showed that a combination of different types of prior knowledge as well as altruistic motivations towards the environment plays a key part in this sustainable opportunity process.

Key Findings

One of the primary outcomes of the interviews is the strong personal motivation towards sustainability shared by all participants, which positively affected their opportunity recognition process. The findings are in line with the results of Patzelt and Shepherd (2011) which highlight altruism and the desire to help others, as well as personal threats as important drivers for entrepreneurs in the opportunity recognition process. Once entrepreneurs perceive their natural or communal environment being under threat and realise how their own well-being is connected to the health of this environment, this creates an altruistic motivation to discover opportunities that protect and preserve it. Furthermore, personal economic gains were not the most important factors in the opportunity recognition process. A broad range of benefits for the environment and for the stakeholders around was more relevant.

In further alignment with the model, the interviews demonstrated that prior knowledge in entrepreneurship or in a specific field plays a crucial role in the opportunity recognition process. Individuals are more likely to discover opportunities if they have knowledge and expertise in a particular area and about the environment, as this can help better identify changes in the environment and potential problems that arise here. Also, working in a certain field for a long time can lead individuals to perceive the environment as threatened and discover sustainable business opportunities.



Additionally, the importance of the networks seems to be remarkable in the sustainable opportunity recognition process, which supported the results of the previous research. Through a close reading of the interview data, it is possible to contribute evidence that both strong and weak ties are valuable in this process and especially mentors and co-founders were identified as relevant in the opportunity recognition process.

After analysing the interviews, it became clear that networks have been discussed and mentioned by the participants more than other factors. It is important to note that this does not necessarily imply that networks are a more critical factor. Instead, this might be because of other reasons, for example, the flow of the conversation led in a certain direction or how questions have been framed. When compiling the interview guide, however, it was carefully ensured that all factors were given equal weight.

Unexpected Results

Besides the results summarised above, further unexpected results emerged which will be explained and linked to the research questions below.

So far, the focus of opportunity recognition in research has been mainly on exploring the individual entrepreneur or a group of entrepreneurs. However, this study unexpectedly demonstrated the value of co-founders and business partners to entrepreneurs. The findings emphasise that co-founders, who have similar values and visions, and sometimes even family members or friends, can play a vital role in supporting this process. In fact, even during the initial idea-generation phase, entrepreneurs benefit from their connections with potential business partners, especially those with experience in the field or in their business. As they might bring diverse skills and expertise, they can approach opportunities from different perspectives and complement each other. Sometimes entrepreneurs have initial business ideas but struggle to execute them on their own. With the help of strong ties in their networks, it is possible for them to actually recognise the sustainable opportunity, continue developing it and eventually found a company.



Patzelt and Shepherd (2011) assumed that entrepreneurs must be focused and motivated towards sustainability to recognise business opportunities in this field. This research confirms this assumption, but results also showed unexpectedly that even if entrepreneurs' primary motivation and dedication are not purely sustainable, their business idea might develop towards a more sustainable way during the founding process.

Furthermore, the interviews clearly confirmed the literature and the model which concluded that a combination of both types of knowledge is beneficial in discovering sustainable opportunities. However, the study revealed that this does not need to be a requirement and entrepreneurs can expand the needed knowledge and experiences also during the process, for example, through self-learning approaches. What seemed to outweigh this 'missing' knowledge was the strong interest and passion for making an impact. Ideally, this is then complemented by factors such as passion, interest, self-directed learning, hands-on experience, and entrepreneurial drive.

Another unexpected result is that differences in regulations across different countries can encourage entrepreneurs to develop more environmentally friendly alternatives that can potentially be marketed in other countries. Moreover, regulations can serve as a driver for entrepreneurial innovation in the pursuit of sustainability. This research has contributed to broadening the understanding of the impact of regulations on sustainable opportunity recognition.

The study findings indicate that even after adding the new factor, network, in the model, there were additional insights that appeared to be valuable in the opportunity recognition process, such as the role of regulations and the knowledge from the co-founders. It is worth noting, that there were no dedicated questions asked for these factors, but they emerged during the discussions and were pointed out by several participants.



Implications of the Research

Through this study, it became evident that entrepreneurs' personal circumstances and beliefs can influence their perceptions of moral intensity and motivate them to take action. For instance, if the sustainability problem they recognise is more severe from their personal perspective, their motivation to take action seems higher. The findings further suggest that individuals involved in business, entrepreneurship, and even managers in emerging markets should have sufficient knowledge about the natural environment. To seize sustainable opportunities effectively, it is beneficial when they understand possible problems, challenges, and market failures in that environmental field. Also, a combination of the two kinds of prior knowledge and a balance of them can be beneficial. On the other hand, not all entrepreneurs need to possess both types of prior knowledge – entrepreneurial knowledge and knowledge in a specific field – in order to be successful. In contrast to the model, it was shown that some entrepreneurs who possess only one of these types of knowledge were still able to succeed in their opportunity discovery as they required further knowledge during the process.

Moreover, when entrepreneurs have a team with diverse expertise and a shared vision that can be supportive when they develop a comprehensive understanding of the problem and create an effective solution. This can likewise be applied to family members who often share similar ideas and values and who can offer help in the early stages of a start-up. This implies that co-founders, business partners, and even personal connections like family members and friends are important in supporting the process of opportunity recognition. Finding partners with complementary skills as well as building strong relations and networks can greatly contribute to this process. Nevertheless, in this research, there was no clear proof that which tie, weak or strong, would have been more important than the other. Both types of networks are providing entrepreneurs access to an extensive range of information and to new knowledge, which can lead to higher changes in



sustainable opportunity recognition. It is notable that this outcome differs from some of the previous research, for instance, Klyver and Arenius (2022), who found evidence that networking particularly with weak ties was more important in entrepreneurs' ability to recognise new business opportunities.

Lastly, the study demonstrated that the absence or even presence of regulations can inspire entrepreneurs to take action and support the process of recognising sustainable business opportunities. This implies that policymakers and practitioners should recognise the power of regulations in understanding entrepreneurial behaviour. They could also consider creating supportive regulatory frameworks that encourage sustainable entrepreneurship and support an environment that makes the identification and pursuit of sustainable business opportunities easier. Business people, entrepreneurs, and individuals who want to have an impact should be aware of what happens in other countries and stay informed about new trends, regulations, and potential business opportunities.

Reflections

It is relevant to reflect on the topic of this research and be critical of the results. This allows for a deeper examination of the findings of this study and contributes to the enhancement of knowledge in this field.

Due to the research design, it is not possible to make generalisations that can be applied in a broader sense, since it is common for qualitative studies to have small sample sizes and specific contexts or cultural differences. This research is based on individual sustainable entrepreneurs' interviews and the intention was to represent a diverse range of participants. It is noteworthy that the study includes diverse participants including individuals from different age groups, genders, and backgrounds, including both immigrants and locals. The sample also varied in terms of participants' prior business experience, with some having had more than three previous businesses while others just started their first business. This broad range of experience and backgrounds enabled the study to capture a rich and varied perspective on



sustainable entrepreneurship. Furthermore, since the study period was only a few weeks, the data collection was limited and it is not possible to easily draw conclusions about the long-term implications of these findings.

It is important to consider different perspectives regarding the Patzelt and Shepherd (2011) model's effectiveness. Even if there are some factors and details that the model does not consider or include, it is important to keep in mind that no single model can cover everything about sustainable opportunity recognition. The variation in the outcome between the model by Patzelt and Shepherd (2011) and this study can be attributed since it was developed with a rather theoretical approach, whereas this research included more practical insights that could put it in a more applied context. This approach allowed the researchers to be open to other factors that may influence opportunity recognition which has not been part of the model.

Despite the fact that the Nordic context has been chosen, comparing cultural differences with the interviewed participants was not the main focus of this study. There was only one entrepreneur who unpromptedly emphasised the differences he has personally been experiencing in the networking culture and compared his country to other countries. Regardless, this study brings more insights into how entrepreneurs recognise sustainable business opportunities in this new context.

Future Recommendations

As shown in this research on the sustainable opportunity recognition process many factors seem to be valuable and it is not possible to say if one factor would have contributed it more than the others. Therefore, further exploring these factors' interrelationships could be interesting, but also to continue investigating different weighting of different factors. As discussed earlier, the model of Patzelt and Shepherd (2011) seems to be more applicable in specific contexts, which is why exploring it further with more extensive research, for instance, across various contexts, such as comparing cultural differences, would be recommended for future research. This research did



not focus on distinguishing between sectors, however, there might be different factors that influence sustainable opportunity recognition depending on which industry the entrepreneur is active in.

6. Conclusion

All in all, these findings show how valuable an entrepreneur's prior knowledge, motivation and networks are in the sustainable opportunity recognition process. This research has examined the applicability and validation of Patzelt and Shepherd's (2011) model in real-world conditions, particularly in the context of Nordic countries. Besides exploring prior knowledge and motivation, the boundaries of the model have been extended by adding another lens, network, and exploring other relevant factors. Derived from this, partly support for the proposed framework has been found and potential areas of agreement and disagreement could be identified.

While it might be commonly acknowledged that altruistic motivations play a bigger role than economic motivations for sustainable entrepreneurs, this study also found that personal circumstances and beliefs influence the perceived importance of individuals to solve a particular sustainability challenge. Notably, protecting the natural and communal environment is a primary motivation for individuals since this is tied to their own well-being. Prior knowledge in entrepreneurship and in a specific field has been demonstrated to be crucial in the sustainable opportunity recognition process, a combination is valuable but even entrepreneurs who have just one type of mentioned knowledge, benefit from it during their entrepreneurial journey. Here, additional knowledge that sustainable entrepreneurs can get from their co-founders and business partners has been found to be remarkable. In this regard, networks turned out to be particularly important to receive access to new knowledge and a wider range of information which may lead to greater changes in the recognition of sustainable opportunities. Lastly, this research



has contributed to broadening the understanding of the impact of regulations in sustainable business, since they can inspire entrepreneurial-minded people to recognise opportunities and take action.

In conclusion, this research has helped to deepen the knowledge and understanding of the sustainable opportunity recognition process which seems important when considering the increasing amount of environmental crises in the world. The authors hope that by contributing to a better understanding of what factors influence the identification of opportunities, they can encourage and inspire more potential entrepreneurs to engage in environmentally sustainable business activities and help entrepreneurs to overcome challenges. This study sheds light on what aspiring entrepreneurs could pay attention to and the elements that can facilitate this discovery process.



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Appendix

Interview Guide

Goal: We want to know about the entrepreneurs' motivation, prior knowledge and networks and how these were impacting them while they created their sustainable business.

Research question: How are prior knowledge, motivation and networks impacting the opportunity recognition process of sustainable entrepreneurs in Nordic countries?

Before we ask questions:

Introduce ourselves and our program, timeline, structure of the interview, recording (will be deleted after receiving our thesis grade), anonymity (yes/no/only first name) and company's name (if it is ok to use it, if not we can refer to the company as which field it represents)

Open-up questions:

- Tell us about yourself and your business

Follow-up question: What's your background (work/education)?

Did your education or previous work experience affect your business?

- What motivated you to become a sustainable entrepreneur?

If that was not their initial plan: Why did you still end up being one?

Or: What other factors impacted you to start your own business?

Was it important for you to ... e.g. have people around you?

- Why did you start your business? (motivation)

Follow-up question: Do you want to make a difference? (altruism)

Do you feel the need to help others? (altruism)



Are you motivated to protect and preserve the natural/communal environment?

- How do you define sustainability and what does it mean to you?
- Can you tell us about a sustainable business idea or project that you have been involved with in the past? (prior knowledge)

Further general questions:

- How do you see your business contributing to a more sustainable future?
- What are some challenges you've faced as a sustainable entrepreneur?

Follow-up question: How have you overcome them?

- Are there some individuals or organisations that have influenced your thinking around sustainability? (network)

Follow-up: how have they influenced this?

- How do you plan to further build and leverage your network to support your sustainable business goals?

Follow-up question: Do you have a mentor? Or did you have a mentor before?

Did you already know other people from your field-industry networks?

Are there other entrepreneurs in your family?

Prompts to encourage further discussion:

- Can you describe your prior experience in your personal or professional life?
- What role do you see collaboration and partnerships playing in advancing sustainability?
- Can you share any plans or goals for the future of your sustainable business?



- Did you know other entrepreneurs before you found your own company? *Follow-up question: What about other sustainable entrepreneurs?*

Things to remember:

- Don't ask leading questions!
- Ask open ended questions
- If they don't want us to record: One of us needs to transcribe, the other one leads the interview
- The participant's right not to answer any question was emphasised and that the interview would be stopped if the participant wished.