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Creating value with sustainable strategies in the manufacturing industry

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TIIVISTELMÄ:

Tämä tutkielma keskittyy Vastuullisen arvon luomiseen tuotantoteollisuudessa kilpailuedun ja taloudellisen suorituskyvyn saavuttamiseksi. On tärkeämpää kuin koskaan pitää huolta ympäristöstä, jotta tulevilla sukupolvilla olisi mahdollisuus elää tällä planeetalla. Yritykset ovat aidosti huolissaan ilmastosta, ja nykytilanteessa on kriittistä edistää kestävää kehitystä ja vastuullisuutta osana yrityksen strategiaa ja liiketoimintaa.

Vastuullinen arvonluonti on yrityksille tärkeää yhteistyön edistämiseksi sidosryhmiensä kanssa. Vastuullisen arvon luominen kestävien aloitteiden toteuttamisella osana liiketoimintamallia hyödyttää ympäristöä, asiakasta, muita sidosryhmiä ja yritystä itseään. Vastuullinen liiketoimintamalli mahdollistaa arvonluonnin ja luo vahvistuvan kiertokulun yrityksen arvonluontikapasiteetin, asiakasarvon, ympäristön arvon sekä yrityksen itselleen saamansa arvon välille.

Kestävällä kehityksellä on myös positiivinen suhde kilpailuedun saavuttamiseksi valmistavassa teollisuudessa. Panostukset tutkimus- ja kehitystyöhön edistävät kestäviä innovaatioita. Sisäisten kestävän kehityksen käytäntöjen ja ulkoisten yhteistoimintamallien käyttöönotto sidosryhmien kanssa lisää kestävän kehityksen tuloksia teollisuudessa. Kestävän kehityksen vaikutukset ovat positiivisia myös taloudellisesti. Useat tutkijat näkevät, että kestävän kehityksen toimet liiketoiminnassa vaikuttavat myönteisesti taloudelliseen tulokseen. Yleisidea yhdestä universaalisti määritellystä pisteestä, jossa kestävät toimet kääntyvät kannattaviksi, ei saa tukea tutkijoita ja konsultteja. Kyseistä pistettä voidaan etsiä kestävän arvonluonnin kautta. Sosiaaliset, ympäristölliset ja taloudelliset toimet luovat kestävää arvoa teollisissa valmistusyrityksissä, mikä vaikuttaa positiivisesti organisaation suorituskykyyn. Vastuullisuuden on oltava ydinstrategia, jotta sen potentiaalinen taloudellinen arvo voidaan maksimoida.

AVAINSANAT: corporate sustainability, competitive advantage, value creation, sustainable business model, differentiation, financial performance

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ABSTRACT:

This thesis concentrates on sustainable value creation to gain competitive advantage and financial performance on the manufacturing industry. It is now more critical than ever to value the environment for the next generations would have the possibilities to live on this planet. Companies are having real concerns of the climate and now it is more crucial than ever to implement sustainability as a part of company's strategy and business.

Sustainable value creation is important for companies to foster cooperation with their stakeholders. Creating sustainable value by implementing sustainable initiatives as a part of the business model benefits the environment, the customer, other stakeholders, and the company itself. A sustainable business model allows value creation and creates a reinforcing feedback loop between the company's value creation capacity, value to the customers, value to the natural environment as well as the value that the company can capture for itself.

Sustainability has also a positive relationship with competitive advantage in the manufacturing industry. Investments in R&D promote sustainability innovation. Implementing internal sustainability practices and external collaborative approaches with stakeholders increases sustainability outcomes in the manufacturing sector. Sustainability effects also on the financial side of the business. Various scholars see that sustainability actions in business affect positively financial performance. Scholars and consultants do not support the general idea of a single universally defined point where sustainable actions turn profitable, but the tipping point can be looked at through sustainable value creation. Social, environmental, and economic actions create sustainable value in industrial manufacturing companies, positively affecting organizational performance. Sustainability needs to be implemented as a core strategy to capture the potential maximum financial value of sustainability.

KEYWORDS: corporate sustainability, competitive advantage, value creation, sustainable business model, differentiation, financial performance

Contents

Figures

1 Introduction

Concerns about climate change and the future of this planet have truly risen over the last decade. In 2023 the world emitted over 37 billion metric tons of carbon dioxide, contributing to the accelerating climate change crisis (Statista, 2024). The common goal for all organizations and individuals is mitigating changing environmental conditions and minimizing global warming and environmental damage. Businesses can act in a remarkable role to prevent global warming by reducing their carbon footprint and driving innovation toward a more sustainable future.

The Paris Climate Agreement is an international, legally binding agreement on climate change. Its purpose is to keep the rise in the global average temperature below two degrees continuously compared to pre-industrial times and to strive for actions to limit the warming below 1.5 degrees. The agreement was concluded on December 12, 2015, and it entered into force on November 4, 2016 (United Nations, 2015, p. 5; Ympäristöministeriö, n.d.). The agreement involves all the member states of the United Nations Framework Convention on Climate Change to combat climate change. The Paris Agreement represents a significant step towards global cooperation in countering climate change and promoting sustainable development.

Companies are concerned about environmental issues, leading them to adopt sustainable practices in their business models (Lopes et al., 2022, p. 1), and organizations wanting to achieve long-term prosperity must pursue corporate sustainability (Florez-Jimenez et al., 2024, p. 1). Sustainability has been a megatrend recently and has also emerged in the business world. Companies have realized that sustainability practices are vital for staying competitive and are even prerequisites to stay in business.

The EU legislation has started to govern companies for sustainability actions toward the green transition in the manufacturing industry. Regulation (EU) 2024/1781 known as the Ecodesign for Sustainable Products Regulation (ESPR), is central to the EU's strategy for creating more eco-friendly and circular products. The ESPR aims to enhance the sustainability of products in the EU by improving their circularity, energy performance, recyclability, and durability. (European Commission, 2024)

Saving energy and reducing emissions have a significant practical value in manufacturing to promote the development of the industry whilst reducing CO2 emissions (Cai et al., 2019, p. 31). Sustainability initiatives also have straight strategic value for the company. A company can achieve cost savings, deepen its strategic relationships with stakeholders, and use sustainability for branding (Le, 2023; Manninen et al., 2024; Rounaghi et al. 2021). A company can create sustainable value for the environment and its stakeholders (Abdelkafi & Täuscher, 2016). Sustainable value creation has a positive effect on a company's competitive advantage. The level of sustainable value creation is proportional to the level of competitive advantage and vice versa (Badawi et al., 2024, p. 90). Based on these findings by several scholars can be argued that sustainability is a critical driver of value creation and competitive advantage.

1.1 Objectives of the thesis and research questions

The purpose of this thesis is to understand sustainability's influence on a company's strategic value. Companies act in a role with sustainability innovation (Gaudig et al., 2021). Ekins & Zenghelis (2021, p. 950-962) find that sustainability offers benefits for human health and welfare and generates economic returns regarding jobs, reduction in costs, income, and productivity. Thus, this thesis strives to argue that sustainability is an investment rather than a cost and takes the perspective of what needs to happen to find the tipping point where investments in sustainable actions turn into a launchpad for financially profitable functioning on the market. This thesis will also review how value is created with sustainability initiatives as well as how can a business gain a competitive advantage in the market and differentiate from its competitors with sustainable values and operations. This thesis will answer the following questions by means of scientific research:

1. How can industrial companies create value and gain competitive edge through sustainability?
2. What needs to happen to reach the tipping point where sustainable practices become profitable in the manufacturing industry?

1.2 Structure of the thesis

This thesis is divided into three chapters. The first chapter introduces the topic of the thesis and tells the targets, the structure, and the frame. Also, the research questions are presented in the first chapter. The second chapter consists of a theoretical framework, which concentrates on a company’s sustainable value creation and gaining competitive advantage with sustainable efforts. The second chapter also introduces sustainability and corporate sustainability in general and discusses finding the tipping point when a company’s sustainable efforts become financially profitable. The thesis takes a perspective on the manufacturing industry with its theory and conclusions. The last of the three main chapters is conclusions where the findings of the viewed literature will be analyzed. The conclusions chapter will also offer the answers to the research questions and propose further research.

2 Theoretical Framework

This chapter is the main theory chapter and will present the basic framework of corporate sustainability and the definition of sustainability. Corporate sustainability will be connected to sustainable value creation in business to gain a competitive advantage in the market. Different sustainability frameworks will be presented with a review of implementing sustainability to core strategies to gain performance and extra value for the environment, stakeholders, and the company itself. This chapter strives to argue that sustainable strategies and practices create value and advantages. The other important goal for this chapter is to identify the point at which a manufacturing company's strategy, with a strong emphasis on sustainability, becomes profitable.

2.1 Sustainability in general

Sustainability is a term that is used in a lot of contexts in today's world. Sustainability can signify a wide spread of things and is very flexible in spoken language. In 1983 Norwegian Prime Minister Gro Harlem Brundtland proposed a definition of sustainability at a United Nations Commission meeting that is widely used today. Brundtland defined sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Büyükbalcı, 2012, p. 45). Brundtland set the framework for sustainability as a concept and nowadays sustainability is one of the key factors to successful business. It is important to note that the term sustainability includes a wide spread of factors and is therefore difficult to introduce a definition that satisfies everyone (Eizaguirre et al., 2019, p. 2).

The United Nations presented 17 Sustainable Development Goals (SDGs) in 2015 as "a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity" (United Nations Development Programme, n.d.). The expectations are that private sector businesses, governments, and civil society share an equal in pursuing the goals. It was expected that civil society would advance with innovation, responsiveness, efficiency, and provision of skills and resources but the business sector took a huge role in reaching the SDGs (Scheyvens et al., 2016, p. 371). Even though the United Nations set the goals for sustainable development, it is still difficult to precisely define the objects of what needs to be sustained. Different professional groups have their objectives of what must be sustained but the definition by Brundtland shows the basic direction for development (Eizaguirre et al., 2019, p. 2-3).

2.2 Corporate sustainability frameworks

The sustainability frameworks present different perspectives on how sustainability can be utilized to create value. Organizations can implement sustainability frameworks to integrate environmental, social, and economic considerations into decision-making processes (Guo et al., 2015, p. 1-12).

The first framework to be represented is the resource-based view, which enhances strategic management discussions by providing a dynamic platform for scholarly engagement across diverse theoretical perspectives. The resource-based view is the perspective in which a company's internal resources are essential in creating a unique competitive advantage if the resources are utilized correctly. Managing the available resources effectively is the key point to succeed in gaining a competitive advantage. (Alshukri et al., 2024, p. 3)

Dynamic capabilities theory presents a company's ability to adapt, integrate, and reconfigure internal and external competencies to address quickly changing environments. Investing in sustainability can improve a company's dynamic capabilities which enables faster reacting to changing environments compared to competitors (Alshukri et al., 2024, p. 4). Bari et al. (2024, p. 5) find that corporate sustainability affects positively sustainable dynamic capabilities and sustained competitive advantage while sustainable dynamic capabilities impact sustained competitive advantage and corporate sustainability.

Stakeholder theory highlights the importance of considering the interests of all stakeholders, including customers, employees, suppliers, and the rest linked to the organization. By investing in sustainability, companies can build stronger relationships with stakeholders, leading to increased loyalty, trust, and competitive advantage. Alshukri et al. (2024, p. 6) find that stakeholder theory guides companies toward sustainable value creation that benefits all stakeholders.

The triple bottom line framework developed by Mele and Corrales describes generating profits while simultaneously improving the conditions of people and the planet (Fry & Nisiewicz, 2013, p. 1). Integrating triple bottom line theory into core strategies is an opportunity to establish a competitive advantage through stakeholder theory but the triple bottom line needs to be adapted into strategy on an organizational level (Schulz & Flanigan, 2016, p. 456).

The sustainability-based view argues that sustainability should be a core element of a company’s strategy. Sustainability-based view sees that companies can benefit from sustainability by combining environmental, social, and economic practices. This leads companies to improve their performance and create more value (Lichtenthaler, 2022, p. 76-95).

2.3 Corporate sustainability

The European Union requires large companies to report their sustainability activities as a part of the European Green Deal in 2019. Corporate Sustainability Reporting Directive (CSRD) requires all large and listed companies located in the EU to uncover information on what they see as the risks and opportunities from social and environmental issues and on the impact of their activities on the environment and people (European Commission, 2024). Corporate sustainability due diligence (CSDD) directive requires large companies to identify and address potential and actual adverse human rights and environmental impacts in the company’s operations, their subsidiaries, and, where related to their value chain, those of their business partners. CSDD also obligates large companies to adopt and put into effect, through best efforts, a transition plan for climate change mitigation in line with the 2050 climate neutrality target set in the Paris Agreement

(European Commission, 2024). In addition to the EU's regulations, countries have their own national environmental legislation that also must be fulfilled. For instance, the Finnish Environmental Protection Law (27.6.2014/527) contains obligations that EU legislation does not include. Companies and other operators in Finland are obligated to be aware of the environmental effects of their activities (Ympäristönsuojelulaki 27.6.2014/527, 6 §).

Most protocols define three different measurement scopes for greenhouse gases. Scope 1 is for direct emissions from sources owned or controlled by the organization itself and scope 2 is for indirect emissions from energy sources consumed by the organization. Scope 3 is for the indirect emissions from sources not owned or controlled by the organization, such as suppliers. (Fagundes Alves et al., 2024).

The bare minimum that companies must fulfill in the sustainability sector of business is regional and local legal obligations. Legislation and obligations impose companies toward more sustainable business and are important drivers toward more sustainable business environments. (Tamvada, 2020, p. 5-7)

Corporate Social Responsibility (CSR) business model incorporates economic, environmental, and social sustainability. Sustainability in business, also called corporate sustainability is usually divided into those three dimensions, which usually create the core for a company's sustainability strategy. Corporate Social Responsibility can be referred to as balancing the triple bottom line sustainability framework, which includes economic, environmental, and social aspects. When talking about sustainability in this thesis, the focus is on matters around corporate sustainability rather than directly on the definition provided by Brundtland. (McWilliams, 2020, p. 1-15)

Director Marcus (Schaltegger et al., 2003, p. 172) finds that strategic environmental management is to turn environmental challenges into profit-making opportunities rather than see them as a brake or expense for efficient business. Galbreath (2010, p. 347) finds that climate change is a challenge with significant economic and competitive risks and challenges. The previous finding by Director Marcus (Schaltegger et al., 2003, p. 172) can be seen as reducing possible upcoming expenses and softening the loss of a company's profits while actions against climate change may harm financially all companies functioning in the same field of industry. According to Gabler et al. (2017, p. 261-262), it is more critical than ever to implement green practices rather than focus on financial profit. According to previous literature, Gabrel et al. (2017, p. 262) also noted that the financial impact of Environmental Sustainability practices may vary between different companies. One instance of strategic Environmental Sustainability is that it can be used as a tool to make value for the company such as brand reputation as an environment-friendly company to attract more customers (Le, 2023, p. 4581).

While Environmental Sustainability focuses on actions with the earth's resources, Social Sustainability is related more to the company's stakeholders. Corporate Social Sustainability functions around the company's social operations such as relationships with employees, customers, and suppliers. Successful corporate Social Sustainability also creates indicators of financial success. The four sub-areas affecting most to company's financial success are: Sustainability strategy and leadership; Mission, communication, and learning; Social care and work life; and Loyalty and identification. The findings were that Sustainability strategy and leadership with Mission, communication, and learning are the most powerful impact makers around the company's financial success since those two factors define largely the future's course for the company and comprise the stakeholders that are bound to numerical results. Although these two factors are defined as high-impact makers on the company's successful performance, it does not mean that Social care and work life and Loyalty and identification are not necessary actions. The factors mentioned after are focused on people working for the firm which are the factors keeping businesses rolling. After all the high impact factors do not matter if people lack motivation and feel sick in their jobs. The two low-impact factors concern the company's external stakeholders too. If a company is not loyal or treats its customers and suppliers badly the stakeholders fade away from that kind of company. (Schönborn et al. 2019, p. 1)

Corporate Economic Sustainability is highly related to matters such as long-term financial health, responsible investments, and sustainable business practices in general but when viewing Economic Sustainability from a deeper perspective, it all comes down to environmental and social aspects. All things that are useful for humanity are origin from nature and society. Economies cannot produce anything without human resources or resources from nature. Ikerd (2012, p. 16) also defines the hierarchy of sustainability: Nature, society, and economy. Nature and the Earth's well-being is a prerequisite for humans to exist on this planet. Society cannot function properly without affluent nature and economies cannot function without affluent societies. Companies practice sustainability by environmental and social means, which tends to lead to economic sustainability as well. (Ikerd, 2012, p. 2–16)

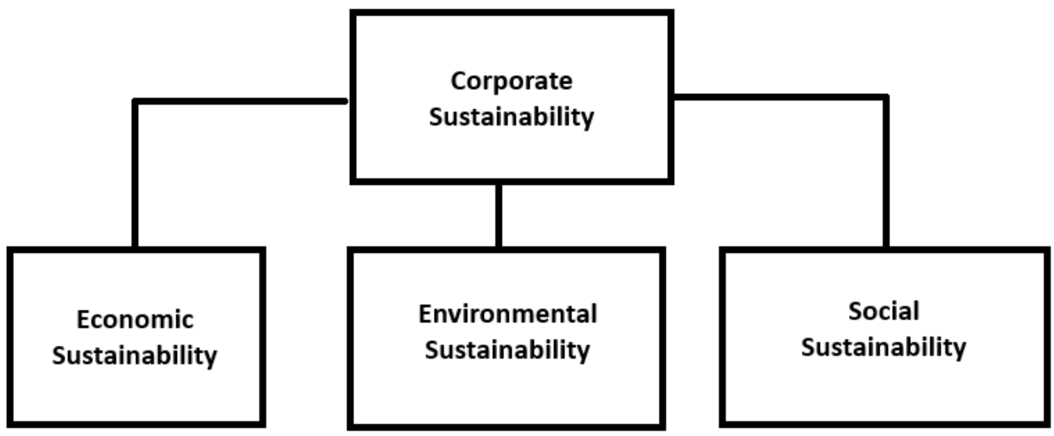

Figure 1: Three dimensions of Corporate Sustainability.

2.4 Sustainable Business Model and Sustainable Value Creation

The Sustainable Business Model includes sustainability factors presented in the previous chapter. This chapter focuses on Sustainable Value Creation through Sustainable

Business Model and sustainable strategies. Sustainable Value Creation is one of the key concepts of the Sustainable Business Model but there are gaps in terms of who, what, and how of value creation from the Sustainable Business Model perspective (Lüdeke-Freund et al., 2020, p. 82; Manninen et al., 2024, p. 100). Although the more traditional ways to find value creation are value for customers and the company, the Triple Bottom Line and stakeholder theory, Lüdeke-Freund et al. (2020, p. 82) see that those perspectives require a broader definition. They saw that a term such as stakeholder-responsive interpretation of value would set a wider framework for value creation. To whom value is created is a much harder question to answer. Lüdeke-Freund et al. (2020, p. 82) see that a greater variety of stakeholders needs to be considered and partly engaged in value creation. After that Sustainable Value Creation can be seen as a level-spanning, intertemporal, and spatially open notion, which in turn requires a systemic approach to defining and measuring which forms of value are created for whom. Based on Lüdeke-Freund et al. (2020) it can be said that Sustainable Value Creation does not have an unambiguous explanation. A company that is trying to seek its own Sustainable Value Creation strategy needs to know that there are a wide range of options under the stakeholder-responsive interpretation framework.

The Sustainable Business Model connects four partial models: the company, the environment, the decision-maker, and the customer. The term decision maker refers to a manager or entrepreneur, who requires a company to create sustainable value for the environment. A Sustainable Business Model can build a reinforcing feedback loop between the company's value creation capacity, value to the customers, value to the natural environment as well as the value that the company can capture for itself. A sustainably developed business model identifies two types of impacts. A direct impact happens via the environmental value proposition and value creation capacity and an indirect impact goes through the customer's behaviour. It is more efficient for the environment to start with creating an environmental value proposition and modifying the company's value creation capacity than straightly going to change the customer's behavior. (Abdelkafi & Täuscher, 2016, p. 74-96)

Emerging technologies can be implemented to the Sustainable Business Model to improve sustainability in the manufacturing industry. Technologies such as digital-driven technology and Artificial Intelligence (AI) improve efficiency by reducing inputs of manpower, minimizing waste, and optimizing resource use. The improvements in technology can improve a company's competitive edge while developing sustainable practices. (Liu et al., 2024, p. 13-15 ; Li et al., 2024, p. 16)

The sustainable business model is explained with a simplified figure, which explains how different functions behave around corporate sustainability. Figure 2 concludes the Abdelkafi's & Täuscher's (2016, p. 74-96) findings.

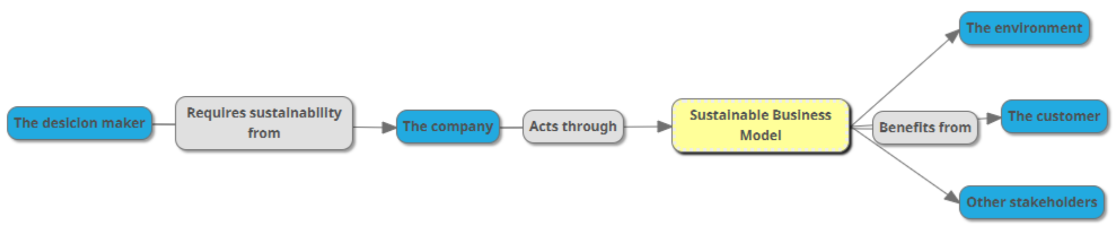

Figure 2: Sustainable Business Model.

Sustainable value creation refers to long-term corporate sustainability factors which were presented previously in chapter 2.3. The purpose of the value creation is to benefit the environment, the company's stakeholders, and the company itself. The core sustainable value creation elements are value forms, stakeholders, temporal view, spatial view, tensions and conflicts, and the guiding question to manage them (Manninen et al., 2024, p. 107). Manninen et al. (2024, p. 107) also see that sustainable value creation is about creating value with and for different stakeholders to achieve mutually beneficial relationships since a single company cannot achieve this by itself. Sustainable value creation is usually long-term work because the value is created with different stakeholders at different periods.

Companies have concerns about environmental issues, leading them to adopt sustainable practices in their business models. Companies have started to incorporate sustainability as a strategic factor in their vision (Lopes et al., 2022, p. 1). Hart et al. (2003, p. 65) saw that sustainable value in a company would be a huge opportunity. Hart et al. saw that shareholders' wealth would increase while simultaneously the company is driving toward a more sustainable world. Hart et al. found the idea of sustainable practices to be a huge opportunity for companies. The findings were presented in 2003, but scholars still entrust the basic idea of sustainability as a value creator in business.

Zioło et al. (2023) explore the theory of sustainable value creation in different company segments. The goal of the research was to systematize the information based on previous research about creating sustainable value and what factors influence the process. The findings were that firms’ practices in creating sustainable value differ depending on the company’s size and location (Zioło et al., 2023, p. 2357). The research divided companies into three diverse groups: 1) Micro, small, and medium-sized enterprises, 2) Companies in Asia and Australia, and 3) Large manufacturing companies in developed European countries. Since this thesis reviews the manufacturing industry’s sustainability, the group to be reviewed is the third.

European large enterprises use the broadest and most complex ways in the creation of sustainable value. While the second group’s sustainable value creation was based on interpersonal relations with stakeholders and consumers, the third group used technology change from black to green, R&D, sustainable supply chain management, gender parities, ecological production and innovation, management of stable relationships, or corporate governance. The factors presented are highly related to the differentiation strategy for gaining a competitive advantage. Differentiation and competitive advantage will be talked about more in chapters 2.5 and 2.6. (Zioło et al., 2023, p. 2356-2357)

The list of benefits is significant when a company is considering practicing sustainable value creation with environmental sustainability. A company gains cost savings when more environmentally friendly production processes lead to a reduction in material and energy consumption. For instance, reducing carbon emissions are connected to cost savings in short- and long-term periods (Wang et al., 2023, p. 18).

Sustainability initiatives affect on company's branding. Corporate Social Responsibility positively influences a company's image. When a firm demonstrates responsibility by addressing environmental and social concerns, it signals trust and emotional connections with customers and stakeholders. This perception reassures them that the company values their interests while also prioritizing societal and environmental interests. As a result, the company manages to improve its corporate image and customer loyalty (Le, 2023, p. 4581). Brand image can be created by unique value propositions that could act as a cornerstone for superior business performance (Anderson et al., 2006, p. 99). Extending sustainable acts over the requirements of legislation with corporate responsibility and sustainability strategy helps in creating a brand image and differentiates from the competitors to create a competitive advantage.

Sustainable Business Model Innovation (SBMI) involves organizational boundary changes with normative, strategic, and instrumental alignment (Velter et al. 2020, p. 11). Velter et al. (2020. p. 1) found that mutual boundary changes with several different stakeholders are needed to enhance organizations' understanding of the value and then to capture the value.

One instance of sustainable value creation is presented in a study by Burhan et al. (2021). The study takes perspective on how uncaptured sustainable value can be turned into captured value in the manufacturing industry. The findings were that implementing a sustainable business model, that produces eco-friendly products has a high sustainable value creation value. The eco-friendly products demonstrate the captured sustainable value. (Burhan et al., 2021, p. 1-18)

The conclusions of Velter et al. (2020) support the other scholars' findings that have been presented in this chapter. Based on scholars' findings in this chapter can be argued that: Cooperation with the company's stakeholders is an important way to find success in sustainable value creation. Figure 3 captures the findings related to Sustainable Value Creation and builds a framework to argue why Sustainable Value Creation is important in business.

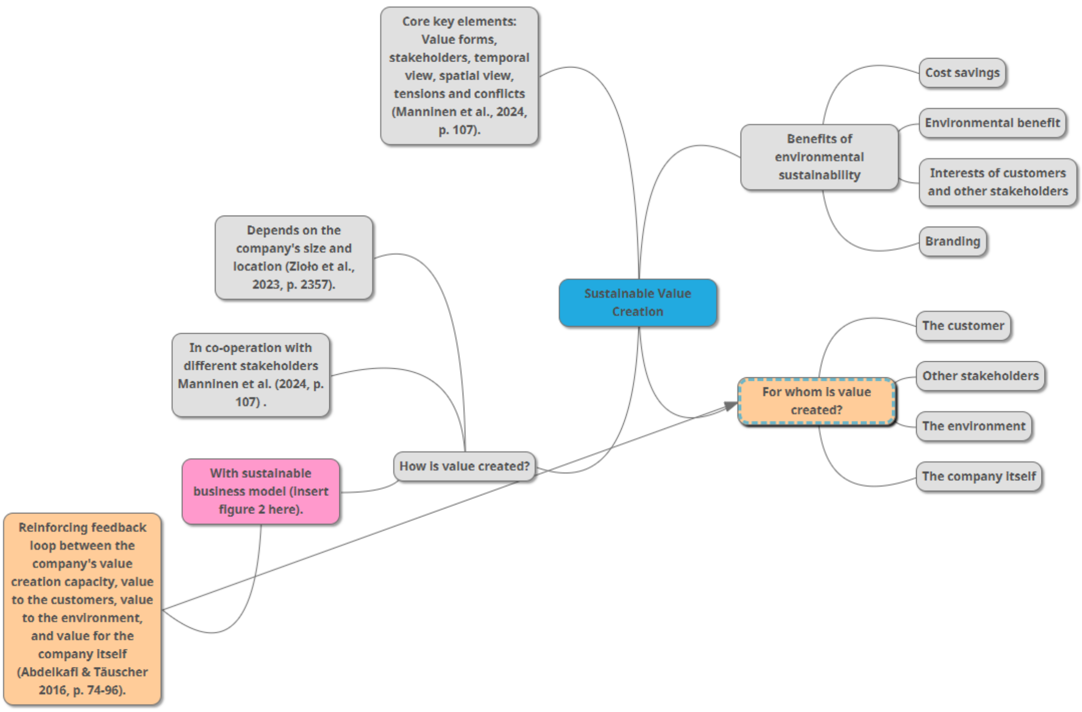

Figure 3: Sustainable Value Creation

2.5 Competitive advantage in business

Michael Porter separates competitive advantage through two basic elements: Cost leadership and differentiation (Porter, 1985, p. 3). For a company to reach cost leadership, it must have a cost advantage against its competitors. “A firm has a cost advantage if its cumulative cost of performing all value activities is lower than competitors’ costs” (Porter, 1985, p. 97). To gain a cost advantage a company can control its cost drivers or reconfigure the value chain (Porter, 1985, p. 99). Differentiation is providing something unique that is valuable to customers beyond simply offering a low price. A company has a competitive advantage if its product or service is unique enough that customers are willing to pay a premium price for it (Porter, 1985, p. 120). A company that is trying to be both, a leader in costs and different from its competitors is “stuck in the middle”. This position makes the firm’s performance below-average, since differentiating increases costs which creates a disadvantage against a competitor that is the cost leader. If a company tries to get its costs as low as possible, the product cannot be unique enough compared to competitors (Porter, 1985, p. 16). A short conclusion of this theory is that a company should choose its strategy between differentiation or cost advantage to gain competitive advantage.

D. Banker et al. (2014, p. 872) find that both cost leadership and differentiation strategies have a positive impact on contemporaneous performance, but the differentiation strategy allows a firm to sustain its current performance in the future more likely than a cost leadership strategy. Differentiation as a more effective strategy can also be justified in a non-academic way. The products of some of the largest manufacturing corporations in the world for example, Tesla, Nvidia, or Apple are not cheap at all compared to their competitors in their industry. The creation of value is based on differentiating a product or service that is unique and customers are willing to pay extra for those products.

2.6 Gaining competitive advantage with sustainable strategies in manufacturing industries

Porter (1985, p. 3) separates competitive advantage through cost leadership and differentiation. Sustainability can be seen as an important factor in both categories. Sustainable practices and strategies help a company to reduce its costs, especially in manufacturing industries. There are several ways to reduce costs with sustainability. One example of this is practicing circular economy efficiently in most phases of the supply chain. CSCM (Circular Supply Chain Management) should enable to reduce, reuse, recycle, and recover materials and components to retain the highest possible value (Kramer & Schmidt, 2023, p. 90). Sustainable differentiation has also various perspectives and a company needs to find a way to match customers' needs. Corporate businesses operating under the European Commission CSRD legislation are usually interested in sustainable practices not only because of legislation as Lopes et al. (2022, p. 1) found. If the offering party's products or services are not sustainable, there might be no way for these companies to practice business in cooperation with businesses that carefully consider their sustainability activities.

Sustainability is highly linked to reaching a competitive advantage. There are several ways how to gain an advantage with sustainable practices and even use sustainability as a strategy to differentiate especially in the manufacturing industry. Sustainable manufacturing practices are essential for small and medium-sized enterprises to gain performance and competitive capabilities. Implementing lean manufacturing and energy-efficient technologies reduces costs and environmental impact. Also, the interaction between sustainable manufacturing practices and environmental regulations was found to help small and medium enterprises strengthen their sustainable performance. Even though the research is about SMEs, the findings can be implemented for smaller business units or individual production plants inside a bigger corporation. (Ali et al. 2021, p. 12-13)

The relationship between sustainability and competitive advantage can be found in the corporate sustainability frameworks, which were presented in chapter 2.2. Following the frameworks presented, the connection between sustainability and competitive advantage can be found in industrial companies. Scholars have found that there are certain ways to gain a competitive advantage in manufacturing industries.

The race in the technology field is running with innovations emerging rapidly. It is found that technology is great to be used in sustainability. Enabling green technologies to produce eco-friendly products with lifecycle management services reduces environmental impact while gaining a competitive advantage in meeting customer demand. By enabling green technology, using the firm's sustainable dynamic capabilities, the impact is positive to sustainable product innovation and competitive advantage. In addition, sustainable product innovation strategy is a mediating variable in the association between sustainable technology adoption – competitive advantage and sustainable dynamic capabilities – competitive advantage. (Zhu et al., 2023, p. 1-17)

Supply chain management is a large sub-area in the manufacturing industry where business sustainability can be improved leading to competitive benefit. Shebeshe & Sharma (2024, p. 12-13) find that implementing sustainable supply chain management as a part of a firm's strategy leads to organizational performance and gaining competitive advantage. Environmental conservation, supplier collaboration, green product design, efficient warehousing, logistics optimization, and material reuse improve a company's performance by lowering costs making delivery more reliable, enabling continuous innovation, and lowering the lead time of processes (Shebeshe & Sharma, 2024, p. 12).

Competitive advantage can also be created through technology and innovation by enhancing process efficiency and sustainability. Scholars and industrialists believe that the fourth industrial revolution, known as Industry 4.0 affects positively sustainability (Ghobakhloo, 2020, p. 15-16). Ghobakhloo's study (2020) presents an interpretive model of Industry 4.0 sustainability function, which explains how to reach economic, environmental, and social sustainability goals through the processes of industrial digitization and upcoming technology trends. Firms' management is tied to reaching sustainable Industry 4.0 implementation. Nirmal et al. (2023, p. 57) concluded that various institutional pressures, leadership, and environmental commitment of the firms' management pressure toward the development of organizational strategic competencies, which are crucial to adopting Industry 4.0 tools and sustainable practice.

Scharmer et al. (2023) represent the sustainable framework and valuation methods to find gaps and identify a new comprehensive framework consisting of a production system with data and indicators for sustainable manufacturing. The findings were that the production system and data level describe the production environment and its environmental effects while the indicator level focuses on analyzing the collected data to understand the current state of sustainability and find areas for improvement. Scharmer et al. (2023, p. 17) focus on the triple-bottom-line framework and see that manufacturing companies implement sustainability frameworks but lack the holistic view and insufficient detail is provided on sustainability factors in manufacturing.

Ahmadi-Gh & Bello-Pintado (2022, p. 1) find that adopting and implementing internal sustainability practices and external collaborative approaches with stakeholders increase sustainability outcomes and allow a company to gain a competitive advantage. One noticeable factor is that companies that indicate and communicate about their sustainable manufacturing methods are the ones able to improve their competitive positioning (Ahmadi-Gh & Bello-Pintado, 2022, p. 10).

Based on the literature, the main argument of this sub-chapter is that sustainability is a strategic tool for reaching a competitive edge in the manufacturing industry and Sustainability can be used as an element to differentiate from the competitors.

2.7 Sustainability creating the conditions for successful business in the industrial sector

Fulfilling environmental legislation and regulations is the bare minimum of what companies must do from a sustainability point of view. Legislation and regulations may vary depending on the company’s size and location, but the value is not created only by obeying legislation. Various scholars see that sustainability actions in business affect positively financial performance.

ESG stands for Environmental, Social, and Governance. ESG actions are equated to sustainability and can be measured in business. ESG performance has a positive correlation to economic and financial performance. Companies that have higher ESG performance tend to perform financially (Pinheiro et al., 2024, p. 500).

Kim & Li (2021, p. 2) find a positive effect of sustainability factors on corporate profitability. Among different sustainability sub-sections, corporate governance has the most significant impact, particularly for firms with weak governance. Flammer (2015, p. 2566) finds that corporate social responsibility and corporate financial profitability have a positive correlation based on previous literature. The correlation varies across industries, and it is critical to find the key factors that affect profitability. Pham et al. (2021, p. 16) also found that adopting sustainability practices is significantly and positively associated with the performance of profitability ratios such as ROA, ROE, and ROCE.

In this thesis, the tipping point describes the exact point where investments in sustainability become profitable. Scholars and consultants do not support the general idea of a single universally defined point where sustainable actions turn profitable. McKinsey's analysis on sustainability and profitability suggests to strong sustainability commitment to add shareholder value but the exact tipping point varies by company and industry (McKinsey & Company, 2023).

Since one single point where sustainable practices turn profitable is difficult to define, the problem needs to be looked at through sustainable value creation. As found earlier, sustainable value is created in cooperation with stakeholders and through the sustainable business model, which means that sustainability is implemented as a core strategy. Acosta-Prado et al. (2023, p. 143) state that social, environmental, and economic actions create sustainable value in industrial manufacturing companies which affects positively organizational performance.

The value can be created sustainably in several ways in the industrial sector to turn sustainable investments financially profitable. Reducing costs and investing in technology and innovation are two concrete ways to benefit financially from sustainability. Wan et al. (2024, p. 22) find that profitability sustainability promotes corporate innovation. A stable profitability allows companies to invest in R&D and innovation to achieve long-term growth. Growth helps companies to maintain their competitive positioning in the market while promoting technological advancements and efficiency improvements across the industry.

From the manufacturing industry perspective, Munteanu et al. (2024) highlight that integrating circular economy strategies can enhance financial performance by driving sustainable growth and creating shared value for stakeholders. Integrating financial considerations with environmental perspectives drives sustainable growth while helping a business with risk management and capitalizing opportunities related to the transition from linear to circular actions. (Munteanu et al., 2024, p. 1-16)

Rounaghi et al. (2021) focus on implementing strategic cost management in manufacturing companies and its impact on corporate sustainability. Innovations and new technologies are tied to reducing production costs. Good financial decisions lead to an effective cost management strategy designed to maximize value and minimize both initial and ongoing costs. Companies regardless of size must take care of their costs. Incorporating innovative solutions, sustainable development and environmental impact into business activities helps to deal with limited resources (Rounaghi et al. 2021, p. 7).

Hermundsdottir & Aspelund (2022, p. 9) conclude that sustainability strategies drive sustainability innovations. In theory, environmental innovations and firm performance have a positive relationship. Environmental sustainability increases value creation capability and reduces costs and risks. The other important finding was that social innovation affects on firm's performance as well, but the correlation cannot be confirmed as strongly as between environmental innovation – and firm performance. Hermundsdottir's &

Aspelund’s (2022) findings can be reviewed through a sustainability-based view framework since Lichtenthaler (2022, p. 76-95) finds companies to improve their performance and create more value when implementing sustainability in the core strategies.

Figure 3 (p. 19) offers a perspective of what Sustainable Value Creation is in business. The stakeholder theory and the literature presented in chapter 2.4 offer a framework to argue that sustainable practices become profitable if they align with customers' and other stakeholders' expectations. A study by Brulhart et al. (2019, p. 1) supports the argument above. The study argues that “If a company is more environmentally proactive, it will be more attentive to a broad array of stakeholders, and this will in turn contribute positively to profitability.”

3 Conclusions

This final chapter concludes the theory presented in chapter 2 to argue for the importance of sustainability initiatives for an industrial company. Sustainability as a value creator is connected to gaining a competitive advantage in the market through literature. This chapter concludes the findings of this thesis and provides answers to research questions. At the end of this chapter, additional suggestions for further research are provided.

3.1 The purpose of the thesis

This thesis aimed to connect different sustainability initiatives to explain sustainable value creation affecting competitive advantage, especially in the industrial sector. The secondary aim was to find the connection between sustainability actions and the company's profitability and performance. This thesis understood the key elements of sustainable value creation and why sustainable value should be created. The thesis also found that sustainable initiatives and investments have a positive relationship with gaining a competitive edge and financial performance.

3.2 Sustainability as a core strategy in the industrial sector

Real concerns about climate have changed the business world permanently. The bare minimum that companies must fulfill in the sustainability section is the requirements of legislation, which are important drivers, but the companies' own sustainability initiatives and development toward more sustainable business have started to emerge. Companies are now embracing sustainability as a strategic factor for value creation and to enhance their competitive edge. Sustainable initiatives open opportunities for more efficient operation with cost savings and create opportunities for innovations. The literature presented in this thesis supports that sustainable behavior in a company adds extra value. Customers and other stakeholders are expecting more responsible business practices in the future and companies need to react to changing environments.

To answer the research questions presented in the first chapter, a company can create value sustainably through the sustainable business model. Figure 2 (p. 16) capsules Abdelkafi's & Täuscher's (2016) findings on sustainable business models with Figure 3 (p. 19) explaining and opening the findings of previous research about what is sustainable value creation. In the industrial sector, sustainable value can be created by developing different functions inside businesses such as investing in R&D to create sustainable innovations or looking after suppliers and other stakeholders to push their strategies toward sustainability as a common goal.

Achieving competitive advantage can be reviewed through sustainability frameworks, which are the resource-based view, triple bottom line, dynamic capabilities theory, stakeholder theory, and sustainability-based view. Competitive advantage can be reached either with cost leadership or differentiation strategy. For the manufacturing industry, it is more common to approach markets with a differentiation strategy by providing something unique, and sustainable strategies are one way to differentiate. Technological advancements and the revolution of Industry 4.0 have strengthened the presence of sustainability in the industrial sector. Sustainability and competitive advantage have a positive correlation. Implementing sustainability as a core strategy with stakeholders leads to gaining a competitive advantage by reducing costs and helping a company stand out from its competitors.

Changes in the business environment force companies to adopt sustainability in their strategies and sustainability investments are not optional anymore due to sustainability legislation. In previous decades sustainability might have been seen as an expense to slow down effective operations on the market but today and in the future things are on the contrary. Expectations of stakeholders drive companies toward an eco-friendlier future through sustainable innovations. Sustainability is a core factor helping an industrial company to create extra value for its stakeholders leading to gaining a competitive advantage against its competitors. Investments in sustainability initiatives are not seen as an expense and scholars find that corporate social responsibility and corporate financial profitability have a positive correlation.

Studies by several scholars show that corporate sustainability affects positively on company's performance and financial profitability. Camilleri's (2017) findings match the theory presented in this thesis. Camilleri's findings strive to show how corporate sustainability actions affects positively on value creation, competitive advantage, and sustainable development. Reaching the tipping point where sustainable initiatives become profitable depends on the industry and company. Implementing sustainability adds value and creates a competitive edge. It is important to notice that scholars find that sustainability needs to be a core strategy to maximize its value as a strategic factor.

Meeting legal requirements such as CSRD and CSDD with sustainability-related expectations of the company's stakeholders is required to reach the tipping point when sustainability turns profitable. The sustainability-based framework argues that sustainability needs to be implemented as a core strategy combining environmental, social, and economic practices to improve their performance and create more value. Manufacturing products are the core business in the manufacturing industry. Thus, sustainability needs to be implemented in the products manufactured.

Scope 3 emissions are indirect emissions from sources that are not owned or controlled by the organization and scope 3 emissions usually account for more than 70% of a business's carbon footprint (Fagundes Alves et al., 2024; World Economic Forum, 2023, p. 9). Since scope 3 emissions are related to external functions of the organization, scope 3 emissions can be reduced through suppliers and sustainable supply chain management. Shebeshe's & Sharma's (2024, p. 12-13) findings of implementing sustainable supply chain management as a part of a firm's strategy leading to organizational performance and gaining competitive advantage is one tipping point of the sustainability profitability in the manufacturing industry.

Other way to improve the core sustainability in the manufacturing industry is sustainability innovation through research and development. Implementing a sustainable business model, that produces eco-friendly products has a high sustainable value creation value (Burhan et al., 2021, p. 1-18). The study by Hermundsdottir & Aspelund (2022) finds that sustainability strategies drive sustainability innovations to improve firm performance and to reduce costs and risks with Zhu et al. (2023, p. 1-17) arguing that sustainable product innovation strategy is a mediating variable in the association between sustainable technology adoption – competitive advantage.

Figure 4 presents the elements involved in reaching the tipping point when sustainability turns profitable. The main argument around the theory presented above is that sustainability needs to be a core strategy to reach the tipping point. Figure 4 strives to answer RQ2.

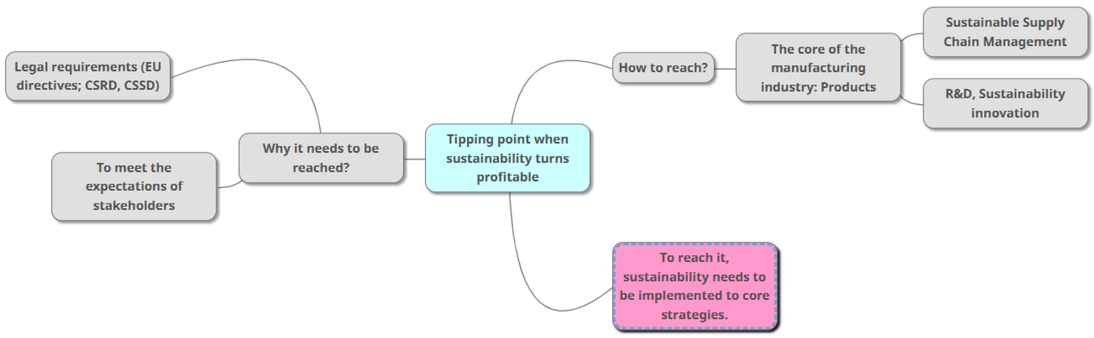

Figure 4: Tipping point when sustainability turns profitable

3.3 Findings and suggestions for further research

The research questions presented in the first chapter are:

1. How can industrial companies create value and gain competitive edge through sustainability?

2. What needs to happen to reach the tipping point where sustainable practices become profitable in the manufacturing industry?

The theory presented in this thesis provides a framework for creating value and gaining a competitive edge in the industrial sector. Based on scholars' findings, it can be argued that industrial companies can create value through sustainable business models where sustainability is implemented in core strategies. Manufacturing products is the core business for manufacturing companies. Sustainability should be seen in the manufactured products. Implementing Sustainable Supply Chain Management and investing in R&D to innovate green technologies and products helps a manufacturing company to create value for the company, the environment, the customer, and other stakeholders. Sustainability helps a company to differentiate from its competitors. The practices presented above help a manufacturing company differentiate itself from its competitors and gain a competitive edge.

Sustainability-based view framework argues that sustainability should be implemented in core strategies. Based on scholars' findings, sustainability, and financial performance positively correlate if sustainability is implemented into core strategies. Companies would also have improvements in their performance and sustainability strategies drive sustainability innovations. Circular economy strategies, innovative solutions, sustainable development, and environmental impact help a manufacturing company reduce costs to gain financial benefit. These strategies help a company to create value for its stakeholders. Based on these findings, sustainable practices become profitable for manufacturing companies when sustainability is a core strategy.

This literature review leaves gaps in how the revolution of Industry 4.0 affects the development of sustainable value creation in the industrial sector. Advanced technologies with real-time monitoring and increased information on resource usage are becoming available for a bigger number of companies. More flexible and easily customizable factories allow companies to change faster and easier with Industry 4.0 supporting sustainable actions such as circular economy. The suggestion for further research is to find out how Industry 4.0 accelerates sustainable value creation and affects stakeholders' expectations in manufacturing companies.

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