

Truly Sustainable Strategies
Effective business strategies for sustainable development
- Illustrations from the food sector -

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The President:

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List of Abbreviations

BInN	Business in Nature
BST	Business Sustainability
CDP	Carbon Disclosure Project
CEO	Chief Executive Officer
CO ₂	Carbon Dioxide
COVID	Coronavirus Disease
CSV	Creating Shared Value
ESG	Environmental, Social, and Governance
EU	European Union
FAO	Food and Agricultural Organization
ff.	and the following
GHG	Greenhouse Gas
ILO	International Labour Organization
ISO	International Organization for Standardization
MBV	Market Based View
NGO	Non-Governmental Organization
NRBV	Natural Resource Based View
OECD	Organization for Economic Cooperation and Development
POS	Positive Organizational Scholarship
PS	Product Sustainability
RBV	Resource Based View
SDG	Sustainable Development Goal
TBST	True Business Sustainability
TSS	Truly Sustainable Strategies
WBCSD	World Business Council for Sustainable Development
WEF	World Economic Forum
WHO	World Health Organization
WRO	World Resources Institute
WWF	World Wide Fund for Nature

Abstract

Humanity is facing immense environmental and social challenges such as climate change, biodiversity loss, malnutrition, and social inequality. Companies play a key role in both causing and solving a variety of these problems. The concept of True Business Sustainability (TBST) by Dyllick and Muff (2016) is seen as a promising approach in enabling business to effectively address sustainability challenges as it focuses on business's societal impact. However, research has yet to fully specify what “a fundamentally different strategic approach” proposed by Dyllick and Muff (2016, p. 170) looks like.

In research and in practice, companies predominantly focus on the business case of sustainability, opting to pursue social and environmental strategies only when they also make financial sense. However, such an inside-out perspective exacerbates social and environmental distress. In contrast, the outside-in perspective proposed in TBST takes environmental and social challenges as a starting point for strategy design and focuses on how firms can solve them. This dissertation aims to refine what the outside-in perspective means for strategy design and development by elaborating what business strategies that effectively contribute to sustainable development look like—which are here called truly sustainable strategies (TSS).

The dissertation explores three aspects of TSS: characteristics, types, and facilitators. First, the thesis develops a set of seven characteristics that define TSS. Second, it categorizes a company's strategic actions into a portfolio of TSS types. Third, the thesis identifies four factors that facilitate the development of TSS.

The dissertation's findings contribute to a better understanding of strategic actions and facilitating processes of TBST. By including expert insights from the food sector, the findings provide guidance for managers on how business can effectively contribute to solving some of humanity's most pressing challenges.

Zusammenfassung

Die Menschheit steht vor grossen ökologischen und sozialen Herausforderungen wie Klimawandel, Verlust der biologischen Vielfalt, Unterernährung und sozialer Ungleichheit. Unternehmen spielen eine wichtige Rolle in der Verursachung und Lösung vieler dieser Probleme. Das Konzept der True Business Sustainability (TBST) von Dyllick und Muff (2016) stellt den positiven gesellschaftlichen Beitrag von Unternehmen in den Fokus und ist somit ein vielversprechender Ansatz, um gesellschaftliche Lösungsbeiträge von Unternehmen zu gestalten. Es muss jedoch noch spezifiziert werden, wie ein von Dyllick und Muff vorgeschlagener „grundlegend anderer strategischer Ansatz“ (2016, S. 170) aussieht. In der Forschung und Praxis konzentrieren sich Unternehmen vorwiegend auf den Business Case der Nachhaltigkeit und entscheiden sich nur dann für soziale und ökologische Strategien, wenn sie auch finanziell sinnvoll sind. Eine solche Inside-Out Perspektive verschärft jedoch die soziale und ökologische Notlage. Im Gegensatz dazu nimmt die in TBST vorgeschlagene Outside-In Perspektive gesellschaftliche Herausforderungen als Ausgangspunkt für die Strategieentwicklung und konzentriert sich darauf, wie Unternehmen diese lösen können. Diese Dissertation untersucht die Auswirkungen einer Outside-In Perspektive auf Unternehmensstrategien, indem Strategien aufgezeigt werden die effektiv zur nachhaltigen Entwicklung beitragen. Diese Ausrichtung von Unternehmensstrategien auf eine nachhaltige Entwicklung wird hier als Truly Sustainable Strategies (TSS) bezeichnet.

Die Dissertation untersucht drei Aspekte von TSS: Merkmale, Typen und unterstützende Faktoren. Als erstes werden sieben Merkmale von TSS entwickelt. Zweitens werden verschiedene Typen von strategischen Maßnahmen in ein TSS Portfolio kategorisiert. Drittens werden vier Elemente identifiziert, die eine Entwicklung von TSS unterstützen.

Die Ergebnisse der Dissertation tragen zu einem besseren Verständnis strategischer Maßnahmen und unterstützender Prozesse von TBST bei. Sie liefern Leitlinien für das Management, wie Unternehmen effektiv zur Lösung von dringenden Herausforderungen der Menschheit beitragen können.

1 Introduction

This introduction consists of three main parts: the contextual framework, the conceptual framework, and the methodological framework. First, the contextual framework explains the research goal; it defines the research problem and elicits the research questions in response to this problem. Second, the conceptual framework clarifies the basic concepts needed to understand and conduct the research. Third, the methodological framework outlines the research context and shows how it is conducted.

1.1 Contextual Framework

The following three subsections build the contextual framework of the dissertation. Section 1.1.1 provides the background necessary to understand the relevance of the research. Section 1.1.2 analyzes the research problem and shows the research need. Finally, section 1.1.3 states the research questions and outlines the overall goal of this dissertation.

1.1.1 Background and Research Relevance

Humanity is facing immense environmental and social challenges. The impact of global economic activities continuously pushes the ecological limits of our planet (Rockström et al., 2009). In 2020, for the first time ever, the top five global risks to humanity are all environmental problems such as extreme weather events, climate action failure, natural disasters, biodiversity loss, and environmental disasters (WEF, 2020). At the same time, the social challenges are equally pressing: almost half of the world's population struggles to meet its basic needs—like healthy nutrition, sanitation, or housing—and the gap between rich and poor is increasing (Oxfam International, 2020). Hence, humanity's challenge for the 21st century is to ensure social wellbeing while staying within planetary boundaries (Raworth, 2012)—critical environmental processes, which, when exceeded, would lead to irreversible damage to earth's systems.

Sustainable development is only possible with sustainable food systems and healthy nutrition patterns (Gerten et al., 2020; UN, 2019). Agricultural production has an immense environmental impact: The sector currently uses almost 50% of all arable land, accounts for 80–90% of fresh water consumption by human activities, and emits 25% of greenhouse gases worldwide (WRI, 2019). Additionally, high population growth and changing consumer preferences means that calories produced through agriculture need to increase by almost 60% until 2050, which exacerbates environmental distress (WRI, 2019). Despite this intensive use of resources to feed people, almost 850 million people still suffer from malnutrition, while 1.9 billion people are overweight, and one third of all food production worldwide is lost or wasted (FAO, 2019; Lipinski et al., 2013). If businesses continue operating this way, the chances of achieving the Sustainable Development Goals (SDGs) set by the United Nations will be lost, both in social and environmental terms: 637 million people will be undernourished and the environmental impacts of increased food production will continue to exceed natural limits (UN, 2019). Thus, food production and consumption cannot continue along that path. Transformational changes in all parts of the supply chain¹ are needed to ensure healthy nutrition for a growing population, while staying within the planet's ecological boundaries.

Tackling these challenges and shifting economic activities toward sustainable pathways requires actions from numerous actors at various levels of society. In particular, business plays a key role in both causing and solving a variety of the abovementioned problems. In the food sector, for instance, business could help achieve one quarter of the 169 subtargets of the 17 SDGs (AlphaBeta, 2016). Moreover, not only is the private sector highly relevant to enabling sustainable development but individual companies can gain multiple benefits by operating sustainably. Besides risk reduction, efficiency gains, and innovation, a focus on

¹ In this thesis, the term supply chain refers to all processes and actors involved in delivering a product or service: from raw material extraction to manufacturing, distribution, and consumption (Mentzer et al., 2001). The term value chain refers to internal business activities that create value, as defined by Porter (1985).

sustainability provides growth potential and competitive advantage (AlphaBeta, 2016; Ioannis & Serafeim, 2019). Further, more and more customers value sustainable products or services and expect companies to act in an environmentally and socially responsible manner (PwC, 2015). The consumer demand for sustainable products and responsible behavior from companies is especially on the rise among millennials.² They expect businesses to contribute to solving societal challenges³ and are willing to pay a premium for sustainable products (Nielsen, 2015). Hence, the importance of businesses achieving sustainable development is tremendous, for both business and society.

Increasingly, companies are recognizing the importance and benefits of sustainable development and engaging in sustainability practices. Studies show that 93% of the 250 largest companies in the world publish a sustainability report (KPMG, 2017); almost half the companies surveyed rank sustainability among their top five corporate goals (BSR & GlobeScan, 2016). Sustainability is increasingly becoming a strategic necessity for organizations and businesses (Kiron et al., 2017). References to corporate sustainability and sustainability strategies have also increased exponentially in academic publications in recent years (Montiel & Delgado-Ceballos, 2014). Thus, the relevance of and engagement with sustainability in business has significantly increased in practice and research.

However, despite the increasing popularity of sustainability activities by businesses, the state of the planet has not improved. Instead, societal challenges are growing increasingly severe. Hence, there exists a big disconnect between business activities and the planet's health (Dyllick & Muff, 2016; Whiteman et al., 2013).

² Millennials are the demographic cohort born between 1981 and 1997 (Nielsen, 2015).

³ In this thesis, "societal challenges" refer to social, environmental, and economic problems that society is confronted with. The "societal impact" of business describes business's impact on these societal challenges. This interpretation is in line with other researchers in the field of business sustainability, e.g. Dyllick and Muff (2016), and Baumgartner and Rauter (2017).

Scholars in business sustainability increasingly argue that sustainability activities as currently practiced by businesses do not deliver the intended improvements in environmental and socioeconomic terms (Lankoski, 2016). Sustainable development has seen limited progress, and business fails to significantly contribute to addressing societal challenges (Baumgartner & Rauter, 2017). George et al. (2016) call for more research that provides management insights on how societal problems can be effectively tackled. The need for more research on the link between organizational actions and resultant changes on a macro level is also identified in institutional theory research (Ferraro et al., 2015). These calls for further research show the need to identify approaches that focus on the societal impact of business and provide guidance on how business can effectively contribute to sustainable development.

1.1.2 Problem Analysis and Research Need

The concept of True Business Sustainability (TBST) by Dyllick and Muff (2016) proposes ways to reduce this disconnect between business activities and societal challenges by adopting an outside-in perspective. This concept is seen as a promising approach to addressing the disconnect as it puts societal impact at the center of business activities (Morratis & Melissen, 2020). Hence, TBST is the starting point for this research project.

According to Dyllick and Muff (2016), the eventual goal of TBST is to generate business contributions to societal challenges. This approach fosters both sustainable development and new business opportunities. To be truly sustainable requires a profound rethinking of the way business is managed as well as “a fundamentally different strategic approach” (Dyllick & Muff, 2016, p. 170). The literature around the concept of TBST has yet to fully specify what this strategic approach looks like. This dissertation aims to refine the concept of TBST by defining business strategies that effectively contribute to sustainable development—which this dissertation calls truly sustainable strategies (TSS).

Figure 1 shows the motivation of the research and how the research question emerges from the overall research context.

Figure 1: Motivation of the research

	<u>What we know</u>	<u>Neglected issues</u>	<u>Revised view</u>
Big disconnect	- Increasing interest of business to integrate sustainability and to contribute to societal challenges (KPMG, 2017; BSR & GlobeScan, 2016; PWC, 2015; AlphaBeta, 2016) - BUT: not intended results at societal level (Dyllick & Muff, 2016; Whiteman et al., 2013; Lankoski, 2016; Baumgartner & Rauter, 2017; Ferraro et al., 2015; George et al., 2017)	- Missing outside-in perspective: Approaches to managing sustainability do not focus on societal impact - Missing guidance for business on how to actually deliver effective contributions → How can business effectively contribute to sustainable development	- Specify an approach that focuses on societal impact - Provide guidance on how to implement such an approach
TBST	- TBST as a promising way to reduce the disconnect (Morratis & Melissen, 2020) - Different strategic approach needed to effectively address societal challenges (Dyllick & Muff, 2016)	Unclear what a strategic approach for TBST looks like and how business can strategically address societal challenges → What do truly sustainable strategies look like?	Define characteristics, types, and facilitators of TSS

Source: Own illustration

So far, the literature around the concept of TBST and sustainability strategies has been relatively silent about the implications of an outside-in perspective on strategies. It has not provided enough guidance on how businesses can design strategies to effectively contribute to societal challenges. In specifying strategies for TBST, three streams of research are most relevant to examine: First, the literature on definitions and characteristics of sustainability strategies is important to get a clear understanding of what constitutes TSS. Second, strategy typologies show how the specification of different strategic characteristics lead to varying types of strategies. Third, the literature on the process of strategy development helps identify factors that facilitate the development of TSS. The current state of literature in the three different fields is shown next to specify the research need.

Characteristics of TSS

Sustainability strategies are defined in many different ways. The predominantly used business case thinking views sustainability strategies as a way to improve firm's competitiveness and focuses on the benefits they bring to the firm (e.g. Kolk & Mauser, 2002; Shrivastava, 1995; Steger, 1993). For example, Stead et al.

(2004) define sustainability strategies as “strategies designed to provide long term competitive advantages to organizations by taking advantage of external opportunities and minimize external threats along all three dimensions of sustainability” (p. 104). Such a business case thinking stands in contrast to the underlying understanding of TBST. According to Dyllick and Muff (2016), “serving the common good becomes the main purpose of a truly sustainable business” (p. 166). Hence, a firm’s competitiveness cannot be a suitable performance measure for TSS. Additionally, Dyllick and Muff (2016) point out that a truly sustainable business “shifts to an outside-in perspective with a focus on society and the sustainability challenges it is facing” (p. 168), thus making Stead et al.’s (2004) definition inappropriate for TSS. Current definitions and characteristics of sustainability strategies are not useful in the context of TBST because of their benefits-driven approach to sustainability.

Dyllick and Muff (2017) start a discussion on how to organize for TBST and define the organizational characteristics of a truly sustainable business. Thereby, the authors cover relevant aspects for defining strategies, like the market positioning, primary focus, and engagement of the business. A truly sustainable business aims to transform markets, focuses on society and the planet, and proactively engages with a variety of players. Although these characteristics are important to design sustainability strategies, additional aspects, like the strategic behavior or integration of sustainability, are not fully covered.

Caviezel (2018) discusses strategies as part of her application model to implement effective business sustainability.⁴ She finds that sustainability needs to be an integral part of a business’s core strategy. According to her, a strategy for effective business sustainability defines “with which core competencies the company addresses which sustainability challenges in the context of its core activity” (p. 250, own translation). This definition points to some important characteristics of TSS: the integration of sustainability into a business’s core

⁴ In her work, Caviezel (2018) uses the term effective business sustainability when referring to TBST.

activities and the use of core competencies. However, Caviezel's work does not focus on providing a holistic characterization of sustainability strategies, and hence the definition remains vague. Thus, the literature around the concept of TBST does not help to fully define the characteristics of TSS.

Strategy Types

Existing literature on business sustainability provides several frameworks and typologies for strategic sustainability management (Hart, 1997; Dyllick et al., 1997; Nidumolu et al., 2009; Porter & Kramer, 2011; Zhexembayeva, 2014; Sardá & Pogutz, 2019). These approaches are of limited value for TSS as their primary focus is the business benefits generated by the strategies (inside-out). They do not focus on the societal contributions to sustainability challenges (outside-in) as proposed by Dyllick and Muff (2016). Further, most of the typologies perceive business as being dependent on and constrained by sustainability, instead of business as being able to positively contribute to sustainable development while also benefiting from such an engagement. An inside-out approach focuses on reducing negative impacts on the environment and on society rather than increasing positive contributions and enabling a sustainable future. Hence, existing strategy types are not fully applicable to the context of TBST.

Dyllick and Rost (2017) apply the TBST typology to products and define different stages of product sustainability. They show the necessary shifts needed to get to higher levels of sustainability. Their typology offers important insights into different product strategies and provides guidance on how businesses can become truly sustainable. However, the focus is limited to product strategies, and holistic business strategy types are not defined.

Facilitators of Strategy Development

So far, the differences in the strategy development process between business-oriented strategies and sustainability strategies, not to mention TSS, are not sufficiently defined (Engert et al., 2016). The literature analyzes different

determinants of strategy development; aspects influencing and shaping the process range from environmental, situational, individual, and organizational factors (Neugebauer et al., 2016, Simon & Thompson, 1998; Hutzschenreuter & Kleindienst, 2006). However, it remains unclear to what extent these factors are applicable in the context of TBST, and how they can facilitate the development of TSS.

Dyllick and Muff (2017) discuss organizational aspects that influence the development of strategies, like an organization's structural characteristics or its type of leadership. Caviezel (2018) shows that leadership and culture are key drivers of effective business sustainability within companies, and Moratis and Melissen (2020) point to three intelligences that businesses need to develop in order to become truly sustainable: naive, native, and narrative intelligence. These contributions indicate what can help businesses move toward TBST. However, these drivers and characteristics have not been integrated into a holistic framework to provide guidance on how businesses can develop TSS. An integrated and holistic analysis of the facilitators of the strategy development is missing so that it remains unclear how the strategy process can be facilitated.

The analysis of studies that use the TBST concepts and sustainability strategy research shows that so far, the constituents of TSS remain unknown, meaning it is not fully defined what an outside-in perspective implies for strategies. This missing link makes it difficult to design and develop TSS. Therefore, in order to understand the strategic implications of TBST and to define what strategies that effectively contribute to societal challenges should look like, three aspects of TSS need to be defined: characteristics, strategy types, and facilitators.

1.1.3 Research Questions and Aim

In order to address the research need, the main research question is: What do truly sustainable strategies look like?

The main research question can be divided into different subquestions according to the three areas of the research need.

(1) *What are the characteristics of TSS?*

The first subquestion aims to define the characteristics of TSS. This question addresses the need for a new definition of sustainability strategies that takes into account the purpose orientation and outside-in perspective suggested in TBST. So far it remains unclear what the implications of TBST for strategy purposes, strategic behavior, or strategy outcome may look like. Therefore, the first subquestion aims to define the characteristics of TSS. This is the first step to specifying TSS and to making it easier to identify and design them.

(2) *What are different types of TSS?*

The second subquestion addresses the shortcomings of existing strategy approaches to incorporate an outside-in perspective; it also addresses the missing focus on the positive societal contributions of business. This question aims to identify different types of TSS to show how a portfolio of TSS looks like.

(3) *What facilitates the development process of TSS?*

The third subquestion aims to shed light on the development process of TSS. This question addresses the need to further refine how to organize for TBST and aims to identify the facilitating factors of the development process of TSS.

Figure 2 shows an overview of the research need as well as how it is addressed by the three subquestions.

Figure 2: Research questions

Research question: What do truly sustainable strategies look like?			
	What we know	Neglected issues	Revised view
TSS	Different characteristics of sustainability strategies (Dyllick & Muff, 2017; Caviezel, 2018; Stead et al., 2004; Kolk & Mauser, 2002)	Existing definitions based on inside-out; Insufficient definition of what constitutes TSS → (1) What are the characteristics of TSS?	Define clear characteristics of TSS that make it easier to identify and design them
	Different strategy types and frameworks (Hart, 1997; Dyllick et al., 1997; Nidumolu et al., 2009; Porter & Kramer, 2011; Zhexembayeva, 2014; Sardá & Pogutz, 2019)	Existing concepts focus on business benefits and reduced negative outcomes → (2) What are different types of TSS?	Define types of TSS to provide guidance on how business can contribute to societal challenges
	Different factors proposed that facilitate the development (Dyllick & Muff, 2017; Caviezel, 2018; Moratis & Melissen, 2020; Neugebauer et al., 2016; Simon & Thompson, 1998)	Not fully specified how the development of TSS is facilitated → (3) What facilitates the development process of TSS?	Define facilitators of TSS to support their development

Source: Own illustration

In light of the disconnect between societal needs and businesses, the overall aim of this research project is to refine the concept of TBST and clarify its implications for business strategies. By developing a strategic roadmap, companies will be guided toward making effective contributions to sustainable development. This aspect of the research aim follows the call of different researchers and practitioners to link business outcomes to societal impacts and to provide guidance on how business can address broader societal issues (e.g. Dyllick & Muff, 2016; Baumgartner & Rauter, 2017; Ferraro et al., 2015; WWF, 2017).

On a theoretical level, the research aims to build theory around the concept of TBST as well as to delineate the related processes for adapting an outside-in perspective; i.e. the implications of an outside-in approach for strategy design and development. The purpose is to better understand the criteria of TSS as well as strategy development and its influencing factors.

On a practical level, this research aims to provide guidance on how business can effectively contribute to sustainable development. The findings will contribute to the ongoing debate on how to manage and organize TBST by Dyllick and Muff (2017) and Caviezel (2018). The aim is to support companies in the following ways: to assess their strategies' current level of sustainability, to identify avenues for improvements, and to benchmark their strategies against other businesses.

On a societal level, the dissertation aims to enable sustainable development. In particular, solutions to sustainability challenges in the food sector shall be delivered, which help to both maintain and improve the state of the planet.

1.2 Conceptual Framework

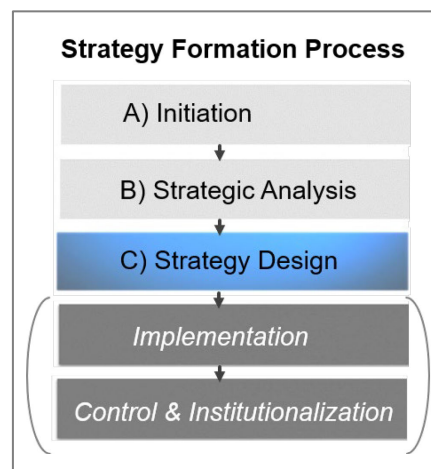
This chapter explains the conceptual framework underlying this dissertation. It aims to ground the project in the existing literature of strategic management. To that end, it clarifies important concepts and defines the boundaries of this research project. First, the general conceptual framework for this study is

introduced. Then, the different conceptual elements are discussed and the underlying understanding of strategic management for this thesis is defined. Additionally, the concept of TBST is introduced in more detail. Important terms to understand the research project are defined and the structure of the thesis is shown.

1.2.1 The General Framework

A conceptual framework shows the interrelation of the objects of a study and defines its underlying understanding. The framework indicates the conceptual foundation of the research project and provides guidance for designing the study and answering the research questions. Figure 3 shows the general conceptual framework for this dissertation. The main focus of the research project is on strategy design. The preceding phases of initiation and strategic analysis are briefly covered to generate a basic understanding of strategy design. The last two steps of the strategy formation process—implementation, and control and institutionalization—are not part of the research. This sequence of phases follows a planning based approach, discussed in detail in the next section.

Figure 3: Conceptual framework of the dissertation



Source: Own illustration, based on Learned et al. (1965)

In strategic management, there are two main research streams: 1) content research, dealing with the performance implications of strategies and 2) process research, defining how strategies are formed and implemented.⁵ This research project falls in the process research category because it focuses on how sustainability strategies are made, i.e. the development and design of TSS. Therefore, important concepts and underlying understandings of process research are clarified in the next section. Aspects of content research are also discussed to some extent as there are significant interrelations between the two categories.

1.2.2 Process Research: Strategy Formation

The dissertation's conceptual framework follows a planning based approach. The following section first explains the underlying model of the strategy formation process according to the planning based approach and shows how it is adapted for this dissertation. Then, the underlying assumptions of the planning based approach are unfolded to discuss its criticism. Finally, the adapted model is distinguished from alternative approaches of strategy formation to show its applicability for the research project.

Research on the strategy formation process looks at how strategies are formed and how this process can be shaped. In general, the strategy formation process comprises all actions and decisions that build the overall strategy, encompassing both ad-hoc activities and routine strategic planning practices.⁶ There exist several approaches to the strategy formation process and its influencing factors.⁷ This research employs a planning based approach that divides the strategy formation process into strategy formulation and implementation. This approach is based on the work of Harvard Business

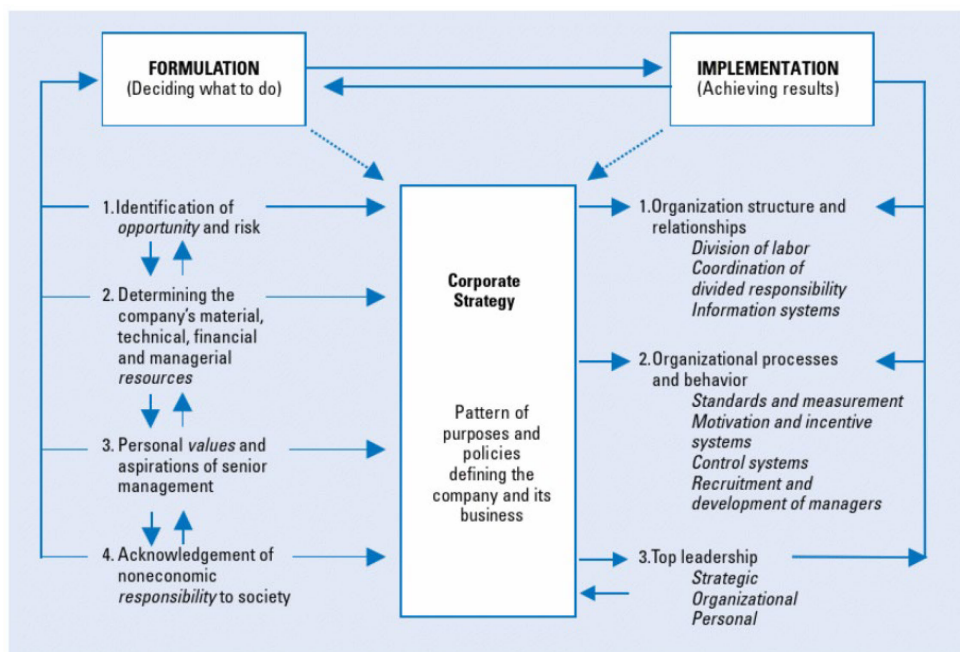
⁵ This differentiation between strategy content and strategy process was introduced in the 1960s by Chandler (1962), Ansoff (1965), and Andrews (1971) and has been shaping the field of strategy until today.

⁶ Depending on the underlying approach of strategic management, the definition of strategies changes. The understanding of what constitutes a strategy will be covered in more detail in section 1.2.3.

⁷ For an overview of the different approaches, see Müller-Stewens, 2016, p. 47ff.

School professors Learned et al. in 1965 and was shaped by different thought leaders, including scholars—such as Andrews (1971), and Porter (1996)—and consultants associated with Harvard University—such as the Boston Consulting Group and McKinsey and Company (Seddon et al., 2004). The Harvard Business School Approach can be assigned to the Design School of strategy formation. The Design School employs a normative, prescriptive approach to define what the strategy formation process ideally looks like (Mintzberg et al. 1998). Figure 4 shows the process model by Learned et al. (1965).

Figure 4: Design School model: Strategy formation process



Source: Learned et al. (1965), according to Müller-Stewens & Lechner (2016, p. 48)

In the first phase of this model, strategy formulation, managers decide what to do. They analyze risks and opportunities as well as internal resources. The analysis is influenced by personal values and aspirations of senior managers as well as business's non-economic responsibility to society. This results in the corporate strategy, defining the company and its business. In the second phase, strategy implementation, managers define organizational structures, processes, and governance to achieve the intended results.

The dissertation's conceptual framework slightly adjusts the process of strategy formation conceived by Learned et al. (1965), which is in line with other strategy concepts in the context of sustainability (Wunder, 2014, p. 68 ff.):

First, in the initiation phase, an understanding of sustainability is created within the organization. This process is comparable to the acknowledgment of societal responsibility in the Design School model. Here, managers define sustainability and its strategic relevance.

Second, businesses conduct a strategic analysis. The internal and external strategic analysis is slightly adjusted to the purpose of this research. In the context of TBST, the strategic analysis is not about identifying the strategic fit between risks, opportunities, and organizational resources, as described in the Harvard Business School Approach, but rather about generating the highest societal impact by creating a fit between relevant sustainability challenges and core competencies (Dyllick & Muff, 2016; Caviezel, 2018). To that end, relevant societal challenges need to be identified. This step is key for an outside-in approach: the external challenges need to be identified first in order to design strategies that actually address them.

The third phase is where the strategy is designed and is the focus of this research. This phase can be labeled "today forward-thinking," which means to map out all possible ways to achieve the company's long ranging vision (Davis-Peccoud et al., 2018).⁸

In the following, the underlying assumptions of the planning based approach as well as its critique are discussed in order to show its applicability for this research project.

According to the Harvard Business School Approach and the Design School model, strategy formation is perceived as a conscious decision making process. Hence, the resulting strategies are a set of decisions. These thoughts and decisions are primarily taken by the top management of a firm who act in a

⁸ Further details on the structure of the thesis are presented in section 1.2.7.

structured and rational manner. Additionally, the model assumes that the two phases—strategy formulation and implementation—can be separated and conducted in a sequential order (Mintzberg et al., 2005).

These assumptions about the strategy formation process can be critiqued along two main lines. First, the exclusive focus on conscious decision making highly simplifies the strategy formation process. Events which cannot be represented as explicit decisions are not taken into account. For example, important aspects of strategy formation can arise unconsciously or in verbal discussions. Hence, other sources and patterns of strategy formation must also be taken into account (Müller-Stewens & Lechner, 2016). In addition, decision makers have a limited capacity to process information and to make rational decisions. In fact, Waterman et al. (1980, p. 16) suggest that, “In the face of complexity and multiple competing demands, organizations can’t handle decision-making in a totally rational way.”

The second critique of this model is that the strategy formation process does not necessarily follow this linear sequential scheme between the two phases of formulation and implementation. Additionally, strategic management needs to deal with numerous challenges during the strategy process, like complexity, uncertainty, and ambiguity. Especially in the context of sustainability, these challenges are inevitably present. Hence, such rational planning based approaches are criticized for their inflexibility and rigid structure that do not account for dynamics or uncertainties in the external environment. Moreover, internal factors, such as time constraints or conflicts with other strategic processes, could also influence the process and call for adjustments of the ideal scheme (Müller-Stewens & Lechner, 2016).

Based on these critiques, incremental or dynamic approaches point to the emergent nature of strategies and claim for more flexibility throughout the formation process. Alternative approaches to the planning based process are categorized by Idenburg (1993) in three groups: emergent strategy formation, guided learning, and logic incrementalism. The emergent approaches describe

the strategy formation process as evolving behavior patterns over time (Mintzberg & Waters, 1985). The realized strategy can differ from the intended one because emergent and unrealized strategies influence the strategy formation process. The authors in this field point to the need for flexibility throughout the strategy formation process to react to unpredictable developments and accidental events by “muddling through” (Idenburg, 1993).

According to guided learning approaches, the strategy formation process is more than simply “muddling through” and can be compared to a “guided evolution” (Lovas & Ghoshal, 2000). Here, a broad overall perspective of a company’s strategic direction guides the steps and decisions at lower strategic levels. These steps in turn modify and concretize the overall perspective. Hence, the distinction into two separate phases no longer holds true. The strategy formation process can be defined as a variation, selection, and retention of strategic initiatives within a business unit (Idenburg, 1993). Similarly, Eisenhardt and Sull (2001) argue for disciplined flexibility by defining simple rules that guide the strategy formation process. The flexibility helps to overcome complexity and rigidity and supports a business in coping with dynamic and rapidly changing environments.

Finally, logic incrementalism describes the strategy formation process as successive steps: each phase of the process builds on the previous one following its own internal logic (Idenburg, 1993). Other incremental approaches describe the strategy formation process as self-organizing. In contrast to a conscious and uniformed process, management relies on the power of self-organization and the emergence of order through the interaction of various actors. In this case, management simply creates the framework in which the self-organizing processes emerge (Müller-Stewens & Lechner, 2016).

Overall, although the planning based approach underlying this dissertation can be critiqued as being rigid and inflexible when compared to a dynamic approach, it is most suited for the purpose of this research project. The main goal of this dissertation is to provide orientation and guidance to develop and

design TSS. Therefore, a clear structure and ideal process of strategy formation seems suitable. A certain degree of structured, analytical planning builds the basis for future adjustments.

Although this dissertation is based on a planning based approach, it acknowledges that not everything can or should be planned. The strategy formation process cannot be precisely predetermined by management. In reality, adjustments need to be made due to interdependencies and overlaps between the two sequential phases of formulation and implementation as well as additional influencing factors, like time constraints, uncertainty, and complexity. Consequently, this dissertation argues against total determinism. Aspects of dynamic approaches are discussed and taken into account at the end of this dissertation (section C3.3).

1.2.3 Sustainability Strategies and Strategic Management

This section elaborates on the theoretical underpinnings of sustainability strategies in the context of this dissertation and defines commonly used terms.

The strategic management literature distinguishes between “business strategies” and “corporate strategies.” Business strategies refer to strategies of one organizational entity and deal with its positioning in the market and its organizational goals. Corporate strategies are strategies that deal with multiple entities and define how corporate value can be maximized by managing the organizational entities (Müller-Stewens & Lechner, 2016). This dissertation focuses on business strategies as it aims to define how an organizational entity can generate societal impact.

There is not a single definition of business strategies that can be used universally in all contexts. In fact, the definition of strategies differs depending on the underlying approach of strategic management. This dissertation uses the understanding of strategies according to the planning based approach by the Design School model. This approach is a broadly accepted one and fits the purpose of this research project.

According to this perspective, strategies are defined as a set of decisions determining a business's position, objectives, purposes, and goals as well as plans of action for achieving them (Andrews, 1971; Chandler, 1962; Mintzberg, 1994; Porter, 1996). Hence, a strategy defines "what" to do based on the vision and mission, which outline the purpose of the business. This overall strategic direction guides the decision making process at all levels. Additionally, it consists of actions that define "how" to move in this direction. Consequently, a strategy defines what a desirable goal is and measures how the business can move from the current situation to the desired future. Despite this rather rigid approach to strategy design and development, continuous adjustments to the strategic path are inevitable. Especially so in the context of sustainability strategies, where environmental, social, and economic considerations play a huge part in creating dynamics and complexity, which ask for continuous adjustment. This working definition of strategies is in line with the strategic understanding proposed by Caviezel (2018) for effective business strategies.

The literature on sustainability strategies deals with environmental strategies (e.g. Kolk & Mauser, 2002) and social strategies (e.g. Margolis & Walsh, 2003). Although they are often separated, this dissertation refers to both the environmental and social aspects of sustainability when talking about sustainability strategies.

The definition of strategic management and business strategies is also influenced by the underlying economic theory. Stead and Stead (2019) describe a shift in the theoretical perspective of strategic management from environmental economics to ecological economics. Environmental economists perceive the economy as a closed system and base their strategic management paradigm on neoclassical economics. In so doing, they make three main assumptions: (1) unlimited growth is possible; (2) resources are unlimited as natural capital can be substituted by human made capital; and (3) the self-interest of homo economicus is the best way to allocate resources (Daly & Farley, 2011; Stead & Stead, 2019). However, in contrast to neoclassical theory, environmental economics recognizes the value of environmental and social

aspects and tries to internalize the environmental costs of doing business (Stead & Stead, 2019). The models by Porter (1980, 1985) of industry and value chain analyses are key contributions of this strategic management paradigm and shaped the development of research in this field.

Stead and Stead (2019) argue that this paradigm no longer accurately represents the current business environment and strategic management practices:

Strategic management students and practitioners need new models and constructs that better reflect the current realities of the practice of strategic management [...] The assumptions of ecological economics provide a more accurate picture of reality than the neoclassical paradigm's view of economy as a closed system (Stead & Stead, 2019, p. 77).

Ecological economics is built on the following six assumptions: (1) Ecological economists perceive companies as a co-evolving subsystem of the economy, society, and the ecosystem. Based on the principle of entropy, ecological economists acknowledge Earth's limited carrying capacity (Georgescu-Roegen, 1971). In keeping with this idea, economic activities cannot grow infinitely but are limited by the planet's natural boundaries. (2) Further, ecological economists point to the importance of incorporating both short and long term dimensions into economic decisions. (3) They recognize humans as a part of nature and (4) point to the importance of microlevel goals to support the macrolevel goal of sustainability. (5) Additionally, ecological economists perceive technology as an important path toward sustainability; however, it is not a universal remedy for achieving sustainability. (6) Finally, ecological economists point to the importance of transdisciplinary solutions for ecological problems (Stead & Stead, 2019). Stead and Stead (2019) point out that such a theoretical framework allows decision makers to "incorporate critical global issues such as climate change and income inequality" (p. 78). According to Stead and Stead (2019), a theoretical construct based on the assumptions of ecological economics represents sustainable strategic management that is truly sustainable

in terms of Dyllick and Muff's typology (2016). Therefore, the theoretical framework underlying the strategic management approach in this dissertation is based on ecological economics.

1.2.4 True Business Sustainability

The typology of TBST as created by Dyllick and Muff (2016) builds the starting point and central concept for this thesis. An overview of its main aspects and key characteristics is presented in the following section.

Since its publication in 2016, the concept of TBST has resonated highly in literature and in practice. According to Google Scholar, Dyllick and Muff (2016) were cited over 340 times (updated on July 7th, 2020). Several researchers followed the authors' call to start "a discussion on the meaning and types of business sustainability" (Dyllick & Muff, 2016, p. 169): Avesani (2020), Ashrati (2018), and Dahlin (2020) integrated TBST in their analysis of emerging theories of corporate sustainability in order to expand the knowledge of business sustainability and its different interpretations. Landrum (2018) and Lankoski (2016) built on Dyllick and Muff's work to develop alternative conceptions and stages of business sustainability. Stead and Stead (2019) refer to TBST when illustrating the paradigm shifts in strategic management. These contributions add to the discussion about the understanding of business sustainability started and inspired by Dyllick and Muff (2016).

Further, TBST is used in the context of human resource management (Aust et al., 2020) universities (Schneidewind, 2014), hotels (Hashmi & Muff, 2014), and SME activities in the Czech Republic and Poland (Šebestová & Sroka, 2020).

Several further contributions use the concept of TBST to further develop and apply it. To begin with, the authors themselves discuss the organizational consequences of TBST to show how business can become truly sustainable (Dyllick & Muff, 2017). They define eight organizational characteristics of a truly sustainable business, including the company's engagement, primary focus, market definition and positioning, product and services, governance and

leadership, type of the chief executive officer (CEO), organization, and sustainability reporting. Dyllick and Rost (2017) apply the concept to products and define different levels of product sustainability. Caviezel (2018) develops a model to implement TBST in practice. Moratis and Melissen (2020) critically review TBST and add three intelligences that businesses need to develop in order to become truly sustainable: naive, native, and narrative intelligence. This broad range of studies around the TBST concept shows the relevance and outreach of the concept both in research and in practice.

The typology by Dyllick and Muff (2016) distinguishes four different levels of business sustainability (BST).

- i) The lowest level is referred to as “business-as-usual.” Businesses at this stage focus purely on economic concerns and aim to create shareholder value.
- ii) At the next stage, BST 1.0, companies broaden their concerns beyond economic aspects to integrate social and environmental concerns into their processes and practices. Dyllick & Muff (2016) call such an engagement “refined shareholder value management.” These sustainability activities are created by embracing opportunities and managing risks in order to create shareholder value.
- iii) At the next level, BST 2.0, companies start to “manage the triple bottom line.”⁹ This means that businesses shift from generating shareholder value toward creating financial, environmental, and social values. To do so, clearly defined programs are established and progress toward the three-dimensional goals is measured and reported. However, the sustainability activities are dominated by a business focus so that the perspective remains inside-out.
- iv) The highest stage of BST is referred to as “truly sustainable business,” or BST 3.0. At this level, the fundamental organizational perspective shifts from inside-out to outside-in; from focusing on the business itself toward focusing on society and the sustainability challenges it faces. Adopting an outside-in

⁹ The term “triple bottom line” was coined by Elkington (1997).

perspective means that businesses take sustainability challenges as a starting point for their activities and aim to create a significantly positive impact on them. “At Business Sustainability 3.0, a firm looks first at the external environment within which it operates and then asks itself what it can do to help overcome critical challenges that demand the resources and competencies it has at its disposal” (Dyllick & Muff, 2016, p. 166). The underlying idea of TBST is that businesses use their resources and competencies to effectively contribute to sustainability challenges in society and aim for value creation for the common good.

Based on this description, two key characteristics of BST 3.0 can be formulated:

- Businesses take sustainability challenges as a starting point for their activities (outside-in perspective)
- Businesses create positive contributions to relevant sustainability challenges (serve the common good).

The underlying idea of TBST is mostly coherent with an understanding of strong sustainability, which assumes that natural and human capital are complementary so that they cannot be substituted by each other.¹⁰ Certain ecological functions cannot be replaced thus creating a threshold for natural capital that needs to be maintained (Lankoski, 2016). This threshold implies that a business cannot offset ecological damage by social or economic gains. This understanding is also in line with the definition of sustainability used by environmental economists.

In order to further clarify the conceptual foundations of TBST and to connect the research to existing theoretical perspectives, two research streams are briefly introduced: Positive Organizational Scholarship (POS) and Management Research to Address Societal Challenges.

¹⁰ Weak sustainability refers to the idea that natural capital can be fully substituted by human capital. Accordingly, a development is sustainable when the aggregated stock of capital remains constant (Lankoski, 2016).

Positive Organizational Scholarship: The conceptual foundations of TBST are closely related to POS. This theoretical perspective rises from the construct of positive deviance, which is defined as “any type of behavior or condition that exceeds the normative standards or achieves an idealized standard” (Heckert & Heckert, 2002, p. 466). Originating from sociology, the concept is increasingly applied in organizational research to describe “intentional behaviors that depart from the norms of a referent group in honourable ways” (Spreitzer & Sonenshein, 2004, p. 209). POS researchers describe organizations as meaningful, virtuous, and respectful. These scholars look at why and how organizations flourish and thrive (Spreitzer & Sonenshein, 2004). “POS does not exclude phenomena that are typically labeled positive in organizational studies—such as organizational improvement, goal achievement, or making a profit—but it has a bias toward life-giving, generative, and ennobling human conditions” (Cameron & Dutton, 2003, p. 11). The focus on human wellbeing and flourishing business resonates with the purpose of a truly sustainable business to generate positive business contributions to societal challenges, as described by Dyllick and Muff (2016). So far, POS has been used in organizational behavior to qualify employee’s or leader’s behavior. However, it can also be applied to the strategic level: “POS offers a unique conceptual foundation for understanding [...] why some strategies may be more generative than others” (Cameron & Dutton, 2003, p. 11).

Management Research to Address Societal Challenges: The concept of TBST operates at the intersection of society and business. A growing stream of literature deals with this intersection and tries to understand and address societal challenges through management research (George et al., 2016). According to George et al. (2016), management scholars should join the debate and provide insights to tackle global challenges and enable changes for a better world. The researchers call for “doing research that matters” and “turn[ing] research into actionable insights to frame and tackle some of the biggest challenges that we face in our global community” (George et al., 2016, p. 1880). The contributions of this field can be divided into two broad streams: First, studies that investigate how global

problems affect businesses. Second, studies that provide management insights on how societal problems can be tackled and show how management theory can be applied to address global challenges (George et al., 2016). TBST and this research project can be assigned to the second research field as it aims to provide business insights on how management can be used to address societal challenges.

1.2.5 Excursion: Resource Based View and Market Based View

In strategy research, especially content research, the terms “inside-out” and “outside-in” are frequently used; however, they are associated with a different meaning than in the context of TBST. In the traditional context of strategy research, “inside-out” is associated with the Resource Based View (RBV), whereas “outside-in” refers to the Market Based View (MBV). They are used to explain overperformance and to identify sources for competitive advantage. The two theoretical perspectives are briefly outlined in order to distinguish them from the terms used in the context of TBST, and to connect the latter with existing research.

MBV explains differences in success based on a company’s market or product positioning. The main strategic task is to analyze external forces in order to identify ways to position the company to outperform competitors (Porter, 1985). Due to its market orientation and importance of the analysis of the company’s external environment, the MBV is often called the “outside-in” approach.

The RBV examines company’s competitive advantages within the company rather than looking at the company’s position in an external market. Thus, companies are seen as achieving superior performance due to unique resources¹¹ and capabilities (Penrose, 1959). In this context, the term “core competence” points to the company’s specific and unique bundle of resources. When RBV was first used in the 1990s, a company’s core competences were

¹¹ Resources need to have specific characteristics in order to generate a competitive advantage (valuable, rare, inimitable, nonsubstitutional).

regarded as an existing asset. At the start of the 21st century, the Dynamic Capability View gained importance and companies were seen as having the ability to change their resources (Teece et al., 1997). This dynamic approach allowed a company to react to changing market conditions or to reposition itself. In contrast to MBV, RBV does not propose a specific typology of strategies. It is primarily a theory about decisions regarding cooperation, mergers, and organizational structures. In the context of environmental sustainability, the Natural Resource Based View (NRBV) by Hart (1995) justifies the company's competitive advantage by the creation of capabilities that allow the business to be environmentally friendly. The NRBV acknowledges that business is dependent on and constrained by the natural environment. Accordingly, a business develops different capabilities in order to generate a competitive advantage by managing environmental constraints. Due to the focus on internal organizational characteristics and competences, the RBV is often assigned to an "inside-out" perspective.

A market or outside orientation also plays a central role in TBST, as the changing business environment needs to be observed in order to identify relevant societal challenges. However, the ultimate goal is defined differently. The outside-in perspective in the context of TBST means that business activities focus on contributing to the common good. External sustainability challenges are identified in order to define strategies that help contribute to solving them, based on which a company positions itself to provide the highest societal impact possible. Any financial considerations are relevant only insofar as they ensure the long term survival of the company; they are not in the center of sustainability activities.

An inward orientation in the sense of RBV is also relevant for TBST. As Dyllick and Muff (2016, p.166) state, a company needs to "use its resources and competencies it has at its disposal". Hence, TBST draws on aspects of both MBV and RBV.

However, those traditional strategic approaches are appropriate in the context of competition, where the overall aim is to generate persistent profit, enduring financial success, and increasing profitability and growth. In contrast, in the context of TBST and this dissertation, the purpose of business goes beyond financial values.¹²

Although these traditional approaches cannot be fully translated to the context of this research, certain aspects do play a role in the context of TBST and help to understand the concept. Understanding MBV and RBV is necessary to develop TSS; However, it is important to mention that the concepts are used in this dissertation with a different goal and purpose. This dissertation views the company's market positioning and its internal resources as ultimately serving to generate positive contributions to a sustainable development. Although a resource can be "valuable" in the context of TBST, it is not to create business value but to contribute to the common good. In TBST, the core competencies of a firm need to be connected to relevant societal challenges (Dyllick & Muff, 2016).

This excursion helped to distinguish the terms used in the context of TBST in this dissertation from terms as they are used in classic strategy literature.

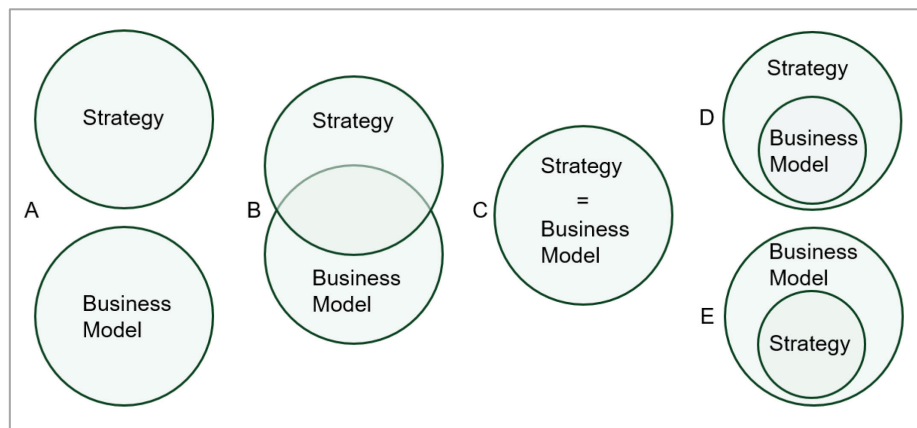
1.2.6 Distinguishing Strategy from Business Model

The terms "business model" and "strategy" are frequently used without a clear separation between the two. There are different ideas about how to define these concepts and explain their interrelation. These aspects are explored below to explain how they are used and separated in this dissertation.

Figure 5 shows different interrelations between the two concepts. They can be perceived as isolated (illustration A in figure 5), partially overlapping (illustration B), fully overlapping (illustration C), and mutually inclusive (illustration D and E).

¹² The understanding of business's purpose in the context of TBST is defined in section A.

Figure 5: Interpretations of the relation between strategy and business model



Source: Own illustration based on Seddon et al. (2004)

On the one hand, there is consensus that it is almost impossible to consider strategy and business model as stand-alone and isolated concepts, as shown in illustration A in figure 5. On the other hand, some researchers and practitioners sometimes use the terms interchangeably, like in illustration C. Doing so seems reasonable when looking at the elements and definitions of both terms. Business models are defined as concrete choices that explain how a business creates, delivers, and captures value. Hence, a business model indicates how a business operates by showing how the elements of a business fit together to create market value (Casadesus-Masanell & Ricart, 2010; Magretta, 2002; Osterwalder et al., 2018). This definition is similar to Porter's definition of strategic positioning consisting of the right goal, a value proposition, distinctive value chain, trade-offs, fit among strategy elements, and continuity of direction (Seddon et al., 2004; Yip, 2004). Yet, the explanation of both terms being two sides of the same coin is inadequate when examining their use in research and practice. Indeed, it is more common to perceive them as linked but separate because both "are concepts of enormous practical value" (Magretta, 2002, p. 8). Therefore, many authors describe them as highly interrelated but distinct concepts (Casadesus-Masanell & Ricart, 2010; Magretta, 2002; Seddon et al., 2004). This view refers to illustration B in figure 5.

Yip (2004) and Casadesus-Masanell and Ricart (2010) argue that although there are comparable elements between the two concepts, the main difference is that

a business model defines the core logic of a firm, whereas strategy deals with its strategic competitive positioning. Hence, a business model describes how the system works as a whole and how the pieces fit together; it adopts a system perspective, meaning that a business model is primarily concerned about how a business operates and creates value as a system. Seddon et al. (2004) describe this as an “inward looking” perspective. In contrast, strategy is related to the positioning of a firm; its primary concern is not about how the business operates but how it positions itself in the market and against its competitors. This perspective is called “outward-looking” (Seddon et al., 2004). This distinction between business model and strategy based on the aspect of competition might be justifiable and helpful in some cases. However, the business model itself can also be a source of competitive advantage (Magretta, 2002). These two interpretations either point to a mutually inclusive relationship as shown in illustration D and E or a partially overlapping relationship as shown in B.

Some authors argue that business models and strategies operate at different levels: strategies are more concrete than business models. Strategies are perceived as company-specific, whereas business models are an abstraction of strategies and can apply to many firms. In this sense, a strategy can comprise various business models pointing to different abstractions of the firm’s strategy (Seddon et al., 2004). According to this understanding, a business model is defined as a subset of strategy, as represented in illustration D.

Moreover, some scholars argue that the realized strategy is the result of choosing a certain business model. In this interpretation, a strategy entails the (re)design of the business model. Especially for radical or transformational strategies, like bottom-of-the-pyramid strategies, new business models are needed. Hence, “strategy refers to the choice of business model through which the firm will compete in the marketplace” (Casadesus-Masanell & Ricart, 2010, p. 196). However, at the same time, choosing a business model can contain decisions about cost leadership or differentiation, which are strategic choices according to Porter’s definition of strategies (Casadesus-Masanell & Ricart, 2010).

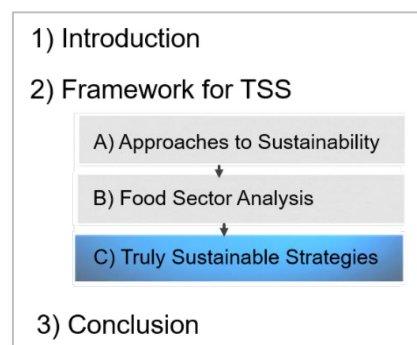
Taken together, these insights show that business models and strategy are distinct concepts which cannot, however, be regarded in isolation. They are interdependent and closely related but distinct aspects of a company. A business model is a part of the strategy and vice versa. The two terms are mutually dependent and contain partially similar elements. This perspective relates to illustration B in figure 5, and is the most suitable interpretation for this research project.

The interpretation that strategy can contain the choice of the business model seems suitable because it fits the definition of strategy by the Design School used in this research. The business model would not be complete without strategic elements, and a strategy automatically contains aspects of the business model. As this dissertation takes a strategic perspective, it does not elaborate on the concrete design of a business model; the redesign of the business model is seen as a strategic option.

1.2.7 Structure of Dissertation

The dissertation's structure emerges from the conceptual framework presented in section 1.2.1. After clarifying the contextual, conceptual, and methodological framework in chapter 1, the framework for TSS in chapter 2 is organized according to the three steps of the strategy formation process, as shown in figure 6. To conclude, chapter 3 summarizes and discusses the results. Contributions to theory and practice are derived as well as limitations and possibilities for further research are discussed.

Figure 6: Dissertation's structure



Source: Own illustration

The next paragraphs describe the three sections of chapter 2 in more detail:

A) Initiation - Approaches to Sustainability

In line with the model proposed by Learned et al. (1965), part A starts by defining the underlying values and assumptions of TBST (initiation phase). An analysis of the assumptions presents a clear picture of how TBST understands business, and interprets the role of business in society. Such an understanding is an important first step in designing TSS.

B) Strategic Analysis – Food Sector Analysis

The second part of chapter 2 focuses on the strategic analysis of business's external environment. Driven by an outside-in perspective, the first section aims to identify the relevant challenges in the food sector (section B1). The section covers global sustainability challenges in the food sector, like biodiversity loss, water usage, waste as well as global inequality and labor issues in the food supply chain. Major global trends exacerbating these challenges, like population growth, urbanization, and political changes, are also introduced. An overview of the context helps to understand the sustainability challenges in business's external environment, which is necessary to design strategies that contribute to addressing them.

The second section identifies the business opportunities that arise from these challenges (section B2). It provides an overview of the value that can be realized by addressing societal challenges along the food supply chain. The dissertation chooses to focus on the food sector as the sector's current practices are highly unsustainable and because it needs new strategies to reach sustainable development. The role of the sector within the dissertation will be described in more detail in section 1.2.8.

C) Strategy Design - Truly Sustainable Strategies

Part C of the dissertation answers the research questions. It defines the characteristics and types of TSS and how the strategy development process can

be facilitated. Section C1 discusses the characteristics of TSS. It analyzes the parameters for characterizing strategies to define characteristics of TSS, like the definition of success, value creation, strategic behavior and integration of sustainability, or the degree of interaction with other players. Section C2 defines different types of TSS by categorizing a company's strategic actions into a portfolio of TSS based on their potential positive impact on the natural environment and society. Section C3 takes a closer look at the strategy development process. It identifies and analyzes the facilitators of TSS, such as leadership, culture, employees, and organizational structure.

1.2.8 The Role of the Food Sector

Food production puts heavy pressures on planetary boundaries, which raises the question of how to ensure healthy nutrition for humanity within environmental limits. Gerten et al. (2020) find that almost half of all global food production relies on crossing earth's environmental boundaries: "World agriculture is a leading cause for the current transgressions of multiple planetary boundaries globally and regionally" (Gerten et al., 2020, p. 200). Four of the nine critical earth system processes, identified by researchers at the Stockholm Resilience Center (Rockström et al., 2009), are heavily influenced by the food sector: land system change, nitrogen flows, biosphere integrity, and freshwater use (Gerten et al., 2020).

(1) Land system changes increasingly risk crossing healthy planetary limits. The food sector uses almost 50% of all arable land (WRI, 2019). Converting huge amount of forests, grasslands, and wetlands for agricultural use drives biodiversity loss, impacts water flows, and the biogeochemical cycling of carbon, nitrogen, and phosphorus. Especially in the northern part of South America and Asia, in the eastern parts of Europe, in Central Africa, and in Indonesia, land system changes significantly exceed the limits of the planet (Gerten et al., 2020).

(2) Nitrogen and phosphorus are essential elements for plant growth and excessively used in fertilizers by the agricultural sector. Globally, these biochemical flows are already crossing the planetary boundaries (Steffen et al., 2015). With regards to the food sector, Gerten et al. (2020) show that especially in Central Europe, East Asia and parts of USA, the nitrogen and phosphorous cycles are at high risk.

(3) The large amount of land used for agricultural processes impacts biodiversity loss. According to Steffen et al. (2015), global biosphere integrity is already exceeding a safe operating space. Gerten et al. (2020) find that food production in USA, Europe, South America, South-East Asia, North and South Africa, as well as Australia drives biodiversity loss.

(4) The food sector accounts for 80–90% of fresh water consumption by human activities (WRI, 2019). Although fresh water use on a global level is not in a critical state (Steffen et al., 2015), especially in hot areas where huge amounts of global food is produced, water is scarce (Gerten et al., 2020).

Gerten et al. (2020) find that “the present food system could provide a balanced diet (2,355 kcal per capita per day) for 3.4 billion people only” (p. 200). However, the researchers also demonstrate that “transformation towards more sustainable production and consumption patterns could support 10.2 billion people within the planetary boundaries” (p. 200). This shows the huge potential of shifting food production toward sustainable pathways.

In addition, Alpha and Beta (2016) show that business in the food sector could realize US\$2.3 trillion annually by 2030 by addressing the SDGs. The SDGs relevant for a sustainable food sector are environmental topics expressed in SDGs 13, 14, and 15, as well as social and economic issues, like eliminating hunger (SDG 1) and responsible consumption and production (SDG 12).

This shows that businesses in the food sector can significantly contribute to five SDGs, which includes more than 40 subtargets. Hence, business is key for the transition toward sustainable food systems, in social, economic, and environmental terms.

The food sector is the chosen focus of this dissertation due to its high relevance to sustainable development and the importance of the private sector to enable this pathway. The concepts developed in this dissertation and their possible application are illustrated in relation to the food sector. Therefore, although the types, characteristics, and facilitators of TSS are not specific to the food sector, the application to this sector helps illustrate what the different strategies could actually look like.

1.3 Methodological Framework

This section outlines the scientific basis of the research and shows how it is conducted. After clarifying the underlying research paradigm in section 1.3.1, the method and research steps are explained in section 1.3.2.

1.3.1 Research Paradigm

The choice of research strategy, data collection, processing, and analysis is influenced by the researcher's perception, mental model, beliefs, and assumptions about reality and the creation of knowledge (Cohen et al., 2011). Therefore, this section explains the underlying research paradigm as well as the ontological and epistemological foundations.

This research project belongs to the category of "problem oriented research," which, in contrast to "theory oriented research," does not aim to generate theoretical explanations, usually based on historic data, but seeks to design new realities and outlines possibilities to get there (Ulrich, 1982). Problem oriented science seeks explanations to a relevant societal problem and designs possible solutions. Hence, practical and societal relevance are in the foreground of such research projects. Due to the increased urgency and significance of sustainability challenges on our planet, the call for problem oriented and impact focused approaches to organizational studies has increased (Ferraro et al., 2015; George et al., 2016). This research project seeks to create an ideal goal for companies to aim for and shows ways how business can positively contribute to societal challenges.

Problem oriented disciplines are a subgroup of the normative sciences. Normative sciences do not explain what currently is but design what should be. The objective is to develop guidelines for behavior and provide courses of action for the solution of a societal problem. Such a description of the ideal state is inevitably influenced by values, beliefs, and assumptions about what is good, right, or desirable; it is impossible to be value free (Myrdal, 1971). Therefore, it is especially important to unfold the assumptions underlying the research. Hence, in line with other research in the field of sustainability (e.g. Hahn et al., 2018; Hoffman, 2018), this project is based on the strong conviction that the responsibility of business goes beyond financial performance and shareholder interest. Success must not solely be defined by financial profit but by multiple objectives beyond monetary profit. The underlying assumption of this research is that business plays an important role in the context of sustainable development and has both an obligation and potential to tackle societal challenges.¹³

These thoughts about values belong to axiology, also known as value theories, which influence epistemology and ontology. Axiology is a doctrine that deals with the ultimate purpose of an inquiry (Biedenbach & Jacobsson, 2016). As the results of this dissertation aim to enable business to positively contribute to societal challenges, this research can be categorized with this literature stream that values knowledge as a means to inform positive change.

Besides assumptions about values and purpose, the perception of reality, truth, and knowledge creation is an important element of the research paradigm as it influences research design and data analysis. This research is based on an interpretive and constructivist research paradigm. It is assumed that reality is subjective and socially constructed. Since truth and the understanding of the social world depends on the researcher and their mental model, multiple realities exist, and various interpretations are possible. Finally, the dissertation

¹³ The interpretation of business's role on society addressed in more detail in section A.

views knowledge as formed by human experiences and social interactions (Zukauskas et al., 2018).

In the context of problem oriented research on how organizations can tackle societal challenges, a pragmatist perspective can be useful. To that end, Gross (2009, p. 366) writes, “Humans are problem solvers and the function of thought is to guide action in the service of solving practical problems.” In this paradigm, defining the problem itself is an essential part of the resolution (Ferraro et al., 2015). Similar to the interpretive and constructivist research paradigm, subjectivity is emphasized, which increases the value of different perspectives on a problem in order to generate a holistic picture. Accordingly, the ability of solving problems can be improved by reflection, deliberation, and experimentation. The next section shows how this dissertation accounts for these aspects and integrates them into the research process.

1.3.2 Method

After clarifying ontological and epistemological foundations, the method of the research project is explained.

This dissertation uses a conceptual research approach, whereby existing concepts are analyzed, criticized, enhanced, and refined. Empirical data does not have a causative role but serves as enrichment, refinement, clarification, and illustration of the developed concepts.

There is no single formula or template for developing a conceptual framework. In contrast, there are multiple styles of theorizing that are used to develop a theoretical contribution. The three most common styles are: proposition-based style (building a set of propositions), narrative-based style (developing a process model) and typology-based style (specifying a typology) (Cornelissen, 2017). For this dissertation, the narrative-based as well as typology-based style of theorizing are relevant because the aim is to define the development process and types of TSS. These styles of theorizing orient and guide the researcher in

developing conceptual results in this research project.¹⁴ However, the quality of the results of theorizing varies. For instance, the developed model or typology might lack explanatory detail and/or theoretical contribution, it might include circularity, or simply display a new way of systematizing existing knowledge (Cornelissen, 2017). So far, there is no general set of criteria to assess the quality of conceptual work. Knowledge about the typical problems in theorizing can help develop criteria for good theorizing to ultimately enhance the quality of conceptual results. Hence, based on the identified problems in theorizing, table 1 lays out the criteria for good conceptual research.

Table 1: Quality criteria for conceptual research

Typical problems in theorizing (Cornelissen, 2017)	Criteria for conceptual work (good theorizing)
Solely summarizing and systematizing existing research	High degree of innovation and novelty; grounded in established knowledge
Lack of explanatory detail and nuance	High level of differentiation, variations and details; certain degree of simplicity needed
Lack of theoretical contribution, too tied to a specific setting or too generalized	Usefulness; both practical and theoretical contributions; high potential for practical application
Circularity and tautology (complex picture, not clearly drawn apart)	Plausibility and precision: clear line of logic argumentation, profound justification

Source: Own illustration, inspired by Dyllick (2016) and Weick (1989)

Good theorizing is characterized by a high degree of innovation and novelty. At the same time, the developed concepts need to be grounded in established knowledge. A high degree of differentiation and level of detail are also criteria for good conceptual work. Additionally, despite the high level of detail, a certain degree of simplicity is needed in order to ensure usefulness, another criterion for good theorizing. A good theory must deliver both theoretical and practical contributions but, for applied science, the potential for practical application needs to be especially high. Finally, plausibility and precision are important quality criteria for conceptual research, and a clear line of argumentation and profound justification are key to ensure a high quality of the developed concepts.

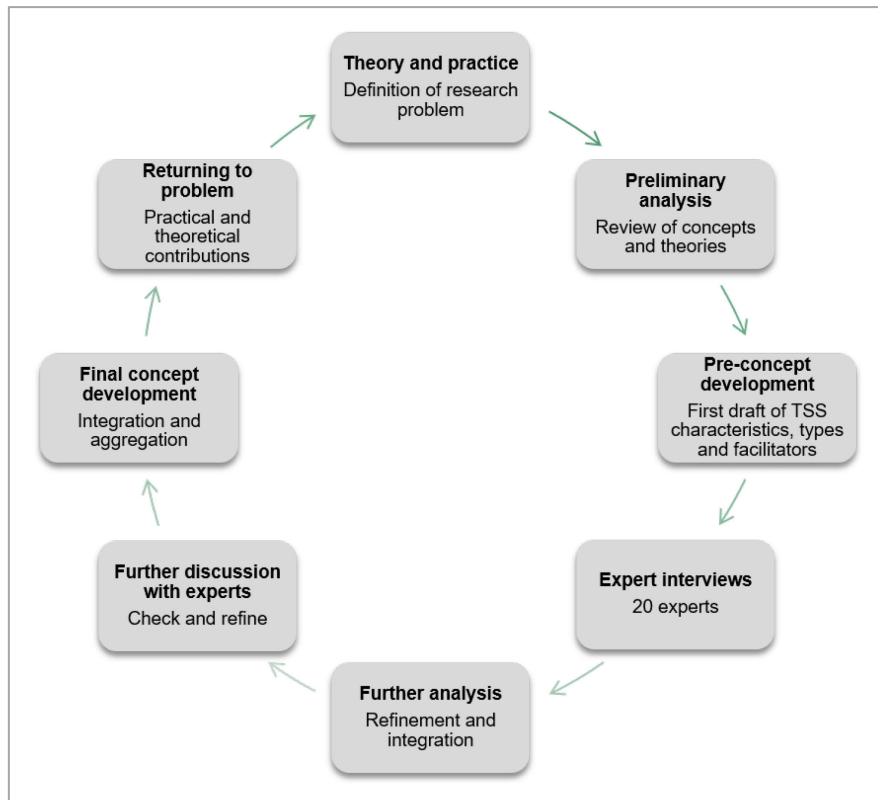
¹⁴ Further details about the actual process and principles of theorizing are provided in the section “Data analysis and theory construction” later in this section.

These quality criteria define the characteristics of conceptual results in this research. They build a guideline for this project and influence the research process and design, explained in detail in the following paragraphs.

Research Process

To address the research questions, expert interviews support and enrich the systematic analysis of existing concepts. The reciprocity of conceptual and empirical analysis is essential to identify new and detailed insights into TSS as well as to ground the results in established knowledge. Additionally, the process of iterations between the conceptual and empirical elements ensures the applicability and relevance of the developed framework in practice. It also helps to reduce complexity while not eliminating key aspects of the results. Plausibility and precision in terms of a clear line of argumentation and profound justification is ensured by conducting several iterations with other researchers. During the research process, the work was presented at multiple conferences and research seminars to test and improve the line of argumentation and receive feedback on the plausibility of the concepts. Figure 7 shows the research process and indicates how the data informs the conceptual work.

Figure 7: Research process



Source: Own illustration

Starting from the research problem, a systematic literature analysis of both established and progressive concepts of sustainability strategies was conducted (preliminary analysis). The results of the analysis were used to develop a first draft of characteristics, types, and facilitators of TSS (pre-concept development). In the next phase, these preliminary results were discussed with experts in order to enrich and concretize the developed concepts (further analysis). The refined results were discussed with additional experts to ensure the plausibility and application of the developed concepts and ideas. This feedback was aggregated and integrated into the concepts (final concept development). This process built the basis for deriving and illustrating theoretical and practical contributions to the identified research problem.

Research Setting: The Interviewees

Explorative interviews with authentic, experienced, and visionary thought leaders in the food sector were conducted to discuss, enhance, and refine the developed concepts. The interviewees were selected based on their expertise in

sustainability strategies and/or their affiliation with the food sector. To ensure having a well-rounded perspective, people from various backgrounds were asked to discuss the preliminary results based on their experiences. In total, eight business representatives in the food sector, three consultants, three experts of distinguished food think tanks, two NGO representatives, and four researchers from nine different countries (Switzerland, UK, Germany, Netherlands, France, Austria, Italy, Spain, and USA) expressed their feedback and provided insights. The high number of company representatives seems suitable to ensure the applicability and relevance of the proposed concepts. In addition to diversity in terms of affiliation and country, the selection of the interviewees was also balanced in terms of gender: 11 women and nine men served as experts. Table 2 provides an overview of the interview partners.¹⁵

Table 2: Interview partners in the first round

Interview Partner	Affiliation / Background	Category
Laura Barneby	Unilever : Senior Global Advocacy and Partnerships Manager - Sustainable Agriculture and Nutrition	Business Representative
Dr. Karen Cooper	Nestlé SA : R&D Group Leader Sustainability and Sustainable Nutrition Manager	Business Representative
Jacobine das Gupta	DSM : Director Sustainability	Business Representative
Agnes Martin	Danone : Health & Diet Advocacy Director - Global Public Affairs Department	Business Representative
Bruno Cabernard	Coop : Head of Sustainability	Business Representative
Jenny Weilenmann	Migros : Senior Project Manager Sustainability	Business Representative
Thomas Camenzind	Google : Google Food Program Manager EMEA	Business Representative
Dr. Beatrice Conde	Bühler : Group Expert/ Food Safety Officer	Business Representative
Stephan Hirschi	PWC : Leader Sustainability & Climate Change, Switzerland	Consultant
Moritz Teriete	Sustainable Food Systems GmbH : Managing Director	Consultant
Dr. Imme Witzel	Sustainability consultancy	Consultant
Christine Crosby	Foodways : Head of Strategy and Partnerships; Impact Hub Basel : Programs for Sustainability - Circular Economy & Food Systems	Consultant and Think Tank
Julian Hill-Landholt	WBCSD : Director Sustainability Lifestyle: Future of Food	Business Platform / Think Tank
Sarah Hündgen	Utopia GmbH : Account & Project Manager	NGO / Think Tank
Philippe Schenkel	Greenpeace : Campaigner for sustainable agriculture; Managing Director and Founder of Traktor Smoothies	NGO
Dr. Daniela Hoffmann	WWF , Department Consumption & Economy: Senior Manager Corporate Sustainability	NGO
Prof. Frank Belz	Technical University of Munich : Professor at the Chair of Corporate Sustainability in the Brewery and Food Industry	Researcher
Michelle Grant	ETH Zurich World Food System Center : Lecturer and Education Director	Researcher
Prof. Stefano Pogutz	University Bocconi : Researcher at the Department of Management and Technology	Researcher
Prof. Rafael Sardá	University Barcelona ESADE : Associate Professor at the Department of Operations and Innovation; Senior Scientist of the National Council of Research (CSIC)	Researcher

Source: Own illustration

The number of interviews conducted for research depends on the research question and topic (Silverman, 2013). In this research, the decisive criterion for the number of interviews was the fruitfulness and expected new insights of additional interviews. Saturation of data is reached when further interviews do

¹⁵ Appendix I provides further information on the date and time of the conducted interviews.

not generate additional insights to the framework (Flick, 2014). In this research, saturation was reached after 20 interviews.

After analyzing the first round of interviews, a second round of discussions with experts was conducted to check for practical applicability and theoretical plausibility. Günter Müller-Stewens, Professor Emeritus in Strategy Management at the University of St. Gallen (HSG), was asked to give feedback on the developed concepts and to check for practical relevance. Professor Müller-Stewens was selected because of his profound knowledge in sustainability strategy management in both theory and practice. The findings were also presented and discussed with practitioners at a workshop that was part of the St. Gallen Unconference in order to check for practical application.

Data Collection

Data was collected using the semi-structured interview format. This format allows the interviewees to express their opinions and experiences more freely (Flick, 2014). The open-ended questions allow interviewees to share their perception freely and in their own words (Kvale, 1996). A handout with an overview of the questions was provided upfront and served as an orientation during the interview. The questions were purposefully broad in scope to avoid excluding any relevant topics.¹⁶

The interviews lasted between 40 and 70 minutes and were then transcribed. A summary of each interview was written, and the notes taken during the interview were reviewed to identify and interpret themes and issues early in the process. This process follows the ideas of an inductive coding approach (Gioia et al., 2013). The preliminary findings were discussed with each interviewee without adapting them in order to have the same basis for discussion for all.

The interview was divided into two thematic blocks with two guiding questions each. In the first block, the interviewees are asked to discuss the most important

¹⁶ The information provided in the handout and in the email prior to interviews, plus the interview guideline, are shown in Appendix II and III.

sustainability challenges and how a company could identify and select them. In the second block, interviewees were probed about their ideas on TSS and how these strategies can be developed. Lastly, interviewees were presented with the preliminary concepts and were asked to discuss the findings.

Such a detailed documentation of the data collection process is a key component for a good qualitative research design as transparency helps to ensure credibility and reliability of the results (Flick, 2014).

Data Analysis

“To build better theory, theorists have to ‘think better’” (Weick, 1989, p. 529). This bold statement shows that building theoretical frameworks is not a straightforward pre-fabricated process. A key component of good conceptual results is to make the process of data analysis explicit and transparent. Indeed, Weick (1989) suggests that the quality of the concepts increases on explicitly describing and unfolding the process or operating more self-consciously. Hence, the process of data analysis is described in detail and the criteria for developing the conceptual results is shown next.

Some researchers portray the process of theory building as a mechanical procedure. In contrast, Weick (1989) describes the process of good theorizing as evolutionary, involving simultaneous and parallel processes. The latter applies to this research as several alternating processes take place. On the one hand, data collection and data analysis take place in an iterating sequence. On the other hand, consistent with a grounded theory approach, there is an iteration between conceptual and empirical insights (Strauss & Corbin, 1994). Such a process of back and forth between data and literature helps to identify relevant examples and patterns and is often used for constructing theoretical concepts (Shepherd & Suddaby, 2016). As described, several rounds of analysis and interviews were conducted to improve the understanding of TSS. This approach enriched and illustrated the conceptual work with empirical insights.

Following an inductive theory building approach, ideas are abstracted by analyzing existing concepts and data (Flick, 2014). This process of

generalization and sense making gives meaning to raw data as statements are interpreted (Weick et al., 2005). To do this, researchers can use several instruments like abstraction and complexification, labeling constructs, and formation of typologies (Shepherd & Suddaby, 2016). Being conscious about the selection process when interpreting data is central to theory building (Weick, 1989). The criteria and principles for selecting from, analyzing, and interpreting aspects of the interviews or literature are unfolded in the following.

Two main criteria are used to evaluate the results: novelty/interest and usefulness/plausibility. In theory building, novelty and interest are widely discussed as a selection criterion. “Of course, the question of what constitutes an ‘interesting fact’ is open to debate” (Hambrick, 2007, p. 1349). However, some researchers even use it as a substitute for validity because the reaction “that’s interesting” evolves when a current experience differs from a previous assumption. Hence, the previous assumption has been falsified (Weick, 1989). The aim of this dissertation is not to falsify or verify assumptions; the notion of interest is used to identify new or different ideas that are worthy of further elaboration. Using this perspective helps to develop an innovative framework with a high degree of novelty.

Additionally, usefulness and plausibility are used as selection criteria during the analysis. These criteria are used most often in theorizing and do also occasionally replace validity (Weick, 1989). In general, the process of sense making is mostly driven by plausibility rather than accuracy, and the aim is to develop a comprehensive construct that is resilient to criticism (Weick et al., 2005). For this research project, these criteria seem especially relevant, as the practical applicability and usefulness of the insights are of primary importance.

Two additional criteria are often used to analyze data—being obvious and being connected. These criteria are not as straightforward as the others. If an idea is obvious, it could be a sign of triviality, in which case it should be dropped from further consideration. However, it might be a clue to its significance and could be new to another person (Weick, 1989). For this research, the criterion of “that’s

obvious” is used to account for a broad, detailed, and differentiated analysis. It helps to ensure plausibility and usefulness of the developed concepts.

The criterion of being connected is also often used to discover an unexpected connection (Weick, 1989). For this explorative analysis, this criterion seems suitable in order to enhance the variety of aspects considered in the developed concepts. It is used with the aim to identify interesting aspects and new implications.

Table 3 summarizes the criteria used for data analysis. The criteria obvious and connected are considered as additional criteria as they are related to the main criteria to some degree. Moreover, they serve to identify and interpret further aspects that are important to reach a high degree of differentiation and level of detail in the final concepts. In order to minimize interpretative scope, direct quotes from the interviewees are included into the text.

Table 3: Criteria for data analysis

Main criteria (primary unit of analysis)	Novel and interesting
	Useful and plausible
Additional criteria	Obvious
	Connected

Source: Own illustration based on Weick (1989)

Making the process of analyzing data explicit by unfolding the steps and criteria of the process is essential to generating good concepts. However, humans are always influenced by and dependent on certain values, perceptions, beliefs, and personality traits, and good theorizing always includes emotional, intuitive, serendipitous, and creative aspects that are impossible to completely unfold and display (Weick, 1989). Hence, even though these paragraphs describe the process in the highest detail possible, intuitive and creative elements cannot be made transparent to the fullest extent. However, according to Weick (1989), this shortcoming does not need to be fatal if the assumptions are transparently unfolded. Doing so allows other researchers to begin at the same place and see where their thinking leads them, leading them to “think better” (Weick 1989).

2 Framework for Truly Sustainable Strategies

Chapter 2 defines the different elements of the TSS framework. The framework has three parts, based on the strategy formation process by Learned et al. (1965) as shown in figure 8.

A) Approaches to Sustainability: In section A, the approaches to sustainability relevant for TSS are clarified. Basic concepts and the underlying values and attitudes of TBST are defined, thus elaborating the prerequisites for an outside-in perspective. The subsections in part A are guided by two questions: 1) What is the role of business in society? 2) What are the values and attitudes necessary to create TSS? The answer to these questions is important for designing and developing TSS later in the thesis.

B) Food Sector Analysis: Section B takes a closer look at the food sector, chosen because of its high relevance for sustainable development. The section first defines the relevant challenges in the sector. Second, the business opportunities that arise from these challenges are analyzed. Two questions are guiding this section: 1) What are the sustainability challenges in the food sector? 2) What business opportunities and values arise from these challenges? Understanding the external environment is an important aspect of an outside-in perspective.

C) Truly Sustainable Strategies: Section C builds the main part of this dissertation and answers the three research questions: 1) What are the characteristics of TSS? 2) What are different types of TSS? 3) What facilitates the development of TSS?

Figure 8 provides an overview of the following sections and the respective questions answered in the different parts.

Figure 8: Overview of the framework for TSS

A) Approaches to Sustainability		Guiding Questions
A1 Business and Society		What is the relationship between business and society? What is the role of business in society?
A2 Assumptions of TBST		How does TBST interpret the role of business in society? What values and attitudes are incorporated in TBST?

B) Food Sector Analysis		Guiding Questions
B1 Sustainability challenges in the food sector		What are the sustainability challenges in the food sector?
B1.1 The food sector		
B1.2 Assessing the sustainability challenges in the food sector		
B1.3 Summary: Challenges and drivers in the food sector		
B2 Business opportunities in the food sector		What business opportunities and values arise from these challenges?
B2.1 Identifying the challenges		
B2.2 Quantifying the opportunities		
B2.3 Summary: Mapping the value		

C) Truly Sustainable Strategies		Research Question
C1 Characteristics of TSS		What are the characteristics of TSS?
C1.1 Output related aspects in strategy research		
C1.2 Input related aspects in strategy research		
C1.3 Cross-cutting aspect: Collaboration		
C1.4 Summary: Seven characteristics of TSS		
C2 TSS Types		What are different types of TSS?
C2.1 Different concepts of sustainability strategies		
C2.2 Portfolio of TSS		
C2.3 Discussion: TSS in the food sector		
C3 Develop TSS		What facilitates the development of TSS?
C3.1 Influencing factors of the strategy development process		
C3.2 Organizational enablers of TSS		
C3.3 Discussion: Dynamic perspective of the framework		

Source: Own illustration

A) Approaches to Sustainability

In this section, the approaches to sustainability and its implications for business are discussed. The way sustainability is interpreted, and the underlying values and attitudes toward sustainability, influence the integration of sustainability in the company, which in turn impacts the design of strategies (Engert et al., 2016; Kaldschmidt, 2011). This section aims to get a clearer picture of the approaches to sustainability and their implications for business in this thesis. Therefore, the assumptions of TBST are analyzed with regards to the following questions: How does TBST interpret the role of business in society? What values and attitudes are incorporated in TBST? An understanding of these assumptions is necessary for designing TSS.

Figure 9 shows an overview of section A and the related questions guiding the inquiry. Section A1 discusses the approaches to sustainability and their implications for business. It discusses several perspectives on the relationship between business and its surroundings as well as the perspective on business's role in society. In section A2, the assumptions of TBST about business's self-perception are analyzed. These discussions create the basis for designing TSS.

Figure 9: Overview of section A

A) Approaches to Sustainability	Guiding Questions
A1 Business and Society	What is the relationship between business and society? What is the role of business in society?
A2 Assumptions of TBST	How does TBST interpret the role of business in society? What values and attitudes are incorporated in TBST?

Source: Own illustration

A1 Business and Society

“Business cannot succeed in societies that fail. Likewise, where and when business is stifled, societies fail to thrive.” This statement by Björn Stigson, former President of the World Business Council for Sustainable Development (WBCSD), shows the mutual dependency between business and society.

The Anthropocene defines the new and current geochronological epoch characterized by human impact on the planet. Since the end of the 18th century, humankind has caused escalating environmental and social crises on a global scale (Crutzen & Stoermer, 2000). Some authors point out that this social and environmental degradation is mainly caused by overconsumption and overproduction of societies and large businesses (Heikkurinen & Mäkinen, 2016; Ulvila & Wilén, 2017). Thus, due to its operations, business causes several sustainability challenges. At the same time, due to its global reach, its use of technology, its expertise, and its access to financial investments and innovation capacity, business plays a crucial role in developing solutions to tackle these challenges (Hoffman, 2018).

Different interpretations of the relationship between business and society as well as related values are detailed in this section. 1) To begin with, different approaches to sustainability are introduced and their related beliefs are discussed. 2) Then, a closer look is taken at business’s relationship to its ecosystem and 3) at the role of business in society.

1) Environmental worldviews

The relationship between business and society changes depending on the approaches adopted by people in business. The beliefs and associated values of the approach influence how a business is managed and what strategies are developed. In the following, different environmental worldviews are shown. They build the basis for analyzing the relationship between business and its ecosystem as well as for evaluating business’s role in society later in this section.

Environmental worldviews define how individuals think the world works and how they interpret their role in society. These approaches provide key principles, assumptions, and values that guide how an individual evaluates situations, makes decisions, and derives conclusions. Table 4 shows the three main environmental worldviews by Miller and Spoolman (2012): planetary management, stewardship, and environmental wisdom.

Table 4: Environmental worldviews

	Planetary Management <i>Human centered</i>	Stewardship <i>Life centered</i>	Environmental Wisdom <i>Earth centered</i>
Beliefs	• Humans are superior to all other life • We are entitled to utilize the environment and its components as we deem necessary to fulfill all our needs and wants	• We have an ethical responsibility to care for the earth • We should encourage environmentally friendly forms of economic growth and discourage environmentally harmful practices	• We are a part of, and totally dependent upon nature • Nature and the environment exists for all species including us • All life forms have inherent value and should be respected
Perception of Nature	• Earth has unlimited resources to be used by us • Nature can be altered to suit our needs • Potential for economic growth is unlimited	• Nature will probably not run out of resources, but we should not waste them • Natural resources are for our use but we must manage it well	• The planet does not have infinite resources • Resources should not be wasted • Not all resources are solely for our use
Management Perspective	• Resource management and conservation are unnecessary • We can easily manage the earth's life support systems for our benefit	• Our success depends on our ability to manage our environment and earth's life support systems for our benefit and for the rest of nature	• We should encourage earth sustaining forms of economic growth and discourage degrading forms of growth • Our success depends on learning how nature sustains itself and integrating those lessons into our daily life

Source: Miller & Spoolman (2012)

The primary focus of all three approaches is different. The planetary management approach focuses on the needs and wants of people (human centered), the stewardship worldview focuses on specific species (life centered), and the environmental wisdom approach focuses on the ecosystem or even on the entire biosphere (earth centered). These foci result in different beliefs which have implications on the perception of nature as well as on the management perspective.

The human centered approach regards nature as serving humans. Individuals are entitled to an unlimited use of natural resources for their own benefits and needs. In contrast to the other approaches, the human centered approach does

not undertake any ethical responsibility for the planet. Managers with a human centered worldview interpret the role of business as using resources in order to generate business benefits. In contrast, managers with a life centered worldview recognize their responsibility of not harming nature and perceive their role as maintaining life supporting natural systems in order to be able to generate long term growth and business value. Individuals with an earth centered worldview feel responsible for a healthy planet as they perceive themselves as a dependent element of it. They acknowledge that business success depends on the wellbeing of the planet and perceive the role of business as maintaining and adapting to it.

There is a growing body of literature on, and consensus in practice and society about, the idea that the beliefs and perceptions of a human centered approach cause disastrous societal damage. The potential for unlimited growth is highly questioned and an increasing number of scientists and practitioners agree that business plays a greater role than just using resources to generate business benefits.

2) Business and the relationship to its ecosystem

“It is important to think about how you understand yourself as a business” says Interviewee D. Business’s self-perception and the interpretation of the relationship to its surroundings can differ and have considerable implications for sustainability. The relationship between business and its surroundings varies depending on the definition of sustainable development. There are two opposing interpretations of sustainable development: pillar models and system approaches. In the pillar models, the three dimensions of sustainability—economic, environmental, and social—are treated as disparate. In contrast, system approaches integrate the three dimensions and account for their interdependencies by showing them as partly overlapping or mutually inclusive (Fichter et al., 2006). In the latter, the environment is the all-encompassing dimension, with society being nested in the environment and business in turn being nested within the environment and society. Hence, these

approaches perceive business as an integrated subsystem of society and the environment. This approach results in a business's self-perception as described by Interviewee A: "You have to see yourself as a player in an ecosystem, in which the company is one element." This statement shows an embedded understanding of business and its environment: a dependent subsystem embedded in a larger ecosystem. Such an understanding correlates to an earth centered worldview as described by Miller and Spoolman (2012): "We are part of, and totally depend upon, nature."

Similarly, the Natural Resource Based View describes companies as being dependent on and constrained by the environment (Hart, 1995, p. 991). The first description, being dependent on, means business's survival highly depends on the wellbeing of its ecosystem as it uses natural and human resources as well as public goods to produce and finally sell its services or products. Therefore, a functioning and healthy surrounding is highly important to ensure business's activities today and in the future. This understanding is in line with the management perspective described in the earth centered approach by Milller and Spoolman (2012): "Success depends on learning how nature sustains itself and integrating those lessons into daily life." Hart's (1995) second description of companies points out that business's activities are constrained by environmental services. This view also corresponds with an earth centered approach as the limits of natural resources are acknowledged.

Such an embedded understanding of business and its surrounding is key in many sustainability approaches (Sardá & Pogutz, 2019). The idea of embeddedness and dependency gives rise to the idea that business is responsible for caring for its environment. As Interviewee L says, "Businesses should work to maintain the integrity of natural processes, like biodiversity, that it needs in the future." Business depends on the wellbeing of the planet and on the availability of limited resources to survive. Therefore, business has a vested interest in, and a moral obligation for, taking care of the planet.

3) The role of business in society

“It is important to create an understanding of the role of business. You have to ask yourself: What does my role in society look like?” states Interviewee D. This section discusses different interpretations of business’s role in society by elaborating on insights from research and on the arguments of practitioners and society.

Hoffman (2018) emphasizes that business plays a key role in societal developments.

Business is responsible for producing the buildings we live and work in, the food we eat, the clothes we wear, the automobiles we drive, the energy that propels them, and the next form of mobility that will replace them. This does not mean that only business can generate solutions, but with its unmatched powers of ideation, production, and distribution, business is best positioned to bring the change we need at the scale we need it (Hoffman, 2018, p. 35).

Although business is responsible for causing societal issues, it is at the same time a powerful actor to enable sustainable development and generate solutions to solve humanity’s challenges. Hoffman views business as an important entity that can initiate positive changes and contribute to sustainable development.

This line of argumentation is supported by different authors that describe business’s role in society as actively delivering solutions to societal challenges: Sukhdev (2012), for example, describes the business as an agent that drives and shapes the necessary changes for sustainable development. Other authors describe companies as “social change agents” and drivers of positive changes (e.g., Nicholls, 2006). North (2016) states that managers “should not be thought of as uncritical profit maximizers but as actors in favor of positive low carbon futures” (p. 437). Different authors point to the importance of viewing business as a proactive change agent and as an important player in enabling sustainable development.

The relevance and responsibility of business for sustainable development was also emphasized in the expert interviews. “Businesses have important expertise and capabilities that are needed in order to tackle societal challenges” reminds Interviewee H. Interviewee D asks businesses to take an active role as well as live up to the responsibility to contribute to a sustainable future.

In practice, different CEOs acknowledge their responsibility toward, and the possibilities of, delivering solutions for societal challenges. In an interview with the *New York Times* in August 2017, Tim Cook, CEO of Apple, said that governments had become less effective and that business needed to step up. “I think we have a moral responsibility to help grow the economy, to help grow jobs, to contribute to this country and to contribute to the other countries that we do business in” (Sorkin, 2017). Further, Brian Moynihan, CEO of the Bank of America, acknowledged the role of business as a force for positive societal changes and pointed to the importance of living up to this responsibility: “Our jobs as CEOs now include driving what we think is right. It’s not exactly political activism, but it is action on issues beyond business” (Chatterji & Toffel, 2018).

Researchers and practitioners emphasize the active role of business in sustainable development. Business is increasingly perceived as a key actor for delivering solutions to societal challenges. It is seen as having the potential to make significant contributions to the common good, from which arises the idea of its responsibility to live up to this potential. Because business has the capabilities to provide solutions for a sustainable development, it has the responsibility to do so.

This notion resonates with commonly held opinions in society. Chatterji and Toffel (2018) found that two thirds of their respondents wanted CEOs to speak up about societal issues and to take the lead on societal changes instead of waiting for governmental actions.

The above insights from research, practice, and society show evidence for an increasing earth centered approach. The role of business is increasingly

interpreted as being embedded in and dependent upon a functioning environment. From such an embeddedness results the responsibility to care for it, both from a moral and a business perspective. Business depends on the ecosystem's wellbeing as it uses natural and human resources to produce and sell its services and products. Hence, business has a vested interest in taking care of its environment. Business is increasingly perceived as a key player in enabling sustainable development because of its expertise, resources and global outreach. Therefore, it has a moral obligation to live up to the potential to positively influence its environment.

A2 Assumptions of True Business Sustainability

Section A1 showed different environmental worldviews and analyzed the interpretations of business's relationship to and its role within society. Section A2 takes a closer look at how the concept of TBST interprets these aspects. Understanding TBST's key assumptions about business' self-perception, and their implications for business, are necessary to design TSS.

This section discusses four key assumptions of TBST and their implications for business's self-perception. It starts with looking at how TBST interprets 1) the relationship of business to its environment and 2) the role of business in society. The section then elaborates on 3) the business perspective on societal challenges and 4) on the interpretation of business's accountability. Table 5 shows an overview of the result of this analysis, which are explained in more detail in the following paragraphs.

Table 5: Assumptions of TBST

Assumptions of TBST	Implications for business
1) <u>Business's relationship to its environment:</u> → Business is embedded in and dependent on a functioning environment and society → Business is a responsive citizen of society	Vested interest and a moral obligation to care for its ecosystem : business' success and societal wellbeing depends upon business' ability to positively contribute to its ecosystem
2) <u>Business's role in society</u> → Business has the potential to deliver societal solutions → Business as an agent for social change	Obligation to live up to the potential and use business' competencies to create value for the common good
3) <u>Business's perspective on societal challenges</u> → Outside-in : Unsolved sustainability challenges as future business opportunities	Requirement to creatively find solutions to make business sense of environmental and social issues
4) <u>Business's responsibility and accountability</u> → Short and long term aspects need to be taken into account	Business is responsible and accountable for its impacts today and in the future (intra- and intergenerational justice)

Source: Own illustration

1) Business's relationship to its environment

As shown before, researchers and practitioners increasingly perceive business as being embedded within the ecosystem (Fichter et al., 2006; Hart, 1995; Sardá & Pogutz, 2019). Such an embedded understanding of the relation between business and its surrounding is in line with the definition of TBST. Dyllick and Muff (2016, p. 160) state that truly sustainable companies “see themselves as responsive citizens of society”. A truly sustainable business is perceived as a dependent subsystem of society and the environment. Being embedded in, and dependent on, a functioning society results in a moral obligation to care for its surroundings. Similar to the earth centered worldview by Miller and Spoolman (2012), business's success depends on the ecosystem's wellbeing and business's ability to positively contribute to it. Therefore, a truly sustainable business cares for its surrounding to ensure the survival of its own business and that of society.

2) Business's role in society

Section A1 showed that business is perceived as an important actor in delivering solutions to societal challenges and enabling sustainable development (Hoffman, 2018; North, 2016; Sukhdev, 2012). An understanding of business as

an agent for societal change is in line with the description of truly sustainable businesses by Dyllick and Muff (2016). According to the authors, a truly sustainable business aims to create a significant positive impact and to create value for the common good. Thus, a truly sustainable business has the potential to positively contribute to societal challenges and to shape sustainable development. This understanding results in a moral obligation to live up to this potential and to use the competencies to create solutions to societal concerns. Because of its potential to act as an agent for social change, a truly sustainable business has the responsibility to act accordingly.

3) Business's perspective on societal challenges

A key aspect of TBST is its shift toward an outside-in perspective (Dyllick & Muff, 2016), which sees sustainability challenges as a starting point for strategies. Unsolved societal issues are interpreted as business opportunities. Hence, a truly sustainable business searches for creative ways to address societal issues. Dyllick and Muff (2016, p. 166) call this “making ‘business sense’ of societal and environmental issues”. This notion is based on Peter Drucker's interpretation of sustainability as a business challenge: “Every single social and global issue of today is a business opportunity in disguise” (cited in Dyllick & Muff, 2016, p. 170). In sum, truly sustainable businesses find creative solutions to make business sense of societal challenges.

4) Business's responsibility and accountability

Dyllick and Muff (2016) state that a truly sustainable business needs to take into account short and long term aspects in at least an equal weight. Hence, a truly sustainable business is responsible for its impact both today and in the future. Therefore, intra- and intergenerational justice is important: both the living population and the future generations should have the same possibilities to meet their needs. A truly sustainable business treats its environment carefully in order to be able to serve current and future generations alike.

To summarize, section A showed how TBST perceives business and its environment, and the implications it has for business. This understanding of TBST is an important step to designing TSS.

Section A1 showed the mutual dependency between business and society. Researchers and practitioners increasingly agree that business is both dependent on, and important for a functioning society. On the one hand, business is perceived as being embedded in its ecosystem (Fichter et al., 2006; Hart, 1995; Sardá & Pogutz, 2019); business uses natural and human resources to produce its services and goods, implying that it is dependent on a functioning surrounding. On the other hand, business is seen as a major actor in enabling sustainable development (Hoffman, 2018; North, 2016; Sukhdev, 2012). Its global outreach, competencies, and capacities give business both the power and the responsibility to deliver solutions to societal challenges.

Section A2 analyzed the understanding of a truly sustainable business and how the concept of TBST interprets business' self-perception. Understanding these assumptions and implications is necessary for designing TSS. TBST perceives business as a responsive citizen embedded in society (Dyllick & Muff, 2016). This implies that a truly sustainable business takes care of its surroundings because it is dependent on a functioning ecosystem. The success of a truly sustainable business depends upon business's ability to positively contribute to its ecosystem. Further, TBST perceives business as an agent of social change being able to deliver solutions to societal challenges (Dyllick & Muff, 2016). This view imposes a moral obligation on a truly sustainable business to live up to this potential and to create value for the common good. Additionally, a truly sustainable business takes an outside-in perspective and interprets unsolved sustainability challenges as future business opportunities (Dyllick & Muff, 2016). It creatively finds solutions to make business sense of environmental and social issues. Finally, a truly sustainable business takes into account both short and long term aspects equally (Dyllick & Muff, 2016). Therefore, it is responsible and accountable for its impacts today and in the future.

B) Food Sector Analysis

Section A discussed the basics of TBST and its implications for business. Section B takes a closer look at the strategic analysis of the external environment, which is the second step of the strategy formation process in the dissertation's conceptual framework. In the context of TBST, an analysis of the external environment is essential to adopting an outside-in perspective. To adopt this perspective, the first step is to identify the critical and relevant sustainability challenges in the external business environment.

The food sector was chosen as the focus of this research because of its high relevance to sustainable development and the importance of the private sector in enabling sustainable development. Figure 10 shows where section B features in the overall structure of the dissertation.

Figure 10: Locating section B



Source: Own illustration

A study by the World Wide Fund for Nature looked at the sustainability practices of food processing companies in Switzerland and found that they only selectively implemented strategies oriented towards external challenges. Most companies limited their sustainability activities to internal organizational issues and did not address broader societal problems (WWF, 2017). And yet, addressing societal challenges creates huge opportunities for both the planet and business (AlphaBeta, 2016). This section aims to support business in identifying the challenges and opportunities in its external environment in order to develop strategies that address them.

In order to identify the challenges and opportunities, section B1 provides an overview of the food sector and its sustainability challenges. Section B1.1 starts by introducing the systems approach and outlines the scope and characteristics of the food sector in general. Section B1.2 assesses the sustainability challenges along the supply chain of the food sector. Section B1.3 summarizes the findings and provides an overview of the sustainability challenges, drivers, and trends in the food sector.

Next, section B2 takes a closer look at the value that can be generated from undertaking societal challenges. To begin with, section B2.1 shines a light on how societal challenges can be identified. Different approaches to identify societal challenges in business' external environment are analyzed. Section B2.2 quantifies the challenges and discusses the business values that can be created by addressing them. Finally, section B2.3 summarizes the results and maps the quantified value to the different stages of the supply chain. Figure 11 shows an overview of the sections as well as the questions guiding the discussion.

Figure 11: Overview of section B

B) Food Sector Analysis	Guiding Questions
B1 Sustainability challenges in the food sector B1.1 The food sector B1.2 Assessing the sustainability challenges in the food sector B1.3 Summary: Challenges and drivers in the food sector	What are the sustainability challenges in the food sector?
B2 Business opportunities in the food sector B2.1 Identifying the challenges B2.2 Quantifying the opportunities B2.3 Summary: Mapping the value	What business opportunities and values arise from these challenges?

Source: Own illustration

B1 Sustainability Challenges in the Food Sector

Being efficient, sustainable, inclusive, as well as providing nutritious and healthy food are core aspirations of the world's food system (WEF, 2017). However, today the food system is in distress: almost 850 million people are suffering from chronic hunger, while more than 30% of all food is wasted (FAO, 2019; Lipinski et al., 2013); at the same time, 1.9 billion people are overweight—worldwide obesity has more than doubled in the last 35 years (WHO, 2015). Hence, there is huge inequality and imbalance in the availability of food.

In addition to the social challenges, food production has an immense environmental impact: The sector currently uses almost 50% of all arable land, accounts for 80–90% of fresh water consumption by human activities, and emits 25% of greenhouse gases (GHGs) worldwide (WRI, 2019). High population growth and changing consumer preferences mean that calories produced through agriculture need to increase by almost 60% until 2050, which exacerbates environmental distress (WRI, 2019). WEF (2017) concludes that “today's food systems are not fit for purpose; a fundamental transformation is needed” (WEF, 2017, p. 22).

The following sections provide a detailed picture of the challenges in the food sector. These sections will help companies obtain an overview of their external environment, which is an essential step to cultivate an outside-in perspective.

B1.1 The Food Sector

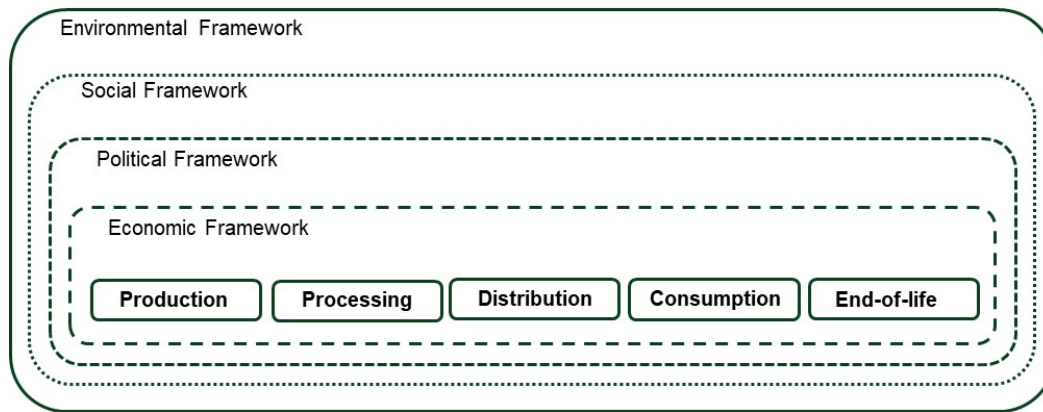
Food systems have been established since producers were able to produce more of a specific kind of food than they could consume, enabling people to share their surpluses. The systematic production of food fostered economic and social development. These food systems have become increasingly complex as they expand across national boundaries and include diverse actors (Hueston & McLeod, 2012). Today, food is still a key driver for human health and environmental sustainability (Lang et al., 2019). According to Last et al. (2015),

the purpose of food systems is to provide healthy nutrition, environmental quality, and social wellbeing. The Food and Agricultural Organization (FAO) of the UN (2013) adds economic resilience and good governance as important characteristics of sustainable food systems.

Sustainability challenges are analyzed in the following sections using a systems approach. This approach is an integrated perspective and is increasingly applied in research and practice in order to account for interdisciplinarity: It allows us to integrate the social, environmental, political, and economic influences on the food sector (Last et al., 2015), providing a holistic overview of the food sector's challenges.

According to the systems approach proposed by Last et al. (2015), the food sector includes the entire supply chain of food: from agricultural production to processing, distribution, consumption, and end-of-life usage. At all stages there are interactions with environmental, social, ecological, and political framework conditions. These frameworks influence the food supply chain and cause rapid changes—urbanization, changing consumer preferences, trade agreements, or environmental changes that make the food system complex and dynamic.

Figure 12 illustrates the food system based on Last et al. (2015). It shows the food supply chain as well as the frameworks in which it is embedded. Each stage of the supply chain interacts with the different frameworks, and environmental and social conditions build the all-encompassing context. Such an illustration is in line with an understanding of business as embedded in its ecosystem, as described in section A. The interaction between the supply chain and the different frameworks are two-sided: The food supply chain is both dependent on environmental, social, political, and economic factors and influences them. The degree of influence and dependency differs across the stages. Section B1.2 will show that environmental challenges are most present on the production and processing side, whereas social issues are predominant during consumption.

Figure 12: The food sector

Source: Own illustration based on Last et al. (2015)

As shown before, the purpose of food systems is to provide healthy nutrition, environmental quality, social wellbeing, and economic resilience to society (FAO, 2013; Last et al., 2015). These points together form the social, environmental, and economic aspects of sustainable development. These aspects, in turn, build the overarching framework for the SDGs, which the food sector helps achieve, as described below.

In terms of social aspects, the food sector is key to providing healthy food for a growing population—approximately 850 million people suffer from chronic hunger (FAO, 2019). Hence, food businesses play a crucial role in ending hunger, as expressed in SDG 2.

The food sector is also of high importance to ecological sustainability. It has both an immense impact on the natural environment and huge potential to deliver solutions to environmental challenges. The food sector uses almost 50% of all arable land and accounts for 80–90% of fresh water withdrawal. The industry is responsible for 25% of all GHG worldwide, and by 2050, it is expected to consume 70% of the allowable GHG emissions, a target set to limit warming by two degrees Celsius (Searchinger et al., 2013). The use of land, water, energy, and other resources will increase in the future, which will lead to further environmental deterioration. Hence, if reformed, the food sector can be key in achieving SDGs 14 and 15 (life on land and below water), SDG 12 (responsible consumption and production), and SDG 13 (climate actions).

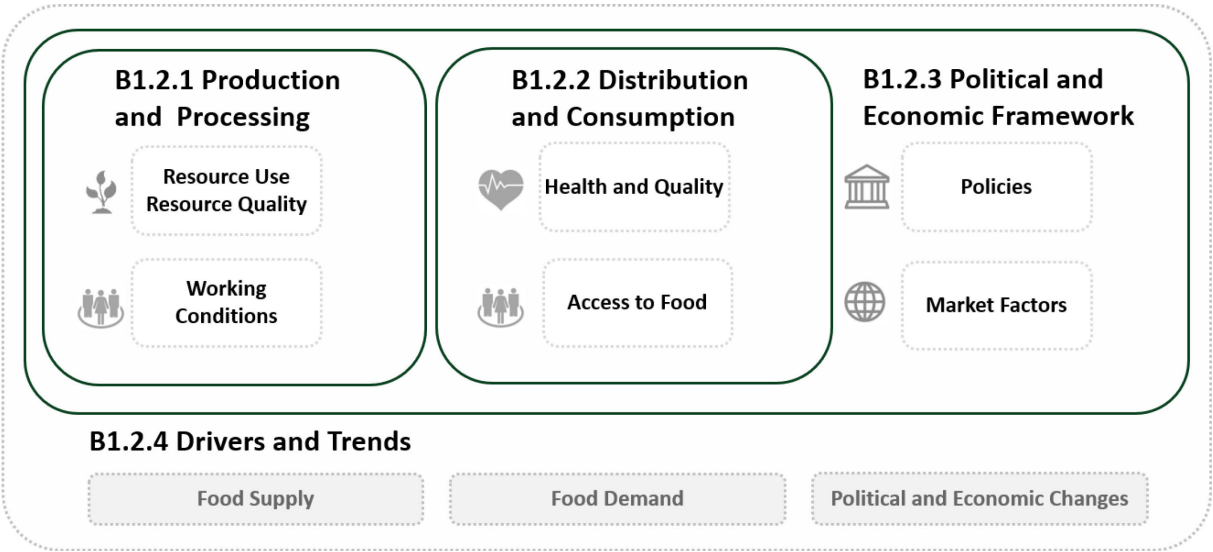
The food sector also plays a key role in the economic wellbeing of people. It is the world's largest business sector with approximately US\$12.5 trillion in revenues (KPMG, 2013), which represents 17% of global GDP. Globally, around 2 billion people are employed in the sector. In more than half of the member states of the European Union (EU), the food and drink sector is the biggest employer in manufacturing (Food Drink Europe, 2015). These figures show the importance of the food sector in terms of economic development and financial wellbeing of people. With regards to the SDGs, SDG 8 (economic growth) and SDG 1 (no poverty) are the goals that the food sector can contribute to.

Overall, the sector can contribute to all 17 SDGs and one quarter of the 169 SDG subtargets (AlphaBeta, 2016). The previous paragraphs show how a very high share of subtargets can be addressed by the food sector: SDG 2 (end hunger), SDG 12 (responsible consumption and production), and SDG 13 (climate actions), SDGs 14 and 15 (sustainability on land and below water), SDG 1 (ending poverty), and SDG 8 (sustainable economic growth). A study by AlphaBeta (2016) shows that food businesses play a key role in achieving these SDGs. At the same time, the SDGs display huge business opportunities, which are elaborated in section B2.

B1.2 Assessing the Sustainability Challenges of the Food Sector

The food sector is in distress: "It is not very good in terms of the ability to ensure health for everybody. At the same time, we know that we are damaging the environment", explains Interviewee O. This section provides an overview of the challenges faced by the food sector. There are three groups of challenges in the food sector: challenges related to ensuring people's health, generating social wellbeing, and protecting the environment. Figure 13 shows the structure of the sections in B1.2 based on the systems approach.

Figure 13: Structure of section B1.2



Source: Own illustration

According to the systems approach presented in the previous section, the challenges faced by the food sector will be structured along the food supply chain: section B1.2.1 focuses on production and processing. This phase of the supply chain mainly contains challenges related to protecting the environment, and to generating social wellbeing: environmental challenges are related to resource use and quality of resources, and social wellbeing at this stage refers to working conditions. Section B1.2.2. addresses the challenges in the distribution and consumption phase. These challenges are related to health aspects and ensuring social wellbeing: health aspects relate to the quality of food being produced, and social wellbeing at this stage refers to access to food.

As shown in the systems approach presented in the previous section, societal and environmental aspects are influenced by the political and economic framework, therefore, section B1.2.3 covers the policies and market factors that challenge the sector. Finally, the drivers and trends that influence the challenges will be discussed in section B1.2.4. These include trends influencing food supply and demand as well as political and economic changes.

B1.2.1 Production and Processing

Food production and processing cause huge environmental damage and influence social wellbeing. Interviewee C says, “We haven’t taken good care of mother earth in terms of climate and resources.” Interviewee I adds, “And there are challenges related to the social wellbeing in the food sector [...] in particular regarding those who are employed in the production and processing of food.” This section sheds light on the production and processing stage of the food supply chain. At this stage, environmental challenges and social issues arising from the working conditions are the most pressing. First, the environmental challenges are covered, namely challenges related to the use of resources and their quality, followed by the challenges posed by working conditions.

Resource use

The extent of natural resource consumption by the agricultural sector and its consequences are elaborated in the following.

Water stress: Today about 50 countries are facing moderate or severe water stress (FAO, 2013).¹⁷ The OECD estimates that in the next 40 years, more than 40% of the global population will face severe water scarcity (Last et al., 2015) as the consumption of water increases twice as fast as the world’s population (FAO, 2013). The food sector contributes greatly to this water scarcity: The areas of irrigated production almost doubled within the last 50 years consequently increasing water use. The dependency of food production on irrigated land will become more severe under climate change as temperatures are rising and land is becoming increasingly dry. Future food production will be limited primarily because of water scarcity (Last et al., 2015).

Land use: Besides water, land is among the most important resources for food production. Agriculture occupies almost 40% of usable land (WRI, 2019). If the current population growth remains constant, land use by agriculture is expected

¹⁷ “Water stress is defined as the proportion of water withdrawal by all sectors in relation to the available water resources” (FAO, 2018, p. ix).

to increase in 2050 by approximately 70 million hectares in order to feed 9 billion people (Last et al., 2015).

Energy consumption: Agriculture also uses high amounts of energy. The use of non-renewable energy negatively affects the soil, water, and ecosystems, which threatens food production. Switching to renewable energy sources and increasing energy efficiency is important in order to limit environmental damages. Further, a lot of energy and other resources are lost due to food loss: About 30% of produced food gets wasted, which contributes to resource scarcity (FAO, 2013). In developing countries, the largest proportion of food is lost during post-harvesting, processing, and transportation. In developed countries, food waste is mainly caused by consumers. Hence, both phases, production and processing as well as consumption, contribute to food waste.¹⁸

The increasing use of resources like water, land, and energy is a major threat to food production and processing. The overexploitation of forests or oceans, land degradation, and depletion of reserves do not affect just the environment; they also threaten social wellbeing, economic prosperity, and political stability as the cost for scarce resources increases (Last et al., 2015). Therefore, the OECD and the European Commission identified the sustainable use of natural resources as one of the major challenges of the 21st century (Last et al., 2015).

Resource quality

Agricultural production not only affects the availability of resources but their quality as well. Agricultural production can pollute ground water, damage soil quality, or emit harmful emissions into the atmosphere. These challenges are covered in the following.

Water pollution: International agencies expect that by 2050, more than 240 million people will not have access to clean water. The food sector is a big contributor to this situation: about 70% of the pesticides in surface water originate from agriculture (FAO, 2013).

¹⁸ The topic of food waste is discussed in detail in section B1.2.2.

Land degradation: Healthy soil is pivotal to food production as it provides essential ecosystem services and nutrients. In 2014, one third of all agricultural land was estimated to be either moderately or highly degraded (FAO, 2013). For example, nutrients like nitrogen or phosphorus, which are essential for food production, have been depleted from the soil. Although fertilizers help to overcome these shortages and increase productivity, these synthetic substances have negative effects on the natural environment: When the concentration of these substances reaches a toxic level in the ground it can negatively affect other species, like fish or insects.

Biodiversity loss: The food sector simultaneously contributes to and is threatened by biodiversity loss. The current loss in biodiversity is defined as the sixth mass extinction, and the first to be caused by human activities (Ceballos et al., 2017). Ecosystem services, like pollination, photosynthesis, or filter functions, provide the basis of food production, as healthy ecosystems and biodiversity are a major prerequisite for productive and nutritious yields. At the same time, extensive food production and processing negatively affect ecosystems and their services by pollution, overexploitation, or land degradation, causing tremendous damage to global ecosystems (FAO, 2013).

Air quality/GHG emissions: The high amount of GHG emitted by the global food sector makes it a large contributor to climate change. The food sector is responsible for 25% of GHG emissions worldwide, of which half can be traced back to agricultural production (WRI, 2019). In turn, the resulting global warming and extreme weather events negatively impact food production. In addition, air pollution caused by GHG emissions also negatively impacts human health. By 2050, air pollution is expected to become one of the major causes of environmentally related deaths (Last et al., 2015).

Animal farming: The quality of water, land, and air is not only influenced by agriculture but by animal husbandry as well. Livestock production is the largest land-use sector worldwide. GHGs emitted by livestock are greater than that emitted by the transportation sector (about 18% of human GHG emissions)

(FAO, 2013). By 2050, the number of livestock is expected to double, intensifying the environmental impacts.

Animal welfare is also a key challenge for the food sector. Ensuring the health of terrestrial and aquatic animals is important for animal welfare and food security. Further, avoiding animal diseases and infections can reduce food losses by about 20% (Last et al., 2015). Additionally, ethical considerations related to species specific conditions are important. Some of the challenges include the overuse of antibiotics or the lack of light and space provided for livestock (Last et al., 2015). Despite the challenges related to animal welfare and ecological issues, animal farming has positive effects on economic growth (AlphaBeta, 2017).

The previous paragraphs about resource use and quality showed that water, land, soil, and air are key resources for the food sector, which are simultaneously negatively influenced by the production and processing of food. The environmental effects of food production can be lowered by reducing the amount of water and land used in agricultural production and by reducing the negative impacts on biodiversity and air quality.

The researchers of the EAT-Lancet Commission quantify and illustrate the environmental impact of the food sector. They identify six earth system processes affected by the food industry. The Commission defines the environmental limits for global food production with regards to these processes; this idea is similar to the concept of planetary boundaries by Rockström et al. (2009). In order to avoid severe and irreversible changes to the planetary systems, global food production should stay within the boundaries described by the Commission. The earth system processes that are most affected by the food industry and the corresponding control variables are shown in table 6.

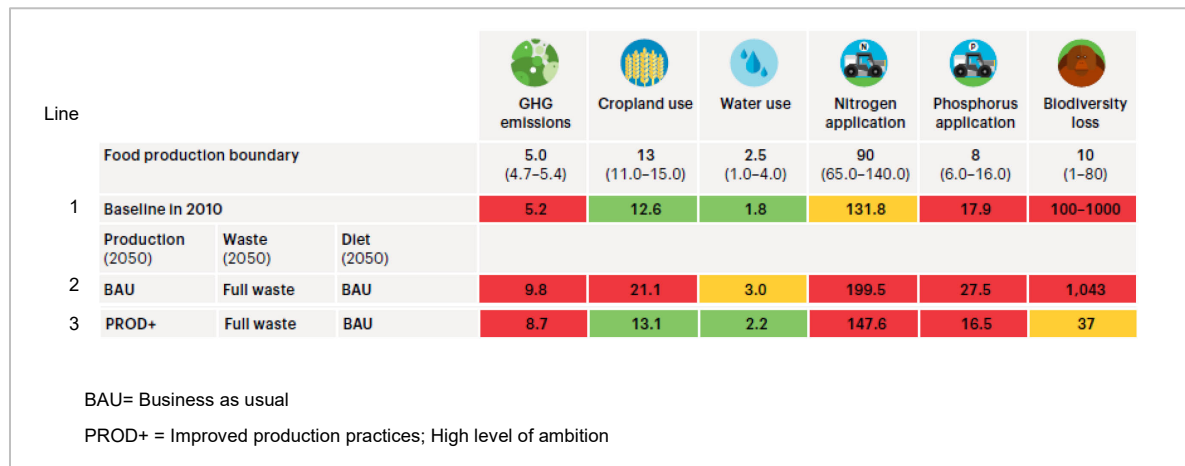
Table 6: Earth system processes affected by the food sector

Earth system processes	Control variables
Climate change	GHG emissions
Land-system changes	Cropland used
Freshwater systems	Water use
Nitrogen cycling	N application
Phosphorus cycling	P application
Biodiversity loss	Extinction rate

Source: Own illustration based on Lang et al. (2019, p. 15)

For each of the control variables, the researchers define boundaries of a safe operating space. Exceeding those boundaries would lead to irreversible damage in earth's systems. The following paragraph describes the current and future impact of the food sector on the earth system processes.

Figure 14: Environmental boundaries of the food sector



Source: Lang et al. (2019, p. 17)

Line 1 in figure 14 shows that in 2010, the food sector already exceeded three of the six earth systems boundaries (see red colors in the baseline in 2010): GHG emissions, phosphorous application, and biodiversity loss caused by the food sector is higher than what can sustain a healthy planet. The yellow boxes indicate a high risk of crossing the boundary, whereas the green boxes indicate a healthy level. The second line shows that when keeping constant production practices, waste levels, and diets from 2010, the impact in 2050 would exceed five of six planetary boundaries.

In order to stay within the planetary limits, researchers suggest three major changes: a) a substantial shift toward a mostly plant based diet, b) drastic reduction in food waste and losses, and c) major improvements in production processes. In order to adjust the production processes in the food sector to a level that respects the planetary boundaries, the efficiency of nitrogen delivery and the rate at which phosphorus is recycled have to increase. Further, first generation biofuels have to be avoided and food related GHG emissions have to be drastically reduced. In terms of biodiversity, land use should be optimized across regions so that the impact on biodiversity is minimized. Line 3 in figure 14 shows a scenario where these new restrained production processes are applied while waste and dietary patterns remain unchanged. In this case, land and water use could stay within planetary boundaries, while the other earth systems exceed a healthy limit. These figures show that changes on the production and processing side alone cannot deliver the required changes needed to create a healthy food system; they need to be accompanied by changes to food consumption patterns as well.

The recommended scenario by the EAT-Lancet Commission of cutting food waste by half is considered in B1.2.2 when addressing the consumption side. However, reducing food loss in production and processing is also relevant in order to stay within environmental limits.

Working conditions

Besides the environmental challenges during the production and processing of food, challenges related to social wellbeing are just as important. Interviewee I asks, “Are the people employed in the food sector really able to access a sustainable livelihood? Are they able to access a healthy diet? Are their rights fulfilled? Or are their rights violated through the process of producing the food for us?”

Decent livelihood: The agricultural sector influences the livelihoods of 1.3 billion people, which includes almost 90% of the rural population (Last et al., 2015). The people dependent on employment in the sector are especially vulnerable.

A decent livelihood is defined as a means of living that allows people to fulfill their basic needs, like nutrition, sanitation, safety, human rights, and the ability to save for future needs and goals (Chambers & Conway, 1992). Additionally, the opportunity to access training and education is an important aspect of a decent livelihood. Worldwide, billions of people live without those basic standards of living, in particular in developing countries. Businesses in the food sector are challenged to secure a sustainable livelihood for their employees and the community in which they operate (FAO, 2013). In the following, four aspects of a decent livelihood and human rights especially relevant to the food sector are discussed in detail: fair trade, living wages, labor rights, equality, and human health and safety.

Fair trade and living wages: Small scale farmers usually have low bargaining power in the market. Therefore, ensuring fair trading practices is important. These practices include fair and stable prices which partners can mutually agree on (FAO, 2013).

People working in agriculture typically face acute poverty: 60% of the people living in extreme poverty work in the agriculture sector (AlphaBeta, 2016). Hence, paying so-called living wages can have an immense impact on reducing poverty and improving the living standards of the poorest. Living wages are wages that are high enough to maintain a 'normal' standard of living, allowing basic human needs and rights to be met. Paying living wages and respecting workers' rights are emphasized in the UN framework of business and human rights (UNHCR, 2011).

Labor rights: The enforcement of labor rights is a major challenge, especially in developing countries with low national standards of worker's rights and weak governmental law enforcement. In fact, between 20 and 40 million people work under conditions of modern slavery worldwide, and more than 150 million people are forced to work (AlphaBeta, 2017). The agricultural sector is a labor intensive industry with largely informal working conditions, making the enforcement of labor standards very difficult (FAO, 2013). The violation of

human rights is common, for example through physical harassment or the denial of basic freedoms.

Inequality: Inequality is a prevalent challenge in food production. Discrimination against women or exploitation of vulnerable people is frequently found in the food sector. Seasonal workers or nonsalaried family members, women in particular, are often not treated as equal to regular employees (FAO, 2013).

Human health and safety: Human health and safety also play a key role in providing a decent livelihood. In the food sector, specific risks related to machinery and working conditions lead to many accidents (EU, 2007). Hard physical work and the exposure to harmful substances like pesticides can cause severe health problems. During harvest season, working hours can be very long, thus negatively affecting the health and safety of workers (FAO, 2013).

The analysis of production and processing in the food sector uncovers several environmental and social challenges. Social challenges are linked to a decent livelihood, including issues like fair prices and wages, labor rights, equality, as well as health and safety of workers. Environmental challenges include limiting the use of resources and leaving resources unpolluted. The availability of fresh water, fertile soil, diverse biosphere, clean air, and healthy animals is crucial for the food sector. At the same time, agricultural activities negatively impact these ecosystem services. The assessment of the food sector's impact on planetary boundaries shows that improved production processes can help to reduce the environmental impact of food production. However, other parts of the supply chain need to change too in order for the world to stay within the environmental boundaries of the planet.

B1.2.2 Distribution and Consumption

“The challenge is to provide enough and healthy food for everyone,” reminds Interviewee J. The number of people living in food insecurity¹⁹ has risen: Around 850 million suffer from hunger, while at the same time 1.9 billion are overweight and one third of all food gets wasted. Resolving this paradox is a huge challenge.

This section covers the challenges in distribution and consumption related to human health, and the quality of and access to food. First, challenges related to health and the quality of food—like malnutrition and diet related diseases—are addressed. Further, it is shown what a healthy diet within planetary boundaries may look like. Second, challenges related to the access to food—like distribution and affordability of food, and food waste—are addressed.

Health and quality of food

Hunger and malnutrition: “Despite being able to produce enough food for everybody on the earth, we don’t have a healthy population,” says Interviewee O. Approximately half of the population suffers from malnutrition: more than 800 million people suffer from hunger; approximately 2 billion people are “over nourished” and another 2 billion people suffer from so-called “silent hunger.” Silent hunger describes undernutrition and deficits in nutrients, like iron, vitamin E, or zinc (Interviewee I; WHO, 2015). Overnutrition points to problems of people being overweight and obese, which causes severe health problems like cardiovascular diseases, type 2 diabetes, osteoarthritis, and cancer (Last et al., 2015).

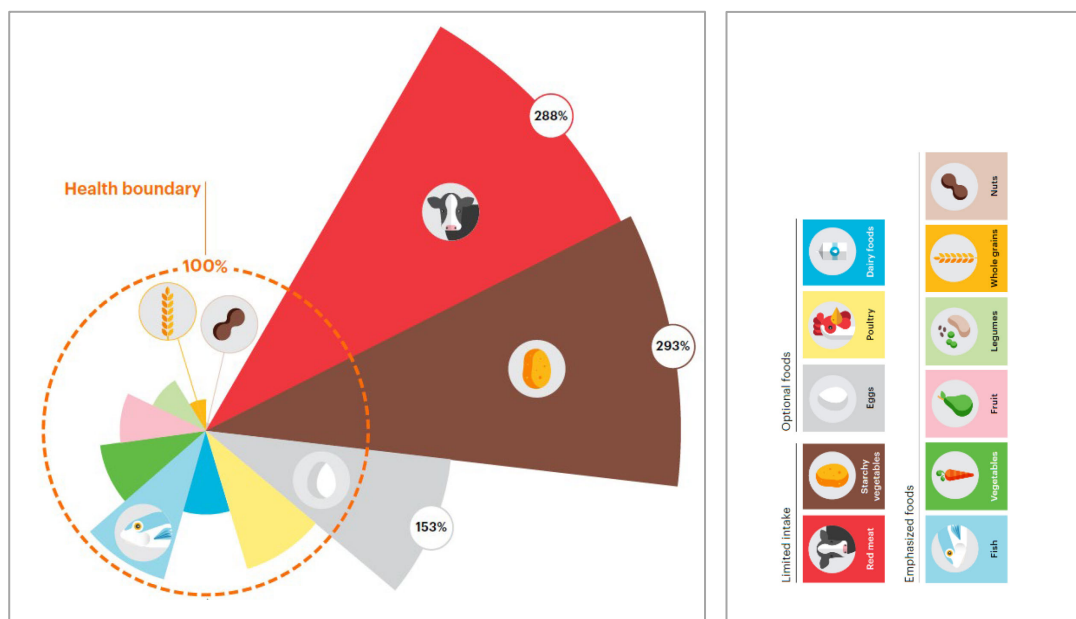
Obesity and diet related diseases: In the western world, millions of people die every minute from diseases caused by obesity. Worldwide obesity has more than doubled in the last 35 years (WHO, 2015). If current dietary and behavioral patterns continue, it is expected that by 2030 almost half of the population above

¹⁹ Food security is defined as feeding all groups of people adequately, which means that enough and healthy food is available and accessible for everyone (WHO, 2015).

18 will be overweight or obese. The high amount of sugar and fat in diets as well as overconsumption of meat contribute to the rise of diet related diseases. The social costs of obesity account for US\$2 trillion and are rising rapidly (AlphaBeta, 2016).

As large parts of our population follow unhealthy diets, the question becomes: What does a healthy diet look like? The researchers of the EAT-Lancet Commission define a health boundary that provides humans with an adequate amount of nutrients for a healthy life. Accordingly, a healthy diet consists of around 50% vegetables and fruits. The other half consists of whole grains, plant protein sources, and unsaturated plant oils. Animal sources of protein are optional and should only account for modest amounts (Lang et al., 2019). Besides this recommended diet, researchers calculate the actual global level of nutrients consumed. Figure 15 shows the discrepancy between current consumption levels and healthy levels. The so-called “diet gap” shows that the consumption of red meat, starchy vegetables, and eggs extends far beyond the health boundary. In contrast, nuts, whole grains, and legumes are consumed too inadequately (Lang et al., 2019).

Figure 15: Health boundary of diets



Source: Lang et al. (2019, p. 12)

As shown before, this unhealthy and imbalanced diet causes severe health problems for overnutrition and malnutrition. In order to stay within the health boundaries, Lang et al. (2019) suggest that people shift their diets toward plant based products. Making the move to the recommended healthy diet would decrease total adult deaths by 19–24%, or by approximately 11.5 million adults a year (Lang et al., 2019). The recommended plant based diet would also highly reduce environmental impacts. The environmental impacts of this dietary shift on the six earth system processes are shown in figure 16.

Figure 16: Impact of dietary shift on planetary boundaries

Line				 GHG emissions	 Cropland use	 Water use	 Nitrogen application	 Phosphorus application	 Biodiversity loss
Food production boundary				5.0 (4.7–5.4)	13 (11.0–15.0)	2.5 (1.0–4.0)	90 (65.0–140.0)	8 (6.0–16.0)	10 (1–80)
1	Baseline in 2010			5.2	12.6	1.8	131.8	17.9	100–1000
	Production (2050)	Waste (2050)	Diet (2050)						
2	BAU	Full waste	BAU	9.8	21.1	3.0	199.5	27.5	1,043
3	BAU	Full waste	Dietary shift	5.0	21.1	3.0	191.4	25.5	1,270

BAU= Business as usual

Source: Lang et al. (2019, p. 17)

Line 1 again shows the effects of food production and consumption in 2010 (baseline). If continued unaltered till 2050, five planetary boundaries will have been breached, as shown in line 2. The effects of a dietary shift unaccompanied by changes to production and waste patterns are shown in line 3: the amount of GHGs can be reduced drastically to a healthy level (marked in green), but the negative impact on biodiversity and from phosphorous and nitrogen application will still exceed a healthy limit, whereas cropland and water use will remain unchanged.

This paragraph showed that health and quality of food is a huge challenge. Currently, large parts of the population follow an unhealthy diet. Besides the diseases cause by this unhealthy diet, the environmental impacts are huge. Shifting toward a plant based diet helps to increase the health of both people and the planet.

Access to food

This section covers challenges related to the access to food: the distribution and affordability of food as well as food waste. Food waste impacts not only the environment but also food security.

Distribution of food: “It is a question of the fair distribution of food between countries and within countries, between rich and poor,” says Interviewee E. Worldwide, food security is more threatened by distribution than by the scarcity of food. Theoretically, we produce enough calories to feed the entire world population. However, food is distributed unequally. People suffering from hunger mostly live in the developing countries of Asia, the Pacific, and Africa. Western countries consume a greater proportion of the world’s resources although their population is smaller. This shows that unequal distribution of food among countries is closely linked to the distribution of wealth (AlphaBeta, 2016).

Affordability: Being able to pay for food is a key factor in being able to nourish yourself. Hence, the affordability of food is an important aspect for companies to consider when deciding their pricing strategy. Affordability can also be influenced by the payment of commensurate wages, which links back to the issue of living wages within the agricultural sector discussed earlier (FAO, 2013).

Food waste: “Even if we are able to produce enough food, a big proportion gets lost,” reminds Interviewee O. Every year, about one third of food produced for human consumption is lost (Lipinski et al., 2013). In developing countries, the largest proportion of food is wasted during post-harvest, processing, and transport; waste during consumption is very low. In contrast, in developed countries, food waste is mainly caused by consumers—about one third of purchased fruits and vegetables get wasted (FAO, 2011). Additionally, there are losses due to food safety regulations and waste from restaurants and retailers (Lipinski et al., 2013). The total amount of food waste accounts for 6–10% of human generated GHGs within the food sector (Last et al., 2015).

Researchers from the EAT-Lancet Commission suggest halving food waste and food loss in order to stay within the safe operating space of the planet. Line 3 of figure 17 shows the effects on the six earth system processes of halving food waste. When production practices and diets remain the same, even with halving the food waste, all environmental boundaries will be crossed by 2050. Yet, compared to figures of current consumption and production, impacts in all areas can be reduced; the loss of biodiversity, in particular, can be reduced drastically.

Figure 17: Impact of food waste reduction on the planetary boundaries

Line			 GHG emissions	 Cropland use	 Water use	 Nitrogen application	 Phosphorus application	 Biodiversity loss	
Food production boundary			5.0 (4.7–5.4)	13 (11.0–15.0)	2.5 (1.0–4.0)	90 (65.0–140.0)	8 (6.0–16.0)	10 (1–80)	
1	Baseline In 2010		5.2	12.6	1.8	131.8	17.9	100–1000	
	Production (2050)	Waste (2050)	Diet (2050)						
2	BAU	Full waste	BAU	9.8	21.1	3.0	199.5	27.5	1,043
3	BAU	Halve waste	BAU	9.2	18.2	2.6	171.0	23.2	684
4	PROD+	Halve waste	Dietary shift	4.0	11.0	1.9	121.3	13.1	19

BAU= Business as usual

PROD+ = Improved production practices; High level of ambition

Source: Lang et al. (2019, p. 17)

The effects of the scenario when all three recommendations of the EAT-Lancet Commission are put into practice—improving production patterns, halving food waste, and shifting diets—are shown in line 4. Even in this most ambitious scenario it is not possible to stay below all planetary boundaries simultaneously. Only three earth system processes can remain within planetary boundaries: GHG emissions, and land and water use. The level of nitrogen and phosphorous application and loss of biodiversity can be decreased to a less alarming amount (yellow instead of red). However, they are still close to the planetary boundaries, which stresses the urgent need to adopt these radical changes in the food sector.

This section showed that current food consumption patterns are alarming, both for human health and the planet. Access to food is highly unequal and huge amounts of the world's population cannot afford a healthy diet due to limited finances. However, limited wealth is not the only barrier to a healthy diet; wealthy countries face a major obesity problem, the result of an unhealthy diet and other lifestyle issues. These problems can be dealt with by shifting to a plant based diet. Such a shift does not only benefit human health, it also helps to reduce the environmental impacts of food production and consumption. In addition to the shift in diets, a reduction of food waste is important to keep food production within environmental limits. Hence, radical changes to the way we eat and treat our food help to make the food sector a sustainable one.

B1.2.3 Political and Economic Framework

The global food sector is integrated in the political and economic framework: Policies and market conditions influence the entire food sector. In the following, policies that pose challenges to the sector are discussed, and the factors influencing the global food market are analyzed.

Policies

The sustainable transformation of the food sector can be influenced by national and international policies (Last et al., 2015). Agricultural and environmental policies as well as taxes and trade regulations influence all parts of the food supply chain, from production to retail and eventually to consumption.

Agricultural policies: Subsidies play a big role in agricultural policies. The food sector is affected by different subsidies, including US\$490 billion in agricultural subsidies and US\$35 billion in subsidies to fisheries worldwide (AlphaBeta, 2016). Subsidies can be essential for small scale farmers to stay in the market. However, subsidies often lead to overproduction, which results in lower market prices (Last et al., 2015). Policy makers are challenged to design fair agricultural policies and to adapt to changes arising from different subsidy schemes.

Environmental policies: Policies related to environmental and climate issues also greatly influence the food sector. These policies are important for transforming the food sector into a sustainable one. Climate policies can help to reduce the negative impacts of the entire food sector, and environmental policies have greatly increased because of their high relevance in guiding the food sector toward sustainable development (Last et al., 2015). The SDGs from 2015, or the so-called Paris Agreement from 2016, are important international sustainability guidelines which also influence the food sector. Businesses are challenged both to comply with these policies and positively contribute to their achievement.

Taxes: The food sector is also influenced by tax policies. In countries like Mexico or Great Britain, a tax on sugar has been introduced to tackle obesity. In Mexico, the annual sales of sodas declined by 6% after introducing a 10% sugar tax (AlphaBeta, 2016).

Trade regulations: Food products are highly tradeable. Food trade is expected to rise substantially due to population growth and increased income (Last et al., 2015). For developing countries and small scale farmers, the entrance in foreign markets is often difficult due to trade regulations. Currently, three large regional trade agreements are under negotiation or have been concluded: the Trans-Pacific Partnership (TPP), the Regional Comprehensive Economic Partnership (RCEP), and the Transatlantic Trade and Investment Partnership (TTIP). They all affect agriculture and influence the food sector in different ways, like harmonizing food product standards, setting the scope of patent protections for plants, or creating subsidies for agricultural exports. Fair regulations on trade are important to ensure a sustainable food sector.

Market factors

The food sector is influenced by different market factors like globalization, market control, price volatility, or institutional strengths and partnerships.

Globalization and market control: The food market is highly globalized—food commodities are produced and exchanged across the world. Although such a global market facilitates trade and economic welfare, access to the global food

market is often limited to big companies and large economies. Certain big companies control huge parts of the global food supply chain (ETC Group, 2011). The global seed industry, for example, is dominated by only five large businesses, and more than half of the share of worldwide fertilizer production is located in only five countries (Hernandez & Torero, 2011). Such a concentration of market power restricts the free choice of smaller farmers, companies, and consumers, and creates dependencies on a few players that can dictate prices and even consumption patterns (Hernandez & Torero, 2011).²⁰

Price volatility: The market price of commodities is an indicator of future developments in the food market—rising prices can predict a shortage of certain resources or products. However, speculation with food commodities contributes to price volatility, which reduces the stability of the market. For example, price fluctuations, volatility, and uncertainty greatly increased in 2007 and 2008, leading to an inflation of food prices. Since then, the volatility of prices has continued to increase (FAO, 2017). Increasing market volatility and decreasing predictability are major challenges for the food sector, especially in poorer countries, leading to global food insecurity (Last et al., 2015).

Institutional strengths and partnerships: Rules and institutions—which are determined by governmental, nongovernmental, and private sector actors—create important guidelines for a sustainable food sector (Last et al., 2015). Strong institutions can help to enforce decisions toward a sustainable food market. Therefore, partnerships and the integration of different actors to create strong institutions for a sustainable food sector are essential.

To recap, this section showed that the food sector is influenced by various policies and market factors. Agricultural subsidies, environmental policies, and tax regimes influence the way food is produced. Trade regulations and globalized markets make it difficult for small businesses to enter the market, which creates a dependency on a few large businesses that dominate the market.

²⁰ The concentration of market power is increasing (ETC Group, 2011). This trend will be covered in more detail in section B1.2.4.

Price volatility makes it difficult to predict developments, which shows the importance of creating stable institutions. Hence, partnerships between public and private actors are essential to set guidelines for a stable and sustainable food market.

B1.2.4 Drivers and Trends

The food sector has several drivers and faces many trends that intensify the challenge of producing healthy and adequate food within planetary boundaries for everyone. These drivers and trends influence food supply and demand, and arise from changes in technology, politics, the economy, and society. These drivers and trends are analyzed by examining their effect on the supply chain. This approach follows the systems approach and is comparable to the structure used to analyze the challenges in the previous sections. Figure 13 on page 63 shows the topics covered in B1.2.4 and how this section relates to the challenges presented earlier: the drivers of the production and processing stage are analyzed, starting with food supply. Next, the consumption level, which covers changes in food demand, is considered. Finally, the political and economic changes that influence the framework are elaborated.

Food supply

Food supply is driven by technological, political, economic, and societal factors. Changes to these factors have a direct impact on food supply as do changes in environmental factors—like climate change, biodiversity loss, or resource scarcity. This section covers the following technological, political, and economic changes: innovation, law, and market power.

Innovation: The production efficiency of the food sector has dramatically increased since the 1950s and 1960s (Last et al., 2015). Food supply has also greatly increased because a greater amount of land has been cultivated more intensively. Better farming technology and innovations in fertilizers were a major driver of this development (AlphaBeta, 2016). These innovations are perceived as key elements for a sustainable and resilient food systems (Last et

al., 2015). Overall, the use of technology and innovation has not only increased the efficiency of agricultural production but has also helped to develop new production methods or even entirely new products. In-vitro meat, for example, requires new technology to extract and cultivate DNA. Such innovations play a key role in increasing the calories needed to feed a growing population well and within planetary boundaries.

Law: New laws and regulations influence food production and processing. As shown in section B1.2.3, the number of environmental policies influencing food production has increased (Last et al., 2015). Political regulations often call for more transparency and higher standards along the entire supply chain, for example, the ‘Konzernverantwortungsinitiative’ in Switzerland. Additionally, consumers increasingly want to know where their products originate (Nielsen, 2015).

Market power: The food processing sector is confronted with an increasing concentration of market power. In 2009, the 10 largest food and beverage processing companies—like Nestlé, PepsiCo, and Kraft—accounted for almost 40% of the revenues earned by the top 100 companies in this sector (ETC Group, 2011). Since then, the consolidation of the food market has only increased. In the future, the sector will be influenced by a handful of global players, which will greatly increase the role and influence of large food and beverage processors, distributors, and retailers (Last et al., 2015).

To sum up, this section showed that major changes in food supply have three main drivers: First, new technologies influence production processes and product designs. Second, environmental laws and voluntary standards demand more transparency in the entire supply chain, which influences the production and processing of food. Third, large food companies will gain greater market power, which creates a dependency on a few large businesses dominating the market.

Food demand

The average calorie consumption of an individual has increased from 2,373 calories per day in 1969 to 2,772 calories in 2007 (Alexandratos & Bruinsma, 2012). Worldwide, the demand for processed food is expected to rise; this also holds true for Switzerland (Hauser, 2012). By 2050, more than half the global population will consume more than 3,000 calories per day (Alexandratos & Bruinsma, 2012). The major drivers for increased food demand are population growth and societal developments like dietary changes and urbanization. In the following, these drivers and their effects on food demand are elaborated.²¹

Population growth: Population growth is the major demographic driver of food demand. Different scenarios project an increase in the global population, and the estimates for 2050 range from 8.3 billion to 11.1 billion people. This growth will mainly take place in developing countries (UN DESA, 2015). FAO (2009) calculated a so-called calorie gap: food production needs to increase by 70% by 2050 in order to feed this growing population.

Dietary changes: This calorie gap is also caused by changing consumption patterns. The diet in developing countries is converging with that of western countries, which is dominated mainly by animal protein. Despite this increase in demand from developing countries, developed countries are still expected to consume more animal protein than developing countries (National Geographic; CGIAR, n.d.). This demand results in an increasing consumption of resource intense food, like meat and dairy,²² which is one of the two most critical uncertainties influencing future sustainability scenarios in the food sector, besides the connectivity of markets (WEF, 2017). Additionally, the demand for convenience food as well as for green, safe, healthy, “free from,” and ethical food products will increase (Frost & Sullivan, 2015, 2016). These developments are a result of lifestyle changes as well as changes in income or the role of

²¹ Economic growth is also a driver of food demand and will be covered in the section on economic drivers.

²² Worldwide consumption of beef is expected to increase by 95% between 2006 and 2050. This is extremely critical as “beef is one of the least efficient foods to produce” (WRI, 2016, p. 6).

women in society (Last et al., 2015). Globalization and increased trade have resulted in a more diverse demand, leading to an increase in the import of foreign products (Last et al., 2015). These shifts on the demand side impact the food production stage as changing consumer preferences are reflected in the food supply.

Urbanization: Dietary changes are accelerated by rapid urbanization, which greatly impacts the food consumption patterns of a wide range of people. The demand for processed foods and fast food has increased, which also increases the amount of salt, fat, and sugar in the diet (FAO, 2017). Mega cities are challenged to produce food for a huge amount of people within a small area, hence urban agriculture is becoming increasingly important. It bears business opportunities of US\$20–40 billion in 2030 by virtue of reduced transportation costs or increased efficiency (AlphaBeta, 2016).

This section showed that three major trends influence food demand: Population growth is the major driver of increased food demand, and dietary shifts and urbanization lead to a demand for more convenient and resource intense food.

Political and economic changes

Changes in the political and economic landscape are also big influencers in the food sector. The following section analyzes the major drivers in this area: political conflicts, economic growth, and competition.

Political conflicts: Political conflicts and wars are considered a major driver of food insecurity and malnutrition (FAO, 2017). The availability of food and the access to nutrition in areas experiencing conflict and war is heavily reduced, and agricultural production and trade often becomes impossible: “Countries with the highest levels of hunger are usually those with conflicts” (FAO, 2017, p. 63).

Economic growth: A lot of the previously described changes in consumption patterns are due to economic growth and the increase of global wealth. In particular, the increasing purchasing power in developing countries pushes

diets toward more meat and dairy based foods (Last et al., 2015). In developed countries, increased income leads to higher demands in novel and specialty food, such as organic or “free from” products (Hauser, 2012). These changes open huge opportunities for food innovations and new markets.

Intensifying competition: The concentration of market power in the hands of a few large players as well as the increasing globalization of the food market intensifies competition among players (Last et al., 2015). There is also increasing competition between different types of food use. Crops being used for fuel or energy production compete with the demand for food supply (Institute on the Environment, 2013). For example, almost one third of the worldwide annual increase in cereal consumption is caused by biofuel production in the USA. The production of biofuels, a result of burning wood and other biomass, rose from approximately 60 billion liters in 2007 to 130 billion liters in 2015. This rapid increase in biofuels impacts the production of food and damages the environment without contributing to human nutrition (FAO, 2017). Besides biofuel and energy production, the demand for animal protein drives the competition between growing food for humans and growing feed for animals. These competing demands will also lead to an increased competition for land and water use (Last et al., 2015).

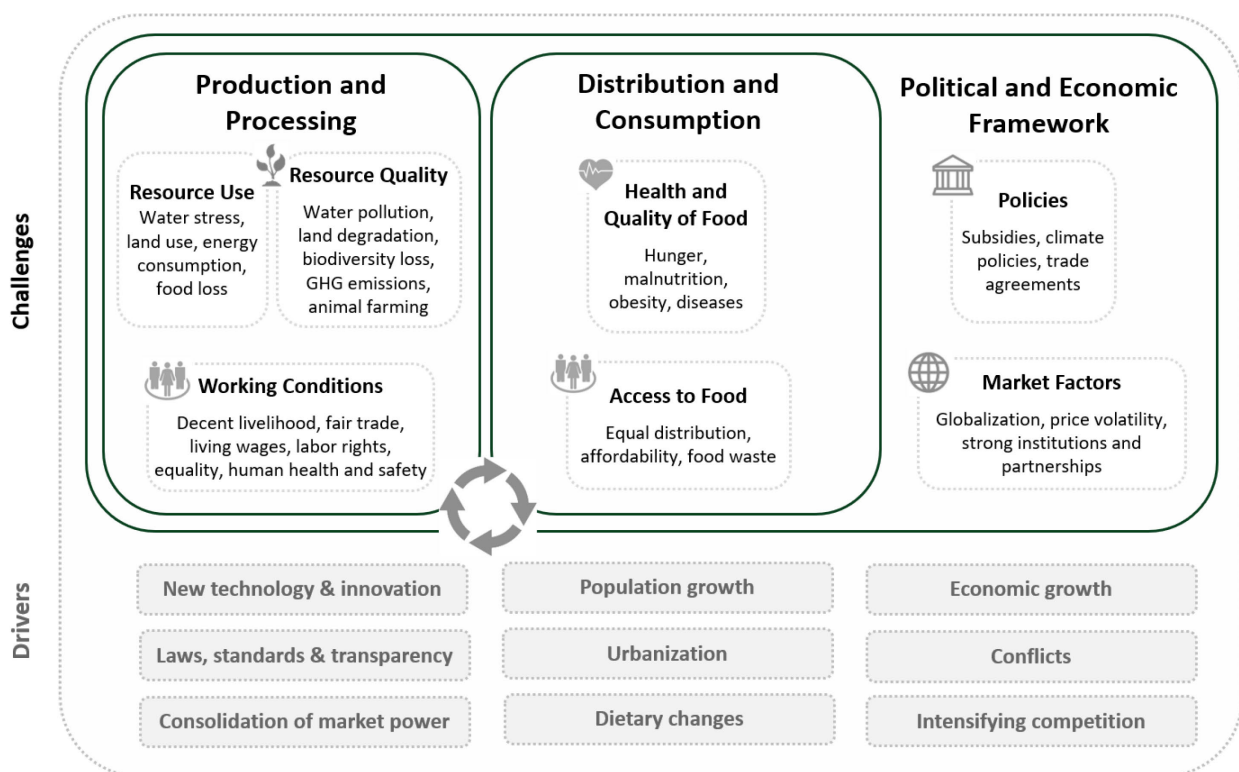
To summarize, the food supply chain is influenced by different trends and changes: New technology drives innovation and influences the way our food is produced. New environmental laws calling for higher standards or transparency, as well as greater market consolidation, changes the means of food production and processing. Food consumption is influenced by changing consumer preferences as well as population growth. In addition, political conflicts, increased purchasing power, and competing demands between the types of food produced, like biofuels or animal feed, changes the way we produce and eat.

B1.3 Summary: Challenges and Drivers in the Food Sector

Figure 18 provides an overview of the challenges and drivers discussed in the previous section. The figure aims to provide an understanding of the food sector and the challenges it faces related to environmental, social, political, and economic aspects. Based on the systems approach of the food sector, the challenges are analyzed in relation to their effect on the supply chain. Social and environmental challenges are covered within the stages of the supply chain where they arise the most. The supply chain is embedded in the political and economic framework, from which additional challenges arise.

This overview should help businesses identify the challenges to which they aim to provide solutions. This step is important for identifying outside-in business opportunities. An understanding of the external environment in which a business operates provides the context for creating TSS. An overview of the challenges faced by the food sector helps to illustrate the strategies later in this thesis and provides possible applications of the developed strategy types.

Figure 18: Challenges and drivers of the food sector



Source: Own illustration

At the production and processing stage, an increase in the use of resources like water, land, and energy is a major threat to both food companies as well as planetary and human health. Overexploitation of these resources does not just affect the environment; it also stresses food production and threatens the availability of food, social wellbeing, and political stability (FAO, 2013; Last et al., 2015; WRI, 2019). Therefore, reducing the amount of resources used in the production and processing of food is crucial. New technologies for efficient irrigation systems or innovations for reducing energy consumption are important drivers of sustainable food systems (Lang et al., 2019).

The quality of resources is an equally essential factor of food production and sustainability. The food sector is a major contributor to water and air pollution as well as land degradation and biodiversity loss (Last et al., 2015). Addressing these challenges is important for the survival of food businesses as well as for environmental and social sustainability (AlphaBeta, 2016). Although additional changes and actors are needed to effectively stay within the planetary boundaries—like dietary changes and new laws and standards—improved production processes can help to significantly reduce environmental impact (Lang et al., 2019).

In addition to the challenges related to resource use and quality, social aspects related to the working conditions are important during food production and processing. Ensuring decent livelihoods of workers by paying fair wages, guaranteeing labor rights, and ensuring equality, as well as assuring health and security is critical.

At the distribution and consumption level, the most prevalent challenges relate to human health and the quality of food. Looking at current consumption patterns, it becomes clear that huge parts of the world population follow unhealthy diets (FAO, 2013; WHO, 2015). Both under and overconsumption challenge human health. In addition, current consumption patterns put the planet in danger as their environmental impact exceeds planetary boundaries (Lang et al., 2019). This stress on planetary boundaries is intensified by

population growth, urbanization, and dietary changes due to increased wealth (Last et al., 2015; WEF, 2017). Shifting to a plant based diet is seen as a promising way to bring both society and the planet on a healthy path. In addition to the shift in diets, a reduction of food waste is important to keep food production within environmental limits (Lang et al., 2019). Hence, radical changes to the way we eat and treat our food will help to transform the food sector into a sustainable one.

The food supply chain is influenced by economic and political factors, as shown in figure 18. Agricultural subsidies, environmental policies, and tax regulations influence the way food is produced, processed, distributed, and consumed. Trade regulations and globalized markets make it difficult for small businesses to enter the market, which creates a dependency on a few large businesses dominating the market.

Price volatility makes it difficult to predict developments, which shows the importance of creating stable institutions. For this, partnerships between public and private actors are important to set guidelines for a stable and sustainable food market. For challenges that are out of the company's direct reach, cooperation with government or other actors in the sector becomes relevant: "You have to distinguish between aspects where a company is directly responsible, and aspects where the government needs to come into play", explains Interviewee D. Although food companies cannot directly influence the political landscape, they are important actors in forming these institutions. The need for different types of cooperation for specific challenges will be covered in section C2.3.

Besides the described challenges and trends in the food sector, figure 18 also shows the complexity and interrelation of these topics. The food sector is a "complex and interacting system" (Interviewee I). "There are connections between the different areas, and they impact each other," states Interviewee J. The circle of arrows between the challenges at the different stages of the supply chain as well as between the drivers in figure 18 indicates this interwoven and

mutually influencing character of the food sector's challenges. There is no clear line between the challenges arising during production and during consumption. In fact, they can be mutually influencing. For example, land degradation influences the availability of food and reduces the livelihood of urban populations in developing countries. In addition, the drivers in the sector can also be mutually influencing. Urbanization, for instance, not only influences dietary choices but also changes food production patterns. Overall, the food sector is complex and the challenges and drivers cannot be fully separated. Figure 18, however, provides a good overview of it with its interacting challenges and drivers.

Although this overview lists many challenges, companies are not expected to address every challenge themselves: "Businesses cannot care for all aspects to the same extent because they have limited capacity and knowledge. The possibility to influence certain topics is not always given," advises Interviewee D. The kind of challenges a business addresses will differ depending on the stage of the supply chain at which a business operates, as well as on its core competencies and the availability of resources. A business must decide where it can have the most positive impact, given its limited resources and capabilities (Agarwal et al. 2017). Prioritizing is necessary in order to address global sustainability challenges most efficiently. When prioritizing challenges within TBST, societal relevance is placed at the center. As shown in the introduction, the societal relevance of challenges is a key characteristic of TBST. For specific sustainability challenges in the food sector, the definition of societal relevance is not always straightforward: "There are differences between customer driven topics and those that are scientifically relevant. There is a discrepancy between those two perspectives. From a consumer point of view, plastic, palm oil, and dying of bees are the most relevant. However, those topics do not have such a high relevance from a scientific point of view," says Interviewee N. Prioritizing those scientific topics that have the highest impact on sustainability challenges is important for an outside-in perspective. When addressing customer driven topics, the actual positive impact on the state of the planet has to be assessed.

The research insights by Lang et al. (2019) presented in this thesis can help to identify the most relevant topics for both human and planetary health, like plant based diets, food waste reduction, and sustainable production practices.

B2 Business Opportunities in the Food Sector

While section B1 assessed the challenges and drivers of the food sector, this section aims to define the business opportunities and values that arise from them. In keeping with Dyllick and Muff (2016), this section explores how truly sustainable businesses interpret external challenges as business opportunities and “make business sense” by addressing these societal issues.

Section B2.1 explores how business can identify challenges in its external environment. Section B2.2 quantifies the economic value that can be generated by addressing the identified challenges. Finally, section B2.3 summarizes the findings and maps the economic values along the food supply chain. This section should help managers analyze their external environment and decide which challenges will be addressed by their strategic actions.

B2.1 Identifying the Challenges

After establishing an overview of challenges in the sector, companies need to identify and select societal issues in need of sustainable business solutions. Identifying challenges in the external environment is a first important step in creating an outside-in perspective. This section explores how businesses can create awareness about and identify societal challenges in their external environment.

The question of how business can identify societal challenges in their environment is best addressed by research in organizational agenda building. This stream describes the process through which issues gain attention and legitimation during strategic decision making (Dutton, 1986). According to Dutton (1986), building an agenda for strategy is influenced by multiple aspects of an organization. Two main factors determine the allocation of an individual's

attention to an issue: first, the extent to which an individual is aware of an issue and second, the level to which the individual is involved in the issue.

Creating awareness for sustainability challenges

Awareness and involvement in issues are determined by six factors: the magnitude, abstractness, immediacy, and simplicity of the issue, and the power and personal attachment to the issue of the decision maker. If an issue's perceived magnitude, abstractness, and time pressure are high and its complexity is low, it is more likely to be placed on a company's strategic agenda. Further, the likeliness of the issue appearing on the agenda increases with the decision maker's power and personal attachment to the issue (Dutton, 1986).

The setting of the strategic agenda is also influenced by an organization's culture and outside pressure (Dutton, 1986). Additionally, Anderson and Bateman (2000) and Buysse and Verbeke (2003) suggest that the allocation of time and money to an issue helps to put it on the strategic agenda.

Putting these insights into the context of sustainability and TBST, it can be assumed that the more managers are aware of the severe consequences of climate change and other sustainability challenges on their business operations, the higher the probability of these issues becoming a strategic goal. The more decision makers perceive sustainability challenges as an immediate and time precious event, the more likely they are to strategically act on them. This finding shows the importance of educating managers in sustainability concerns.

Dutton (1986) shows that the probability of setting certain topics on the strategic agenda rises when the decision makers have greater power. Hence, in order to bring sustainability to the strategic agenda, managers with power in the company should be the ones introducing sustainability related topics. Power can be measured by different factors, like the number of people a person manages, their position in the hierarchy, the number of titles assigned to their role, or even simply their salary. Regardless of its definition, power is a critical factor in bringing sustainability to the strategic agenda.

Additionally, the topics that decision makers are personally involved in are more likely to become a strategic goal (Dutton, 1986). In the context of sustainability, decision makers who are responsible for or personally interested in sustainability related topics are more likely to put these issues on the strategic agenda.

Following suggestions by Anderson and Bateman (2000) and Buysse and Verbeke (2003), allocating time and money to sustainability issues also increases the likelihood of them appearing on the strategic agenda.

Finally, an organizational culture oriented to sustainability and high external pressure to follow a sustainability agenda will increase the probability of sustainability issues being part of the strategic agenda. External pressure can come from NGOs, customers, or regulators demanding more sustainability, as well as from competitors taking a lead in sustainability. The factors that promote sustainability in strategic agenda setting are summarized in table 7.

Table 7: Factors that bring sustainability onto the strategic agenda

Factors that promote sustainability in strategic agenda setting
• Education in and knowledge of sustainability
• Powerful people supporting sustainability
• Interest and involvement in sustainability
• Time and money allocated to sustainability
• Sustainability oriented culture
• External pressure demanding sustainability

Source: Own illustration based on Dutton (1986), Anderson & Bateman (2000), and Buysse & Verbeke (2003)

Identifying sustainability challenges

This section addresses how companies can identify the sustainability challenges in the external environment. Day and Schoemaker (2004) criticize managers for being focused on current business activities. External sensors are important to identify upcoming changes, and scanning the social, economic, technological, and political environment helps firms to succeed in dynamic environments (Hambrick, 1981). Although creating a competitive advantage for the company

is not the focus of TSS, the techniques proposed by the environmental scanning literature provide important insights for this research and are discussed in the following.²³

The environmental scanning literature rose to prominence in the 1980s, proposing that rising complexity and uncertainty in the economy meant that companies needed to pay more attention on their external environment. Later, in the 1990s and 2000s, research about exploring the future and the practical application of foresight techniques increased drastically (Vecchiato, 2012). The terminology of these techniques changes slightly—future research, future oriented techniques, peripheral vision, strategic foresight (Rohrbeck & Bade, 2012)—but because this dissertation does not deal with the terminology and only aims to apply the insights of these research streams to TSS, no differentiation is made between the terms.

Ansoff (1975) and Ilmona and Kuusi (2006) point out that the active search for weak signals is important in identifying challenges in the external environment. There are different ways of being active and building external sensors for identifying societal challenges. Table 8 provides an overview of the most important facilitators identifying sustainability challenges, discussed below.

Table 8: Facilitators to identify sustainability challenges

Facilitators to identify external challenges
• Scouting news, consulting existing data about the whole industry
• Engaging in platforms and network
• Exchanging best practice, case studies
• Involving different perspectives / stakeholders (internal & external)

Source: Own illustration

²³ There are several research streams that explore changes and trends in a company's environment. As this dissertation follows a planning based approach of strategies, the focus will be on aspects of future related planning in order to identify threats and opportunities. There are also structural means to deal with uncertainty, like diversification, corporate venturing schemes, or ambidextrous design (Rohrbeck & Bade, 2012).

An important aspect to identifying societal challenges is to gather information: “Scouting and reading the news, being active in platforms to make sure that you get all the information about the whole food sector,” says Interviewee C. This activity includes the consultation of existing data, frameworks, and regulations, like industry standards and guidelines set by international organizations like the Intergovernmental Panel on Climate Change (Interviewees E, J, O). “You have to synthesize all the information that is available,” states Interviewee H. Coates (2004) emphasizes that analyzing the entire industry to identify challenges provides a holistic perspective. Looking for information beyond the core business is important in developing sensors for societal challenges. Prahalad (2004) supports this argument and suggests companies look beyond industrial and geographical borders.

As shown in the quote by Interviewee C, engaging in platforms also helps to identify societal challenges in the external environment. Researchers agree that a personal network of information can be useful to identify external challenges (McGee & Sawyerr, 2003). In particular, networks at different geographic levels—like cantonal and country-wide (Interviewee R)—or platforms between different actors—like academia and industry—are helpful (Interviewee I).

Focusing on best practices and using low cost experimentations can also help to identify challenges (Prahalad, 2004). Interviewee R adds that exchanging best practices and case studies within the industry helps identify societal challenges in the external environment.

Involving different perspectives in the company helps to identify various external issues. Sutcliff (1994) finds that functional diversity in top management teams improves a company’s ability to observe changes in the environment. Prahalad (2004) supports this view, showing that a diverse team increases the identification of external challenges. Further, different levels of hierarchy are important to have different perspectives: Top and middle management should be involved in identifying relevant external issues.

Besides involving different internal perspectives, interviewees point out that involving external partners is equally important in this process. Interviewee I says, “External, independent experts who work across a whole range of issues help to bring in the outside perspective.” If external challenges are only identified by internal actors, there is a high risk of biases and missing important issues. Interviewees H and T believe that external facilitators can help to reduce complexity and challenge the status quo by asking difficult questions about the actual contribution of the business. Becker (2001) discovers that consulting ideas from different backgrounds is important to identify societal challenges in the external environment. “These backgrounds can include many different players, like scientists, media, or NGOs,” says Interviewee E. Interviewee F adds that “skeptical stakeholders and those you did not think about before, like political stakeholders or consumers” are of high importance to identifying challenges. The different stakeholder perspectives are often used to conduct hotspot and materiality analyses (Interviewees N, C, M). These analyses help to “direct the effort and power to the issues that are most relevant and where the highest impact can be generated,” says Interviewee T. Broad and intensive stakeholder dialogs are seen as a key enabler by Interviewee K and F of identifying societal issues in the external environment.

To sum up, this section showed how companies can identify challenges in their external environment. Different factors help to put societal challenges on the strategic agenda: Creating knowledge around sustainability and its consequences as well as having powerful people that support sustainability can help to set these issues on the strategic agenda. Further, personal interest, time, and money for sustainability facilitates the strategic agenda setting in this direction. A sustainability oriented organizational culture and external pressure to adopt sustainability also help companies follow a strategic agenda of sustainability.

Additionally, different activities that facilitate the environmental scanning process were shown in this section: Analyzing existing information, consulting

stakeholders, involving various people, and engaging in platforms to exchange best practices across the industry help to identify societal challenges.

All these factors discussed above refine how an outside-in perspective can be adopted, which is key for designing TSS. Accordingly, companies need to build sensors to identifying societal challenges in their external environment as a first step to effectively solving them.

B2.2 Quantifying the Opportunities

The social and environmental challenges along the food supply chain, as well as in the political and economic framework, display risks and uncertainties for food companies. At the same time, they provide huge business opportunities. The previous section clarified what supports the identification of societal challenges; this section quantifies them.

A report by the Business and Sustainable Development Commission (2017) quantifies the business opportunities arising from strategically addressing the SDGs.²⁴ Of the twelve biggest themes in the SDGs, three are related to the food sector:²⁵ The reduction of food waste and loss will account for business opportunities worth US\$685 billion in 2030 at current prices. Agricultural solutions will create benefits of US\$665 billion and forest ecosystem services will account for US\$365 billion. Overall, the potential value for companies addressing challenges in the food and agricultural systems will be over US\$2.3 trillion annually by 2030 at current prices.

Realizing this value generates additional benefits for society and the environment, like job creation, poverty alleviation, improved health, and environmental protection. If the opportunities arising from the challenges in the food and agriculture sector are taken up, around 80 million new jobs will be

²⁴ The report by the Business and Sustainable Development Commission (2017) “Better Business Better World” summarizes the findings of a series of previous reports it commissioned, including AlphaBeta (2016), which specifically focuses on the food sector.

²⁵ The remaining are in the following three areas: cities, energy and materials, and health and wellbeing (AlphaBeta, 2017).

created by 2030, accounting for 2% of the forecasted labor force. More than 90% of the potential job creation will take place in developing countries, including more than 20 million jobs in African countries and in India, 12 million in China, and 15 million in other developing countries (AlphaBeta, 2016). These jobs will help to reduce poverty and will have positive effects on health and social wellbeing.

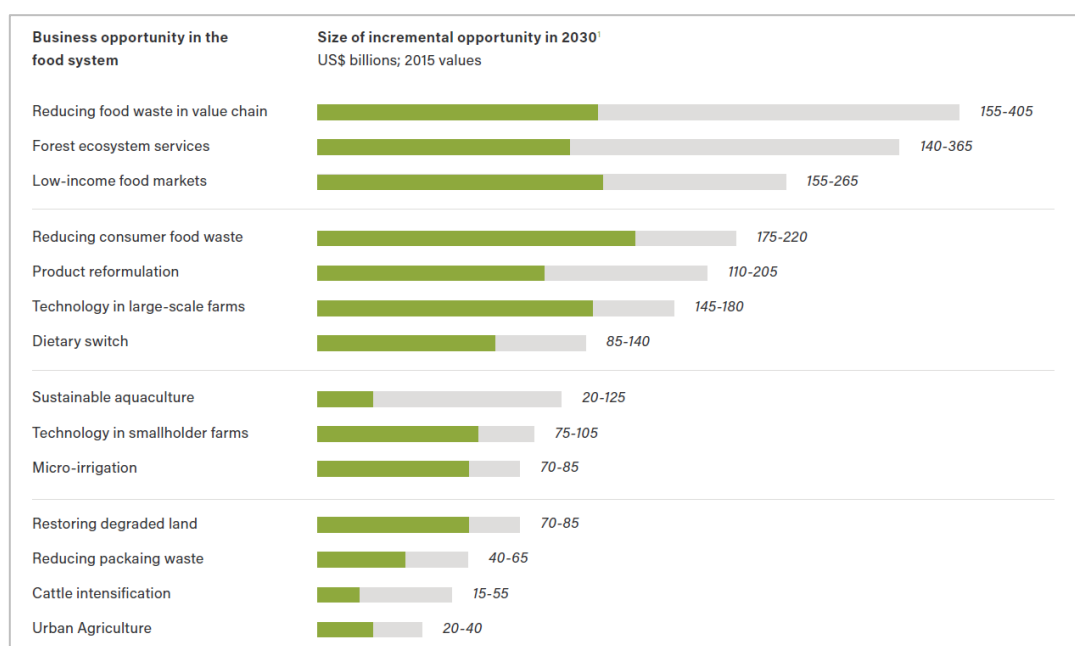
The reduction of food loss and better technology can increase yields and productivity in agriculture, which displays additional earnings for farmers. In particular, small scale farmers can benefit from increased incomes by new agricultural solutions as they have the highest poverty rates among all economic sectors (AlphaBeta, 2016). Lifting the poverty rates among farmers enables them to access a healthy lifestyle and reduces social inequality.

The business opportunities arising from addressing sustainability challenges also benefit the environment. Reversing forest degradation will mitigate approximately 10% of total GHG emissions by 2030. The reduction of food waste conserves resources and can mitigate resource scarcity. Further, new agricultural solutions can reduce the amount of resources used, like water or fertilizer. These changes positively influence life on land (AlphaBeta, 2016).

The challenges in the food and agriculture sector provide both economic and sustainability benefits. In fact, if business addresses the sustainability challenges in the food and agriculture industry, it can support the achievement of one quarter of the 169 SDG subtargets (AlphaBeta, 2016).

AlphaBeta (2016) quantifies the business opportunities in the food sector. Figure 19 shows the 14 largest opportunities, discussed in detail below.

Figure 19: Business opportunities in the food and agriculture industry



Source: AlphaBeta (2016, p. 21)

Reducing food waste in the supply chain: Reducing food waste in the supply chain represents the biggest opportunity for companies: They can realize between US\$155 billion and US\$405 billion a year by 2030 (AlphaBeta, 2016). As stated before, approximately 30% of food gets wasted. Food waste in developing countries is caused by poor storage facilities and inadequate transport infrastructure. Storage and transportation can be improved by implementing basic technologies. Low cost improvements, like metal silos or plastic bags, can reduce food waste by more than 60% and increase the income of small scale farmers by 30% (FAO, 2011).

Forest ecosystem services: Avoiding the degradation of forest ecosystem services is another huge business opportunity. On the one hand, healthy forests provide critical ecosystem services for food production, like nutrients in the soil or water systems. On the other hand, the food sector heavily contributes to forest degradation by deforestation for the production of soy, beef, and palm oil.

Eliminating deforestation from the supply chain can bear business opportunities of US\$140–365 billion a year by 2030 (AlphaBeta, 2016).²⁶

Low income food markets: Low income food markets are a large opportunity for business. Poor people suffer the most from calorie deficits, and large portions of the population in sub-Saharan Africa and South Asia cannot afford enough food for their daily needs (FAO, 2019). Innovative food products to make food more nutritious and supply chains to make food more accessible account for growth opportunities of US\$155–265 billion by 2030 (AlphaBeta, 2016). In addressing these needs, local consumption preferences have to be taken into account. Besides serving this market, contributing to ending extreme poverty can increase the consumer pool by 800 million people (AlphaBeta, 2016).

Reducing consumer food waste: The total amount of food waste accounts for US\$1 trillion today. Around 35% of food waste is produced during consumption (Lipinski et al., 2013). SDG number 12.3 explicitly aims to cut food waste by half at the consumer and retail level. Reducing food loss and food waste contributes to food security and reduces the amount of resources used. At the same time, it provides opportunities for money savings for farmers, companies, and households. The reduction of consumer food waste can generate US\$175–220 billion. New packaging technologies, like ethylene removal technology, can prevent spoilage at home. Additionally, nudging consumers to decrease food waste by decreasing serving or packaging sizes is a way for businesses to realize this value. New business models that expand the life cycle of products are also promising ways to reduce food waste and generate business value (AlphaBeta, 2016). Many innovations and start-ups are emerging in this field. Examples are bakeries that collect and sell day-old products which are still usable and fresh, or the app Too Good to Go that shows consumers where they can pick up leftovers from stores, restaurants, or bakeries. In order to effectively reduce

²⁶ Estimates for this amount are difficult to calculate. This amount results from assuming the introduction of payment mechanisms for ecosystem services with a carbon price of US\$50 (AlphaBeta, 2016).

consumer food waste, consumers, retailers, and restaurants have to change their behavior (AlphaBeta, 2016).

Product reformulation: Reformulating products could be a lever to reducing diet related diseases and increasing the nutrient efficiency of products. For instance, reducing the amount of salt or sugar used in processed products positively influences health conditions. From a business perspective, product reformulations can provide access to a new consumer sector that is more health oriented (AlphaBeta, 2016). Besides the positive health aspects, reformulations toward more environmentally friendly products, like replacing sugar by local honey or reducing the amount of meat in a product, can provide new market opportunities. Overall, product reformulation accounts for US\$110–205 billion by 2030 (AlphaBeta, 2016).

Technology in large scale farms: Technology use in large scale farms provides huge potential for efficiency and revenue gains. These technologies include, for example, big data or drone technologies, advanced robotics, and new software to manage the field, like GPS based tractors or multispectral sensors (The Economist, 2016). Overall, technology in large scale farms provide opportunities of US\$145–180 billion by 2030 (AlphaBeta, 2016).

Dietary switch: As shown in section B1.2.2, a plant based diet is both beneficial for the planet and for human health. A vegan or vegetarian diet uses substantially less water, land, and fertilizer than an animal based diet. The shift toward less resource intense diets has an immense impact on the environment. Promoting a dietary shift toward plant based diets holds market opportunities of US\$85–140 billion by 2030. Consumer education about the effects of a plant based diet as well as about new products is a promising way to realize this value (AlphaBeta, 2016). New products include, for instance, innovating products and investing in meat alternatives, like the mealworm, or new technology to produce plant based eggs or chicken strips (Kuhn, 2014).

Sustainable aquaculture: The demand for aquaculture products is growing. Compared to livestock, the industry is still underdeveloped in terms of

technology, waste management, and farming techniques. Therefore, there is a high potential for improvement. Technological improvements, or any kind of sustainable farming practices, like improved waste management, could realize a value of US\$20–125 billion by 2030 (AlphaBeta, 2016).

Technology in smallholder farms: Improving the technology in small scale farms can generate US\$75–105 billion by 2030. The potential for efficiency gains and yield improvements is especially high in this sector as the standards are still low. New farming technologies, access to capital, or education on the usage of fertilizer are promising ways to realize this value (AlphaBeta, 2016).

Micro-irrigation: New irrigation techniques improve both yields and business benefits. Overcoming outdated flood irrigation could help accrue US\$70–85 billion in business opportunities. To realize this value, sprinkler and drip irrigation systems can be implemented (AlphaBeta, 2016). Those micro-irrigation techniques can reduce the amount of water used for irrigation by up to 60% and can improve yields by 30% (McKinsey Global Institute, 2011).

Restoring degraded land: The food sector both contributes to and suffers from land degradation. Extensive agricultural practices degrade soil quality. At the same time, the agricultural industry needs fertile soil in order to grow crops and plants. By 2050, it is expected that soil degradation will reduce yields in agricultural production by about 30%. Restoring degraded land can lead to business opportunities of US\$70–85 billion. The degradation rates can be reduced by so-called no-till farming. This agricultural technique aims to prevent soil degradation and keep a natural cycle of nutrients and water. Terracing or crop rotation can also help to increase land productivity and restore degraded land. These changes can lead to higher incomes for farmers and benefits for the environment (AlphaBeta, 2016; Pittelkow et al., 2015).

Reducing packing waste: Plastic packaging waste is a huge environmental issue. On the one hand, the resources used to produce the packaging get lost. On the other hand, the waste highly pollutes the ocean and land ecosystems. Increasing the recycling rate of plastic packaging can generate a business value of US\$40–

65 billion by 2030. New types of packaging that are easier to recycle or less plastic packaging can be a way to realize this value. Additionally, companies are challenged to change consumer behavior to increase their recycling habits (AlphaBeta, 2016).

Cattle intensification: Farming animals, especially cattle, have a high impact on the environment. Land and water use, as well as GHG emissions and a competing demand between growing feed for animals and food for humans are the main challenges of livestock farming. Improving the productivity of animal farming and cattle rearing can reduce environmental damage and increase business benefits. In total, a value of US\$15–55 billion can be realized by adapting smart supplements, controlling transmittable diseases, or using mountainsides for grazing (AlphaBeta, 2016).

Urban agriculture: Urban agriculture is a lever to increase food security, environmental sustainability, and business income. A value of US\$20–40 billion can be realized by 2030 by new business models like Seeds in Zurich. Additionally, improving the productivity of urban farmers in developing countries by providing training or better equipment can increase the income of farmers. Further, urban farmers can be included in regional supply chains, which also increases their value (AlphaBeta, 2016).

These 14 business opportunities show that the potential for market growth and business opportunities are huge. Although some of the numbers are estimates and are based on assumptions, they provide an idea of the business value that can be reaped by addressing societal challenges. These figures show that business plays a crucial role in enabling sustainable development; At the same time, enabling sustainable development is crucial for business and reveals large opportunities.

B.2.3 Summary: Mapping the Value

After having quantified the business opportunities that arise from addressing societal challenges in the food sector, this section charts where the values to be

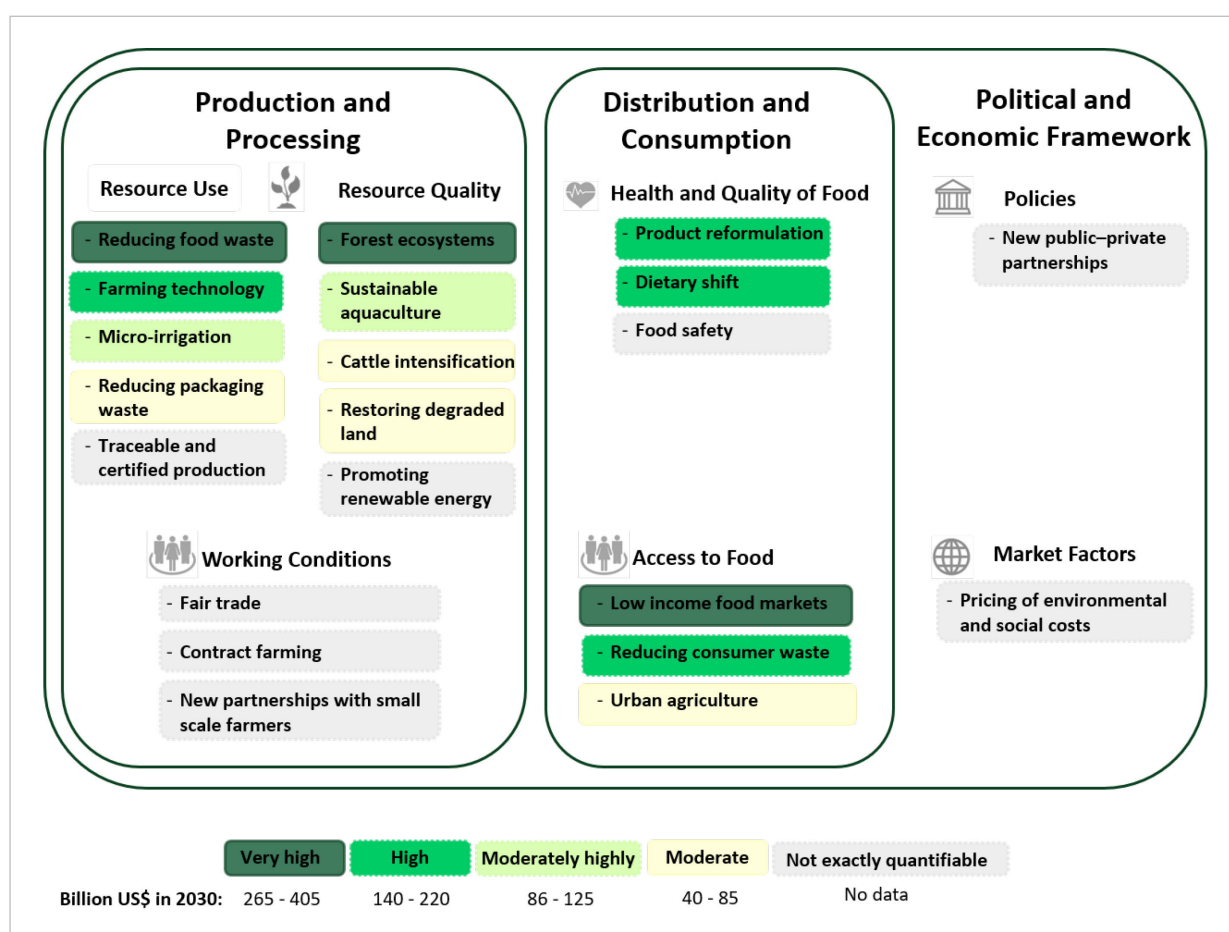
generated are located regionally and along the food supply chain. This mapping helps companies locate business opportunities.

The potential value of addressing sustainability challenges is distributed around the globe. For example, almost 70% of the business opportunities described in section B2.2 can be realized in developing countries like India and countries of Africa (AlphaBeta, 2016). The way businesses can realize this value differs across regions: In South America and Africa, forest ecosystem services provide the largest business opportunities due to the high share of tropical forests in these regions. In India, most value can be captured by promoting low income food markets, as many people live below the poverty line. In developing and emerging countries in Asia, reducing food waste in the supply chain is the largest business opportunity (AlphaBeta, 2016). The reduction of food waste along the supply chain is a key topic in other regions as well, like Africa, India, China, and the Middle East, showing just how inefficient current ways of production, processing, transportation, and storage are. In the developed countries, consumer food waste reduction, product reformulation, and dietary changes are the largest business opportunities, reflecting the high living standards in these regions (AlphaBeta, 2016).

In the following, the business opportunities identified in the previous sections are mapped along the supply chain. Similar to the systems perspective of the food sector developed in section B1.2, business opportunities are assigned to each stage of the supply chain, bringing together the challenges and business actions to address them. This mapping aims to help companies identify business opportunities arising from societal challenges, which is an important step for an outside-in perspective. In order to support business in this step, figure 20 provides an overview of possible outside-in business opportunities²⁷ at different stages of the food supply chain.

²⁷ Outside-in business opportunities refer to the business benefits that arise from addressing societal challenges.

Figure 20: Mapping the value of business opportunities



Source: Own illustration based on figures from AlphaBeta (2016)

The following section summarizes how these outside-in opportunities can be realized at each stage of the supply chain.

Production and processing

At the production and processing stage, measures to reduce food waste display large business opportunities. Optimizing production, processing, and storage techniques can help to realize the values assigned to this stage. As shown before, these values are especially assigned to areas in which current techniques lack efficiency, like parts of Africa, India, China, and the Middle East. Additionally, agroforest approaches are promising ways to both generate business value and positively contribute to sustainable development. Farming technology, like big data to enable precise farming, displays high business value at this stage of the supply chain as do micro-irrigation techniques to increase water efficiency.

Ending over- or unregulated fishing by implementing sustainable aquaculture models is another promising way to generate both environmental and business values. Besides fish, sustainable cattle farming can lower our environmental footprint and increase animal welfare by using disease control systems. Restoring degraded land by not-till or holistic farming approaches is another way to generate positive environmental value; this includes the promotion of microbial fertilizer (AlphaBeta, 2016). The reduction of packaging waste by replacing packaging or using alternatives to plastic can also generate moderate business values (AlphaBeta, 2016; Muff et al., 2017). Full traceable production systems and certified products are additional outside-in opportunities, which cannot be assigned to a specific value, yet (AlphaBeta, 2016). Further, promoting renewable energy in production and processing display outside-in opportunities (Muff et al., 2017).

Aspects related to working conditions, like fair trade practices, contracting, and partnerships are outside-in opportunities at the production and processing stage (AlphaBeta, 2016). These practices support the inclusion of rural women in the supply chain and the role modeling of women's contributions to decision making as proposed by Muff et al. (2017).

Distribution and consumption

At the distribution and consumption level, focusing on low income food markets displays the largest business opportunity. Providing poor people access to the market and producing products for their needs opens up huge business opportunities. Reducing consumer waste is a challenge and a business opportunity at the consumption level. As shown before, this is a huge opportunity especially in developed countries. By adapting serving or packaging sizes and educating consumers, companies are able to change consumer behavior and reduce their waste (AlphaBeta, 2016). With regards to health and quality of food, product reformulations bear high business opportunities. The market for healthy and sustainable products is growing. Satisfying and promoting this demand includes the reduction of sugar, fat, and

salt in products or the elimination of unhealthy substances or products transported by plane (AlphaBeta, 2016; Muff et al., 2017). Promoting a diet shift toward sustainable and healthy products is a large outside-in opportunity. Providing meat alternatives or making consumer favoring local and seasonal products benefits both business and society. Promoting urban or community supported agriculture is also a promising way to generate business and societal value simultaneously. Taking food safety as a business opportunity can also generate business and societal value (AlphaBeta, 2016).

Political and economic framework

Engaging with public policy and forming public–private partnerships are critical outside-in opportunities (AlphaBeta, 2016). Business can provide investments or infrastructure to support the regulatory framework and ensure the implementation of required policy tools. Pricing of environmental and social externalities is key to move toward a less resource intense, healthy, and fair food system (AlphaBeta, 2016).

To summarize, section B helps us better understand the food sector in the following ways:

The first section used the systems approach to show that, on the production and processing side, there are huge environmental challenges related to the use of resources and their quality as well as social challenges related to working conditions. The distribution and consumption stage is confronted with health issues as well as challenges related to the quality of and access to food (FAO, 2013; Last et al., 2015; WRI, 2019). The planetary health boundary, as set by the EAT-Lancet Commission, shows that with current production and consumption patterns, the environmental impact exceeds earth's boundaries (Lang et al., 2019). At the same time, current diets are not healthy, and the human health boundary is not met. Changing production systems and diets as well as decreasing food waste are three levers to stay within a safe operating space (Lang et al., 2019).

In addition to social and environmental challenges, there are political and economic challenges that the food sector faces (Last et al., 2015). Together with the drivers and trends in the food sector, a holistic overview of the challenges in the food sector is provided, which is needed to understand the external environment a company is operating in. The section emphasized that businesses need not address all the challenges in their environment, only those that are commensurate with their resources and capabilities and those which generate the highest societal impact.

The second part of the section showed the business opportunities that arise from addressing the challenges in the food sector. This process follows an outside-in perspective which is key to designing TSS. Different factors that help to bring sustainability on the strategic agenda were discussed: education and knowledge, power, the allocation of time, and pressure from the outside facilitate the awareness of sustainability. Further, the section discussed the factors that help identify external challenges and opportunities: consulting existing data, engaging with other actors in industry-wide platforms, and involving different stakeholders, both internal and external.

The last section quantified and mapped the opportunities within the food sector. It showed that in each part of the food sector, huge business opportunities arise from addressing societal challenges. Depending on the country, companies can realize billions of dollars by reducing food waste, fostering a diet switch, or focusing on low income markets (AlphaBeta, 2016).

The insights of section B shed light on the strategic analyses needed for designing TSS. Assessing, identifying, and quantifying the challenges and related opportunities in a company's external environment is an important step to designing TSS. The analysis supports businesses in understanding their external environment and selecting the challenges they aim to address. The next section structures the strategic actions that help to address and realize the identified challenges and opportunities.

C) Truly Sustainable Strategies

This section shows how business can effectively address societal challenges by refining how to design TSS. Figure 21 shows where section C features in the overall structure of the dissertation.

Figure 21: Locating section C



Source: Own illustration

Figure 22 shows an overview of the sections in this chapter and the research questions for each section.

Figure 22: Overview of section C

C) Truly Sustainable Strategies	Research Question
C1 Characteristics of TSS C1.1 Output related aspects in strategy research C1.2 Input related aspects in strategy research C1.3 Cross-cutting aspect: Collaboration C1.4 Summary: Seven characteristics of TSS	What are the characteristics of TSS?
C2 TSS Types C2.1 Different concepts of sustainability strategies C2.2 Portfolio of TSS C2.3 Discussion: TSS in the food sector	What are different types of TSS?
C3 Develop TSS C3.1 Influencing factors of the strategy development process C3.2 Organizational enablers of TSS C3.3 Discussion: Dynamic perspective of the framework	What facilitates the development of TSS?

Source: Own illustration

C1 Characteristics of Truly Sustainable Strategies

In order to specify the characteristics of TSS, different aspects of sustainability strategies will be discussed and defined in the context of TBST. Dyllick and Muff (2016) use the basic process model of input–process–output to cover the aspects necessary to develop their typology of business sustainability. In order to distill the strategic implications of TBST, those aspects and others especially relevant for strategy design are analyzed below.

Dyllick and Muff's model is echoed here by the terms input and output related, process related, and cross-cutting parameters. Input and output related parameters cover aspects related to the input and outcome of strategies (*What?* and *What for?*). Process parameters are concerned with organizational characteristics related to strategic process (*How?*). The cross-cutting parameter describes collaboration with other businesses or institutional and government bodies, which is an overarching issue in the abovementioned aspects. Table 9 shows the topics discussed in the following sections.

Table 9: Topics characterizing TSS

Parameters for evaluating strategies
Input and output parameters
Purpose and success
Value creation and contribution
Impact and levels of action
Process parameters
Strategic relevance and integration
Strategic behavior and engagement
Change and innovation
Cross-cutting parameter
Collaboration

Source: Own illustration

Section C1.1 provides the theoretical background for the input and output related aspects in strategy research. First, the question of a company's purpose and the definition of its success are addressed. Next, different types of value creation and the contribution of sustainability strategies are discussed. Finally,

the impact of sustainability strategies is discussed, and the different levels to which a business's sustainability interventions can be extended are analyzed.

Section C.1.2 covers the literature for process related parameters in strategy research. The integration of sustainability in a business's strategies highly influences the design of these strategies. Strategy design is also determined by firm's strategic behavior and types of innovations that are initiated by the strategy.

Section C1.3 elaborates on the cross-cutting parameter of business collaboration, and section C1.4 synthesizes the results of this section by showing the strategic implications of TBST and outlining the characteristics of TSS.

C1.1 Input and Output Related Parameters in Strategy Research

Input and output related parameters cover aspects related to the input and outcome of strategies, answering the question of *what* and *what for*. The definition of a company's purpose highly influences the issues that a business considers to be relevant and the outcome of a strategy, i.e. what values and contributions are created and for whom. The following sections discuss the definition of purpose and related topics, like the measurement of business success (section C1.1.1), the perception of value creation and contribution (section C1.1.2), and the generated impact and levels of action (section C1.1.3) in order to distill the characteristics of TSS.

C1.1.1 Purpose and Success

The purpose of a company is the true north that guides business strategies. According to Baumgartner and Korhonen (2010), it is what directs and influences the strategy design process: "The starting point for every strategy is the question of the purpose of the whole endeavor" (p. 73). A purpose not only defines a company's aims and direction but also specifies its reason for doing business. Hence, a purpose provides meaning to its operations. Over time, the interpretation of a company's purpose has changed in science, practice, and

society. In traditional business approaches, the definition of a company's purpose is dominated by Milton Friedman's interpretation, "the business of business is business." The Economics Nobel Prize winner describes the social responsibility of business as increasing its profits (Friedman, 1970). Accordingly, generating shareholder value by maximizing profit or market value is the intended output of a company's strategies. The focus on economic value is often linked to an externalization of social and environmental costs.

This constricting shareholder perspective results in short-termism, opportunism, and a disregard for broader sustainability issues (Hoffman, 2018). Therefore, there is a growing consensus in business, society, and research that a simple shareholder orientation cannot be the purpose of business, as shown next.

In the summer of 2019, the Business Roundtable—a group of top CEOs from businesses in the United States—issued and signed a statement on the purpose of a corporation. In this statement, 181 CEOs agreed that shareholder value was no longer the main purpose of business: "We commit to deliver value to all of them [stakeholders], for the future success of our companies, our communities, and our country" (Gartenberg & Serafeim, 2019, p. 2). The top business leaders interpreted the purpose of their business as more than simply generating shareholder value and publicly announced their joint engagement to deliver value to a broader range of stakeholders.

Besides those large businesses, there is also the movement of benefit-corporations (B-corporations). These are smaller businesses seeking to integrate a more holistic and societally meaningful reason for doing business in their business strategies. The purpose of those businesses is to "use profits and growth as a means to a greater end: positive impact for their employees, communities, and the environment" (B Lab, n.d.). Additionally, the European movement, Economy for the Common Good, aims to change business purpose toward the creation of societal values (Felber, 2010). An accounting matrix supports businesses in assessing their contributions to the common good. These

contributions can result in tax reductions, depending on the business's performance. Put together, the above examples and initiatives show that business itself increasingly interprets its purpose as being more than profit maximization and toward a greater good.

Further, society increasingly expects business to go beyond simple profit maximization. Millennials are demanding that companies positively contribute to societal challenges (Nielsen, 2015), and a growing number of customers expect companies to act in an environmentally and socially responsible manner (PwC, 2015).

Moreover, business's purpose beyond pure profit maximization is discussed more deeply in the field of science. Researchers propose different ways to design purpose driven companies, which focus on generating impact for both business and society (Henderson & Steen, 2015; Zedlmayer, 2015). Yunus (2007), for example, defines the purpose of a "social business" as solving societal problems. The overall aim of a financially self-sustained business is to increase its social impact. Hence, financial profits are reinvested and interpreted as means to a greater end. Such an interpretation of business's purpose is also pointed out during expert interviews: "Sustainable start-ups have a different DNA, another reason why they exist. They start with the Sustainable Development Goals and aim to contribute solving them. This is another approach right from the beginning", explains Interviewee Q. Additionally, Sukhdev (2012) introduces the concept of "Corporation 2020," whose idea is that financial capital accretion is just one objective among many others, like the creation of social and natural capital.

These examples from business, society, and science showcase the changing notion of business's purpose as leaning toward a societal purpose rather than a purely profit driven purpose.

When defining the purpose of business, a strongly related notion that needs to be explored is that of the definition of success. How is success measured and when is a company successful? The answer to this question differs: As shown

in the conceptual framework, the Resource Based View and the Market Based View are the main approaches to explaining the outperformance of competitors (Andrews, 1971; Chandler, 1962). Accordingly, business aspects like revenues, market share, or growth potential are the dominating performance measures. Upward and Jones (2016) call this dominance of business success the “profit normative.” According to Dyllick & Muff (2016), the dominance of business value in performance measures is a main reason for the limited impact of business activities at the societal level.²⁸ Hence, more comprehensive measures of business success are needed.

The literature on positive organizational scholarship sees the key indicators of success as “creating abundance and human well-being” (Cameron & Dutton, 2003, p. 3). Hence, creating societal wellbeing and promoting sufficiency are increasingly perceived as valuable measures of success.

These ideas are also reflected in practice: As shown before, the Economy for the Common Good includes reporting measures to show business’s success beyond financial aspects and legal requirements. The directive by the European Union in 2014 on nonfinancial disclosure led to national actions to define requirements for the reporting on social, economic, and environmental topics. Different members of the EU have already implemented national laws to enforce these requirements (e.g., UK, Germany, France, and Italy). Globally, already 75% of the 100 biggest companies in each country include sustainability issues in their reporting (KPMG, 2017), which shows a broader measurement of success than before. Furthermore, in 2017, the voluntary sustainability reporting standard by the Global Reporting Initiative had already been adopted by more than 29,000 companies worldwide.

These changes show a rising trend in business and science to expand the definition of business success to include social and environmental issues and to define business’s purpose as being more than just generating financial profit.

²⁸ The other reasons are the segmentation of subthemes in the business sustainability discourse, and the decoupling of the societal and the organizational level (Dyllick & Muff, 2016).

C1.1.2 Value Creation and Business Contributions

When defining the purpose of a business and elaborating the way success is measured, questions about “What values are created?” and “Who will benefit from sustainability activities?” arise.

In research and practice, the answer to these questions is often dominated by the business perspective: sustainability activities benefit business itself. This idea is based on the so-called business case of sustainability, which sees managing sustainability as a way to create additional economic benefits for the business (Steger, 2004). These business benefits can range from “managing the downside,” like reducing risk and costs, to “managing the upside,” like increasing revenues, market share, or reputation (Lubin & Esty, 2010; Nidumolu et al., 2009). The number of studies on the relationship between financial profitability and sustainability (e.g., Bonini & Görner, 2011; Eccles et al., 2014; Orlitzky et al., 2003) prove the dominance of the economic domain when considering sustainability.

However, some researchers criticize this focus on the business outcomes of sustainability activities (Banerjee, 2011; Crane et al., 2014; Dyllick & Muff, 2016; Hahn et al., 2010; Margolis & Walsh, 2003). The focus on optimizing financial goals ignores other aspects that are relevant for the long term survival of the company, like the planet’s health. Researchers increasingly point to the need for overcoming the dominance of the financial domain and of emphasizing the advantages of sustainability activities, for both business and society (Baumgartner & Rauter, 2017; Dyllick & Muff, 2016).

Different sustainability approaches show how business can overcome financial dominance and how it can create benefits for societal issues. Elkington (1997), for example, proposes that businesses create value along the so-called triple bottom line—social, environmental, and economic values. The triple bottom line helps measure multidimensional contributions to sustainable development. Dyllick and Hockerts (2002) ask business to go “beyond the business case” in order to address real societal challenges. They show that businesses need to

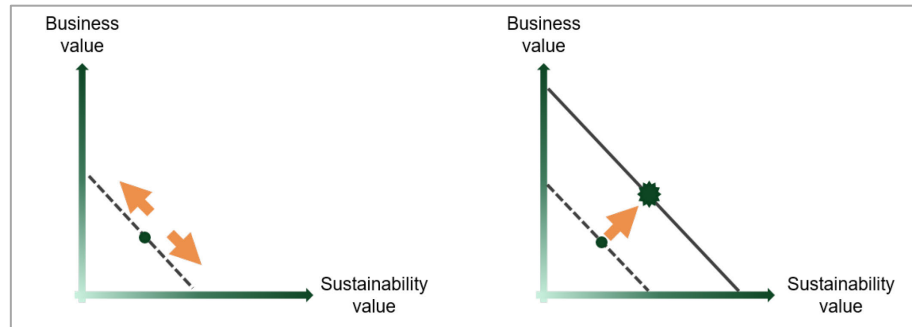
consider the “natural case” as well as the “social case” of corporate sustainability. Other authors call for “breakthrough strategies that actually resolve societal and environmental problems” (Hart & Dowell, 2011, p. 1476). A more recently developed approach of “Creating Shared Value” (CSV) suggests the expansion of business’s focus beyond profit maximization toward business opportunities that create value for business and society (Porter & Kramer, 2011).²⁹

The outcome of sustainability activities under the CSV approach, however, does not necessarily contribute to solving societal challenges because of the approach’s predominant aim to improve business value (Crane et al., 2014; Donaldson, 2014; Dyllick & Muff, 2016). Hence, any trade-offs between the social, environmental, and economic dimensions of sustainability might ultimately be solved by prioritizing financial profits over other sustainability outcomes. This imbalanced value creation leads to “islands of win-win projects in an ocean of unsolved environmental and social conflicts” (Crane et al., 2014, p. 139) and generates economically attractive but unsustainable solutions.

Emerging concepts suggest that, to increase both business profitability and sustainability outcomes, businesses should turn trade-offs between business profitability and sustainability values into new opportunities for value creation (Hahn et al., 2010; Jay & Gerard, 2015; Lüdeke-Freund et al., 2016). Interviewee J also points out that, “There are always trade-offs and synergies between the different aspects [of sustainability].” The interviewee states it is crucial to keep those trade-offs and synergies in mind and to tap into their potential. Figure 23 illustrates this shift in value creation from “either or” toward “both and.”

²⁹ The concept of CSV and the related strategies are discussed in more detail in section C2.1.

Figure 23: New conception of value creation



Source: Own illustration

The illustration on the left shows how traditional approaches interpret value creation. In this case, *either* the business value *or* the sustainability value can be increased, which results in permanent trade-offs that are often solved by prioritizing the business perspective. In contrast, the illustration on the right shows how trade-offs are turned into new business opportunities by resisting the tension to make the trade-off and by searching for new ways to approach the situation. This novel approach can result in unexpected and overlooked opportunities for *both* business *and* society.

Besides the creation of societal values, different authors point to the importance of creating positive impacts and contributions instead of merely reducing negative ones (Hart, 1997, p. 68). “[T]he goal of sustainable development is [...] not simply to do well in the economic dimension and then reduce the amount of harm done in the two other dimensions” (Jay & Gerard, 2015, p. 18). Business should move away from the idea of minimizing harm toward actively creating good. Societal initiatives that focus on the reduction of risk and cost, or the improvement of reputation and revenues can be described as decreasing unsustainability rather than enabling sustainability (Ehrenfeld & Hoffman, 2013).

To sum up, this section discussed the values and contributions created by business strategies. Researchers and practitioners increasingly point to the need for both business and society to benefit from a company’s sustainability activities. This section also showed how the financial dominance of value creation and the focus on reducing harm does not lead to the changes required for sustainable development.

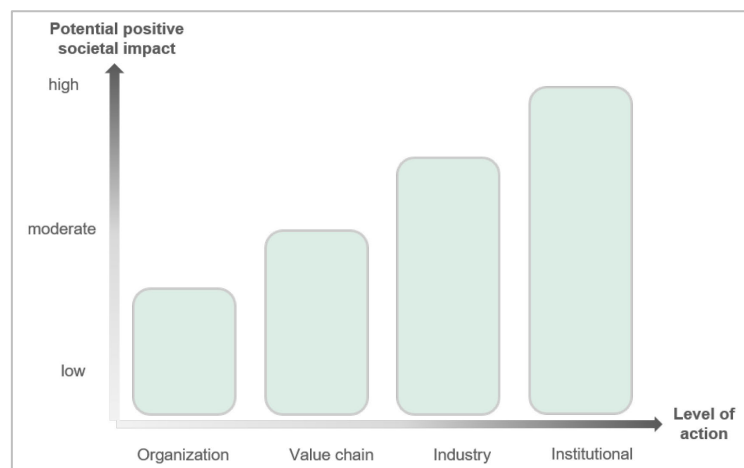
C1.1.3 Impact and Levels of Action

Sustainability strategies can generate an impact at different levels: organizational, sectoral, industry, and institutional levels. Strategies directed toward the organizational level, like process improvements (e.g. Nidumolu et al., 2009),³⁰ remain inside organizational boundaries as they deal with internal changes. Although they are an important step toward a more sustainable future, they are insufficient in creating the impact required to enable sustainable development. In order to make significant contributions to sustainability challenges, institutional changes are needed, which change the rules of society, like cultural norms, mental models, regulations, or tax incentives (Jay & Gerard, 2015). Such an engagement with the institutional system can significantly expand the impact for both business and society (Dyllick & Muff, 2016; Hart & Milstein, 2003; Laszlo & Zhexembayeva, 2011). Business strategies that aim to create changes at the institutional level can help establish new industry standards and change the rules of the game. In the interviews, Interviewees M, I, E, L, and C frequently emphasized the different levels at which action was needed to increase the positive impact of strategies: “There are different levels: at the society level you can rally for certain issues and influence policymakers, NGOs, and the broader consumer audience,” adds Interviewee C. The quote shows that extending the levels at which interventions take place can lead to institutional changes, which impacts a broader audience. However, changing the rules of the whole system is not an easy task, requiring the involvement of and collaboration with various actors along the way. Hence, those strategies are rarely implemented by just one actor.³¹ Figure 24 illustrates the increased positive impact when businesses engage with sustainability at different levels.

³⁰ The different strategies by Nidumolu et al. (2009) are explained in more detail in section C2.1.3.

³¹ The aspect of collaboration is elaborated in more detail in section C1.3.

Figure 24: Levels of action to increase the positive impact



Source: Own illustration

This section showed that the impact of a business's sustainability strategies varies depending on the level at which the business takes action. By extending sustainability intervention to include the industry and institutional levels, businesses can realize a positive impact outside their organizational boundaries.

To sum up, this section about the input and output related aspects of sustainability strategies outlines the different perspectives on business's purpose, which range from a purely economic to a societal purpose. It shows that in business and science, the definition of business's purpose is increasingly interpreted as being more than generating financial profits. Further, there is a shift from focusing on the business benefits to be gained from sustainability activities toward realizing benefits for society. The dominance of financial value creation and the focus on reducing harm does not lead to the changes required for sustainable development. Finally, creating sustainability strategies that function at the industry and institutional levels, rather than simply at the organizational level, expands business's positive impact on society.

C1.2 Process Related Parameters in Strategy Research

This section covers the process parameters relevant for strategy design shown in table 9. First, the discussion about the strategic relevance and integration of sustainability is addressed (section C1.2.1). Second, different interpretations of

strategic behavior and engagement are analyzed (section C1.2.2), and in a third step, different types of change and innovation (section C1.2.3) are discussed. An understanding of these parameters helps us derive the strategic implications of TBST and to characterize TSS in the final section.

C1.2.1 Strategic Relevance and Integration

The strategic relevance and integration of sustainability into a company's core business is interpreted and managed differently by companies. To form a clearer picture of the different degrees of sustainability integration, Lüdeke-Freund et al. (2016) develop a typology that distinguishes between four levels of strategic integration of sustainability. These levels differ in their relationship between business strategy and sustainability strategy:

- i) At the lowest level of integration, sustainability is treated as an “add-on” to the traditional business strategy, and societal issues are treated as an administrative duty. At this low level of integration, sustainability strategies aim to make selective improvements in existing products with short term financial gains and a primary focus on easy wins.
- ii) At higher stages of integration, sustainability “matches” the business strategy. Here, sustainability is integrated into the business strategy only if it represents an opportunity for short term gains.
- iii) The next level of integration is described as rethinking the purpose. Here, the sustainability strategy “inspires” the business strategy.
- iv) At the highest level of integration, sustainability “guides” business activities. Thus, the implemented strategies are fully integrated and aim to make holistic improvements across the whole supply chain (Lüdeke-Freund et al., 2016).

Baumgartner and Ebner (2010) also use the degree of integration to distinguish between different sustainability strategies. Accordingly, sustainable development can be “ignored,” be an “add-on to the existing,” or be “fully integrated” into the business mission and vision. These studies show the

different ways that sustainability can be managed and integrated into strategic management.

Some researchers criticize businesses for rarely integrating sustainability into their core business or overall business strategy (Engert et al., 2016; Kashmanian et al., 2011; Kiron et al., 2012). The literature on sustainability strategy calls for an increase in the relevance of sustainability for strategy design and for a complete integration of sustainability into strategic management. Researchers claim that often when companies pursue sustainability, it is more a matter of coincidence than a clear strategic decision to do so (Baumgartner & Rauter, 2017). Business can only make significant contributions to sustainable development if sustainability “guides” strategy formulation and is integrated into all the company’s processes (Baumgartner & Korhonen, 2010). As long as sustainability is not “at the heart of business [but rather a] nice to have add-on to business as usual” (Beckmann et al., 2014, p. 26), the company cannot make an effective contribution to sustainable development and the impact of strategies remains limited. The ISO 26000 guidelines also emphasizes that sustainability should be an integral part of the organizational strategy rather than a simple bolt-on (ISO 26000, 2011). Ioannou and Serfeim (2019) show that incorporating sustainability topics into business operations is becoming a strategic necessity. Hence, different researchers stress the importance of embedding sustainability in strategic management. This embedding is seen as a required and promising way to make significant changes toward sustainable development and to generate competitive advantages for the company.

The strategic relevance of sustainability to business strategy and the importance of embedding sustainability in the organization is also emphasized by the experts during interviews: “Internal embeddedness is of high importance. It [the sustainability strategy] needs to be a business strategy instead of a strategy that was developed separately,” advises Interviewee N. Interviewee S adds: “If you really want to be sustainable, sustainability needs to be at the center of business activities and influence all decisions [...] at the core of a business.” Interviewee T explains how their company approaches this topic: “We do not

have a sustainability strategy. Sustainability is fully integrated in our overall strategies.” The interviewee points out that sustainability activities not directly related to the business’ core activities are nice to have but do not make an effective impact. Further, the relation of sustainability strategies to a business’s core activities and core competencies is important: “It has to be linked to what you are doing with your core business,” says Interviewee G. Interviewee R agrees and adds that, “the sustainability measures need to be embedded better—not just marginally. It is important to be embedded in the core business.”

These insights from the literature and from expert interviews show that integrating sustainability in the business’s overall strategy and connecting it to the core of the business are essential elements of sustainability strategies that aim to make significant contributions to societal challenges.

C1.2.2 Strategic Behavior and Engagement

Increasing the strategic integration of sustainability not only helps business to contribute to societal challenges more effectively but also helps business to be proactive rather than reactive to external changes (Epstein, 2008). Reactive strategic behavior leads to strategies whose primary aim is to reduce risk or cost of operations by introducing efficiency measures—they are oriented toward today. Here, sustainability is perceived as a cost, or a necessity, to maintain legitimacy and the right to operate (Hart & Milstein, 2003). Hoffman (2018) describes this as a “first phase” of business sustainability, where business responds to a market shift by integrating sustainability into its existing considerations. Hence, the business focus is inward, on the health of the organization, and on reducing unsustainable side effects.

Proactive strategies perceive sustainability as an opportunity, and their aim is to manage the changes that sustainability brings—they are oriented toward tomorrow (Hart & Milstein, 2003; Dyllick, 2003). Hoffman (2018) notes that “the era of corporations integrating sustainable practices is being surpassed by a new

age of corporations actively transforming the market to make it more sustainable” (Hoffman, 2018, p. 35). The author describes this as a “second phase” of business sustainability, in which companies create shifts to enable new forms of business sustainability. Their focus is outwards, toward the health and vitality of the market and society. Such outward facing business activities are important to enable sustainable development. Hence, strategies that proactively transformational changes on a societal level are increasingly discussed in the literature.

The need for proactive and future oriented strategies is also expressed in the expert interviews: “Playing an active role across the industry and across institutional levels is of high importance. So far, you can see some proactive initiatives. However, often it is with little courage, and I really wish companies would take this active role,” says Interviewee D. Interviewee L emphasizes the future orientation of strategies: “There are potential challenges in the industry that you don’t know yet. But you need to prepare to respond to these things.” These quotes show the importance of adopting proactive strategic behaviors and a future oriented engagement.

C1.2.3 Change and Innovation

Innovation is one of the main drivers of a company’s strategic orientation (Engert et al., 2016, p. 2840), and some companies have begun perceiving sustainability as a way to drive innovation (Hart & Milstein, 2003; Nidumolu et al., 2009).

Different kinds of innovation have varying impact on sustainability. “Sustainability relevant” innovations treat sustainability as an add-on, or a positive side effect, and can be compared to “more and better” of the same (Szekely & Strebel, 2013). This approach can lead to optimizing-strategies, where existing structures are modified to preserve the status quo (Fichter & Arnold, 2003). An example for such incremental improvements is eco-efficiency measures to reduce the amount of energy or water needed in the production

process. Although this change is a promising first step, different authors agree that these incremental changes will not be sufficient or appropriate in tackling global sustainability challenges (Boons et al., 2013; Geels et al., 2008; Jay & Gerard, 2015).

In contrast, disruptive innovations come up with completely new ideas that fundamentally transform existing behavior (Christensen et al., 2006). These kinds of innovation enable path generating and game changing strategies that alter existing structures and help people break out of existing practices (Fichter & Arnold, 2003; Szekely & Strebel, 2013). Those disrupting, radical, and transformational innovations, as well as systemic approaches, are required in order to overcome “self-defeating feedback loops (such as rebound effects)³² and enter scalable and self-sustaining ones” (Jay & Gerard, 2015). “Sustainability driven” innovations integrate sustainability into the core purpose of the business, thus explicitly directing the innovation toward solving a sustainability challenge (Jay & Gerard, 2015, p. 28). Furthermore, Jay and Gerard (2015) point out that “the innovation logic [...] must change to become more systemic, dynamic, and flexible, proactively leveraging contingencies and forming partnerships” (Jay & Gerard, 2015, 28). The authors further emphasize that systemic changes are needed in order to tackle complex societal challenges. In fact, Davis-Peccoud et al. (2018) show that businesses perceive systemic changes as increasingly important to overcoming sustainability challenges. These studies demonstrate that radical changes and transformational innovations are necessary to generate a system-wide impact and enable sustainable development.

Experts too point to the need for a high degree of change and innovation. “You can’t just have engineers sitting together in their studio to cobble something together. You have to be much faster. [...] Otherwise you are too late in the

³² Rebound effects describe the phenomenon where, despite an increased efficiency of production, the overall consumption of resources or emissions increases due to behavioral or other systemic responses.

market. [...] It is at an immense pace that things develop and change,” reminds Interviewee F. Those fast changes can be reached by radical innovations: “First you can aim for the low hanging fruits. This doesn’t hurt, but it’s a first step,” says Interviewee M. However, these are incremental changes that do not deliver the pace to tackle pressing sustainability challenges. “Then, [you should] ask yourself how you can take very big steps forward,” explains Interviewee M. These big steps are radical innovations that can significantly increase positive contributions to societal challenges. “The point is that, we need sustainable solutions and we need them urgently. We cannot wait anymore; we need to make this change happen quickly. And in order to do this quickly, we need cooperation in the industry—businesses need to work together,” says Interviewee L. These opinions show again the need for radical innovations and the link to the cross-cutting parameter of collaboration, discussed in the next section.

To sum up, the analysis of the process related aspects of strategy research showed the importance of fully integrating sustainability into business strategy and business’s core activities. Further, future oriented strategies and proactive strategic behavior are required to deliver impactful solutions to societal challenges, as are fast, radical, and system-wide changes.

C1.3 Cross-Cutting Parameter: Collaboration

Sustainability challenges are complex and grand. Therefore, they need to be tackled with joint action. Adams et al. (2015) show that in order to generate systemic changes, collaboration is inevitable—systemic changes are “impossible to achieve alone” (p. 185). Davis-Peccoud et al. (2018) also emphasize that systemic changes cannot be achieved without partnerships.

During interviews, sustainability experts point to the high importance of collaboration to tackle sustainability challenges: “There are certainly optimizing measures that you can easily implement as a company. However, certain topics you will not reach alone, [...] the majority require cooperation” (Interviewee J).

The reason that complex sustainability challenges cannot be carried out by single actors is that they do not have all the key competencies required to implement the changes: “Of course, you don’t have the skills to do that alone. You need to cooperate if you want to address issues of the future,” says Interviewee E. This quote shows that collaboration helps to pool resources and to generate the required expertise to address societal challenges. Besides the knowledge that can be created through cooperation, “partnerships are key for innovation, and they give credibility and trust,” emphasizes Interviewee E. Hence, partnerships and collaborations are significantly important to tackle societal challenges and to foster innovation, credibility, and trust toward different stakeholders.

Partnerships can be implemented between various actors: “It should be the industry in collaboration with governments, NGOs, key stakeholders. [...] It won’t work unless you get all of them on board,” warns Interviewee K. Hence, forming partnerships and engaging in dialog may take different forms and may involve varying actors, like public institutions or private actors. This idea is in line with those in the literature: “Companies also look to novel partnerships outside standard modes of shifting the market, including nonprofit organizations, the government, competitors, and seemingly unrelated companies” (Hoffman, 2018, p. 37). Forming partnerships with a variety of actors can help to shift the market toward sustainability and generate far reaching impacts.

The interviews show that the following types of interaction with others can be important to increase impact: 1) with other businesses, 2) with public institutions, 3) and with various actors like scientists, NGOs, or multistakeholder initiatives. What these forms of interaction and cooperation may look like, and what challenges are associated with them, are shown in the following:

1) Collaboration with other businesses

“What we need today is collaboration; the industry has to work together. But that is difficult because businesses are not familiar with how to work with competitors,” says Interviewee L. Often competitors do not want to share all their information: “At an industry-wide round table, I told them everything we are doing. They found it interesting and when I asked them: ‘What about you?’ they didn’t say anything,” explains Interviewee T. In particular, businesses in the same sector may not be interested in establishing industry standards, as they see themselves as competitors. Thus, collaborating with other businesses is a challenging task that requires new ways of doing business. Interviewee L believes that overcoming the competitive dogma of “you versus me” is a fundamental and demanding shift in perspective and is the main reason why cooperation is missing in business today.

Interviewee K describes a way to make this shift happen by redefining competition: “You have to find a way to move the competition to a different level. [...] You should work pre-competitively to raise the standards and then you can compete up here rather than trying to compete down there. [...] You have to move the innovation space up and businesses will be just as innovative and competitive, but in a better space.” Raising the standards together through industry agreements prior to competing can be a good way to increase the overall level of sustainability. Such a redefinition of competition benefits both businesses and society. In areas like cocoa, soy, and palm oil, such industry solutions do exist and help to increase the system-wide sustainability level. In Switzerland, for instance, the two biggest food retailers agreed on standards for sustainable soy. The standard was established as a nation-wide minimum requirement, and the smaller retailers adapted it as well, explains Interviewee T. This example illustrates the possibilities of an industry-wide impact by collaboration between businesses.

According to Interviewees B and K, businesses have not yet understood the huge potentials of setting industry-wide standards. Interviewee K says, “Things

you do alone moves your business forward to a certain degree. However, things you do as an industry unlocks the potential for you to go a lot further and will remove barriers that you would have hit if you continued working alone.” Additionally, industry standards are necessary for sustainable businesses to stay in the market: “Industry agreements are very important to survive in the market. Because if you decide to drop a product from the product line due to sustainability related considerations, customers will buy it at the competitor’s store,” says Interviewee T. Thus, besides improving the level of sustainability at the societal level, industry standards and collaborations are important for businesses to stay competitive and develop further.

Furthermore, cross-industry solutions are a way to significantly increase positive impact on sustainability challenges: “Think about the future of proteins: This emerges at the interface between medical research and the food industry. [...] Lateral thinkers come from a different area,” states Interviewee A. This quote supports the idea that cross-industry collaborations can use synergies to develop sustainable solutions by exchanging ideas, knowledge, and expertise. Besides the intersection between the medical and food industries, there can be beneficial collaboration between other industries: Companies in the “food industry should also work collaboratively across industries. [...] like in the areas of digitalization and industrialization [...]. There are many possibilities, but the industry is still focusing too much on itself,” warns Interviewee D.

This section illustrated that collaboration between businesses and across industries help to increase the overall sustainability level of a sector. Additionally, redefining competition and setting industry-wide standards can provide business benefits like improved innovation and an expanded knowledge pool.

2) Collaboration with public institutions

Partnerships or dialogs with public institutions are a promising way to increase the reach of business impact. “Clearly, dialog with authorities is key: Working

with the authorities and pushing for policies that are realistic but that can facilitate what the companies are doing is important. Instead of creating barriers, they can really create some levers,” says Interviewee O. Strategies that aim to make changes at an institutional level can greatly expand business’s positive contribution to societal challenges: “If you can influence the frameworks that govern how things operate through public policy, I think that can be truly transformational,” says Interviewee H. Engaging in a dialog with public institutions helps companies “to rally for a higher goal; something bigger than the company itself,” says Interviewee C.

Hence, by engaging at an institutional level and having dialogs with authorities, companies initiate changes to the rules of the game and thus expand the positive impact for their strategies. These collaborative activities, however, have to be regarded carefully and differentiated. In general, the perception of lobbying is negative. Lobbying and political engagement is not desirable in all cases: “It is not all good when companies are involved in policy making. For me, it is incredibly dangerous when businesses interfere with the responsibilities of the state”, explains Interviewee T. Depending on the interests of business, the outcome of lobbying activities varies and may not lead to more sustainability. However, if companies rally for sustainable solutions, business’s commitment at the political level becomes very important (Interviewee M). For this to happen, lobbying needs to be done transparently, states Interviewee D. This interpretation of lobbying is in line with Hoffman (2018): “Lobbying is basic to democratic politics as governments seek guidance on how to set the rules of the market and usher reforms as needed. Forward-thinking companies are looking for ways to participate constructively in policy formation” (p. 37). Hence, constructive and sustainability oriented lobbying can be a good way for businesses to influence the regulatory framework. In particular for countries where the institutional framework is weak, businesses can support important developments toward sustainability by pushing for higher wages or better environmental standards, holds Interviewee P.

There have been some occasions where business has proved itself to be a responsible actor in political debates around sustainability, like the Paris Agreement, the SDGs, or the decarbonization of the economy. “It gave governments confidence to make more progressive policies because they knew that businesses [...] were behind them. So, I do think there is a role of business to help de-risk political processes and help make governments see that they can make more progressive policies in ways that perhaps they haven’t felt able to do,” says Interviewee H.

In short, collaboration with public institutions is a useful and effective way to positively shape institutional setting toward sustainability.

3) Interaction with various actors

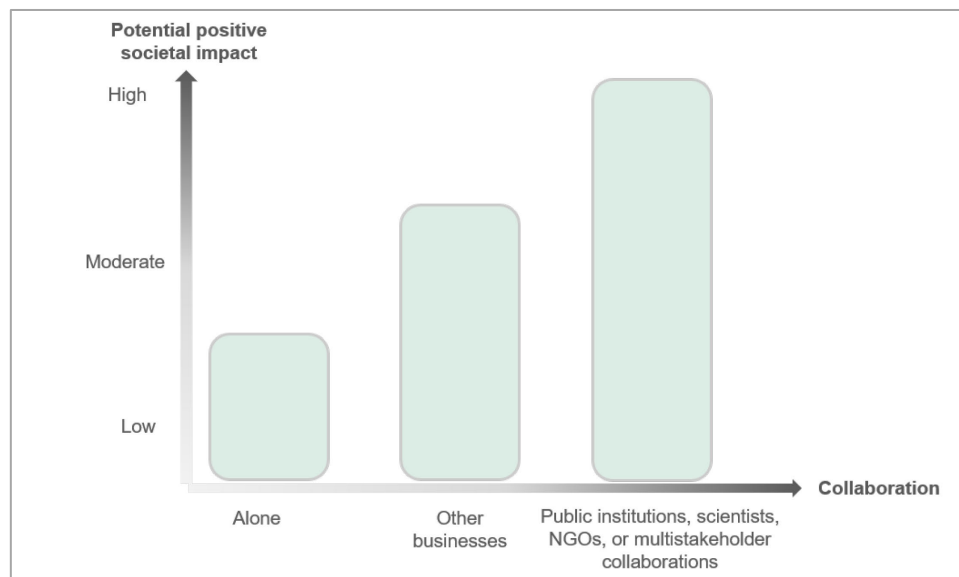
Engagement with various actors like scientists, NGOs, or in multistakeholder initiatives can help increase the impact of sustainability strategies. “Business can achieve a lot by engaging with fair trade organizations [...] or associations and organizations outside the company and by trying to cooperate with them”, sates Interviewee S. Also, multistakeholder initiatives are seen as a promising way to increase the impact of sustainability strategies and to incorporate a systems perspective: “Involve different stakeholder groups and bring them together at a table to discuss what better solutions as a whole can look like. Also, the very skeptical stakeholders,” says Interviewee F.

Additionally, collaborations with scientists are important to generate far reaching impact. “Universities especially play a key role in pushing change. [...] So far, business is lacking in searching for collaborations with academics,” says Interviewee P. Collaborations with scientists can create knowledge about the problems that need to be addressed and the solutions that need to be delivered. “What I do a lot is to talk with the academic people to know more about the real facts. It’s very difficult for us as a company to know what the right solutions may look like. For this, you have to work together with academics,” explains Interviewee O. Obviously, this collaboration needs to be both ways: “We [scientists] need to learn a language to talk with the industry. And vice versa.

The industry also needs to engage with scientists in much more powerful ways. It's important to make sense of this knowledge creation," says Interviewee E.

This section showed that partnerships and collaborations with different actors are key to tackling sustainability challenges. Collaborations enable business to increase their positive impact and their ability to deliver societal contributions. They can help to bundle resources, foster innovation, and develop solutions with high sustainability impact. Figure 25 summarizes the relationship between collaboration and the potential societal impact, as elaborated in this section.

Figure 25: Collaboration to increase positive societal impact



Source: Own illustration

C1.4 Summary: Seven Characteristics of Truly Sustainable Strategies

In the following, the concept of TBST is analyzed in detail to distill the strategic implications and characteristics of TSS. These will be drawn from the theoretical background and discussion provided in the previous section. At the end, an overview is provided to distinguish TSS from non-TSS.

Table 10 shows an overview of the descriptions of a truly sustainable business by Dyllick and Muff (2016) that indicate the strategic implications for the specific topic. All quotes in the table are from the definition of BST 3.0 by Dyllick and Muff (2016, p. 165-166), unless indicated otherwise.

Table 10: Strategic implications of TBST

Parameters for Evaluating Strategies	TBST	Strategic Implications of TBST
Output related		
Purpose and success	• "serving the common good becomes the main purpose" • "resolve pressing sustainability issues in their societies" • "to respond more effectively to society's concern" • "focus on society and planet" (Dyllick & Muff, 2017, p. 20)	<i>Societal relevance</i> is the primary focus
Value creation and contribution	• "creating value for the common good" • "create significant positive impact" • "provide solutions [...] to the burning issues in nature and society" • "benefits and contributions [...] to society and the environment" • "making a positive contribution to [...] sustainability issues"	<i>Positive societal values</i> are created
Impact and levels of action	• "impact in critical and relevant areas for society" • "engage in activities to change the rules of the game" • "engage in sector-wide or cross-sectoral strategies" • "engage on different levels of action" • "help overcome critical challenges" • "transforming existing markets" (Dyllick & Muff, 2017, p. 20)	Initiation of <i>transformational system changes</i>
Input related		
Strategic relevance and integration	• "demand the resources and competencies it has at its disposal" • "use its resources, competencies and experiences" • "integral part of the core organizational strategy" • "embed sustainability throughout the organization" • "integrating relevant societal stakeholder into decision-making process on all levels" (Dyllick & Muff, 2017, p. 21)	Sustainability is <i>fully integrated</i> and based on the <i>core competencies</i> of the company
Strategic behavior and engagement	• "starting with sustainability challenges" • "see themselves as responsive citizens of society" • "translates sustainability challenges into business opportunities" • "actively engaging with stakeholders" (Dyllick & Muff, 2017, p. 20) • "pro-active engagement with a variety of players" (Dyllick & Muff, 2017, p. 20)	Activities are <i>impact oriented</i> and <i>proactive</i>
Change and innovation	• "transform our operations" • "open up and develop" • "whole supply chains will have to be reconstructed"	<i>Radical</i> innovations are triggered
Cross-cutting		
Collaboration	• "truly sustainable firms engage on different levels of action" • "collaborative partnerships will increase the impact and outreach of their sustainability strategies" • "new forms of collaboration" • "collaboratively with scientific and public organizations"	Different forms of <i>collaboration</i> are used

Source: Own illustration based on Dyllick & Muff (2016, p. 165-166)

The following section shows how the topics relevant for strategy design are defined according to TBST. The strategic implications and characteristics for TSS are then defined based on the definition of truly sustainable businesses by Dyllick and Muff (2016, 2017).

Purpose and Success

The outside-in perspective in BST 3.0 is significantly different to traditional approaches to business sustainability as it focuses on the societal impact of business activities. This new perspective influences a company's purpose. Dyllick and Muff (2016, p. 166) express that "making a positive contribution to overcome sustainability issues and thus serving the common good becomes the main purpose of a truly sustainable business." This claim dovetails with the idea in research and practice of viewing business's purpose as being more than simply profit maximization, as discussed in section C.1.1.1 (Cameron & Dutton, 2003; Henderson & Steen, 2015; Sukhdev, 2012; Zedlmayer, 2015).

Applying this perspective implies that truly sustainable strategies pursue multiple objectives including social, environmental, and economic goals. If trade-offs between these aspects occur, the perspective remains outside-in, meaning that economically attractive solutions are developed in order to solve the societal challenge. Thereby, new and unexpected opportunities for business contributions emerge. This notion is in line with the conception of value creation toward "both and," as shown in Figure 23 (Jay & Gerard, 2015; Lüdeke-Freund et al., 2016).

In respect to the profits generated by a business using an outside-in perspective, we see that they are used for a greater end, meaning they are reinvested to fulfill its responsibility to serve the common good. This reinvestment corresponds with the definition of success of a social business by Yunus (2007) and of Corporation 2020 by Sukhdev (2012).

The definition of TBST as well as the quotes from table 10 make clear that the primary focus of strategies is creating benefits for society. According to the outside-in perspective, challenges in the external environment are taken as a starting point for strategy development. For TBST, the sustainability impact of business activities on society is not a vague or coincidental result but is the central aspect of business strategies. Hence, societally relevant challenges are at the core of TSS.

Value Creation and Contribution

Dyllick and Muff (2016) point out that while serving the common good, truly sustainable businesses positively contribute to sustainability issues. Creating effective business contributions and societal values to address sustainability challenges is at the center of strategy design. This focus on societal contributions responds to the previously shown need that both business and society benefit from business's sustainability activities, as well as the need to overcome the perspective of financial dominance in value creation (Banerjee, 2011; Baumgartner & Rauter, 2017; Crane et al., 2014).

The quotes by Dyllick and Muff (2016) in table 10 show that providing positive societal contributions is a core aspect of TSS and guides the strategy design process. According to Dyllick and Muff (2016), a truly sustainable business does not aim to reduce its negative impact but to enhance its positive contributions. The need to focus on positive contributions is addressed by several researchers, as shown in section C1.1.2 (Ehrenfeld & Hoffman, 2013; Jay & Gerard, 2015).

Impact and Level of Action

Dyllick & Muff (2016) point out that for TBST, companies will "have to engage in changing the rules of the game" (p. 167). This may take different forms and often require engaging with different actors at various levels, like sectoral or cross-sectoral collaborations to set industry standards or to lobby for taxes. Such an engagement on a sectoral or societal/institutional level can significantly expand the positive impact at both the business and the societal level, as shown in section C1.1.3 (Jay & Gerard, 2015; Laszlo & Zhexembayeva, 2011).

The quotes by Dyllick and Muff (2016) in table 10 indicate that the impact of TSS go beyond the organizational level to make system-wide changes. Changing the rules of the game, however, requires the business to form strategic partnerships or engage at different levels.

Strategic Relevance and Integration

Section C1.2.1 showed that the integration of sustainability into a business's overall strategy as well as the connection to the core business is increasingly gaining importance in strategy research and practice (Baumgartner & Korhonen, 2010; Beckmann et al., 2014; Engert et al., 2016; Ioannou & Serafeim, 2019). Dyllick and Muff (2016) show that for TBST, sustainability is an integral part of the business and fully embedded in all its activities. The positive societal contributions are not a side effect of these activities but a result of deliberately defined goals. If the sustainability activities remain at the outskirts rather than at the center of what business is doing, the actual impact remains vague. Therefore, truly sustainable businesses fully integrate sustainability into the strategy processes and sustainability builds the core of the business strategy.

Additionally, Dyllick and Muff (2016) state that a truly sustainable business uses "the resources and competencies it has at its disposal" (p. 166). For TSS, this means that the core competencies are used in order to create the highest impact possible.

Strategic Behavior and Engagement

Dyllick and Muff (2017) state that a "proactive engagement with a variety of players" (p. 20) is key for TBST. As shown in section C1.2.2, proactive and future oriented strategies are important to generate a far reaching impact and to tackle societal challenges (Dyllick, 2003; Hoffman, 2018). The quotes in table 10 show that the active search for business opportunities arising from societal challenges is an important aspect of TBST. The implication for TSS is that the strategic actions are impact oriented and proactively address societal challenges.

Change and Innovation

The need to initiate system-wide changes to solve societal challenges (Boons et al., 2013; Davis-Peccoud et al., 2018; Geels et al., 2008; Jay & Gerard, 2015) has further strategic implications. The quotes in table 10 indicate that for TBST, incremental improvements are not sufficient to reach the desired sustainability

impact. Therefore, TSS must trigger fundamental changes and radical innovations in order to deliver positive contributions to societal challenges.

Collaboration

Collaboration can help increase business's impact and therefore broaden its positive value creation (Adams et al., 2015; Davis-Peccoud et al., 2018; Hoffman, 2018). Collaboration is a key element to reach and implement the input, output and process related parameters discussed above. Collaboration can help realize proactive behavior and develop transformational and radical changes by sharing knowledge, bundling resources, and collaboratively developing and implementing sustainability strategies. For TSS, collaboration is a key aspect, and Dyllick and Muff (2016, p. 167) call for "new forms of collaboration". The authors emphasize the importance of collaboration because "collaborative partnerships will increase the impact and outreach of their sustainability strategies" (p. 166).

Collaboration may involve various actors, from business to institutions and government bodies. Changing the rules of the game by influencing the institutional setting increases the positive outreach of strategies. Lobbying in the context of TSS is understood as business constructively influencing the rules of the game toward increased sustainability (Hoffman, 2018).

In sum, the strategic implications of TBST result in the following characterization of TSS: **TSS are proactive and collaborative strategies designed to deliver positive contributions to societal challenges and to initiate radical system-wide changes toward sustainability by using business' core competencies.** The seven characteristics of TSS are summarized in table 11:

Table 11: Characteristics of TSS

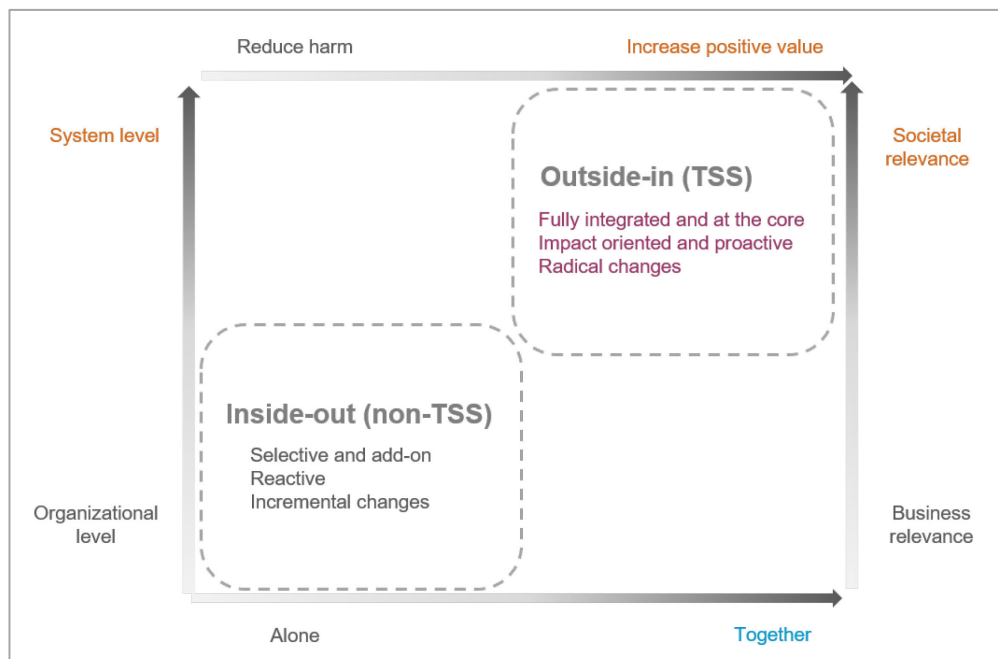
<u>Input and output parameter</u>
Challenges <i>relevant to society</i> are addressed
<i>Positive societal values</i> are created
<i>System-wide changes</i> are initiated
<u>Process parameter</u>
Sustainability is <i>fully integrated</i> into the <i>core</i> of the business
Activities are <i>impact oriented</i> and <i>proactive</i>
<i>Radical</i> innovations are triggered
<u>Cross-cutting parameter</u>
Different forms of <i>collaboration</i> are used

Source: Own illustration

Taking these characteristics together, TSS can be differentiated from non-TSS as shown in figure 26. In this figure, inside-out strategies are used as an umbrella term for all strategies not characterized as truly sustainable. According to Dyllick and Muff (2016), whether a company chooses an inside-out or outside-in perspective is what makes the decisive difference between a truly sustainable business and lower levels of BST. Therefore, this distinction is used to differentiate TSS from other types of strategies.

The outer axes of the figure show the input and output related aspects of purpose, value creation, and levels of action, as well as the cross-cutting parameter of collaboration. The process related aspects of TSS are shown in the inner part of the figure.

Figure 26: Illustrating the characteristics of TSS

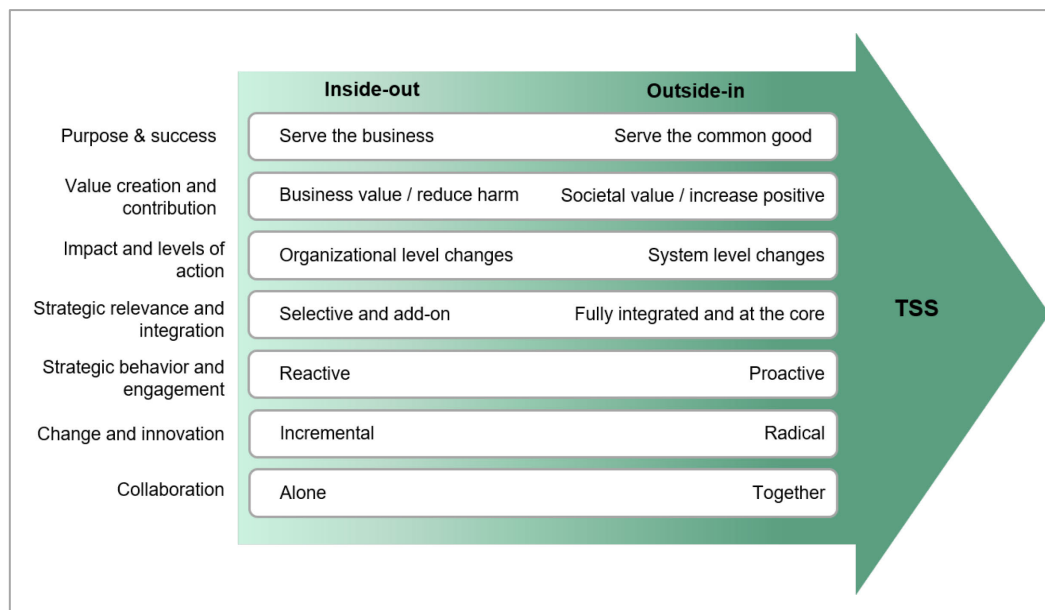


Source: Own illustration

Inside-out strategies are reactive strategies that work only at the organizational level and that focus on business benefits. These kinds of strategies selectively integrate sustainability and treat it as an add-on. They foster only incremental changes, which are triggered by a focus on reducing the harm caused at the societal level. In contrast, TSS are proactive strategies that focus on positive societal contributions. They fully integrate sustainability into the core business activities, and system-wide changes are triggered through collaborative partnerships.

Based on the discussion of input, output and process related aspects in strategy research in the previous sections, inside-out and outside-in strategies can be characterized and differentiated as summarized in figure 27. Together with figure 26, these illustrations help to identify TSS and to distinguish them from other strategies. They show the shifts needed to create TSS and provide a picture of how TSS could look like.

Figure 27: Distinguishing inside-out from outside-in strategies



Source: Own illustration

The characteristics of TSS further refine the concept of TBST with regards to the characteristics of strategies. Knowing what constitutes TSS is an important step toward defining the strategic implications of an outside-in perspective. A clearer understanding of the characteristics of TSS has important implications for managers. First, the clear set of characteristics helps managers to understand what an outside-in perspective means for the relevant aspects of strategies, like the created values, generated impact, strategic behavior, and type of collaboration. Such an understanding makes it easier for managers to identify TSS, which helps managers differentiate between symbolic strategic actions and substantial contributions to address societal challenges. This differentiation is necessary for the design of TSS as it guides businesses in their target. Second, the different parameters of the definition serve as a guidance to assess if the strategy is already truly sustainable. This assessment helps managers to evaluate their strategy and to identify which parts need improving. Hence, managers can use the list of characteristics to ensure that their strategies actually fulfill the requirements of TBST, and if not, identify what adjustments need to be made.

C2 Truly Sustainable Strategy Types

The following sections delineate the design of TSS and specify what different types of TSS look like. Section C2.1 analyzes the underlying dimensions and assumptions of existing sustainability strategies in order to derive the requirements for the TSS portfolio. This section provides the theoretical basis for section C2.2, which illustrates the TSS portfolio. Finally, section C2.3 summarizes and discusses the results.

C2.1 Different Concepts of Sustainability Strategies

Numerous typologies and concepts of sustainability strategies already exist in the literature. A brief overview of the most relevant concepts is given in this section, and their dimensions are analyzed in more detail. This section builds the basis for the development of the TSS portfolio in the sections that follow.

There is a vast amount of work suggesting theoretical as well as practical models to differentiate sustainability strategies. Appendix VI shows an overview of several sustainability strategy types in the literature and their associated dimensions. In the following sections, six concepts are analyzed in more detail in order to gain insights for the development of a TSS portfolio:

- Sustainability Strategy Portfolio by Hart (1997)
- Sustainability Strategy Types by Dyllick et al. (1997)
- Stages of Change Toward Sustainability by Nidumolu et al. (2009)
- Creating Shared Value by Porter and Kramer (2011)
- Overfished Ocean Strategies by Zhexembayeva (2014)
- Business in Nature by Sardá and Pogutz (2019).

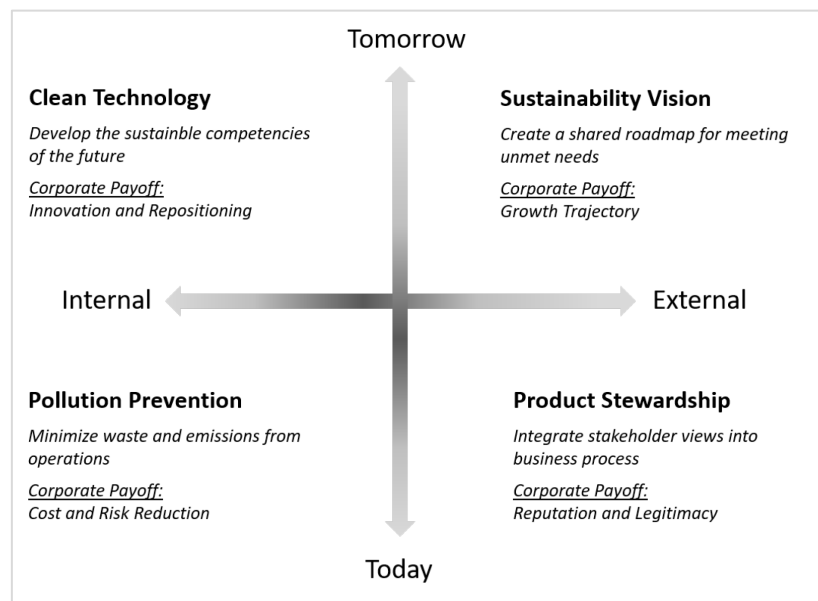
The first two approaches, put forth by Hart (1997) and Dyllick et al. (1997), are early and groundbreaking contributions to the sustainability strategy literature. They lay out the basis for future work in this research stream (e.g, Baumgartner & Ebner, 2010). In order to include key theoretical concepts of the literature and to connect this dissertation to decisive approaches, these two concepts are

analyzed in more detail. The concept developed by Nidumolu et al. (2009) is chosen due to its holistic perspective on sustainability strategies and its recognition of the different stages of sustainability. This approach seems important to develop the TSS portfolio and to differentiate the portfolio from existing concepts. Porter and Kramer's (2011) concept is a key contribution to practitioner oriented work and had a big impact on both the scientific and practical fields and influenced further debates about the purpose of business between the conflicting priorities of shareholder and stakeholder value. For example, a specific soapbox in the financial time was dedicated to the discussion of this concept; see for instance Crane et al. (2014), Dyllick (2014), and Donaldson (2014). Zhexembayeva (2014) is included in the analysis in order to acknowledge approaches to sustainability strategies that move away from classical assumptions, like competition. Finally, the concept of Sardá and Pogutz (2019) is chosen because of its holistic approach to sustainability. Analyzing these concepts ensures a connection between the dissertation and current contributions in the business sustainability field, while also helping to differentiate the dissertation's concepts from existing ones.

C2.1.1 Sustainability Strategy Portfolio by Hart (1997)

With his early and prominent work on sustainability strategies, Hart (1997) builds on the NRBV by Hart (1995). The NRBV acknowledges that business is dependent on and constrained by the natural environment. Accordingly, a business develops different capabilities in order to generate competitive advantages from managing environmental constraints. Based on these capabilities, Hart (1997) defines four strategy types to address environmental and social concerns: pollution prevention, product stewardship, clean technology, and sustainability vision (Hart, 1997; Hart & Milstein, 2003). The resulting Sustainability Strategy Portfolio, shown in figure 28, categorizes strategies according to their spatial orientation (internal vs. external) and their temporal focus (today vs. tomorrow).

Figure 28: Sustainability strategy portfolio by Hart (1997)



Source: Based on Hart (1997) and Hart & Milstein (2003)

The differentiation between internal and external orientation points to the different theoretical perspectives of the RBV and the MBV in the traditional strategy literature as explained in section 1.2.5 (Penrose, 1959; Porter, 1985). Accordingly, internally oriented strategies focus primarily on a company's available resources and aim to maintain or improve them. Externally oriented strategies derive inputs for the strategy formulation from a market perspective. The differentiation between today and tomorrow points to exploitation and exploration in the strategy literature (Raisch et al., 2009). Accordingly, focusing on today refers to exploiting opportunities from existing products and processes; future orientation refers to exploring new opportunities arising from future developments.

Internally oriented strategies focusing on today's issues are called *pollution prevention*. These strategies aim to minimize waste and emissions from operations. In other words, businesses exploit opportunities from existing products and processes. By doing so, businesses can realize cost and risk reductions (Hart, 1997). For example, a business may introduce an eco-efficiency measure to reduce water consumption in its production processes, like more efficient draining systems of agricultural land. Another example is a more effective use of fertilizer to reduce environmental damage and costs.

Reducing energy consumption by using more efficient machinery can also lower the pollution level.

Externally oriented strategies focusing on today's issues are called *product stewardship*. These strategies go beyond a company's boundaries to consider the entire life cycle of a product. In order to do so, companies must exchange with different external stakeholders whose views are integrated into the business processes. This stakeholder orientation improves the company's reputation and legitimacy (Hart, 1997). A company can, for example, engage in stakeholder dialogs to better understand customers' demands for sustainable products.

Hart's (1997) third and fourth strategy types focus on the exploration of new chances. These are displayed in the upper part of figure 28—the strategies oriented toward tomorrow. *Clean technology* strategies aim to radically improve business operations by developing new competencies needed to address sustainability challenges. Investing in new technologies can lead to new business opportunities by repositioning the business in the market (Hart, 1997). For example, because of the growing interest in laboratory grown meat, investing in those technologies can be essential to prepare the business for future developments. Investing in renewable energy technologies can also provide huge business opportunities in the future, especially with regards to the legal abandonment of coal and nuclear power in several countries.

The strategy type that is oriented toward tomorrow and focuses on external issues is called *sustainability vision*. These are strategies that create new markets by serving unmet needs. Developing products that are especially designed for a market segment that lacks basic needs displays a huge growth potential (Hart, 1997). For example, a business can design food products that deliver essential nutrients and are affordable for poor people. This kind of strategy requires close consultation with NGOs and customers to understand their needs in the market.

Hart's (1997) framework offers interesting learnings for designing a TSS portfolio, as summarized in table 12. The temporal and spatial dimensions of the framework are key aspects for a TSS portfolio. According to Hart (1997),

sustainability strategies can either address existing issues or upcoming challenges. The combination of exploiting current as well as exploring new opportunities is important. Further, strategies can address both internal and external aspects of sustainability. Addressing issues that go beyond a firm's boundaries can leverage new business opportunities. Indeed, Baumgartner and Ebner (2010) support the importance of combining internal and external aspects of sustainability in order to deeply root sustainability at the normative level of the company and to initiate far reaching sustainability impact.

Hart's emphasis on stakeholder integration to develop a shared vision is important for TSS. Consulting with stakeholders to determine their needs is essential in developing strategies that effectively contribute to societal challenges. A business must know what needs are to be met in order to positively contribute to them.

Certain aspects of Hart's framework are not, however, in line with TBST: The focus of Hart's strategies is primarily on the corporate payoff (inside-out), instead of the positive contribution to sustainability challenges (outside-in). Further, the framework does not differentiate between levels of potential sustainability value. In other words, it does not show the rather limited impact of internally oriented strategies as opposed to the far reaching impact of externally oriented and future oriented strategies. These two aspects are important for TSS and need to be integrated into the TSS portfolio.

Table 12: Analysis of Hart (1997) in terms of TSS

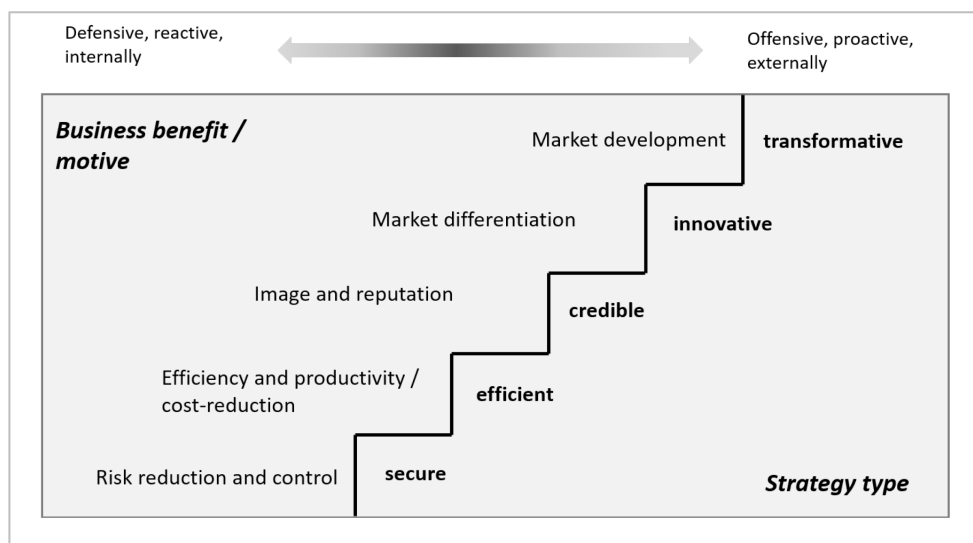
Hart (1997)	Learnings for TSS portfolio
<u>Assumptions:</u> - Business is depended on and constrained by the natural environment - Addressing these constraints generates competitive advantages <u>Dimensions:</u> - Spatial orientation: internal / external - Temporal focus: today / tomorrow	<u>Applicable elements for TSS:</u> - Important to combine both, exploitation and exploration as well as internal and external - Importance of stakeholder integration <u>Shortcomings with regards to TSS:</u> - Focus on corporate payoff - No differentiation of potential sustainability value

Source: Own illustration

C2.1.2 Sustainability Strategy Types by Dyllick et al. (1997)

Dyllick et al. (1997) classify sustainability strategies based on a company's strategic orientation (public vs. market) and strategic behavior (reactive vs. proactive). The authors build on the assumption that business benefits can be generated by managing sustainability. They define five strategy types illustrated in figure 29: secure, efficient, credible, innovative, and transformative (Dyllick et al., 1997). These types are elaborated next.

Figure 29: Sustainability strategy types by Dyllick et al. (1997)



Source: Based on Dyllick et al. (1997) and Gminder & Dyllick (2006)

The strategy type *secure* is characterized by active risk management in order to control any threats arising from operations or from financial and reputational issues (Dyllick et al., 1997). For instance, a food producing company changes its sourcing practices after being publicly criticized for using unsustainable palm oil. Controlling the risk in the supply chain by working closely with suppliers minimizes both reputational and financial risks. However, when the problem is addressed superficially, the risk of greenwashing arises. The public's tolerance of such behavior is low as the underlying problem is not addressed. Further, the company faces the risk of being pushed out of the market as soon as new standards are established. From a sustainability perspective, these strategies do not foster a transformation of the market as the reactive behavior slows down the change process (Dyllick et al., 1997).

Efficient strategies focus on reducing cost and risk through increased efficiency in products and processes. These strategies target both ecological and social efficiency (Dyllick et al., 1997). For example, changing to a closed loop production or reducing water and energy usage makes a company more efficient, and also decreases costs. These changes can lead to market differentiation and competitive advantages. From a sustainability perspective, efficiency strategies are an important step; However, due to rebound effects, they do not deliver sufficiently broad sustainability contributions (Dyllick et al., 1997).

More proactive strategies fall under the *credible* strategy type. Here, companies actively aim to reduce any potential image or reputational risk by engaging in activities that build a sustainable image. For example, in order to promote the changes toward more sustainable sourcing practices, a food producing company advertises this in its marketing campaign. Such a campaign could help to build a credible sustainable image and improve sales. However, the risk of greenwashing is high if the activities are not designed and implemented properly. Further, as the strategies are consumer driven, it is not ensured that key sustainability issues are addressed (Dyllick et al., 1997).

When a company pursues an *innovative* strategy, it aims for market differentiation and increased sales from environmentally and socially friendly products. The differentiation, based on sustainability criteria, becomes increasingly important due to higher consumer awareness and a saturated market. Sustainably produced innovative products can offer huge market potential. Sustainable labeling, and other ways of sustainable marketing are frequently used to implement such strategies. To avoid the risk of greenwashing and to implement such strategies effectively, dialogs with stakeholders are essential (Dyllick et al., 1997).

Finally, *transformative* strategies aim to proactively influence the institutional framework in order to take advantage of structural changes toward sustainability. Such proactive strategies offer a variety of business

opportunities, like new customer segments (Dyllick et al., 1997). For instance, a food producing company can engage in an industry alliance for sustainable palm oil. This strategy can induce industry-wide changes and helps to position the company as a proactive player in the market.

The assumptions and dimensions of the framework proposed by Dyllick et al. (1997) are summarized in table 13. The table further shows the learnings of this analysis for the development of a TSS portfolio.

Table 13: Analysis of Dyllick et al. (1997) in terms of TSS

Dyllick et al. (1997)	Learnings for TSS portfolio
<u>Assumptions:</u> - Different business benefits can be generated by addressing sustainability <u>Dimensions:</u> - Strategic orientation: public / market - Strategic behavior: reactive / proactive	<u>Applicable elements for TSS:</u> - Efficiency measures are an important but insufficient step - Proactive and externally oriented strategies have the potential to leverage broad sustainability impact - Different levels of action: operations, products, and industry <u>Shortcomings with regards to TSS:</u> - Inside-out: starting with business benefits; not focused on effective positive contributions

Source: Own illustration

Dyllick et al.'s (1997) framework shows the importance of efficiency measures for generating sustainability value. These measures are comparable to the exploiting strategies in Hart's (1997) framework. However, Dyllick et al. (1997) also emphasize that efficiency strategies are insufficient for a sustainable transformation due to rebound effects and their limited sustainability impact. Although these strategies are an important step toward sustainability, they need to be complemented with other, more far reaching strategies.

Dyllick et al.'s (1997) framework also shows that proactive and externally oriented strategies have a huge potential to leverage broad sustainability impact. Those strategies can be a good complement to the efficiency measures discussed earlier. The development of more proactive, offensive, and externally oriented strategies is an important element for the TSS portfolio.

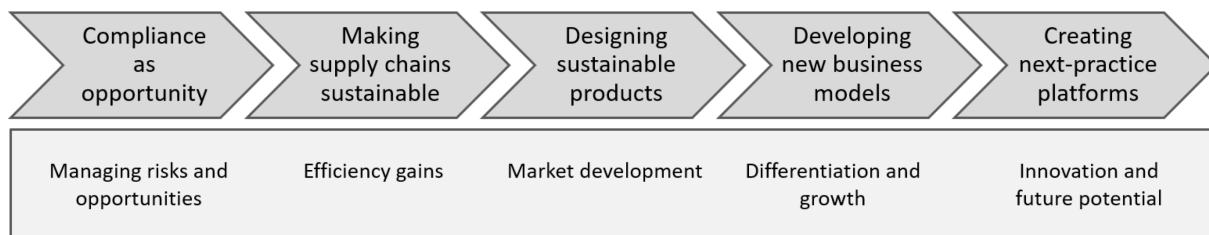
Further, the differentiation between levels of action is an applicable element in the TSS portfolio as the differentiation provides measures to expand the potential sustainability value. Implementing strategies at operational, product, and industry level are important to increase sustainability value. Hence, this aspect is important for developing the TSS portfolio.

However, Dyllick et al.'s (1997) framework is based on an inside-out perspective. The underlying motive for the strategies is the generation of business benefits and competitive advantages. The focus on effective contributions to sustainability challenges is not considered, which is key for the TSS portfolio.

C2.1.3 Stages of Change Toward Sustainability by Nidumolu et al. (2009)

Another typology of sustainability strategy is developed by Nidumolu et al. (2009). The authors describe five distinct stages of change which a company goes through on its journey toward sustainability. Building on the RBV, the authors describe the specific capabilities needed at each stage to deal with the challenges that arise. Figure 30 illustrates these five stages of change.

Figure 30: Stages of change toward sustainability by Nidumolu et al. (2009)



Source: Own illustration based on Nidumolu et al. (2009)

At the first stage, a business perceives *compliance as opportunity*. Strategies at this stage aim to comply with social and environmental regulations in order to reduce risk and manage opportunities. This compliance may be a result of the company foreseeing emerging regulations or aiming to better position itself in the market due to higher standards than minimum required legislation (Nidumolu et al., 2009). For example, complying with the 2-degree target of the Paris Agreement by lowering emissions in production or adopting renewable

energy can provide advantages over other competitors in the market. These advantages can arise either through increased sales due to higher customer awareness for sustainability or through being prepared for new regulations that may emerge as soon as the agreement becomes national law.

The next level describes more proactive activities that *make the supply chains sustainable*. A company can unlock business benefits by improving environmental and social standards in the supply chain. These benefits may arise from increased energy efficiency or reduced waste production in the supply chain (Nidumolu et al., 2009). For example, after conducting a life cycle analysis, the Italian pasta producer Barilla recognized that the highest environmental impact of its pasta products arises outside its company boundaries, during the production of raw material. Barilla was able to optimize production by involving critical supply chain players and sharing knowledge with farmers on wheat cultivation. Adjusted crop rotation and irrigation software reduced costs by 30% and significantly lowered the environmental footprint of wheat production (Pogutz & Winn, 2016).

A company can unlock the next level of business benefits by *designing sustainable products and services*. Given the rising number of customers demanding sustainable products, businesses can realize new markets or customer shares and increased sales. Understanding consumer concerns and considering the entire product life cycle is important. Moving into new markets requires a company to work closely with NGOs, suppliers, or other stakeholders. Additionally, companies need marketing skills to establish new products in the market (Nidumolu et al., 2009). For example, the Swiss food producing start-up, Essento, produces insect based food as a supplement to other meat products. Launched in 2014, the company managed to sell its first insect burgers at the German burger restaurant chain Hans im Glück in November 2019. Water usage and feed for insects is many times lower when compared to beef, pork, or chicken. Convincing consumers and lobbying for acceptance in the market is important to make such new products successful.

At the fourth level of sustainability, a firm *develops new business models* by exploring alternative ways of doing business and defining new ways of satisfying customer needs. This change is not limited to new products, as explained previously. Besides a new customer value proposition, these changes also include changing the way a business sources its products, finances its operations, engages with stakeholders, or cooperates with other companies. New business models can enable a business to tap into new market spheres, differentiate itself from competitors, and boost growth.

Finally, strategies can aim to *create next-practice platforms*. Rethinking existing paradigms and questioning current assumptions can lead to sustainable solutions. Companies have to question the status quo: “Can we breed rice that grows without water?” (Nidumolu et al., 2009, p.13). Developing solutions to such questions requires collaboration between various actors. Jointly exchanging ideas and working together can unlock growth potential and have a far reaching sustainable impact (Nidumolu et al. 2009). For example, next-practice platforms can emerge at the intersection of different industries like technology and the food sector. The Blockchain Food Safety Alliance brings together large food companies, like Nestlé, Unilever, and Walmart, as well as technology company IBM and the Tsinghua University National Engineering Laboratory. They collaborate to create safer and more efficient food systems. Increased efficiency, transparency, and authenticity of the global food supply chains are the goals of this multistakeholder initiative.

Nidumolu et al.’s (2009) framework shows that there are different stages of business sustainability. By differentiating levels of action, the framework indicates how business can increase its impact: from internal activities in operations, to the supply chain, to products and business models, and finally to joint platforms at the industry-wide level. According to Nidumolu et al. (2009), specific capabilities are needed to capture the benefits of sustainability at the different stages. These assumptions and dimensions of the framework are summarized in table 14. The table also lists the learnings for the TSS portfolio.

Table 14: Analysis of Nidumolu et al. (2009) in terms of TSS

Nidumolu et al. (2009)	Learnings for TSS portfolio
<u>Assumptions:</u> - There are different stages of business sustainability - Specific capabilities are needed to capture the benefits of sustainability for business <u>Dimensions:</u> - Levels of action: operations, value chain, products, business models, and industry	<u>Applicable elements for TSS:</u> - Different levels of actions - Collaboration is important to increase the sustainability impact <u>Shortcomings with regards to TSS:</u> - No clear focus on generating positive societal contributions

Source: Own illustration

The different levels of actions—operations, supply chain, products, business models, and industry—indicate how the sustainability impact can be expanded beyond a company's boundaries across the whole industry. Generating broad sustainability impact is essential for TSS.

The framework by Nidumolu et al. (2009) also shows that collaboration with various actors is essential to tackle sustainability challenges. At the supply chain level, for example, partnerships with suppliers are key to establish and reinforce sustainability standards. For next-practice platforms, collaboration across the industry and with other sectors is important.

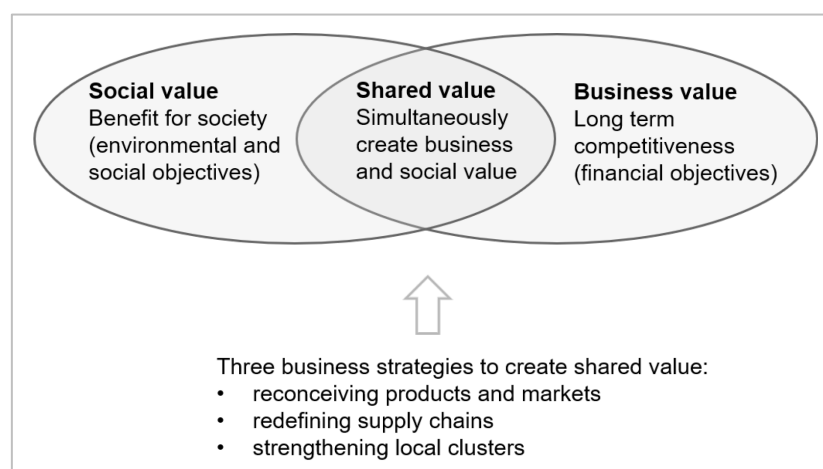
However, Nidumolu et al. (2009) do not clearly focus on generating positive societal contributions to sustainability challenges. The focus of the strategies is primarily on generating business benefits such as efficiency, market development, and innovation, which may not lead to an increased sustainability outcome. The focus of the “creation of next-practice platforms” could be the benefits for the society; however, the authors do not fully clarify the underlying motivation.

C2.1.4 Creating Shared Value by Porter and Kramer (2011)

In 2011, Porter and Kramer published the concept of Creating Shared Value (CSV) (Porter & Kramer, 2011). The idea of CSV gained a lot of attention and is

widely discussed both in academia (Crane et al., 2014; Dembek et al., 2016; Donaldson, 2014; Dyllick, 2014) as well as in industry (Schumpeter, 2011). Shared value is defined as “policies and operating practices that enhance the competitiveness of a company while simultaneously advancing the economic and social conditions in the communities in which it operates” (Porter & Kramer, 2011, p. 6). Hence, shared value is the intersection between social³³ and business value combined in such a way that social value is created when business value is created. CSV is described as a combination of investments in long term competitiveness (business value) and investments that address social and environmental objectives (social value). The business benefits of addressing societal needs span efficiency gains, new ways of creating customer satisfaction, differentiation, innovation, and expanded market spheres. Social value created by shared value opportunities can include the reduction of poverty or environmental pollution, increased access to sanitation or infrastructure, and better health and wellbeing of employees and communities. These opportunities of shared value creation are not short term oriented nor add-on practices. The principles of shared value need to be deeply integrated into a business’s core in order to represent sources of competitiveness (Porter & Kramer, 2011). Figure 31 illustrates the concept of CSV.

Figure 31: Creating shared value by Porter and Kramer (2011)



Source: Own illustration based on Porter & Kramer (2011)

³³ Porter and Kramer (2011) use the term social value to refer to environmental and social aspects. In order to be faithful to the author’s notion, the term social value is retained. However, elsewhere in this dissertation, the term societal value is used to refer to social and environmental issues.

According to Porter and Kramer (2011), companies can create shared value in three ways:

- redesigning products and markets
- redefining supply chains
- strengthening local clusters.

Redesigning products and markets bears huge potential for shared value creation, both in developing and developed countries. In developed countries, the design of environmentally friendly products or care for employees' health, safety, and skills are possible ways to unlock the potential for CSV (Porter & Kramer, 2011). For example, when food businesses shift their focus from increasing consumption to considering the fundamental need for better nutrition, they design new and healthier products. Such shared value strategies unlock the potential for innovation and new markets. In developing countries, the opportunities for shared value creation are huge as many needs are unmet. Bottom-of-the-pyramid possibilities, like providing mobile services for economically disadvantaged people in Kenya or agricultural advice for farmers in India, represent a large market potential and address the basic needs of these people. Comparable strategies also apply in nontraditional communities in developed countries, like meeting the needs of the urban poor in the United States (Porter & Kramer, 2011).

Redefining supply chains: Huge potential to create shared value lies in business's supply chains. Societal issues, like extensive resource use or health and safety problems, display costs in the company's supply chain. Hence, addressing those societal problems along the supply chain can unlock shared value creation. Examples of these strategies are redesigning the energy use in logistics, minimizing resource waste, redesigning procurement to support small farmers, re-examining distribution practices, or reducing the distances in the supply chain in order to source locally. These activities can create new market potentials, innovation, and growth while at the same time addressing societal issues (Porter & Kramer, 2011).

Strengthening local clusters: According to Porter and Kramer (2011), the success of a business depends on its surrounding cluster, for example other business partners, academic institutions, public organizations, and the surrounding communities. These clusters play a crucial role in increasing productivity, innovation, and competitiveness. Framework conditions of the local cluster, like the level of education, gender equality, or infrastructure, highly influence the creation of economic value. Addressing gaps and failures in the local cluster and framework conditions requires collaboration and joint effort of the involved partners. These collaborations display huge possibilities for shared value creation, both in developing and developed countries (Porter & Kramer, 2011).

To summarize, Porter and Kramer's (2011) concept assumes that companies can simultaneously increase business's competitiveness and social welfare by engaging in shared value creation. It emphasizes that the principles of CSV need to be deeply integrated into the core business. To realize shared value opportunities, businesses can engage at three different levels: products, supply chain, and local clusters. The basic assumptions and dimensions of the concept are summarized in table 15.

Table 15: Analysis of Porter and Kramer (2011) in terms of TSS

Porter & Kramer (2011)	Learnings for TSS portfolio
<u>Assumptions:</u> - Companies can simultaneously increase business's competitiveness and social welfare (social value is created through business value) - Shared value principles need to be deeply integrated into core business <u>Dimensions:</u> - Level of action: products, value chain, local clusters	<u>Applicable elements for TSS:</u> - Different levels of actions - Importance of collaboration for societal value creation - Integration into the core business <u>Shortcomings with regards to TSS:</u> - Cherry-picking: societal relevance is not ensured - Social values are subordinated to economic ones

Source: Own illustration

The three different levels at which shared value can be created—product level, supply chain, and across industries—show helpful ways to expand the impact of changes made by companies to achieve greater sustainability. Further, Porter and Kramer's concept emphasizes the importance of collaboration and joint efforts to realize these opportunities. Their concept stresses the need for different forms of collaboration to generate societal and business value, and the importance to integrate sustainability into the core business, both of which are also relevant aspects for TSS.

CSV has some shortcomings with regards to TSS. The shared value concept does not adequately address the trade-offs between economic and social value creation. Whitewashing the actual trade-offs between economic and social value and focusing on easy wins leads to cherry-picking. This cherry-picking creates "islands of win-win projects in an ocean of unsolved environmental and social conflicts" (Crane et al., 2014, p. 139). Hence, the actual societal relevance of challenges is not taken into account, which is key for TSS.

Donaldson (2014) and Crane et al. (2014) criticize the underlying logic of value creation. Porter and Kramer use an instrumental logic, in which social values are subordinated to economic ones. In other words, when a conflict between social and economic value arises, economic value is favored over social value. The primary goal is to create economic value: "CSV [...] is about solving societal problems *in order to* create economic value" (Crane et al., 2014, p. 149, highlighted by the author). Adding to this criticism, Dyllick (2014) acknowledges the strengths and weaknesses of the CSV concept; The concept helps managers to address societal issues, although it remains questionable if it actually redirects the debate on the purpose of business. He concludes that finding a clear answer to the debate between shareholder value and stakeholder value remains difficult, as both perspectives have their own truth (Dyllick, 2014).

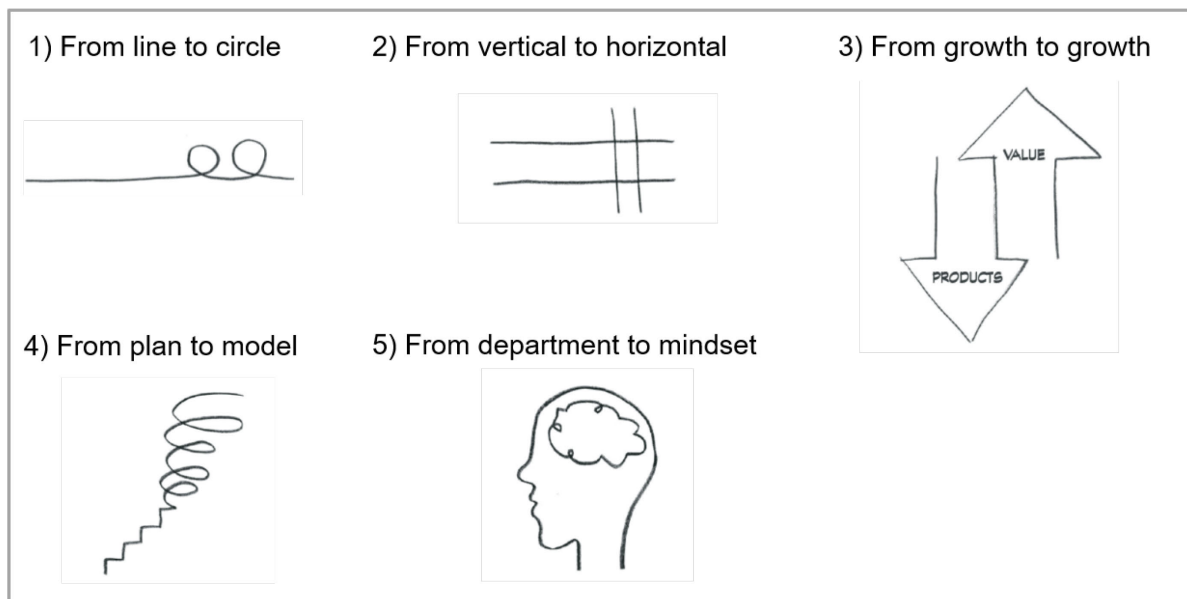
The missing focus on societal relevance and the predominance of economic value can be described as an inside-out perspective. Hence, the outside-in

perspective relevant for TSS is missing in the concept by Porter and Kramer (2011). The underlying logic of the concept—that societal value is created in order to create business value—leads to a focus on business value. The aim of business activities is not necessarily to contribute to solving societal challenges but predominantly to improve business value. These shortcomings need to be addressed in the TSS portfolio.

C2.1.5 Overfished Ocean Strategies by Zhexembayeva (2014)

Another key concept structuring sustainability strategies was developed by Zhexembayeva (2014) and is called the Overfished Ocean strategies. The idea is based on the Blue Ocean strategies by Kim and Mauborgne (2004). The Blue Ocean strategies aim to leave the competitive *red oceans* behind in search for new and uncontested markets in the *blue ocean*. Accordingly, “the only way to beat the competitors is to stop trying to beat the competition” (Kim & Mauborgne, 2004, p. 4). In Blue Oceans, innovation is triggered by avoiding the crowded competitive landscape and redefining the rules of the game. However, Zhexembayeva (2014) argues that Blue Ocean strategies take a linear approach, which is responsible for the poor state of our planet. She identifies three oceans that are under distress: the ocean of resources, the ocean of waste, and the ocean of ideas. Due to the rapid decline in resources as well as the increasing amount of waste and the lack of ideas in tackling those challenges, business is facing an entirely new competitive era. Therefore, Zhexembayeva (2014) proposes the design of a new and more sustainable economy in which businesses compete and win based on radically new principles. Radical changes and disruptive innovations are needed to design strategies that address those challenges and to design a new, regenerative, and sustainable economy. The author proposes that businesses “turn the overfished ocean into the driving force for radical renewal” (p. 23). The five principles of the Overfished Ocean strategies set new strategic directions and secure the creation of sustainable value in a world of overextended oceans. Figure 32 illustrates the five principles of the Overfished Ocean strategies that are explained in the following.

Figure 32: Overfished Ocean strategies by Zhexembayeva (2014)



Source: Own illustration based on Zhexembayeva (2014)

From line to circle: The first and central principle of the Overfished Ocean strategies points to the need for closing the loop of the linear production systems. Implementing a cradle-to-cradle approach is a way to generate sustainable value for both business and society. Reusing material in a closed loop system can help save natural resources and money.

From vertical to horizontal: This principle of the Overfished Ocean strategies points to the need for system thinking. When a business goes beyond the boundaries of its own operations, it finds huge opportunities and risks within the whole system. Knowing about and taking advantage of those opportunities and risks can help to stay competitive in a world of declining resources. When exclusively focusing on the vertical cut of the supply chain, namely competitors, changes at different levels and in other industries may be missed, which displays high risk. Environmental and social challenges can lead to an elimination of an entire supply chain or product line. Therefore, looking beyond competition toward changes left or right of the supply chain can help to overcome these risks (Zhexembayeva, 2014). For example, the latest developments in the alternative meat industry threaten the farming and livestock industry. Businesses in the meat industry need to be aware of trends in other sectors to prepare for changes.

From growth to growth: The next principle of the Overfished Ocean strategies addresses the kind of growth that is generated by business. Traditionally, selling more products is a guarantor for growth. However, Zhexembayeva (2014) proposes a rethink of the definition of growth to creating more with less. For example, instead of selling cars, a company can offer the service of mobility by renting cars to customers. This idea refers to sell value rather than a specific product. Such a change in perspective triggers innovation and resource efficiency (Zhexembayeva, 2014).

From plan to model: Another principle of the Overfished Ocean strategies is to overcome rigid planning and move toward agile, flexible, and open modeling. Business needs to constantly adapt to a rapidly changing environment because of high uncertainties. Hence, sustainability needs to be treated as a strategic priority. Being open to changes and looking for evolving patterns is key to a shift toward a sustainable economy (Zhexembayeva, 2014).

From department to mindset: The last principle points to the need of a new mindset. In order to make sustainable economies a reality, companies need to adopt a different perspective of the world. Making sustainability an issue among all employees in different departments helps to discover new value opportunities. In order to deal with radical changes and to develop entirely new products, services, and processes, it is not enough to set up a new department that deals with it. Successful Overfished Ocean strategies are developed and implemented with a different, more sustainable mindset (Zhexembayeva, 2014).

To sum up, Zhexembayeva (2014) states that companies need to radically change their ways of doing business to adapt to new market circumstances. Leaving competition behind and using the Overfished Oceans as a driving force for renewal is the underlying idea of the concept. The five principles of this concept include closed loop operations, business models that focus on value instead of products, system thinking, agility, and a new mindset. An overview of the basic assumptions and dimensions is provided in table 16. The table also

summarizes relevant learnings for the development of a TSS portfolio, which are covered in the following.

Table 16: Analysis of Zhexembayeva (2014) in terms of TSS

Zhexembayeva (2014)	Learnings for TSS portfolio
<u>Assumptions:</u> - Companies need to radically change their ways of doing business to adapt to new market circumstances - Leaving competition behind and using resource constraints as a driving force for renewal <u>Dimensions:</u> - Different principles: closing the loop, system thinking, focus on value, agility, new mindset	<u>Applicable elements for TSS:</u> - Radical changes and disruptive innovations - New mindset: sustainability as strategic priority <u>Shortcomings with regards to TSS:</u> - Passive behavior: adopting to circumstances; not actively addressing societal issues - Environmental focus: social issues are not considered

Source: Own illustration

The need for radical change and disruptive innovations emphasized by Zhexembayeva (2014) is central for TSS. Further, the requirement of a new mindset to develop the strategies is also a relevant element for TSS. Lastly, setting sustainability as a strategic priority was shown to be a key element of TSS in section C1.

However, the framework also has some shortcomings with regards to a TSS portfolio, as shown in table 16. The aim of these strategies is not to actively address societal challenges. It is, rather, to passively adapt to changing circumstances and to turn them into market opportunities by reducing the harm caused by business activities. Therefore, the focus of these strategies is primarily on business benefits, such as reducing cost with increased resource efficiency or increased competitiveness because of better adaptability to market circumstances. Moreover, the Overfished Ocean strategies focus exclusively on environmental issues and do not integrate broader societal challenges. These two aspects are highly relevant for TSS and are not addressed by Zhexembayeva's framework.

C2.1.6 Business in Nature by Sardá and Pogutz (2019)

Sardá and Pogutz (2019) develop four strategic approaches that guide business on how to embed sustainability into strategy in order to tackle societal challenges. Their conceptual framework, Business in Nature (BInN), focuses on the relation between sustainability and corporate strategy. BInN strategies aim to “creat[e] a significant positive impact in societies as well as increas[e] the resilience of social-ecological systems” (Sardá & Pogutz, 2019, p. 123). This concept moves away from economic value maximization toward the idea of positive impact. The concept emphasizes the embeddedness of business in socio-ecological systems, which implies that business decisions need to integrate social and ecological framework conditions. Further, the concept also emphasizes the interrelations between social and ecological aspects. Overall, the concept forces business to change its thinking of being separate from natural issues by deeply integrating it in the socio-ecological system (Sardá & Pogutz, 2019). The concept is based on four basic principles, which are explained next:

Extending the boundaries of intervention: Sardá and Pogutz (2019) emphasize that firms need to extend their positive impact beyond corporate boundaries. Improving social and environmental performance throughout the entire supply chain requires business to adopt life cycle thinking.

Moving from a focus on environmental impacts to a focus on environmental effects: The BInN concept asks companies to shift from impact driven thinking to effect driven thinking. This means that business should not just focus on reducing the negative impacts of its operations, like the amount of CO₂ emitted or water used, but that it should take into account the effects of its operations and consider how these environmental impacts affect the state of the planet in the long term. Accordingly, business should take responsibility for preserving the ecosystems, such as maintaining a clean atmosphere or healthy water systems. Considering the effects of business activities on the global state of the planet is important and also increasingly supported by policy in the European Union.

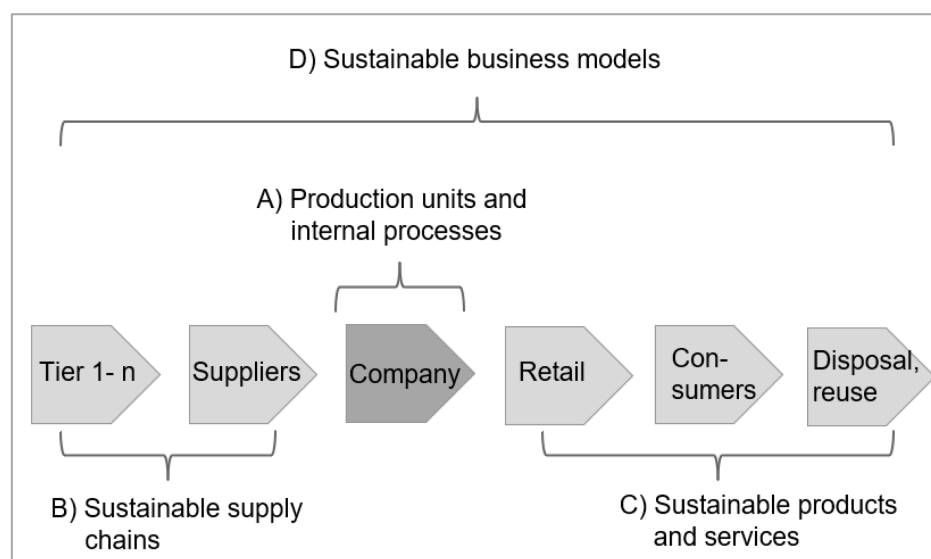
Innovating products, services, and business models: Sardá and Pogutz (2019) emphasize the need for radical innovation and suggest that the required transformative changes can only be achieved by designing and launching new products and services. Further, rethinking the way business operates as a whole and innovating business models is key to enabling the necessary changes within our society.

Developing collaborative approaches: This principle points to the importance of collaboration in order to push toward broader transformations. The scale of sustainability challenges means that they cannot be solved in isolation or with a focus on competition. Companies need to collaborate with other actors, including other businesses, clients, suppliers, NGOs, policy makers, and investors in order to develop and diffuse changes throughout the industry.

These principles can be implemented by four different strategic approaches illustrated in figure 33:

- A) Focus on production units and internal processes
- B) Focus on sustainable supply chains
- C) Focus on designing sustainable products and services
- D) Focus on new business models.

Figure 33: Strategies for Business in Nature by Sardá and Pogutz (2019)



Source: Own illustration based on Sardá & Pogutz (2019, p. 121)

The dimensions used in this framework are similar to those used by Nidumolu et al. (2009)—internal processes, supply chains, products/services, and business models—and here too they indicate how the impact of strategic actions can be extended beyond corporate boundaries. Greater societal impact can be generated by going up and down the supply chain and by engaging with an increased number of actors to rebuild sustainable business models. The difference between the two concepts, however, is the underlying assumptions: Sardá and Pogutz (2019) focus on the positive societal impact generated by those activities, whereas Nidumolu et al. (2009) prioritize business value.

Several assumptions of BInN are similar to those of TBST. Firstly, according to Sardá and Pogutz (2019), business is embedded in society and the environment, which inevitably links business decisions and outcomes to these social and environmental systems. This idea was shown as a key assumption of TBST in section A2, where, due to the embeddedness, business was shown to be dependent on functioning surroundings and therefore responsible for caring for it. Secondly, BInN strategies focus on positive societal impact and how this impact can be increased, indicating an outside-in perspective as is proposed for TSS. Thirdly, the authors emphasize the importance of collaborating to increase business's positive impact on society, and collaboration was described as a key characteristic of TSS in section C1.3. Fourthly, the authors of BInN point to the importance of considering both social and environmental effects on the planet, which is in line with the understanding of sustainability according to TBST.

Although the framework by Sardá and Pogutz (2019) offers many important insights into the development of TSS, it does not explicitly indicate the potential positive value that these strategies can create from a business and sustainability perspective. The applicable elements and the shortcomings of BInN with regards to TSS are summarized in table 17.

Table 17: Analysis of Sardá and Pogutz (2019) in terms of TSS

Sardá & Pogutz (2019)	Learnings for TSS portfolio
<u>Assumptions:</u> - Business is embedded in the socio-ecological system - Business has the responsibility to create significant positive impact on the socio-ecological system <u>Dimensions:</u> - Level of action: internal processes, supply chain, products/services, business models	<u>Applicable elements for TSS:</u> - Embeddedness of business in society and environment - Creation of significant positive impact - Importance of collaboration to expand the impact - Consideration of both social and ecological effects on the planet <u>Shortcomings with regards to TSS:</u> - Sustainability value and business value are not explicitly indicated

Source: Own illustration

To sum up, the analysis of the six different strategy models showed the different dimensions and underlying assumptions of each. The models distinguish between several levels of sustainability practices as well as different types of business benefits. The main dimensions used to differentiate the strategy types are the temporal orientation (today or tomorrow), spatial dimension (internal or external orientation), as well as the levels of action and levels of intervention (ranging from operations, supply chains, products, and business model, to platforms or clusters). Although each of these typologies have distinct strengths and contain elements applicable to TSS, they do not serve as a portfolio of TSS. Existing approaches are only of limited value to TSS for the following two reasons:

- 1) Focus: The analyzed typologies primarily focus on the business benefits generated by strategies. They do not show a combined perspective of business *and* sustainability value. In fact, societal aspects are subordinated to economics benefits so that the effective contribution to societal challenges remains incidental and peripheral. Even in the ambitious strategies to transform and redesign markets, the underlying motive is not clearly focused on the benefits to society.

- 2) Outcome: Most of the typologies perceive business as being dependent on and constrained by sustainability instead of being able to positively contribute to sustainable development. Their perspective is dominated by wanting to reduce the negative impacts on the environment and on society instead of increasing business's positive contributions and enabling a sustainable future in all dimensions.

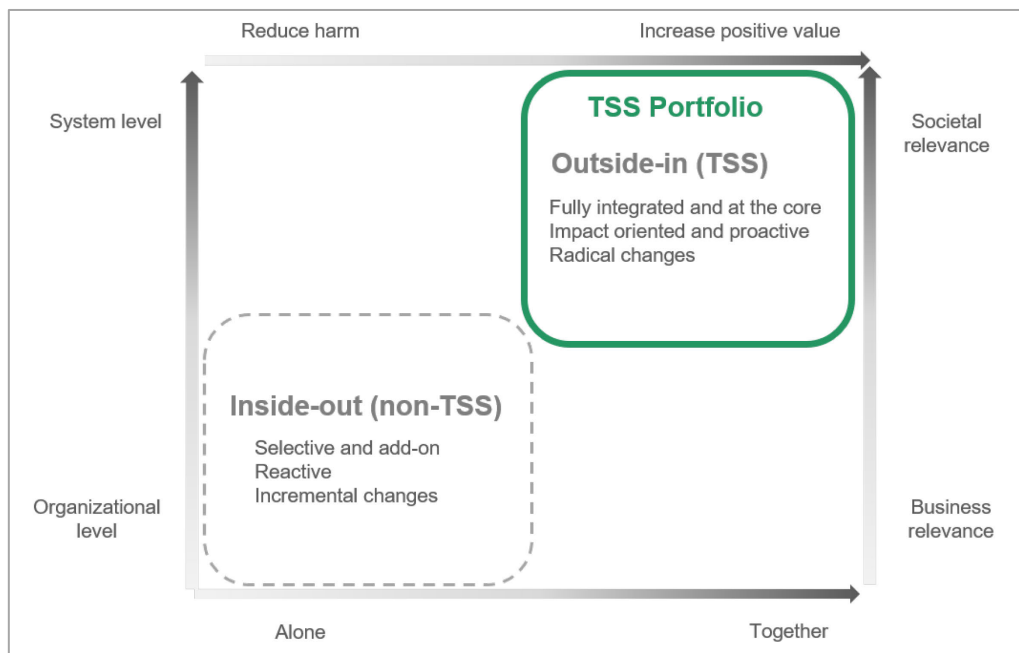
Hence, in order to design a portfolio of TSS, the shortcomings in existing approaches need to be addressed. The missing outside-in perspective in existing frameworks needs to be incorporated in the portfolio of TSS by focusing on 1) creating both sustainability and business value as well as 2) generating positive contributions to societally relevant challenges. The importance of combining the two aspects is also emphasized by Interviewees B, Q and G during the interviews.

C2.2 Portfolio of Truly Sustainable Strategies

This section details the different types of outside-in strategies, thereby developing the TSS portfolio.

Figure 34 again shows the basic characteristics of outside-in strategies defined in section C1. Within the outside-in perspective, there are various ways and levels of ambition to fulfill the TSS criteria. Although all strategies in the TSS portfolio are classified as outside-in, their level of collaboration, intervention, and social relevance as well as the degree of change they implement, and the type of behavior they have can differ. However, the primary focus of all TSS in the portfolio is on addressing societally relevant challenges and on proactively triggering radical changes. Further, all strategies of the portfolio are integrated into the core of business and are not a peripheral aspect of it.

Figure 34: Mapping the TSS portfolio



Source: Own illustration

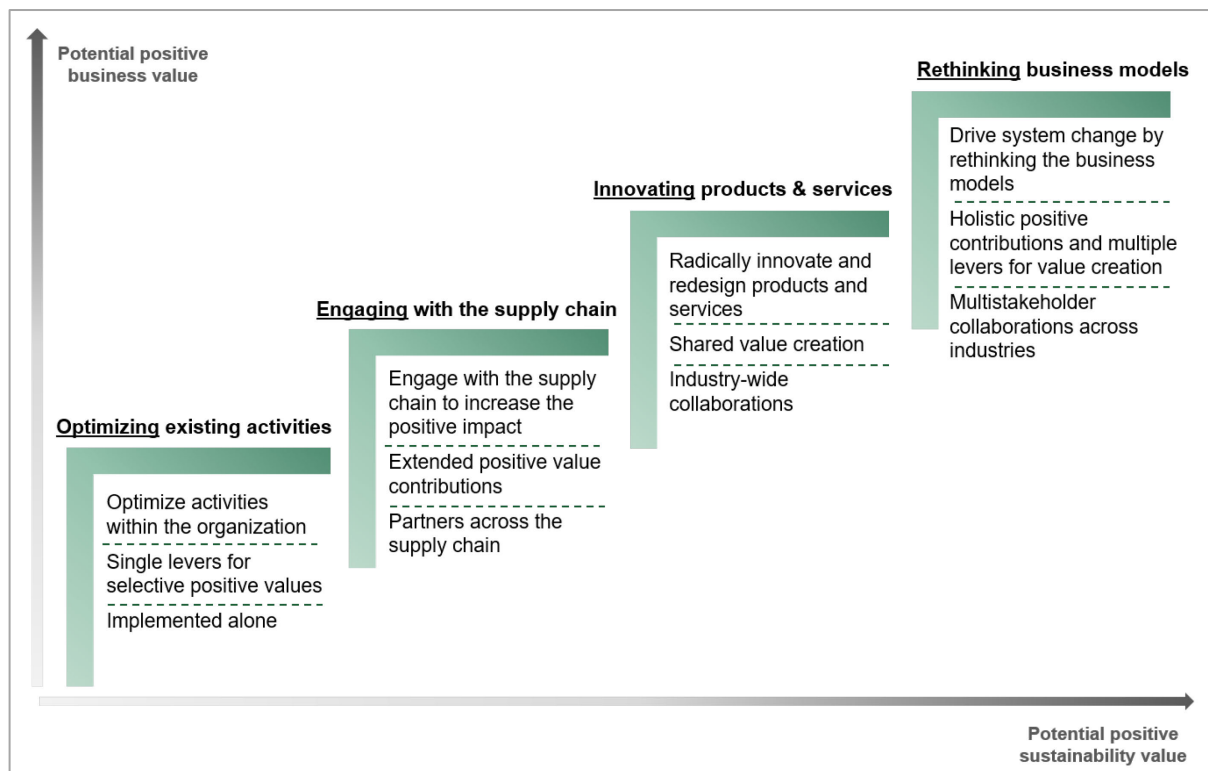
In this section, C.2.2.1 gives an overview of the TSS portfolio, providing general explanations to the framework and its application. In C.2.2.2 through to C.2.2.5, the different types of TSS are developed and illustrated in more detail, using insights from the expert interviews as well as practical examples. Finally, C.2.3 summarizes the findings and discusses the applicability of the TSS types for specific challenges in the food sector.

C2.2.1 Overview of the TSS Portfolio

The TSS portfolio provides a framework for strategies that aim to generate effective business contributions to sustainable development. The aim of the portfolio is to illustrate possible strategic actions that managers can use to analyze their strategies and provide guidance on how to increase their sustainability impact.

The portfolio consists of four different strategy types as illustrated in figure 35: optimizing existing activities, engaging with the supply chain, innovating products and services, and rethinking business models.

Figure 35: TSS Portfolio: TSS Types



Source: Own illustration

The TSS portfolio shown in figure 35 takes an outside-in perspective by building on two basic dimensions: the potential sustainability value on the x-axis, ranging from selected contributions to holistic, positive contributions, and the potential business value on the y-axis, ranging from single levers to multiple levers that create value. Combining the two dimensions is essential for TBST, while the primary focus of TSS remains the sustainability dimension. The underlying motivation is to create societal value, which shows the outside-in perspective of the portfolio. The shift in focus from business benefits to sustainability benefits addresses the shortcoming of existing sustainability strategy typologies that take business benefits as the dominant starting point for strategy development.

A second dimension of the TSS portfolio addresses the next shortcoming of existing strategy types: their focus on reducing negative business impact. The TSS portfolio only looks at potential positive outcomes, both for business and sustainability. All strategies in the portfolio aim to positively contribute to

relevant societal challenges. This focus on positive value creation is another key aspect of the outside-in perspective in TBST. Table 18 summarizes how the TSS portfolio addresses the identified shortcomings of existing concepts.

Table 18: Shortcomings in existing sustainability strategy concepts

	Existing concepts: Inside-out	TSS portfolio: Outside-in
Focus	Generation of business value	Business value and sustainability value with a focus on the latter
Outcome	Reducing negative impacts	Increasing positive impact

Source: Own illustration

The TSS portfolio indicates that ideally, the two dimensions—business and sustainability value—are in a linear relationship, meaning that both business and sustainability value are increased simultaneously. This does not mean that an increase in sustainability value automatically leads to an increase in business value. Additionally, although a simultaneous increase is indicated, the TSS portfolio acknowledges that the generation of positive business and sustainability value cannot always be at the same time. Often, sustainability measures require financial investments which can only be realized as business value at a later date. Further, the realized value depends on different aspects, like the size of business. Therefore, the portfolio does not use the term “realized value” but indicates the “potential value” that is created.

The TSS portfolio shows possible combinations of the characteristics of TSS that lead to different levels of sustainability as well as business outcomes. In the figure at bottom left, strategies are primarily implemented alone and within organizational boundaries. At this level, strategies generate little business value and rather minor contributions to societal challenges. Climbing up to the next level, partnerships increasingly gain importance and the positive impact of strategic actions extends beyond company boundaries into the supply chain. Another level up, businesses can have a far reaching positive sustainability impact by developing radical innovations in products, services, and business models. At the highest level, multiple levers to create business value are triggered. These can include creating new markets, capabilities, partnerships,

and resources as well as the attraction of talent and other first mover advantages. Overall, the portfolio indicates avenues for improvement in terms of increased business and sustainability value.

In order to use the full potential of TSS and to contribute most efficiently and effectively to societal challenges, truly sustainable businesses should implement a strategy portfolio that includes various types and balances the different aspects of strategic actions. Although the strategies in the upper right of the figure—strategies creating systemic changes—have the greatest impact on business and societal dimensions, some challenges need to be resolved at the business level.³⁴ Davis-Peccoud et al. (2018) point out that the balance between improving the core and reinventing the business altogether can change depending on external and internal factors. If the core business has limited room for improvement, the focus should shift toward reinventing the business. Hence, if current business activities are already operating at a high level of sustainability in terms of internal efficiency, a business can start moving further toward rethinking and reinventing the business as a whole. Further, creating different collaborations is important, depending on the type of challenge that is addressed. Additionally, Interviewee O says, “We need to balance between the short term and long term vision of the business.” Targeting and balancing different time horizons was especially pointed out by Interviewees H, G, and Q in the interviews. Interviewee H says, “It’s a question of horizons. Whereas directly working through the brands can bring short term benefits, a more long term ambition of business will reap benefits by building more resilient supply chains or better local capacity.”

Taking this together, three requirements for designing a TSS portfolio can be formulated as shown in table 19. The requirements show that the portfolio helps businesses use the full potential of TSS as long as they balance the different strategy types. So, for example, if a business implements strategies at all four levels, the requirements of TBST will most likely be fulfilled. A balanced TSS

³⁴ This aspect of challenge specific strategies is covered in C2.3.

portfolio would include acting on sustainability both inside and outside organizational boundaries, combining different partnerships, and balancing short and long term implications of strategic actions.

Table 19: Requirements for designing a TSS portfolio

Using the full potential of TSS	
Level of action	Acting both inside and outside organizational boundaries
Collaboration	Engaging in various partnerships
Time	Balancing short and long term implications of strategic actions

Source: Own illustration

The TSS portfolio can be used in two different ways. Firstly, it can be used to design strategies which aim to generate effective business contributions to societal challenge. It offers orientation and support in how to design sustainability strategies. The different TSS provide managers with ideal types of strategies, which they can use to reflect on their own strategies and their effectiveness towards sustainable development. By doing so, further opportunities and unseen possibilities for value creation can be identified.

Secondly, the TSS portfolio can be used to assess sustainability strategies, analyze the potential positive impact, and compare them to other strategies. It can be used to map business activities to the different level in order to define the business's current status. Doing so can help benchmark strategies against each other. As stated before, a balance between the different levels is required in order to use the full potential of TSS. Hence, an imbalanced distribution of strategies along the different types can point to missed opportunities and avenues for business development.

The TSS portfolio includes several types of strategies which are explained and illustrated in more detail in the next sections by presenting insights from the experts' interviews as well as best practice examples.

C2.2.2 Optimizing Existing Activities

The first type of strategy in the TSS portfolio is called “optimizing existing activities.” These strategies focus on a company’s internal processes and/or production systems to decrease inefficiencies or costs. From a sustainability perspective, the generated value of these strategies is limited as they do not extend beyond the company’s boundaries. From a business perspective, this kind of strategies trigger a single lever to create value, like efficiency gains, or risk reductions. The degree of partnerships remains low as the strategies focus on issues inside the company, like operations or infrastructure.

However, despite the seemingly limited potential of these strategies to significantly contribute to sustainability challenges, they display an important building block for the whole strategy portfolio and can be used as a starting point toward TBST, suggest Interviewees E and C. As Interviewee C says, “The company should have the house in order before it dares to say something outside.” This quote emphasizes that strategies implemented within organizations are an important step to move toward more far reaching activities and to reach a balance between all levels of strategies.

By implementing strategies that aim for low hanging fruit, a business can have a direct and immediate impact on some societal challenges, says Interviewee M. Depending on the business, this can be the aim to be carbon neutral, using 100 percent renewable energy sources, or promoting gender equality and social inclusion in the workforce. The effective impact generated on a societal level can vary depending on the implementation. However, these strategies often reach a threshold in terms of sustainability impact as long as they remain within an organization and do not reach outside its direct sphere of influence. The discussion about the limited societal impact of internally oriented strategies was presented in section C1.1.3 about the different levels of action.

The rest of this section illustrates strategic actions that can help optimize existing activities. This helps us understand and elucidate the first level of the TSS portfolio.

Process innovations: Process innovations, like more efficient technology, can trigger huge resource and emissions savings or prevent food waste. It is important to remember that process innovations do not, however, change the basic functioning of the industry, unlike dietary habits, for example, reminds Interviewee H. Hence, new technology to reduce pollution and increase efficiency helps businesses become more sustainable, but whether it is sufficient to transform the food system is debatable. The examples of process innovations illustrated in box 1 show that new technologies and production techniques present great opportunities for companies to optimize their operations. The example of DSM points to the importance of collaboration to realize far reaching changes. Overall, process innovations can significantly increase the societal performance of a company.

Box 1: Example of radical process innovations

DSM – Innovation in cheese ripening to tackle food loss (<https://www.dsm.com/corporate/home.html>)

The Dutch company DSM develops science-based solutions in the areas of nutrition and health, climate and energy, resources and circularity. It generates about €10 billion in annual net sales and employs approximately 23,000 workers worldwide. The company states its purpose as creating brighter lives for all by solving societal challenges. The company focuses on creating economic, environmental, and societal value for all its stakeholders.

One of DSM's inventions was a membrane to replace plastic packing in the cheese industry which also helped to prevent food loss. The ripening process of naturally ripened cheese, like Gouda and Parmesan, requires the cheese to be covered by a plastic coating to protect it from mold and yeast and to allow it to breathe. When removing the plastic coating, 3-7% of cheese is lost. In order to prevent that loss, DSM developed "Pack-Age," a membrane that allows the cheese to ripen in the same way as with the plastic cover but which reduces the amount of cheese loss by around 200,000 tons of cheese every year, which is equal to the amount of milk produced by 400,000 cows.

This innovative solution has high potential to tackle food loss in the ripening process of cheese. However, the challenge is to disseminate the innovation in the market and get cheese manufacturers to accept it. So far, manufacturers have been hesitant to adopt new approaches and are skeptical about the functionality of such new technologies. Science-based results, commitment, and knowledge are needed to convince cheese producers to make the capital investment for such radical changes.

Source: WBCSD (2019a)

Efficiency measures: Efficiency measures like cleaner production and eco-efficiency can help to design TSS at this level of the portfolio. Introduced by the United Nations Environmental Program Platform on Industry and Environment in 1989, cleaner production goes beyond simple waste management and pollution prevention, which deal with the symptoms rather than the source of the problem. Cleaner production is defined as “the continuous application of an integrated preventive environmental strategy applied to processes, products and services in pursuit of economic, social, health, safety and environmental benefits” (UNEP, 1998). With regards to production processes, efficiency measures include savings in raw material, water, energy, and related emissions. Hence, cleaner production can be seen as a preventive, integrated, and continuous strategy to improve eco-efficiency. Eco-efficiency refers to the creation of more goods and services while using fewer resources and generating less waste and pollution. This efficiency can be achieved by minimizing the amount of material or energy used, improving the recyclability and durability of products, and maximizing the use of renewable energy sources or closed loop production (Sardá & Pogutz, 2019, p. 139 f.).

Although these eco-efficiency measures can be criticized for merely decreasing the environmental harm that companies create, they can display a first and important step toward TBST. Saving resources by closing the loop or improving efficiency can increase the benefits for humans and the environment. In contrast to linear models of creating, using, and disposing, circular models focus on

reprocessing, recycling, and reusing materials in order to close the loop of material consumption and to reduce resource consumption. These circular models, such as better recycling or waste-to-energy systems, can be implemented within organizations. They can also include various actors and go beyond a company's boundaries upstream and downstream of the supply chain. Hence, despite the fact that these measures remain within organizations, they hold huge potential for positive business and societal contributions.

Box 2 illustrates an example of closed loop production and shows how the concept can be used to generate both sustainability and business value. The example also indicates the success factors for implementing such a strategy.

Box 2: Example of closing the loop production

Damn Good Food & Beverages AG – Innovation to tackle food waste (<https://www.breadbeer.ch/>)

The idea of Damn Good Bread Beer was developed by a Swiss miller who observed that every fourth loaf of bread was wasted by bakeries. The founders of Damn Good Food & Beverages AG searched for a way to address the challenge of food waste and the associated inefficient use of resources. They invented a process to reuse unsold bread incorporating a circular mindset: First, the leftovers from bakeries are ground in a mill. Then, those breadcrumbs are used in the fermentation process to brew the beer, and the resulting beer is sold exclusively in bakeries. The success of this small start-up is thanks to its good knowledge and network in the industry as well as its passion for valuing goods.

Source: Damn Good Food (2020) and author's elaboration based on an attended company presentation

Environmental and social management systems: Environmental and social management systems can help implement and monitor any changes made toward enhancing sustainability. With the structured framework of policies, procedures, and practices, a company can set up goals and action plans to reduce its environmental impact and increase its societal contribution. The best known environmental management systems are ISO 14001³⁵ and the European Eco-Management and Audit Scheme (EMAS). For social issues, the SA 8000

³⁵ The International Organization for Standardization (ISO) has developed a series of standards and guidelines. The ISO 14000 series includes several standards in the environmental field.

(Social Accountability) and ISO 26000, guidelines for social responsibility, are widely used.³⁶ These systems can support strategies at the first level of the TSS portfolio.

To summarize, process innovations, cleaner production, eco-efficiency as well as different management policies and frameworks can help to design strategies at this level of the TSS portfolio. Box 3 illustrates a best practice example that combines these different aspects.

Box 3: Example of strategies at the organizational level that trigger radical changes

The Climate Group together with the Carbon Disclosure Project (CDP) publish a list of companies that have committed themselves to 100% renewable energy: <http://there100.org/companies>. Among these companies are several large firms in the food sector that aim to drastically reduce their energy consumption and use renewable energy sources in order to limit environmental damages related to non-renewable energy consumption, like negative effects on soil, air, and water quality. Danone, Unilever, and Mars, the leading global food companies, announced they would be operating on 100% renewable energy.

Unilever's Sustainable Living Plan – Eco-efficiency in operations (<https://www.unilever.com/>)

Unilever is a global company selling fast moving consumer goods. In 2018, it generated a €51 billion turnover. The company has 400 brands worldwide of which 67 belong to the food and beverages division, ranging from ice cream to soup and tea.

Since the beginning, Unilever has been a purpose driven company. Today the company's purpose is to "make sustainable living commonplace." With its Sustainable Living Plan (SLP) announced in 2010 and renewed in 2014, Unilever substantiates its purpose to make a positive contribution to society. The SLP shows ambitious commitments toward sustainability and clear targets for the next decade: "Our vision is to double the size of business, whilst reducing our environmental footprint and increasing our positive social impact" (Unilever, 2013).

The SLP comprises three main goals to be reached by 2020: 1) improving health and well-being for more than 1 billion people with a focus on hygiene, health, and nutrition; 2) reducing its environmental impact by half by taking action related to greenhouse gases, water use, waste and packaging, and sustainable sourcing (by 2030);

³⁶ A comprehensive overview of these standards can be found in Sardá & Pogutz, 2019, p. 148 ff.

and 3) enhancing livelihoods for millions by fostering fairness in the workplace, increasing opportunities for women, and creating an inclusive business.

To achieve the environmental goals of the SLP, eco-efficiency targets were introduced in Unilever's operations focusing on water, waste, energy, and CO₂. Despite a significant increase in production volumes, Unilever aims to reduce its CO₂ emissions by 2020 to levels below those of 2008. These goals were set together with the Science Based Targets Initiative to ensure it stays within the carbon budget, which allows us to keep the rise in temperatures to below two degrees Celsius (compared to pre-industrial levels).

By 2030, the company aims to become carbon negative in manufacturing. In addition to using 100% energy and electricity from renewable energy sources, Unilever wants to directly support the generation of more renewable energy than it consumes, making the surplus available to the markets and communities in which it operates. To become carbon negative, Unilever introduced on-site energy efficiency measures and eliminated coal from the energy mix. Further, the company fostered the use of renewable energies, both in its own operations and at a political level by advocating for more government investment in offshore wind power in the UK together with other businesses and NGOs.

In addition, an internal carbon price was introduced in order to ensure that carbon emissions became part of financial decision making. Clearly defined performance indicators and climate reporting frameworks by CDP and RE100 help to measure and monitor the progress.

Besides becoming carbon negative, energy and water consumption as well as waste production are being reduced in both non-manufacturing and manufacturing sites. A circular economy approach has helped to reuse, recycle, and recover 100% of waste in 38 non-manufacturing sites. Additionally, in 2018, the total amount of waste generated by manufacturing sites was reduced by 97% per ton of production, comparable to the amount of waste generated in 2008.

The implementation of Unilever's eco-efficiency activities is supported by environmental management systems. Based on ISO 14001, all Unilever organizations need to identify and evaluate the environmental aspects of their products, operations, activities, and services to determine and monitor their environmental impact. Additionally, training and awareness about sustainability support the implementation of the SLP. Further, sharing ideas, inspiring colleagues to think outside the box, and spreading best practices support the leverage of the impact on a global scale. Moreover, the focus on collaboration with actors in the supply chain, as well as with cross-sector stakeholder groups (e.g., Roundtable on

Sustainable Palm Oil) and governments (e.g., SDGs) help to achieve these targets and to embed sustainability into the corporate strategy.

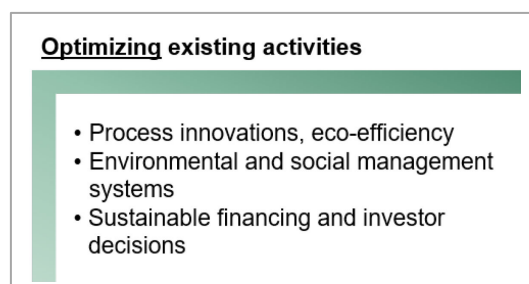
The example of eco-efficiency measures in Unilever's SLP illustrates how changes in operations can lead to far reaching impacts. The aim to become carbon negative and the introduction of a carbon price helped to drastically reduce CO₂ emissions. In addition, the example shows how circularity in production and operation can support environmental sustainability goals. Further, collaboration with stakeholder groups at different levels can help to drastically increase the impact on sustainability to beyond the organization's boundaries. The aspects of circularity and stakeholder engagement will be covered in more detail in later examples of this section.

Source: Unilever (2020) and Sardá & Pogutz (2019, p. 309-311)

Sustainable financing and investor decisions: Sustainability strategies at the first level can also be related to sustainable financing and investor decisions, such as where to invest and what sources to accept financing from. Interviewee M suggests that on the one hand, investment decisions can be based on environmental, social, and governance (ESG) criteria, or directed toward research and development in the field of sustainability oriented innovations. On the other hand, companies can select their investors based on sustainability considerations, such as long term orientation. Companies can, for instance, decide to "reject an investor that is just interested in the short term return because the company's focus is on long term goals," says Interviewee Q.

All the above strategies at the first level of the TSS portfolio are summarized in figure 36. The figure shows that choosing strategic actions of process innovations and efficiency measures, management systems, and sustainable financing mechanisms help optimize existing activities for enhanced sustainability.

Figure 36: Summary of strategies at the first level of the TSS portfolio



Source: Own illustration

C2.2.3 Engaging with the Supply Chain

The next level of strategy type is “engaging with the supply chain.” These strategies focus on pushing positive societal impact throughout the supply chain. Engaging with the supply chain extends the positive impact beyond organizational boundaries, which help companies to contribute more holistically to societal challenges, and to apply additional levers to create business value. Horvath (2001) shows that engaging with supply chain actors is key: “You cannot optimize your own operations until you understand the real-time demands of your customers’ customers as well as the current constraints for your suppliers’ suppliers” (p. 206). The benefits and importance of collaboration along the supply chain for both business and society were already discussed in C1.3, examples of which are combining resources and creating industry-wide changes. The value of supply chain strategies to increase a company’s sustainability actions and extend its radius of positive impact is also pointed out in the strategy concepts discussed in C2.1, like those of Nidumolu (2009) and Sardá and Pogutz (2019).

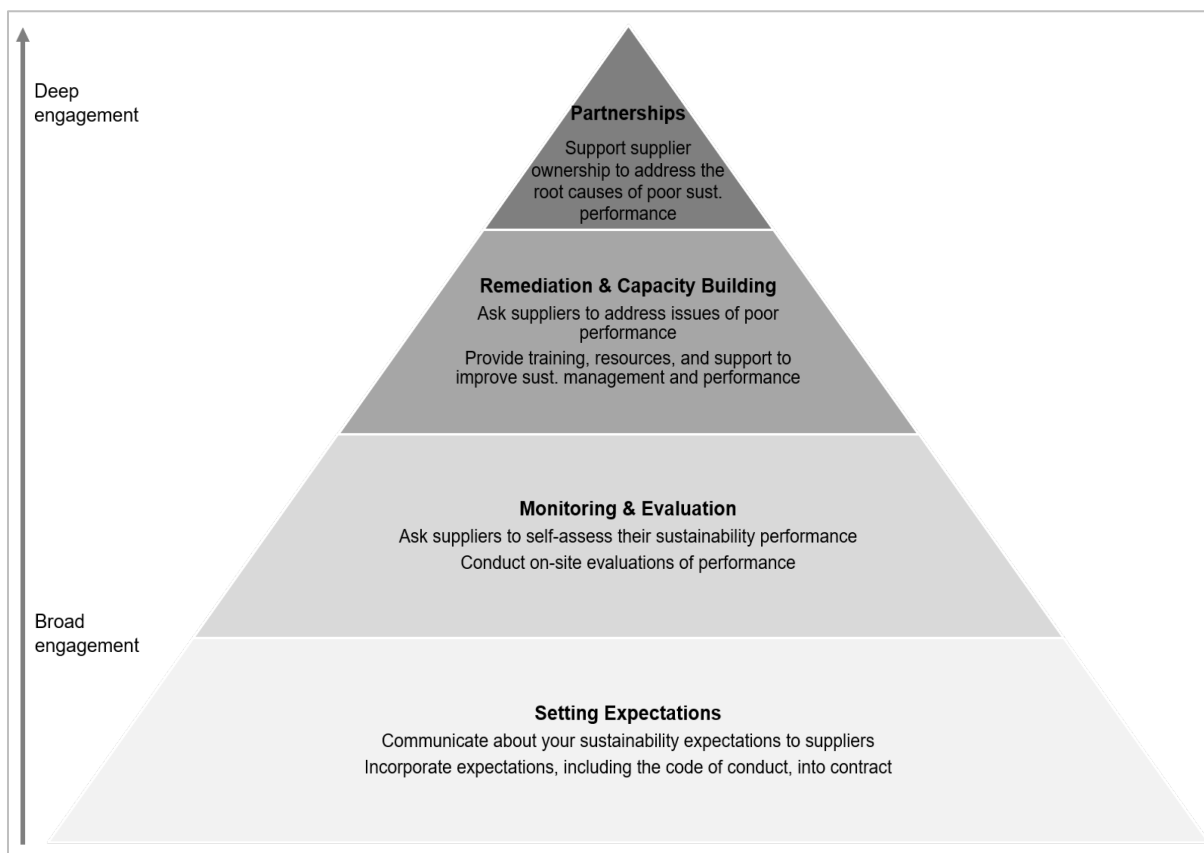
During the interviews, supply chain strategies turned out to be of high importance among the interviewees: Interviewee M says, “Big companies especially often have no control over their supply chain. In other words, the first step is to find out where the resources actually come from.” Interviewee N adds, “If you recognize that 98 percent of CO₂ emissions are in the supply chains... [You] can make your refrigerated shelves energy efficient in the stores, but you won’t have a real impact.” Hence, strategies that focus on issues outside the organization help generate an effective impact on sustainability challenges.

Besides the upstream activities in the supply chain, downstream activities toward the consumer are also mentioned as being important by Interviewee M, O, and N. Exchanging knowledge and combining resources may involve collaborations and dialogs with actors along the supply chain, both upstream and downstream, which is discussed in the following paragraphs.

C2.2.3.1 Upstream Strategies

AlphaBeta (2016) state that driving sustainability through the supply chain is one of the biggest levers for business to realize the potential arising from the SDGs in the food sector. Sardá and Pogutz (2019) define four main steps for developing and implementing sustainable supply chains based on UN Global Compact and BSR (2015). Figure 37 shows the different tools to engage with suppliers.

Figure 37: Tools for engaging with suppliers on sustainability



Source: Sardá & Pogutz (2019, p. 189) and UNGC & BSR, (2015, p. 37)

This framework presents different tools to engage with suppliers depending on the level of suppliers' engagement and the ability to influence their environmental and social decisions (Sardá & Pogutz, 2019).

- 1) As a first step, a code of conduct is established, which communicates expectations and creates a shared foundation. Existing guidelines and international standards can provide an orientation, like the OECD

Guidelines for Multinational Companies or the ILO Declaration on Fundamental Principles and Rights at Work.

- 2) The agreed standards need to be monitored and audited in order to ensure effective implementation. Supplier self-assessments or on-site audits by internal or external staff should be conducted to monitor and evaluate compliance with standards.
- 3) In order to ensure and improve compliance with standards and codes of conduct, a business can engage in remediation and capacity building. These actions may include a collaboratively designed roadmap to increase suppliers' capacity to meet expectations. Further, knowledge and capabilities are built to support suppliers in improving their social and environmental performance.
- 4) As a last step, companies establish partnerships with suppliers to develop common sustainability targets, integrate suppliers into the company's strategy, or to jointly foster innovations supporting sustainability. Multistakeholder platforms like the Roundtable for Sustainable Palm Oil or Marine Stewardship Council (MSC) are becoming increasingly important to generate impactful results. The challenge of building partnerships in the supply chain is to activate different actors to collaborate for sustainable solutions. This activation requires that a company build capabilities for stakeholder engagement in different contextual and cultural environments.

This framework by Sardá & Pogutz (2019) offers helpful possibilities for strategic actions at the second level of the TSS portfolio. These tools provide companies with several ways to increase their engagement with suppliers and to increase the level of sustainability created along the supply chain.

Cooperation with suppliers: In the interviews, the experts pointed out that close cooperation with suppliers was especially important to extend the positive impact throughout the supply chain. Building capacities and strong partnerships can, for instance, help the company to shift toward credibly

certified commodities. Such a close cooperation with suppliers refers to level 3 and 4 of Sardá & Pogutz's (2019) framework and involves a deep engagement with suppliers. Contracts with suppliers that ensure fair prices and minimum standards can help to increase the level of sustainability in the supply chain: "We have signed some contracts with our farmers [...] to ensure that the price that we're paying for the milk is covering the cost of production plus enough money so that they can live in a fair manner," says Interviewee O. Besides fair prices, close collaboration can improve the environmental sustainability of the supply chain: "For cacao, for example, we closely cooperate with farmers and commit them via projects to increase their agricultural practices," says Interviewee T. Those improvements are important steps toward TSS.

However, too often these partnerships only include basic standards, like no child labor, fair payment, or no environmental distortion. Hence, the actual positive value they create is questionable. Still, it is crucial to invest in those standards because completely banning a certain ingredient due to the lack of minimum standards can lead to even more disastrous effects on the local communities: "Banning palm oil is not justifiable from an ecological and social point of view," says Interviewee T. Improved standards of commodities generate positive impacts, like better working conditions, income for poor, or environmental improvements. Interviewee M claimed that in the case of palm oil, these changes can have a positive impact on different industries, like food or cosmetics. Box 4 illustrates an example of successful partnerships along the supply chain.

Box 4: Example of supplier collaboration

Barilla – Partnerships and transparency for increased environmental performance
(<https://www.barilla.com>)

Barilla is an Italian pasta company. The family owned food company sells its pasta products, sauces, and breads in 100 different countries. Barilla follows a sustainability program it calls “Good for you, good for the planet,” whose aim is to improve people’s well-being and to reduce the company’s impact on the planet.

Barilla realized that the highest environmental impact of its business was generated outside its organizational boundaries, at the stage of raw materials and cooking. The company focused on the upstream impact on farmers and launched its “Sustainable and Integrated Supply Chain” program, which involved critical supply chain players. Barilla worked with its suppliers to significantly reduce the environmental impact of wheat cultivation, like water usage, land degradation, and GHG emissions. Besides environmental benefits, the yield of wheat increased due to better production processes, which positively influenced the income of farmers. This sustainability program is based on stable collaboration with suppliers and networks of farmers. Structured and trusted relationships with farmers, long term supplier contracts, and the active engagement of farmers in producing quality products and in sustainability help to share knowledge and successfully implement the goals along the entire supply chain.

Source: Pogutz & Winn (2016) and Sardá & Pogutz (2019)

The importance of supply chain thinking instead of isolated company strategies becomes clear in the following example, illustrated by Interviewee M. A food retailer aims to reduce its food waste by reducing the quantity of a certain flavor of yogurt to ensure it does not idle on the shelves. This decision has an immense impact on the upstream supply chain as the yogurt producers have to change the mode of production more often, which produces food waste at their end because they have to clean the machines for new flavors more frequently. In order to solve this issue, collaborative solutions are needed. Hence, it is important to think through the entire supply chain to prevent implementing isolated strategies. The example in box 5 illustrates additional collaborative strategies in the supply chain.

Box 5: Example of collaborative strategies in the supply chain

Clif Bar – Strong supplier partnerships (<https://www.clifbar.com/>)

Clif Bar is an organic food and drink company in Emeryville, California. Founded in 1992, the company produces energy bars. The President and CEO of the family owned business, Gary Erickson made sustainability a strategic priority early on. At Clif Bar, all employees are owners and are encouraged to make decisions that contribute to the five bottom lines: planet, business, brands, people, and communities. The business is based on three pillars: 1) positive energy—provided by organic, energizing ingredients; 2) environmental stewardship—including zero waste and emissions, clean energy, green design, and climate actions; and 3) champions of change—using business as a force for good. Clif Bar prioritizes partnerships with companies in the supply chain that share its sustainability values.

In order to tackle environmental challenges in the food sector caused by intensive use of energy, Clif Bar introduced energy efficiency in its operations by switching to 100% green power purchases. By collecting data from its suppliers, the company realized that most of its greenhouse gas emissions were within scope three—emissions that occur in the supply chain of the company. Therefore, after running its own operations at a desirable level, Clif Bar guided and provided assistance to its suppliers. Clif Bar helped its suppliers to reach the desired level of emissions by contracting independent energy experts to provide consulting services to its suppliers.

Clif Bar also worked closely with its suppliers to achieve its sustainable sourcing goals. These goals include organic and certified ingredients as well as fair labor practices. All these goals require strong supply chain partnerships, a willingness to share data, and a desire to work together toward common goals.

Source: EPA (2016)

C2.2.3.2 Downstream Strategies

Customer awareness and education: A company can extend the impact on the downstream supply chain by creating customer awareness and education. “One important thing we have to do is to also drive the change in terms of recycling practices to the consumers. We need to make it easy for them by supporting the creation of recycling systems that easily allow collection of packaging after use,” says Interviewee O. Besides recycling systems, businesses can change

packaging size to reduce consumers' waste or educate them about food waste or resource consumption during usage, suggest Interviewees M, N, and D.

Additionally, Interviewee O believes that it is important to create consumer awareness about the sustainability impact of their buying decisions as well as the real cost of production. Achieving a dietary shift toward plant based products is seen as the most promising way to solve various challenges in the food sector: "A dietary shift is going to be one of the hardest things to achieve, but the most necessary things," states Interviewee K. However, a dietary shift is not just driven by consumers. It is essential to induce business driven change as well. Interviewee K continues, "We underestimate the influence that we have had on people's consumption over the past 40 years. People don't eat what they ate 40 years ago. Dietary change is totally possible because we have already seen it in our lifetime. It is funny when people say you cannot change what people eat. Of course, you can. We've already done it." Initiating dietary changes by making healthier and more sustainable food affordable and convenient can have a huge impact: "That will send shockwaves back to the agricultural system to change what is grown. It will force the government to shift how they fund things and make healthier and more sustainable products cheaper and the easier choice for consumers," says Interviewee K. Hence, business can induce changes along the downstream supply chain toward consumers by creating transparency and awareness as well as educating them about the sustainability impacts of products, their production, and their consumption. As shown in section B2.2, consumer education is a huge lever for business to capture the SDG related business opportunities in the food sector (AlphaBeta, 2016). However, companies need to be conscious about the way they create awareness among their customer in order to avoid being denounced for greenwashing. The example in box 6 illustrates how business can create customer awareness and educate consumers about sustainability.

Box 6: Example of creating customer awareness and customer education

“Vegucation” at Kellogg’s (<https://www.kelloggcompany.com>)

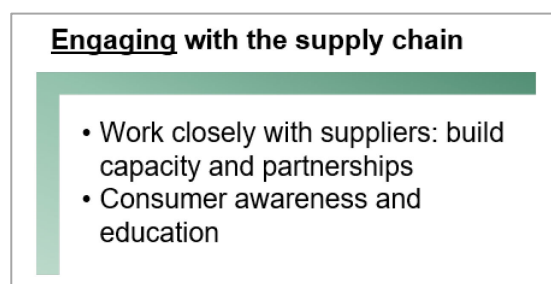
Kellogg’s is an American multinational food manufacturing company headquartered in Battle Creek, Michigan, United States. With 23 brands of cereals as well as sweet and savory snacks, Kellogg’s generates annual revenues of approximately US\$12.9 billion.

To counter the severe environmental impact of current meat consumption levels, Kellogg’s launched MorningStar Farms to reinforce the benefits of eating plant based food for both the planet and people. Kellogg’s designed a campaign for customer awareness about the environmental and health impact of excessive meat consumption. Additionally, an education program, “Vegucation—Why eat veggie protein,” informed consumers about the social and environmental effects of their diet. Kellogg’s launched news articles, educational videos, a documentary as well as a tool to calculate the environmental impact related to water, land use, and greenhouse gas emissions. Kellogg’s objective was to enable consumers to make informed food decisions and to help them understand and use their power in the market. With this campaign, Kellogg’s was able to reach a broad audience and to nudge consumers toward more plant based food choices: the calculator generated more than 64,000 views and more than 30 million people watched the documentary.

Source: WBCSD (2018a)

Figure 38 summarizes the discussed strategies at the second level of the TSS portfolio. Working closely with suppliers by building capacities and strong partnerships as well as raising awareness and educating consumers by increased transparency are possible strategies to engage with the supply chain and expand the boundaries of impact.

Figure 38: Summary of strategies at the second level of the TSS portfolio



Source: Own illustration

C2.2.4 *Innovating Products and Services*

Sustainability strategies also apply to “innovating products and services.” Product innovation strategies can be an additional lever to creating business value as well as to delivering more holistic contributions to sustainability. The degree of closeness in partnerships increases at this level of the TSS typology. Industry-wide collaborations become increasingly important to create radical changes to products and services. An advantage of adopting these strategies is that it proactively positions the company in the market as a sustainable and innovative pioneer. As shown in section B2.2, product innovation is identified as one of the most important levers for businesses to realize the opportunities related to the SDGs in the food sector (AlphaBeta, 2016). Product innovations help to successfully capture the opportunities arising from sustainability challenges.

Dyllick and Rost (2017) introduce a typology of product sustainability (PS) to distinguish products based on their sustainability level. This framework provides insights into how businesses can innovate products, which is useful for this level of the TSS portfolio. The PS typology shown in figure 39 illustrates the different levels of PS. The PS framework forms the basis for the ideas about the strategic possibilities to innovate products and services presented in this section. The most effective TSS are found in the PS 3.0 category as they truly incorporate the idea of TBST. However, product innovations in the PS 2.0 category could also help to increase positive values for society, depending on their implementation.

Figure 39: Product sustainability typology by Dyllick and Rost (2017)



Source: Dyllick & Rost (2017, p. 348)

Circularity: According to the PS typology by Dyllick and Rost (2017), using an “eco-design” or “design for the environment” for a product can improve the environmental performance of the product through its entire life cycle, and is the dominant model of product sustainability. This change in design focus places the product in the PS 1.0 category, which is the first step toward true product sustainability. It also includes strategies like “design for sustainability,” “cradle-to-cradle” approaches, and “product-service systems.” Box 7 illustrates an example of a holistic product improvement by introducing circularity.

Box 7: Example of holistic product improvements

IFF – Designing new products to tackle food loss (<https://www.iff.com/>)

International Flavors and Fragrances (IFF) produces flavors and fragrances for food and cosmetics. Headquartered in New York City, the company is active in 35 different countries. IFF focuses on circular design, creating products that are renewable, biodegradable, and made with alternative energy and minimal water. The company’s purpose is to redefine how we live and how we use the world’s resources. To that end, IFF launched a series of environmental goals for science-based emission reductions, zero waste to landfill, and water stewardship.

In 2017, the company launched a pilot project to address the issue of the post-harvest loss of spinach. It collaborated with its partners to collect the spinach that was not collected by the farmers due to low quality. This spinach was then dried and turned into nutrient-rich powder for use in beverages and snacks. This initiative saved 400 tons of spinach from being wasted and turned this agricultural excess into a consumable product. Collaboration between several departments was required to successfully implement the project. The success of the pilot phase prompted IFF to expand the program in order to tackle food loss through the entire system. However, without industry-wide collaboration, it will be difficult to achieve: “The food system is not coordinated so it is hard to do these things alone. We need commitment from other places,” says Lucinda Salinas, IFF’s director of business development.

Source: WBCSD (2019b)

Recyclability or upcycling: In order to move from better products to good products under PS 2.0, concepts like “upcycling,” “hand printing,” and “net positive” are becoming increasingly important. Hand printing, for example, reverses the idea embedded in the “footprint thinking,” meaning that a business strives for positive product impacts and net positive contributions instead of minimizing the negative impact. Sharing sustainable innovations and engaging with diverse actors along the supply chain can foster those positive contributions (Dyllick & Rost, 2017). The net positive approach incorporates the mindset that creating less harm is not enough: “Net Positive is a new way of doing business which puts back more into society, the environment and the global economy than it takes out” (Forum for the Future, n.d.). To radically redesign a product or replace ingredients with more sustainable ones is one possibility at this PS level. “You can think about the product itself and which ingredients are problematic and could be replaced by others,” says Interviewee M.

Besides changing the materials, a company can focus on the entire life cycle of a product—from extraction to manufacturing, distribution, consumption and use, disposal, and end-of-life treatment. Interviewee E says that concepts like recyclability or upcycling can be implemented to innovate sustainable products and services. These concepts help to reduce the environmental impact of business and can also increase business benefits. However, these strategies are still at the PS 2.0 level. Although these changes are an important step toward TBST, the values created are still primarily focused on customer and business value and only selectively on environmental improvements.

Need centered products: At the highest level of PS, PS 3.0, “it is not sufficient any more to contribute to a sustainable product, but to contribute to a sustainable world” (Dyllick & Rost, 2017, p. 355). Truly sustainable products change their focus from customer value to societal or public value. In order to move toward PS 3.0, businesses are generating entirely new products to satisfy customer needs. In regard to the food sector, customers need tasty, healthy, and affordable nutrients. A business can create huge value by developing new ways

to satisfy this need. Interviewee B suggests that moving away from product centered strategies toward need centered approaches can help unlock business opportunities and solve relevant societal issues. Interviewee M adds that the business challenge is to change people's behavior by making them choose something other than what they are used to. If achieved, this change can trigger values for customers, business, and society. Designing new products can foster the necessary dietary shift toward more sustainable and plant based products as stated before. The example in box 8 illustrates what such a shift may look like.

Industry-wide collaboration: The example in box 8 also emphasizes the required industry-wide collaboration. In order to achieve such radical changes and realize the broad potentials, businesses have to work with the industry to bring these new products into the mainstream: "Working together as an industry to change the system in such a way that business aspects and societal values are combined, offers great potential," says Interviewee K. Hence, industry collaboration is a key aspect for strategies at this level.

Box 8: Example of radical product innovations

Plant based food is a promising way to reduce greenhouse gas emissions as well as land and water usage while providing healthy nutrients for a growing population. The alternative meat industry could be worth \$100 billion within the next 15 years. It is becoming increasingly competitive with the traditional meat industry. Large food companies, such as Unilever, Nestlé, M&S and Tesco, are increasingly developing proactive strategies to be part of this boom (Ramachandran et al., 2019).

Just – Sustainable proteins (<https://www.ju.st/en-us>)

Just is an American food manufacturing company headquartered in San Francisco that produces plant based foods. Its revenues are generated globally and were approximately US\$30 million in 2014. Besides plant based mayonnaise, crumbled eggs, dressings, cookies, and breakfast proteins, Just produces cultured meat. Cultured or clean meat is a form of cellular agriculture which cultivates meat in vitro. The process extracts cells from an animal and grows them in a nutrient broth into, eventually, a product fit for consumption.

Today, there are several startups working on cultured meat; however, the products are still not on the market. In 2013, Mark Post, a Dutch pharmacologist and Professor of Vascular Physiology, unveiled the world's first slaughter-free hamburger, which was the result of years of research at Maastricht University, and cost €250,000 to produce.

In 2017, Just revealed that it was collaborating with large meat companies around the world to foster the industrialized production of cultured meat. However, cultured meat products are still expensive to produce and customer acceptance remains unclear. Further, regulations may prevent lab grown meat products to be sold to consumers. However, it shows a highly promising solution to sustainably produce healthy protein. Cultured meat is an example of satisfying a need in an alternative way which can radically transform the whole food industry.

Source: Just (2020)

Figure 40 summarizes the strategies at the third level of the TSS portfolio. Radically redesigning products by introducing circularity or upcycling as well as need centered designs and industry-wide collaboration are key measures to significantly increase the generated sustainability and business value.

Figure 40: Summary of strategies at the third level of the TSS portfolio



Source: Own illustration

C2.2.5 Rethinking Business Models

At the highest level of the TSS portfolio, firms can implement strategies that entirely change their business model and the way they do business. These strategies aim to create system level changes by engaging in multiple partnerships with different actors, both public and private, along the entire supply chain. Creating a possibility for change with others helps to change the rules of the game, thus leveraging multiple sources to generate business value and holistic contributions to societal challenges.

“We have to think about new models for doing business,” says Interviewee M. Davis-Peccoud et al. (2018) describe reinventing the core business as the “next-practice of businesses” to drive sustainability and business success. Rethinking and innovating the whole business model can trigger exponential changes, helping companies to escape path dependency. If businesses merely continue their current activities, they do not feel responsible or capable to contribute to issues that lie outside their organizational reach. Interviewee A says that the notion of “it’s not my business” changes when companies change their business models and multiply their competencies to other areas. By doing so, companies can generate holistic sustainability value as well as immense business opportunities to grow and to capture new markets. However, disrupting one’s own business model is challenging because it implies that the old one has become obsolete, which in turn means that the entire business needs to reinvent itself. Interviewee A states that this bears risks, challenges, and immense opportunities for both business and society.

Become a role model and advocate: When a business rethinks its business models, it can become a role model or benchmark for other companies. By inspiring them, new standards can be set and system-wide changes can be initiated: “We supported the goal [of radical CO₂ reduction] and went beyond. We aim to be a benchmark for others,” says Interviewee T. This salient business behavior can be described as positive deviance as it goes beyond common norms (Mertens et al., 2016). The motivations for such behavior range from altruism, vitality or virtuousness, or the need to make meaningful contributions (Mertens et al., 2016). Inspiring others to act sustainably is a powerful strategy to initiate system-wide changes and to change the rules of the game. This kind of change can be referred to as advocacy, which describes the activities of a company speaking out on systemic sustainability issues. In contrast to lobbying, advocating means that companies raise their voice for topics that do not directly affect them but that are in line with their business strategy.

Business model innovation: Business model innovation is important to change the way business is done. Several authors group sustainable business models into

different categories (e.g. Bocken et al., 2014; SustainAbility, 2014), including business models focusing on the social or environmental impact, as well as technological and organizational innovations. Showing different ways that businesses can change their underlying business model toward sustainability is important to guide and inspire them. However, the application of these frameworks to the TSS portfolio has some limitations. The literature has not yet specified what truly sustainable business models look like. Existing concepts of business model innovation do not primarily focus on the effective contributions to societal challenges. In fact, the actual level of contribution to sustainability varies within the examples. Some business models do not radically change the entire system or significantly contribute to societal challenges. The differing societal impact of business model innovations shows the importance of carefully reviewing the effective contributions to societal challenges of the business model.

Box 9 illustrates four examples of business model innovations that have a far reaching positive sustainability impact.

Box 9: Examples of business model innovations

2 Degrees – Buy one give one (<https://twodegreesfood.com>)

2 Degrees is a company headquartered in San Francisco which sells its nutrition bars across the United States via retailers or in online shops. For every bar sold, the company provides a meal to a needy child in Kenya, India, Malawi, Somalia, Colombia, and Myanmar. This action is possible because of partnerships with global nonprofit organizations and NGOs that provide food assistance through health clinics, schools, and community groups. Hence, this business model not only addresses the challenge of hunger but also supports local communities and economies, which was shown to be especially important in developing countries.

Source: SustainAbility (2014)

Too good to go – Food sharing to reduce food waste (www.toogoodtogo.com)

Business models based on the sharing economy are growing in many sectors like transportation (e.g., Car2go, Uber) or accommodation (e.g., Airbnb). Applying this idea to the food sector is complicated as the actual product cannot be shared. However, food waste can be reduced by implementing sharing business model. As shown before, food waste is a huge challenge in the Western world, which these initiatives aim to address.

Several initiatives and start-ups in the US and Europe collect and use food that is left by consumers and retailers. These initiatives promote collaborative consumption models. Too Good to Go is a Danish online platform that connects consumers to leftovers in supermarkets and restaurants in order to reduce food waste. So far, Too Good to Go has already “rescued” 40.6 million meals (updated on July 11, 2020).

However, the correlation between food sharing practices and reduced food waste cannot be taken for granted. Rebound effects can diminish the savings of resources used (Rutten et al., 2013). Additionally, it can be argued that the core of the problem, the routines and habits of consumers, are not addressed by those models. According to Moloney and Strengers (2014), these measures are ineffective in changing the actual consumption behavior. Further, there is no incentive for businesses to rethink their buying decisions. Some authors call for a more holistic approach to effectively reduce food waste (Papargyropoulou et al., 2014).

Source: Falcone & Imbert (2017) and Too Good To Go (2020)

e-Choupal – Alternative marketplace (<https://www.itcportal.com/businesses/agri-business/e-choupal.aspx>)

According to SustainAbility (2014), “an alternative marketplace occurs when a firm circumvents a traditional method of transaction or invents a new type of transaction to unleash untapped value. [...] Ultimately, alternative marketplaces provide a platform for exchange that matches unused supply and unmet demand” (SustainAbility, 2014, p. 43).

ITC, an Indian agribusiness, developed e-Choupal to provide farmers access to market pricing information. This access to information helps small scale farmers to increase their earnings and eliminate retail middlemen by letting them decide when to sell their goods and for how much.

Reducing the information asymmetry for rural farmers gave them higher bargaining power and helped to increase revenues in the agribusiness division by 40%. As shown before, the low income of rural farmers in developing countries is a huge societal challenge, which business models like E-Choupal aim to tackle.

Source: SustainAbility (2014)

Regioterre – Production on demand and alternative ownership (<https://www.regioterre.sg/>)

Organic community supported agriculture (CSA) is a way to tackle land degradation, biodiversity loss, and food waste. Locally producing organic food prevents synthetic substances to pollute the soil and avoids overexploitation of nutritious land. Due to shorter transport routes, GHG emissions and transportation costs are also reduced. A central element of CSA is a harvest agreement that allows farmers to calculate the expected demand, which greatly reduces food waste and provides farmers with a better planning horizon for future investments. For the consumer, CSA provides access to fresh, seasonal, and regional food, which positively influences health and access to food. As transparency is of high importance in a CSA project, consumers get involved in pricing and investment decisions. In the last several years, CSA has gained in popularity. The website [solawi.ch](https://www.solawi.ch) provides an overview of all CSA projects in Switzerland, Austria, and Germany. Regioterre, for example, has been conducting CSA since October 2011. Based in St. Gallen, Switzerland, it connects local organic producers that deliver their products weekly to a central point in the city. By doing so, environmental challenges of food production are addressed and contributions to social challenges are delivered, like improved working conditions for farmers.

Source: Regioterre (2020)

Business model innovations differ in their level of action. In fact, some business model innovations by Bocken et al. (2014) and SustainAbility (2014) aim to transform the entire system, whereas others trigger changes at lower levels of the TSS portfolio. For example, zero emissions initiative or a shift toward renewable energy sources can be assigned to changes within organizational boundaries, which were elaborated in section C2.2.2. Inclusive sourcing was already covered in the supply chain strategies at the second level of the TSS portfolio. Further, behavior change can be assigned to customer awareness strategies presented in the downstream activities in section C2.2.3.2. Dematerialization and increased functionality belong to the product innovation strategies at the third level of the TSS portfolio. These overlaps between the different types of the TSS portfolio again show that radical changes and holistic impacts can also be triggered at lower levels of the TSS portfolio and once again highlights the requirement of implementing a balanced portfolio for TSS.

Box 10 illustrates an example of industrial symbiosis, which is a promising business model to address environmental challenges in the food sector, like air quality, biodiversity loss, land degradation or water stress.

Box 10: Example of business model innovation

Food Valley of Bjuv - Industrial symbiosis (<http://foodvalleyofbjuv.com/>)

The municipality of Bjuv is located in southern Sweden. Today, this region generates about 45% of the total turnover in the Swedish food sector. The Food Valley of Bjuv (FVoB) is a cluster of different businesses whose central aim is to bring together actors from academia, industry, and entrepreneurs to jointly develop the future of food production. FVoB's main focus is to create resource efficient and sustainable food production, achieved by taking advantage of an industrial symbiosis.

Industrial symbiosis is a central part of the circular economy. A circular production process recycles and recovers resources and energy in order to bring them back into the production process. Industrial symbiosis offers the possibility to use the resources more efficiently by using synergies between different actors in a geographic region. With this collective approach, actors from different industries can generate additional value by exchanging materials, energy, water, or other byproducts (Chertow, 2000). The fundamental idea is to create an industrial ecosystem where one actor's output can be utilized as another actor's input (Frosch & Gallopoulos, 1989).

The starting point for the FVoB was Findus, a large frozen food producer in Sweden, and a biogas plant. The biogas plant converts the residues from Findus (and those of other food companies in the FVoB) into bio-fertilizer and energy. Those products can in turn be used to grow vegetables and run factories in the FVoB. Later, Vegafish joined FVoB in order to fulfill its mission to produce more sustainable shrimp. Food waste in the cluster was used to feed its shrimp, and waste heat from other companies was used to heat its pools. The waste products generated by Vegafish can be utilized for bioenergy production. Additionally, WA3RM is planning to build a greenhouse heated by residual heat from Findus and use water from the aquaculture plants to add nutrients. The produced oxygen in the greenhouse will be added to the water in the aquaculture system.

Throughout the cluster, interaction and knowledge exchange are facilitated, which increases the chance for new ideas to emerge. FVoB's ambition is to scale up internationally and take a leading position in global supply chains.

Source: Food Valley of Bjuv (2020) and Höök & Österman (2016)

Cross-industry collaborations: This level of the TSS portfolio packs several other kinds of strategies too: “Collaborative strategies will be key in the future. In particular, businesses in the food sector need to use such approaches and strategies”, says Interviewee P. Interviewee D suggests that businesses may find that the solutions they are looking for are already applied in another industry, and collaborative synergies between companies can be used to increase societal impact. As shown in the example of industrial symbiosis, business can work across industries to increase the sustainability impact in the whole system. Indeed, Interviewee F believes that unconventional collaborations, like partnerships between the private sector and NGOs or other stakeholders, such as academia or the public sector, can foster innovation toward sustainable solutions and increase the sustainability impact. A recent study shows that cross-sector collaborations can help implement new sustainable business models (WWF & Impact Hub Zürich, 2018). Additionally, a report by WBCSD (2018b) acknowledges the high importance of collaboration across industries and the entire economic system. The authors state that, “new and innovative collaborative models must be continually identified and tested to effectively bring competitors together alongside other industry, government, and civil society actors” (WBCSD, 2018b, p. 10).

Multistakeholder initiatives: The last quote points to another important aspect: the involvement of different actors in multistakeholder initiatives. Bringing different actors together—like authorities, businesses, and consumers—helps to change the rules of the game and raise the pre-competitive field, suggest Interviewees F and P. A best practice example of a multistakeholder initiative is illustrated in box 11.

In all these approaches, cocreation is essential: “It has to be a mix between business, state, and consumers,” affirms Interviewee P. Business needs to combine different interests and bring together the right people to jointly work on a sustainable solution. Hence, collaboration across industries and with various actors, as well as dialogs with authorities, NGOs, and scientists to co-define goals, are possible strategies to make effective and holistic contributions

to solving sustainability challenges and to leveraging business value. Interviewee P gives an example: To address the issue of unsustainably sourced cacao, the German, Swiss, and Austrian governments built a platform with large food businesses for sustainable cacao. According to AlphaBeta (2016), the engagement with public policy is the most important lever for business in the food sector to realize the opportunities arising from the SDGs.

The examples in box 11 illustrate cross-industry strategies and show how multiple players combine their strengths to jointly contribute to addressing societal challenges.

Box 11: Example of cross-industry solutions

“Farming for Generations” alliance – Toward regenerative agriculture

In 2019, a group of leading food and agriculture companies formed a coalition with the aim to shift the global dairy industry toward sustainable practices. Led by Danone, the group comprises different companies from the animal nutrition and health industries (e.g., DSM, FutureCow), crop scientists, data analysts from an artificial intelligence start-up, and researchers. According to Yann Gael Rio, vice president of milk and farming at Danone, “Farming for Generations brings together expertise along the whole agricultural value chain with the collective know-how of farmers. This will ensure any solutions and innovations are tried and tested on the ground, capable of delivering real impact at scale, and helping to build the sustainable food systems of tomorrow.”

The alliance aims to identify and scale up best practice solutions for regenerative agricultural practices to reduce greenhouse gases, increase biodiversity, ensure animal well-being, and empower farmers to deal with sustainability challenges. Regenerative agriculture goes beyond reducing negative impacts on the planet. It seeks to improve the state of the local and global ecosystem. The positive outcomes that are created can include an improved nutritional profile of soils and the sequestration of carbon from the air. Further, an artificial intelligence powered service is used to collect data from dairy cows and to offer insights and recommendations for farming.

Source: Burwood-Taylor (2019)

“Coalition for Sustainable Protein” – United behind a common goal

Tyson Foods is the world’s second largest meat processor. At the World Economic Forum (WEF) in Davos in January 2020, Tyson Foods announced a new Coalition for Sustainable Protein. With this coalition, Tyson Foods wants to “unite stakeholders across the food and agriculture sector to identify and implement new and creative solutions to sustainably feed the world’s growing population.” These stakeholders include businesses in the protein industry as well as experts from academia, NGOs, and financial institutions. The aim of the coalition is to provide a sustainably created worldwide protein supply. “We’re introducing this coalition because we know that we cannot achieve this alone. Collective commitment and immediate action are needed to deliver the greatest impact on the future of sustainable food production,” stated Noel White, the CEO of Tyson (Globe News Wire, n.d.). This coalition is another example of cross-industry collaboration for sustainability.

Source: GreenBiz (n.d.)

“Blockchain Food Safety Alliance” – Toward more efficient and safer food systems

In 2017, IBM, Walmart, and the Chinese retailer JD, together with Tsinghua University’s National Engineering Laboratory for E-Commerce Technologies, launched the Blockchain Food Safety Alliance. This multistakeholder initiative aims to increase efficiency, transparency, and authenticity of the food supply chains in China and around the world. Several global food suppliers and retailers, including Nestlé, Tyson Foods, and Unilever, have already signaled their intention to collaborate on this initiative. Using IBM’s Food Trust technology based on blockchains, data about the origin, safety, and authenticity of food can be provided. This information enhances traceability throughout the supply chain. The involved parties work together closely and involve other actors to develop standards as well as partnerships for increased food safety in China.

The Blockchain Food Safety Alliance is a good example to show that actors from different industries—food and technology—as well as from academia and the private sector come together to develop sustainable solutions. Additionally, it shows that technological solutions that were already used in other industries can be applied to the food sector. Such open minded and collaborative strategies help to increase the overall sustainability level.

Source: Aitken (2017)

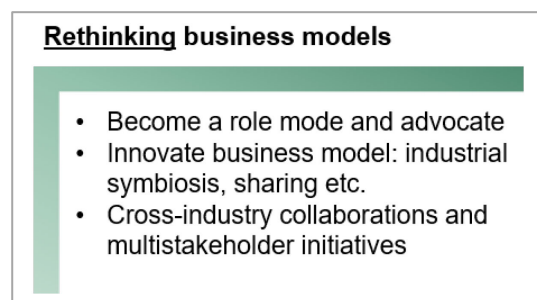
“Future Food Initiative” – Pooling expertise for sustainable, healthy and affordable food

The Future Food Initiative brings together two Swiss research institutes, ETH Zurich and EPFL, with Swiss food industry leaders Bühler, Givaudan, and Nestlé with the goal to jointly develop solutions to pressing sustainability challenges in the food sector. The partners collaborate for example on sustainable packaging solutions to eliminate plastics, or on plant-based proteins, and meat analogues. Detlef Günther, vice president for Research and Corporate Relations at ETH Zurich, points to the importance of pooling expertise in research and practice, and jointly developing innovative approaches for a sustainable food system.

Source: Future Food Initiative (2020)

Figure 41 summarizes the strategies at the highest level of the TSS portfolio. Rethinking the business model can include becoming a role model for others and advocating for a greater good, innovating the business model by forming industrial symbioses, as well as engaging in cross-industry collaboration and multistakeholder alliances.

Figure 41: Summary of strategies at the fourth level of the TSS portfolio



Source: Own illustration

C2.3 Discussion: Truly Sustainable Strategies in the Food Sector

This section summarizes the TSS portfolio and discusses its contributions as well as limitations.

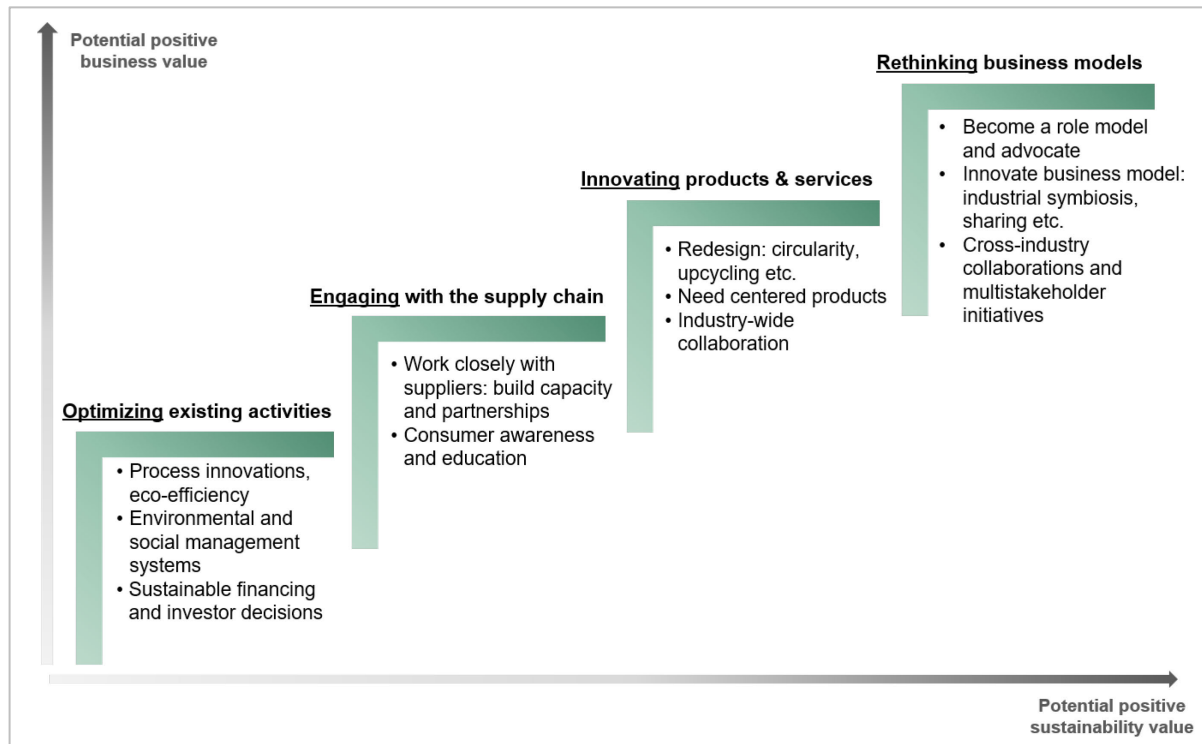
Summary and discussion of the TSS portfolio

The TSS portfolio categorizes strategic business actions into four types based on their potential positive impact on business and sustainability values. The portfolio understands business as being able to positively contribute to societal challenges. To that end, the underlying motivation of all TSS is that businesses aim to address societally relevant challenges by taking an outside-in perspective. The portfolio combines a focus on the positive societal value generated by business strategies with the generated business value to echo the need for a combined perspective. This combination does not mean that an increase in sustainability value automatically leads to an increase in business value. The strategies in the TSS portfolio show an ideal way of combining the potential business and sustainability value.

The analysis of the different strategy types in the previous sections shows that the full potential of the TSS portfolio is used when business engages in sustainability practices both inside and outside organizational boundaries, enters into different partnerships, and balances short and long term implications of strategies.

Figure 42 summarizes examples of strategies for each type of strategy in the TSS portfolio discussed before. At the lower left appear strategies that optimize existing activities and generate limited business and sustainability value. Moving up, the next type features strategies that engage with the supply chain where the potential positive sustainability and business value extends beyond company's boundaries. And going toward the upper left, higher sustainability and business value can be realized by addressing the supply chain, products, or services or by changing the entire business model.

Figure 42: Illustrating the TSS Portfolio – Examples of TSS



Source: Own illustration

1) Optimizing existing activities:

Starting at the bottom left, figure 42 shows organizational sustainability strategies executed within an organization's processes and/or production systems. Different kinds of process innovations, like eco-efficiency measures or cleaner production, help to optimize existing activities. Sustainability management systems can support these measures. Further, financing and investment decisions based on sustainability criteria also help to improve existing financial activities. As illustrated in the examples, strategies at this level can help to address environmental challenges, like food loss or the quality of water, soil, and air.

2) Engaging with the supply chain:

To extend the boundaries of impact, strategies addressing sustainability issues upstream and downstream along the supply chain are implemented. Close cooperation with suppliers to transfer knowledge and build capacity are possible upstream activities. Downstream activities would include consumer education and raising awareness to unlock additional levers for value creation.

Overall, establishing strong partnerships throughout the supply chain is crucial to improve the level of sustainability. Such strategies can help to address both social challenges in the food sector, like working conditions and obesity, as well as environmental challenges, like biodiversity loss and air quality.

3) Innovating products and services:

Innovating products is the next type of strategies to increase value creation. Redesigning products by including a circular design or upcycling activities can improve environmental value creation. Finding new ways to satisfy needs and focusing on a need centered product increases both sustainability and business value. For this, partnerships across industries are becoming increasingly important. As illustrated in the examples, strategies at this level help to address environmental challenges, like food loss or the quality of water, soil and air, as well as challenges related to health and quality of food.

4) Rethinking business models:

At the highest level of the TSS portfolio, cross-industry collaboration and multistakeholder alliances are key to fundamentally rethinking the way business is conducted. Innovating the business model by finding ways to create industrial symbiosis or sharing models generates both high sustainability and high business value. Becoming a role model for others by advocating for societal issues are further ways to unlock additional levers for value creation and generate far reaching impact. These strategies may address a variety of sustainability challenges in the food sector, including fighting hunger, providing access to food, and ensuring functioning ecosystems.

Contributions and implications

These findings refine the implications of TBST for strategy design and define what the different types of TSS may look like, thus contributing to both literature and practice as it is shown next.

The portfolio of TSS contributes to a better understanding of the TBST concept and its implications for strategy design. These insights answer the call by

Dyllick and Muff (2016) to apply a “fundamentally different strategic approach.” The portfolio addresses the shortcomings of existing sustainability strategy frameworks, which are primarily focused on the business benefits generated by strategies and the reduction of negative impacts on the environment and society (Hart, 1997; Dyllick et al., 1997; Nidumolu et al., 2009; Porter & Kramer, 2011; Zhexembayeva, 2014; Sardá & Pogutz, 2019). By combining both business *and* sustainability value, the TSS portfolio shows how business can make effective contributions to both sustainable development and business benefits. Understanding the related processes and strategic actions of an outside-in perspective contributes to the call to reduce the disconnect between business and societal level raised by different researchers (Dyllick & Muff, 2016; Baumgartner & Rauter, 2017; Whiteman et al., 2013; Ferraro et al. 2015).

This clearer understanding of the strategy types of TSS and the implications of outside-in perspective for strategy design has important implications for firms. The TSS portfolio provides guidance and orientation for strategy design. Managers can use the TSS portfolio in two different ways: First, the TSS portfolio provides a framework for the analysis and assessment of sustainability strategies. To that end, it can be used to assess sustainability strategies, analyze the potential positive impact, and compare them to other strategies.

Second, the portfolio can serve as inspiration to design strategies and to identify potentials for improvement. The ideal types of TSS can be applied to the specific business context and help managers think about their strategies and their effectiveness toward sustainable development. Thinking through the different types of strategies can help to identify further opportunities and unseen possibilities for value creation.

Limitations and further research

This section discusses the limitations of the TSS portfolio and provides avenues for further research.

First, the portfolio shows how different types of TSS look like in principle. In reality, the different strategy types may not occur in exactly this form. Nuances between the different types exist and they cannot always be separated unambiguously. Therefore, further research needs to empirically test these types in practice.

Second, the TSS portfolio could be improved by defining which strategy is the most suitable for specific business contexts. More research is needed on the influencing business context to provide guidance on the most effective strategy in a specific context.

Third, the TSS portfolio does not allocate strategies to address specific challenges. It does not specify whether certain challenges require a specific type of strategy in order to be addressed effectively. Future research should address these limitations in order to further develop the TSS concept and increase its applicability.

With regards to the second limitation—lacking a schema to apply to specific business contexts—there are three factors that may influence the applicability of certain strategies that need to be further elaborated:

First, strategies differ according to the stage of the supply chain at which a business operates. The strategies of a food producing business are different from those of a food processing or selling business. For example, a seed producing company that operates at the start of the supply chain in the business-to-business context can hardly engage in consumer education. In contrast, a food retailer has multiple possibilities to do so. Additionally, food retailers have huge market power upstream in the supply chain. However, the improvements in their own operations remain rather limited when they do not produce their own products. A food processing company can focus on its suppliers and its own products and operations. Given these differences in companies based on their position in the supply chain, future research should focus on specifying the TSS portfolio for specific types of businesses.

Second, for companies that produce or process food products, the strategies they can use depend on the type of product they produce. Challenges differ by commodity. For example, a company that operates in cacao production has to deal with different challenges when compared to a dairy producer in Switzerland. Further research should refine the TSS portfolio with regards to specific types of products.

Third, the size of the company influences the types of strategies it should use. Large businesses with a supply chain across different countries will choose different strategies compared to start-ups with a new food product. Future research should focus on specifying how the TSS portfolio differs between small and large companies.

With regard to the third limitation—lacking a schema to apply to specific sustainability challenges—figure 43 provides a basis for future research. The figure illustrates how the different strategy types address the sustainability challenges in the food sector. This overview exemplifies what strategies for a specific challenge may look like, which helps to better understand the application of the TSS portfolio to the food sector. However, further research could define which strategy is most effective for a specific sustainability challenge.

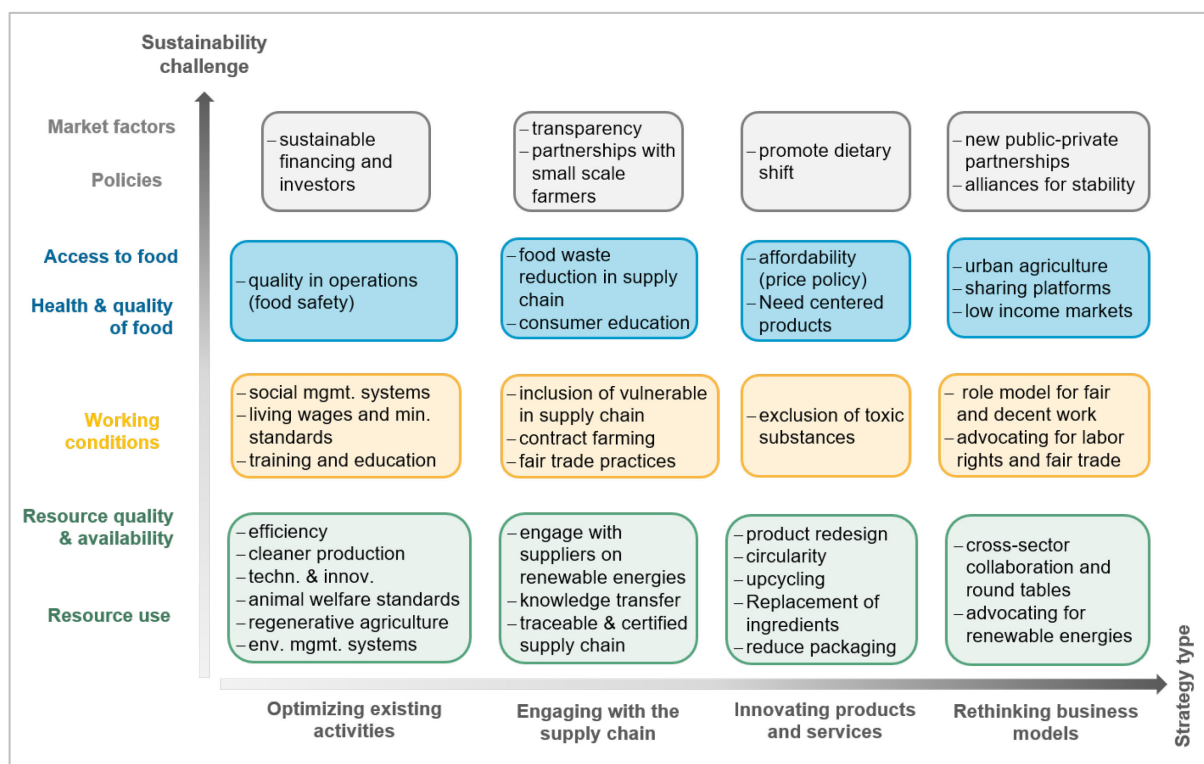
The x-axis displays the four different strategy types explained in section C2.2. The y-axis indicates the different sustainability challenges analyzed in section B1.3. The figure shows that each strategy in the TSS portfolio can help to address a certain sustainability challenge. For example, in order to address the challenge of air pollution and GHG emissions (lowest line in figure 43), a business could implement cleaner production measures in its own operations. At the same time, it could choose to work with its suppliers to help them increase their usage of renewable energies. Further, new products could be designed that emit fewer GHGs, like meat alternatives. Yet another way to contribute to solving the environmental challenge of air pollution in the food sector is by advocating for renewable energy at the state level and by engaging in cross-sector alliances for

alternative proteins. This example helps to better understand the application of the TSS portfolio to specific sustainability challenges in the food sector.

However, at this point of research, it cannot be stated whether one strategy type is better suited to address a certain challenge than another. The choice for the most effective strategy is influenced by different factors, like the type of business. Given the many possibilities of meeting the different challenges, future research needs to focus on measuring the *actual impact* of the strategies on the challenges to help determine the appropriate strategy for the specific challenge.

One preliminary insight offered by figure 43 is that the challenges in the political and economic framework (upper line in figure 43) tend to favor collaborative approaches. It can be assumed that as soon as the challenge is outside the direct area of business impact, systemic approaches and collaborative actions are needed. Further research needs to be done to validate these cursory observations.

Figure 43: TSS for specific challenges in the food sector



Source: Own illustration

C3 Develop Truly Sustainable Strategies

This section addresses the question of how to successfully develop TSS; meaning to define which factors facilitate the development process of TSS. Section C3.1 clarifies the foundations of the strategy development process by defining the enabling parameters of TSS development and by providing an overview of the different factors that influence strategy development. Next, section C3.2 describes the enabling organizational factors for developing TSS, illustrated by insights from the experts' interviews. Finally, section C3.3 summarizes and discusses the results. It also introduces a dynamic perspective on the development process of TSS in order to acknowledge the shortcomings of the planning based approach.

C3.1 Influencing Factors of Strategy Development

According to the planning based approach informing this research, strategy formation consists of several consciously made decisions (Learned et al., 1965). Therefore, the strategy development process can be defined as “the management processes that inform, shape, and support the strategic decisions confronting an organization” (Dyson et al., 2007). In what follows, the different factors that shape this process are elaborated in detail.

The determinants of the strategy development process can be grouped into four categories: 1) environmental factors, 2) situational factors, 3) individual factors, and 4) organizational factors (Simons & Thompson, 1998). Although the dissertation focuses on organizational factors, an overview of the influencing factors in the other research streams is necessary to get a holistic picture of the body of knowledge and to set the boundaries for this research. Table 20 provides an overview of the determinants of the strategy development process that are discussed below.

Table 20: Determinants of the strategy development process

Influencing factors	Suggested determinants	Examples of references
1) Environment	national culture, economic dynamics, political regulations, environmental heterogeneity, external pressure	Simon & Thomason, 1998; Hutzschenreuter & Kleindienst, 2006; Papadakis et al., 1998
2) Situation	- decision specific: time constraints, urgency, strategic relevance, cause, associated risk or opportunities - process specific: rationality, complexity, communication, formalization - problem specific: wickedness, salience	Rajagopalan et al., 1993; Simons & Thompson, 1998; Hutzschenreuter & Kleindienst, 2006; Papadakis et al., 1998; Neugebauer et al., 2016
3) Individual	- demographic characteristics: gender, age, origin - personal characteristics (predisposition): values, experience, power, educational background - team characteristics: size, openness, heterogeneity	Hambrick & Mason, 1984; Hitt & Tyler 1991; Hutzschenreuter & Kleindienst, 2006; Papadakis et al., 1998; Simons & Thompson, 1998; Neugebauer et al., 2016; Walls & Hoffman, 2013; Walls & Berrone, 2017
4) Organization	- static characteristics: age, size, stage of development, past performance - dynamic characteristics: structure, culture, leadership, employees	Neugebauer et al., 2016, Hutzschenreuter & Kleindienst, 2006; Papadakis et al., 1998; Simons & Thomson, 1998

Source: Own illustration based on Neugebauer et al. (2016), Simons & Thompson (1998), and Hutzschenreuter & Kleindienst (2006)

1) Environmental factors

The first group of factors covers the company's environment, i.e. the external context in which a business operates. Factors like the national culture, economic dynamics, political regulations, or the environment's heterogeneity influence the development of strategies (Hutzschenreuter & Kleindienst, 2006; Papadakis et al., 1998; Simons & Thompson, 1998). In the context of environmental strategy development, Delmas and Toffel (2004) have noted the influences of the outside environment, such as stakeholder or institutional pressures.

2) Situational factors

The second group of factors, situational factors, are important influencers of strategy development (Papadakis et al., 1998). Researchers examine the influence of decision specific circumstances like time constraints, urgency, strategic relevance, cause, and associated risks or opportunities (Hutzschenreuter & Kleindienst, 2006; Rajagopalan et al., 1993; Simons &

Thompson, 1998). Papadakis et al. (1998) add process criteria, like the underlying rationality, complexity, communication, and the degree of formalization as decisive criteria for decision processes. Neugebauer et al. (2016) propose the nature of the problem, meaning the problem's wickedness and salience, as another decision specific factor in the context of sustainability strategy development.

3) Individual factors

The third set of factors are individual factors. These, according to the upper echelons theory (Hambrick & Mason, 1984), influence strategic choices. Research focuses on demographics such as gender, age, origin, and personal characteristics—like personality or the values of the top management teams or CEOs (Papadakis et al., 1998; Simons & Thompson, 1998)—to determine their effect on the strategy development process. In the sustainability strategy field, researchers look at the influence of individuals' environmental experiences (Walls & Hoffman, 2013), informal power (Walls & Berrone, 2017), or their educational background (Lewis et al., 2014) on strategic processes and outcomes. Top managers' mindsets or mental models are seen as a key factor in developing and changing sustainability strategies (Kaldschmidt, 2011). Additionally, attributes of the decision making team, like size, openness, or heterogeneity, are also found to influence the strategy process (Hutzschenreuter & Kleindienst, 2006; Neugebauer et al., 2016).

4) Organizational factors

The fourth set of factors, organizational factors, can be grouped into two categories: static and dynamic organizational characteristics (Hutzschenreuter & Kleindienst, 2006). The static characteristics cover factors that are difficult to change, such as a company's age and size, stage of development, or past performance (Hutzschenreuter & Kleindienst, 2006; Neugebauer et al., 2016; Papadakis et al., 1998). Dynamic characteristics are easier to influence and

adapt.³⁷ Commonly suggested dynamic determinants are culture, leadership, structure,³⁸ and employees (Hutzschenreuter & Kleindienst, 2006; Simons & Thompson, 1998). These four factors build the focus of the analysis in section C3.2 and are briefly introduced in the following paragraphs.

Culture: The set of shared values, beliefs, and common understandings, defined as organizational culture, are an important factor in explaining differences in the strategy development process (Hutzschenreuter & Kleindienst, 2006). An organizational culture guides the behavior of all human beings within the company and therefore highly influences the way information is gathered and interpreted in order to make decisions (Pant & Lachman, 1998).

Leadership: Leadership and managerial attitudes are a decisive factor that guide human behavior and influence strategy development. Researchers agree that leaders often have a substantial impact on strategy development as the skills, knowledge, and style of leaders influence the process of evaluating information (O'Reilly et al., 2010). To an extent, these determinants are related to the individual factors that were presented earlier, like the values or personality of the leaders. This overlap shows the multidimensional interaction between the strategic determinants as pointed out by Simons and Thompson (1998). The difference between leadership as an organizational factor and as an individual factor is that the factors considered in the organizational context largely refer to the behavioral side of decision making whereas those considered in the individual context—age, educational background, experiences, gender—refer to an individual's disposition (Hutzschenreuter & Kleindienst, 2006).

³⁷ Some researchers divide the organizational factors into soft and hard ones (e.g., Peters & Waterman, 1982). Hard factors refer to something formal, tangible, and measurable, like the organizational structure or the strategy. In contrast, soft factors refer to less formal and difficult to measure concepts, including organizational culture, leadership styles, or criteria related to interpersonal relationships. This division is comparable to the idea of static and dynamic characteristics suggested by Hutzschenreuter and Kleindienst (2006).

³⁸ Hutzschenreuter and Kleindienst (2006) assign "structure" to the static organizational category. However, due to the frequently discussed measures of how to embed sustainability into organizational structures, this factor is considered as a dynamic one in this dissertation.

Structure: Organizational structure is proposed as a decisive factor of strategy development (Covin et al., 1994). The way an organization is designed and organized influences the strategy development as it defines the distribution of power, responsibility, and accountability (Ramus & Steger, 2000; Sharma, 2000). Dyllick and Muff (2016) also point to the importance of structure, culture, and leadership for a company to become truly sustainable: “They span not only the fields of governance [...] but also culture and leadership” (p. 169).

Employees: Simons and Thompson (1998) identify the involvement and influence of employees as another determinant of the strategic development process. Given that an organization is made up of people and decisions are made by individuals, the strategy development process is highly influenced by them. Human capital is a key influencing factor in achieving organizational goals and results. Therefore, their skills and abilities highly influence the strategy development process.

This overview showed the different influencing factors of the strategy development process. The focus of this dissertation is on the influence of the four dynamic organizational characteristics: culture, leadership, structure, and employees. The other factors influencing strategy development, especially the environmental and situational factors, cannot be controlled by the company—they are given. For example, although the economic conditions do greatly influence the type of strategy a company develops, the company cannot influence these conditions; it can merely react to them. In contrast, dynamic organizational factors can be actively shaped and designed by the company. The company can change its structure and culture in a way that they support the achievements of certain goals. Also, the kind of leadership a company has, and the kinds of attitudes its employees have, can be changed to be more beneficial for the company’s goals. Section C3.2 focuses on what these factors look like for TSS.

A limitation of this approach is the focus on an isolated factor influencing strategy development. There do exist multidimensional interactions between the four main categories of strategic determinants as pointed out by Simons and Thompson (1998). This interaction makes it difficult to disentangle any one single factor from the rest. This limitation is acknowledged and further discussed in section C3.3. However, this study does explore the multidimensional interaction of factors within the organizational factor's category itself. As section C3.2 shows, organizational factors influence each other. For example, organizational culture cannot be regarded in isolation as the culture also influences leadership and vice versa. Further, the employees also influence the culture because people bring the culture to life. Hence, the multidimensional interaction between the factors is considered within one category.

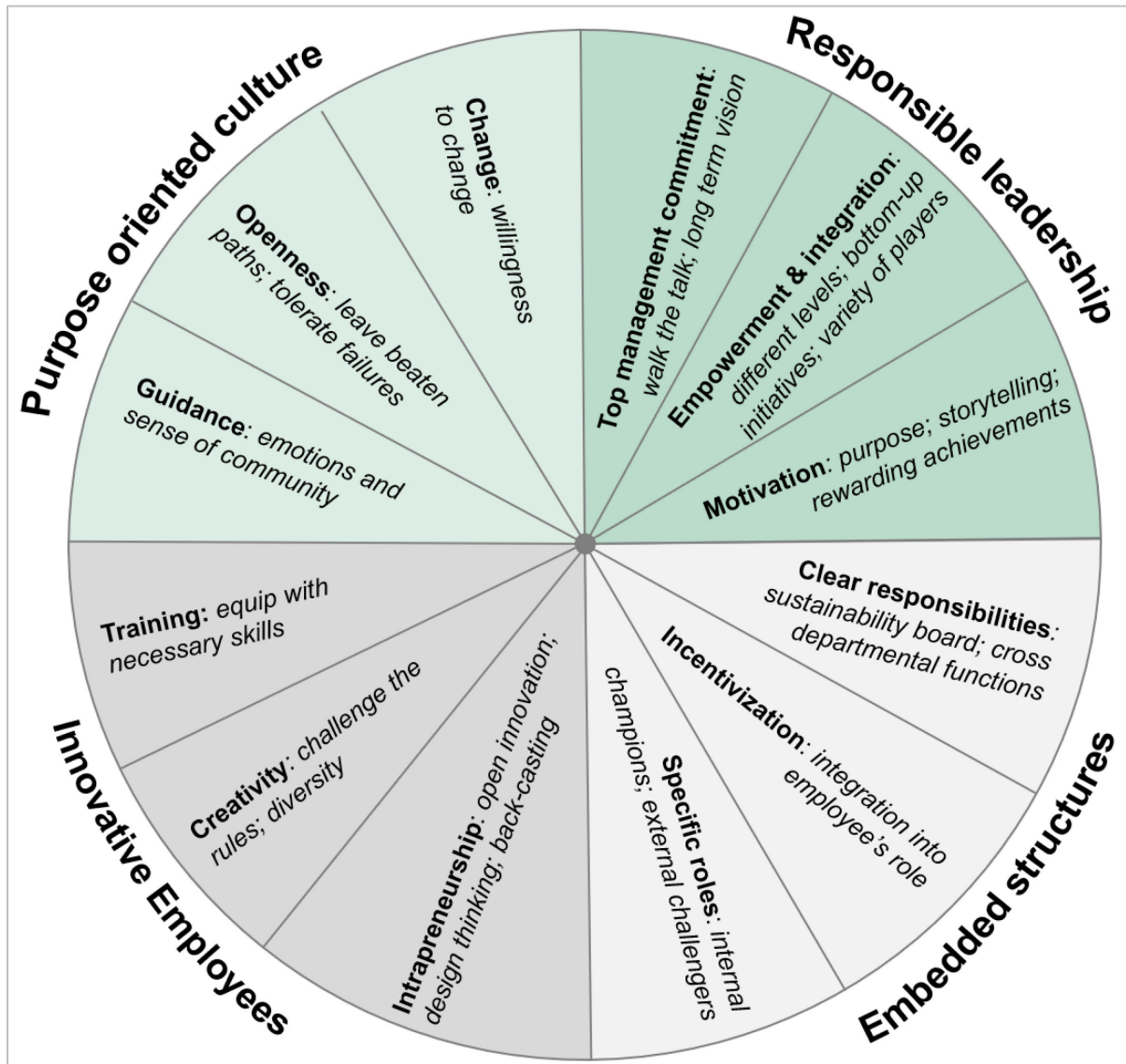
C3.2 Organizational Enablers of Truly Sustainable Strategies

This section applies the factors that shape the strategy development process to TSS. As stated, the focus is on the dynamic organizational factors that influence strategy development: culture, leadership, structure, and employees. The following four sections show what they look like for TSS.

First, C3.2.1 shows the values that facilitate the development of TSS. A purpose oriented culture is a key aspect to enable TSS. This section discusses how a purpose orientation fosters the development of TSS and how a purpose can be embedded in the organization's culture. Second, C3.2.2 sheds light on the type of leadership that drives TSS and shows how responsible leadership fosters the development of TSS. Third, enabling factors related to the organizational structure are addressed in C3.2.3. This section shows how sustainability can be embedded throughout the organization and in the development process of TSS. Fourth, C3.2.4 shows how an innovative workforce is key to developing TSS and how employees can facilitate this process.

Figure 44 summarizes the enablers of TSS that are discussed in the following sections.

Figure 44: Enablers of TSS



Source: Own illustration

C3.2.1 Purpose Oriented Culture

An organization's culture is defined as the assumptions and values that specify a shared understanding among people in the company about "who they are," "what they do," and "how they do" these things (Bertels et al., 2010). An organization's purpose defines the reason for its existence. It influences how a firm interprets its role within society and shapes the understanding of what is done and how these things are done.

A “pro-society purpose” is the commitment to use business to make the world a better place (Grayson et al., 2018). As shown in section C1.4, the purpose of a truly sustainable business is to serve the common good by generating positive societal values (Dyllick & Muff, 2016). The culture of an organization plays a fundamental role in bringing this purpose to life (Bertels et al., 2010). Indeed, the facilitating role of an organization’s culture to bring sustainability on the strategic agenda was indicated in section B2.1 (Dutton, 1986). This section elaborates on how a purpose orientation fosters the development of TSS and how a purpose can be embedded into the organization’s culture.³⁹

Guidance

“The purpose is like a guiding star. When trying something new or making a decision you can hold it up against the purpose to see if it fits the overall direction” (Interviewee K). This quote shows that a purpose provides guidance for the whole business, including the decision making process that managers undergo when developing TSS. Interviewee K suggests that managers should ask themselves at every stage of the process whether the consequences of the decision contribute to solving a greater societal issue. This focus on the societal impact can be reinforced by making it easier for employees to make decisions about actions that support sustainability, for instance, by providing sustainable transport options for employees or by supporting employees’ sustainability efforts. This support would offer employees incentives to take decisions that are in line with the business’s purpose (Bertels et al., 2010). Inspiring people to share a strong belief in sustainability and valuing behavior that supports a desired direction helps to establish sustainability as a guiding principle of strategic decision making.

³⁹ The focus in this section is on the development of a purpose oriented culture and how it can be used to facilitate the development of TSS. What a purpose orientation looks like for TSS and how it influences a truly sustainable business were already discussed in C1.4.

Emotions and a sense of community: “People are easily guided via emotions and a sense of community” (Interviewee P). According to the literature on positive organizational scholarship, an organizational culture based on compassion, respect, and honesty supports positive organizational contributions (Cameron & Dutton, 2003). A purpose can create such emotions and a sense of community as “everyone is pushing against the same things” (Interviewee H). People unite behind a common purpose and are honored to contribute to a greater good: “You can try to engage them on the challenges and make them proud of being a company that actually contributes to society”, explains Interviewee E. How individual contribution to societal purpose can be used to motivate employees will be discussed in more detail in the section on leadership (C3.2.2). Guiding via emotions and creating a sense of community can be an important step toward a purpose oriented culture that supports the development of TSS.

Openness

According to Grayson et al. (2018), openness is a key characteristic of a purpose driven company. A culture of openness means that knowledge and information are shared and constructive criticism is promoted. These actions enhance trust among employees and foster commitment (Gutierrez & Hussein, 2015). Other researchers confirm that sharing information on sustainability raises the level of awareness as well as commitment to sustainability, which helps to embed sustainability in the organization’s culture (Bertels et al., 2010). Interviewee F adds that openly sharing knowledge increases innovation, which is key for TSS.

Leave beaten paths: Openness includes to be open to new things. In order to use business as a force for good, creative approaches are needed. Creativity requires to leave beaten paths to try something different. It also requires unconventional ways of thinking to address emerging challenges. Experimenting, trying, and piloting ideas can foster the development of innovative and ambitious sustainability strategies, suggest Interviewees B and N. These suggestions show that a culture of openness is a key trigger for radical innovations required for TSS. The aspect of innovation is further discussed in section C3.2.4.

Tolerate failures: A culture of openness also tolerates failures. A mentality of trial and error is important to enable TSS, as interviewee M states: “Being open to failure, admitting mistakes and being willing to work on them... it is important to learn from failures.” A study by Davis-Peccoud et al. (2018) supports this finding: Learning how to overcome failures is critical to make change happen (Davis-Peccoud et al., 2018).

Change

Willingness to change: Making change happen is key for TSS. Creating a possibility for change and embedding this possibility into the culture is essential to enable TSS. Establishing a culture of change is important for innovative organizations: “You need to show a willingness to deeply engage in the discussion about sustainability within the whole business,” says Interviewee D. Providing time and space for such deep engagement supports the creation of a dynamic toward change. These elaborations show that the willingness to change is essential to trigger change and enable TSS. Embedding this notion into cultural values is key to develop TSS.

To sum up, this section showed three factors that help embed a purpose orientation into an organization’s culture and facilitate the development of TSS: using the company’s purpose as a guide in the decision making process, establishing a culture of openness, and creating a possibility for change.

C3.2.2 Responsible Leadership

Besides a purpose oriented culture, a responsible leadership is important to develop TSS. This section shows aspects of responsible leadership that foster the development of TSS.

Top management commitment

Integrating sustainability into the business’s core strategy requires direction and leadership from an organization’s top levels: “Without the commitment and integration of the top management it is not possible,” says Interviewee N.

Top management's commitment to sustainability is central to successfully developing TSS. Grayson et al. (2018) describe a strong commitment to sustainability from the CEO, founder, or a few key players in the organization as a catalyst for substantial changes toward business sustainability. Other researchers and practitioners (Bertels et al., 2010; Dunphy et al., 2003) also emphasize the importance of top management's commitment to sustainability. Bertels et al. (2010) add that publicly committing to sustainability helps to embed sustainability throughout the organization and increase motivation. The interviewed experts—Interviewees I, N, and F—agree with the high relevance of top management's commitment for TSS.

Walk the talk: “The employees won't believe you unless you tackle the things they see every day. It's about living sustainably and walking the talk,” says Interviewee K. Leaders who serve as a role model and walk the talk are perceived as authentic. Bertels et al. (2010) agree that business leaders should enact the behavior they wish employees to emulate. Prioritizing sustainability in decision making helps leaders show that they practice what they preach (Epstein, 2008). Interviewee L adds that in order to authentically push sustainability within the organization, leaders have to be familiar with the topic. The facilitating role of knowledge within the strategic agenda setting was already shown in section B2.1 (Dutton, 1986). Further, Interviewee I emphasizes the importance of a charismatic leader for strategic change. The positive effect of charismatic leadership on catalyzing social change is also pointed out by Fiol et al. (1999). The authors show that charismatic leadership motivates others to follow an articulated vision.

Collectively, these studies show that an engaged, authentic, knowledgeable, and charismatic leader who makes sustainability a priority facilitates the development of TSS.

Long term vision: “With an orientation on short term profits, the development of TSS is not possible,” states Interviewee F. Responsible leaders create a shared long term vision for sustainability and persistently follow it. According to

Grayson et al. (2018), top leaders need to constantly emphasize the organization's overall plan to employees. Hart (1995) also names the development of a shared vision as one of the three key capabilities for a business to become sustainable. Bertels et al. (2010) emphasize the need to constantly reinforce the sustainability orientation in order to embed it throughout the organization. They propose regular checkpoints to ensure that the vision is pursued in the long term: Informing, repeating, and following up are key practices to create and follow a sustainability vision. The benefits of integrating sustainability into the organization's vision range from increased accountability and encouragement to sustainability and higher alignment with and motivation among employees (Bertels et al., 2010; Epstein & Roy, 2001). Showing what it would be like if the organization's vision were truly sustainable can help guide and motivate employees toward this goal: "Develop a vision that not only states where we can end up using current paths, but how we can contribute to this society in fifty years' time," states Interviewee B. In sum, communicating and following a long term vision is key to developing TSS.

Empowerment and integration

The empowerment and integration of employees in the development process of TSS is crucial: "Leaders should provide the possibility for participating and engaging in strategy development," states Interviewee M. Several researchers (Bertels et al., 2010; Buysse & Verbeke, 2003) point out the importance of involving employees in sustainability strategy development. A meaningful work environment empowers and encourages employees (Thomas & Velthouse, 1990), which energizes them to engage with and be motivated for their tasks. Meaningfulness can be reinforced by providing choice; self-determined choices at the workplace are an important aspect of empowerment (Thomas & Velthouse, 1990). Further, showing the potential positive impact of their work also motivates people to engage in making a difference (Thomas &

Velthouse, 1990). Emphasizing this impact is a key aspect when aiming to empower and integrate employees.⁴⁰

Interviewee M believes that empowerment can have positive effects on employees' commitment: those involved in the strategy development process tend to be especially committed to the strategy. When employees are integrated in the organization's strategic planning, they feel like a part of the organization and its success. Further benefits of empowerment are improved quality of the strategic decisions, more innovation, and increased job satisfaction (Yukl & Becker, 2006).⁴¹ According to Grayson et al. (2018), engagement, empowerment, and inclusion of employees are key attributes of leadership in the era of purpose driven businesses. Leaders who empower employees and promote their engagement in strategy development enable TSS.

Different levels: Grayson et al. (2018) point out that the integration of sustainability across the company is essential for responsible leadership. Interviewees I, H, N, and B agree that the involvement of employees from several departments helps to generate strategies with far reaching and effective contributions. Hence, the empowerment and integration of employees at different levels in the organization into the strategy development process is important to develop TSS.

Bottom-up initiatives: The promotion of bottom-up initiatives is crucial: "Not only big bosses deciding about what is going to happen but also giving space to any kind of employee to raise specific concerns and say: 'Hey guys, did you think about this? Is there something more we could do for sustainability by doing that?' This kind of voice should be heard by the management," finds Interviewee O. Leveraging grassroot initiatives can be a good way to let employees drive positive change (Bertels et al., 2010). Internal sustainability competitions between brands can help to involve employees and promote

⁴⁰ The positive effect of showing the impact on motivation is further covered in the paragraph about motivation. This overlap shows the interconnectedness of the influencing factors.

⁴¹ The positive impacts of empowerment on innovation is discussed in section C3.2.4, which again shows the interconnectedness of the different influencing factors of the strategy development process.

bottom-up initiatives. Other researchers agree that internal competition between business units could be a good way to motivate and encourage employees to think about sustainability and take actions to achieve it. Internal competitions can help to initiate, identify, and recognize initiatives from the bottom-up (Bertels et al., 2010).

Variety of players: Dyllick and Muff (2017) point out that a variety of players need to be integrated for successful sustainability strategy development. Accordingly, the “integration of relevant societal stakeholders into the decision making process on all levels of the organization” (p. 21) is key to becoming truly sustainable. Hart (1997) emphasizes stakeholder integration as an important aspect for the development of sustainability strategies, as do Interviewees F, S, M, and B.

Motivation

Purpose: Motivation is an important aspect of responsible leadership for TSS. People can be motivated and guided via purpose. Interviewee A suggests that knowing why a business is operating and knowing that its work contributes to a greater good in society increases employees’ motivation and commitment to the business. The previous section showed that a meaningful work environment increases engagement and motivation (Thomas & Velthouse, 1990); a purpose can create this meaningfulness. Interviewee T adds: “Everybody wants to be ‘on the good side.’” This quote shows that a purpose orientation helps to motivate people and get them to commit to the organization. A purpose also creates a sense of community, as shown in C3.2.1. Interviewees E and H reinforce that working toward the same thing unites people to commit to a shared goal.

Storytelling: Communication and language are at the core of strategic decision making. They influence the way choices are justified and legitimized throughout the strategy development process (Lechner & Müller-Stewens, 2000). Storytelling can help to motivate people and get them to commit to the developed strategy. Telling success stories is a powerful way to convince people to stand together behind a shared vision. Dunphy et al. (2003) show that

storytelling fosters the commitment to shared values. Stories and case studies of successful sustainability initiatives create a sense of accomplishment and inspire people to continue on this path (Hagen, 2008). Others point out that storytelling is essential to convey the sustainability message to all employees (Andersson & Bateman, 2000)—it disseminates a shared vision and helps convince people of the organization's purpose to contribute to society.

Storytelling creates advocates for the sustainability orientation of an organization, which fosters innovation and the adoption of new ways of doing things (Jassawalla & Sashittal, 2002). Interviewee A describes the positive effect of using success stories on internal innovation days: "People are proud to show what they achieved. This motivates others." She adds that such concrete examples of successful initiatives bring sustainability closer to the employees because they know what a positive outcome could look like. Making individual actions more concrete also helps to connect personal sustainability activities to organizational sustainability activities, which increases employee commitment and motivation (Bertels et al., 2010). In sum, storytelling is a useful tool for leaders that want to motivate people to take committed steps toward sustainability.

Rewarding achievements: Grayson et al. (2018) state that leadership needs to promote, recognize, and reward performance that reflects the desired direction. In regards to sustainability, rewarding employee achievements helps to embed sustainability into the organization. Bertels et al. (2010) also state that appreciation and recognition of employees' sustainability efforts are an important aspect of embedding sustainability throughout the organization and within the decision making process. Doppelt (2003) proposes that organizations celebrate sustainability successes on a regular basis. Based on the idea of celebrating success, Angel del Brio et al. (2008) suggest that rewarding individual efforts helps to build a commitment to sustainability. Interviewee T and B also mention that rewards for sustainability efforts and the communication of accomplishments by leaders are enablers of TSS.

To sum up, this section identified three main aspects important for responsible leadership in enabling the development of TSS: management commitment, employee empowerment, and integration and motivation.

C3.2.3 Embedded Structures

The structure of an organization defines who is responsible for sustainability and how sustainability is embedded within roles and structures. Grayson et al. (2018) state that sustainability needs to be integrated into core business activities and across functions in order to bring the purpose of the company to life. Section C1.4 showed that integrating sustainability into core business activities is essential for TSS. To ensure that sustainability is embedded throughout the organization and in the strategy development process, several aspects of structure should be considered, as discussed below.

Clear responsibilities:

Defining clear responsibilities within the organization helps to push sustainability throughout the business and also helps to monitor its implementation, say Interviewees B, N, and T. Bertels et al. (2010) propose that setting explicit sustainability goals and clear responsibilities help to achieve sustainability targets.

Sustainability board: One way of assigning responsibilities is to establish a sustainability board. Such a committee ensures that societal aspects are integrated across all departments and into the decision making processes: “It needs to be a cross-cutting functionality in the institution. It is very helpful to have a credible facilitator that both lays out the challenges and runs the process,” posits Interviewee I. Interviewees B, C, and T suggest that the steering committee should incorporate diverse people from different backgrounds in order to critically review the process and to facilitate the development of new ideas. “It is comparable to a personal trainer in sports, like a dunning figure,” says Interviewee B. The board monitors the process and helps the organization stay on track with its goals.

Cross-departmental functions: If a sustainability department is established, it is important that it not be separated from other departments. “The sustainability experts need to speak the language of the firm,” says Interviewee M. Having an open dialog with people from different divisions and hierarchies can help to demonstrate that sustainability is a topic everybody can contribute to. Functions across departments support strategy development and ensure sustainability throughout the company: “There needs to be a connection between the sustainability people and the ones in the established business. Often it helps to have roles in several projects or departments to not lose ground,” says Interviewee A. Dyllick and Muff (2017) also suggest an integration of sustainability into different functions and divisions as an important step toward TBST. This functional integration helps to embed sustainability throughout the strategy development process and tie it to existing business activities.

Incentivization

Integration into employees' roles: Another way to structurally support the development of TSS is to incentivize employees. Interviewees C and N believe that integrating sustainability into employees' roles will incentivize the employees to make decisions that support sustainability at all levels. Bertels et al. (2010) support this by proposing that “sustainability goals should be set at the organizational level, the level of business units and departments, and at the individual level” (p. 29). Including sustainability in personal goal setting helps to achieve firm's sustainability targets. This aspect is also pointed out by Interviewee T: “If the goal of a brand manager is to increase the amount of organic food sold, then it does not matter what personal incentive they have. They receive a bonus and it is their job to do so.” These examples show that providing incentives to individuals can help to embed sustainability in the strategy development process at all levels.

Specific roles

Internal champions: Defining specific roles that push sustainability throughout the company helps to develop TSS. Interviewees F and M suggest that installing

internal champions can facilitate the successful development of strategies. These catalysts and change makers help to embed sustainability throughout the development process: “It is very important to get those people included into the strategy development process,” says Interviewee R. Further, supporting and recognizing the efforts of these ambassadors is important to keep them motivated and spread their engagement throughout the company (Bertels et al., 2010). This fact again points to the aspect of rewarding desired behavior as discussed in the previous section. The advantage of integrating internal champions into the strategy development process is two-fold, according to Interviewee A: First, supporting lateral thinkers fosters creativity. Second, it helps to embed sustainability in different roles and push it throughout different levels. These internal sustainability ambassadors can help facilitate sustainability initiatives and should be supported and recognized accordingly.

External challengers: Dyllick and Muff (2017) point out that including outside players in organizational structures is key to becoming truly sustainable. Including them in open and dynamic structures supports the company’s reorganization around societal challenges, which is important for TBST. External people can inspire business and lead to drastic changes toward sustainability. The CEO of M&S, for example, was inspired by the environmentalist Al Gore when developing the sustainability strategy (Grayson et al., 2018, p. 44). This example again points to the importance of integrating diverse stakeholders into the strategy development, as discussed in the previous section.

To sum up, this section showed that there are three main structural elements that help to embed sustainability throughout the organization and which support the development of TSS: defining clear responsibilities and specific roles for sustainability, incentivizing employees by building sustainability into their roles, and including external players in the organization’s structure to help push the organization toward making radical changes.

C3.2.4 Innovative Employees

The fourth influencing factor of strategy development is employees. People form the core of any company, hence aligning employees with the company's values helps the company to achieve its goals. Bertels et al. (2010) show how different staffing decisions support the transition toward sustainability. These include recruiting people with a passion for sustainability, allocating skilled and motivated people to the right roles, and promoting employees with sustainability values to higher positions. Interviewee T adds, "Ideally, the people in the sustainability department get promoted into other departments in the firm. This helps to spread sustainability across the company." The following paragraphs elaborate how employees can foster innovation and support the development of TSS.

Intrapreneurship

To create TSS, an innovative workforce is of high importance. Innovation can be fostered throughout the strategy development process through different approaches. Intrapreneurship can "unleash internal creativity of employees through crowdsourcing, incubators, and support" (Krgovic, 2019). Such behavior is necessary to develop innovative TSS. Interviewees F, P, I, and K point out that different innovation methods—like open innovation, design thinking, and back-casting—can facilitate the development of TSS. These concepts are discussed in the following paragraphs.

Open innovation: "Open innovation is essential. It is not possible without open innovation," states Interviewee F. Coined by Chesbrough (2003), open innovation encourages the use of external and internal ideas to foster innovation. This purposefully open and cooperative process stands in contrast to the traditional approach of developing innovations in isolation and in secret, revolutionizing the basic assumptions in strategic and innovation management. Kennedy et al. (2017) find that open innovation can enable the innovation process, and Bertels et al. (2010) add that openly sharing knowledge, both internally and externally, can reinforce creativity.

Further, Interviewee F points out that an open innovation space can enable interaction between people from different backgrounds and aid the exchange of ideas and ways of thinking. It could be a space to try something new and to receive feedback from various perspectives. Such innovation spaces can help broaden the horizon and procure different inputs to creatively develop new strategies. In sum, open innovation can foster creativity and innovation, which are essential to designing TSS.

Interviewee M, however, points out that people cannot be forced to be innovative—fixed and assigned innovation spaces may not lead to the intended results. Hence, creating possibilities for informal interaction could be a more effective way to increase innovation in strategic processes. Such informal ways of interaction also need to be supported by higher management, suggests Interviewee M. Providing time and resources for interaction can foster sustainability commitment and employee engagement (Bertels et al., 2010; Dunphy et al., 2003).

Design thinking: Design thinking is a way of creative problem solving. Focusing on the needs of the user, this method uses rapid prototyping with iterative feedback loops to develop ideas that meet those needs (Brown, 2008). This approach allows organizations to creatively address challenges from a new perspective, which is highly relevant for the development of TSS, says Interviewee K. Continuous improvement is identified as one of the key capabilities that a company needs to develop in order to manage sustainability (Hart, 1995). These iterative feedback loops—“a continuous loop of reflection and rethinking of current activities” (Interviewee S)—are pointed out to be especially relevant for TSS. Creating space for reflection and improvement is key to enable TSS.

Back-casting: Back-casting is a method that facilitates visioning instead of predicting. Here, goals are formulated in a first step, after which actions and measures are developed to reach these goals. This approach involves working backward, which means thinking back from the future to the present (Robinson,

1982). Bertels et al. (2010) suggest this reverse engineering approach in order to embed sustainability into the core business and to foster innovation. Additionally, Davis-Peccoud et al. (2018) describe future-back thinking as the next-practice of businesses in creating transformational changes. Back-casting is in line with the outside-in perspective of TBST: designing a desired future and working backward to determine the necessary steps to get there. Therefore, implementing back-casting approaches into the strategic process can support the development of TSS.

Creativity

Creativity is an essential ingredient in all innovation methods. Organizational creativity is not only affected by employees' skills but can also be reinforced by other factors, like leadership style, organizational culture, or organizational structure (Andriopoulos, 2001). This overlap of reinforcing factors again shows the interconnectedness of the different influencing factors.

Challenge the rules: Promoting innovation requires people to think outside the box and to challenge the rule, which, according to Otto Scharmer's Theory U, is crucial to creativity: an open mind can foster the imagination of a desirable and seemingly impossible vision (Scharmer, 2016). To think the impossible is essential to developing the necessary innovations for sustainability: "You will need to address impossible things. [...] The radical shifts in nature will produce something that we didn't think about before and that is out of our framework of reference. What maybe was impossible, will be possible later... we don't know exactly what is going to happen," states Interviewee L. Hence, being open to new ideas and challenging existing assumptions in the strategic development process is crucial for TSS.

Diversity: In order to challenge existing assumptions and think the impossible, it can be helpful "to change the filter bubble [...] and dive into the world of others to get purposefully irritated," says Interviewee B. This disruption can be reinforced by working in diverse teams. Interviewees B and N mention that different backgrounds help to challenge one's own assumptions and to foster

innovation. The positive effect of diversity on innovation and the sustainability orientation of a firm is also confirmed by Bocquet et al. (2019). The authors show that gender and national diversity increase product or process innovation. Lechner and Müller-Stewens (2000) also show that diversity increases creativity, team cohesion, and the capacity of to analyze problems.

Despite these positive effects of diversity, research also shows contrary results. Diversity can lead to more complex decision making due to difficulties in communication or coordination (Lechner & Müller-Stewens, 2000). Hence, leaders must carefully observe and manage the degree of diversity in order to benefit from the positive effects.

Training

Equip with necessary skills: “Motivating employees and bringing them on board of the development process is of high importance. This includes providing training in sustainability related topics,” asserts Interviewee F. Bertels et al. (2010) confirm this statement and emphasize the need to equip employees with the necessary expertise in sustainability in order to enable them to develop creative and feasible ideas to tackle the challenges. Hence, not only does top management need to be trained on sustainability specific topics as shown in section C3.2.2, but it is also important to provide employees with the necessary knowledge and skills to manage the challenges. Anderson et al. (1992) add that training is required to enhance creativity; providing training promotes the creative engagement of employees in the sustainability journey.

To sum up, this section showed that innovative employees are a critical factor to enabling TSS. Innovation in the workforce can be triggered in different ways: supporting intrapreneurship and creativity, and providing training to equip the employees with necessary skills in sustainability to understand the problems and enable them to develop solutions to them.

C3.3 Discussion: Developing Truly Sustainable Strategies

This section summarizes the organizational factors that support the development of TSS in the following order: 1) purpose oriented culture, 2) responsible leadership, 3) embedded structures, and 4) innovative employees. After summarizing the results, the section shows how the results contribute to the literature and practice, as well as how future research can address the limitations of the findings. At the end of the section, the discussion about emergent strategy development are resumed and shortcomings of the planning based approach are addressed.

Summary and discussion of the results

1) Purpose oriented culture:

The culture of an organization plays a fundamental role in making a shift toward sustainability. A purpose oriented culture can shape the strategy development process in such a way that it supports an organization's value creation for the common good. Three aspects of an organization's culture are especially important for the development of TSS: guidance, openness, and change.

Guidance: Embedding a purpose within the organizational culture provides guidance for decision making (Interviewee K; Bertels et al., 2010). At every step, managers and employees are required to check whether their decision is in line with the overall purpose; meaning whether it contributes to societal value creation. This guidance facilitates the development of TSS, as the purpose of such strategies is to generate positive societal impact on sustainability challenges. Further, embedding a purpose in the organization's culture can generate emotions and a sense of community: Belonging, compassion, honesty, identity, and pride are important values and emotions in a purpose oriented culture (Interviewees P, E; Cameron & Dutton, 2003). Guiding decision making through such emotions facilitates commitment to the developed strategy (Gutierrez & Hussein, 2015).

Openness: Openness is another value that needs to be embedded within the culture (Grayson et al., 2018). Sharing knowledge and information about the purpose and goals of the company are important to develop TSS because they foster innovation, says Interviewee F. Further, these aspects help to increase commitment and trust among employees (Gutierrez & Hussein, 2015). Bertels et al. (2010) point out that sharing information about the company's purpose helps to embed sustainability within the culture. Moreover, openness to unconventional ways and methods of approaching strategy design helps to develop TSS. Leaving beaten paths is a requirement because TSS asks for creative ways to use business as a force for good, remind Interviewees B and N. In order to bring the purpose to life, a culture that values such an attitude is a must. In addition, establishing a culture that tolerates failures and learns from them it is key to developing TSS (Interviewee M; Davis-Peccoud et al., 2018).

Change: Developing TSS means going through radical changes. Therefore, companies must create the time and space to allow such changes to happen, suggests Interviewee D. Rewarding change as aspirational and establishing a willingness to change within the organization's culture is crucial to developing TSS.

2) Responsible leadership:

Responsible leadership plays a central role in enabling TSS. This section summarizes how leaders can create an environment that enables TSS, and covers the different ways that leaders can reinforce commitment, empowerment, and motivation among employees.

Top management commitment: The top management's commitment toward sustainability is a key enabler for TSS, suggest Interviewees B, N, I, and F. This observation is in line with other research showing that leaders who walk the talk are a catalyst for sustainability (Dunphy et al., 2003; Bertels et al., 2010; Grayson et al., 2018). The literature on sustainability strategy development and interviewees agree that the top management's commitment increases the motivation of employees to follow the exemplified direction (Epstein, 2008;

Interviewees I, N). A charismatic leader who is familiar with sustainability can serve as a role model for pushing sustainability throughout the development process of TSS (Dutton, 1986; Fiol et al., 1999; Interviewee L). Further, leaders should create a long term vision for sustainability, which is key for TSS. Committing to sustainability and sharing this vision among employees increases their motivation, encouragement, and accountability (Epstein, 2008; Interviewee B).

Empowerment and integration: Empowerment of employees and their integration into the strategy development process is an important facilitator of TSS, says Interviewee M. Participation is seen as a key attribute of purpose oriented businesses because participation from employees helps to bring the entire company on board of the sustainability journey (Grayson et al., 2018). Other researchers also point to the importance of empowering employees and integrating them into the sustainability development process (Bertels et al., 2010; Buysse & Verbeke, 2003; Hart & Milstein, 2003). Employee's empowerment and integration can increase their motivation and foster their commitment to the developed strategy (Thomas & Velthouse, 1990; Yukl & Becker, 2006; Interviewee M).

The integration of employees from different levels of the company is key to embedding sustainability throughout the organization (Interviewees I, H, N, B; Grayson, 2018). Interviewees O and P point out that letting employees shape the strategy outcome by encouraging them to create bottom-up initiatives is an important enabler of TSS. Empowering employees to drive positive changes helps to increase their innovation, commitment, and motivation (Bertels et al., 2010). Taking these insights together, the integration a variety of internal players into the strategy development process, and the engagement with diverse external stakeholders are both key requirements in the development process for TSS (Dyllick & Muff, 2017; Interviewees F, S, M, B).

Motivation: Motivation is an important enabler of TSS, and leaders can motivate employees to engage in sustainability in several ways. Emphasizing the purpose

of the organization meaningfully unites the employees behind a shared goal, thus increasing motivation and commitment (Interviewees A, T; Dunphy et al., 2003). Organizations could also make use of storytelling to bring across the sustainability message. Storytelling motivates and unites people to continue on a desired path while also increasing their innovation (Andersson & Bateman, 2000; Hagen, 2008; Jassawalla & Sashittal, 2002). Further, showcasing success stories can help to create a better understanding of the company's goals because it makes the sustainability engagement of the company more concrete (Interviewee A; Bertels et al., 2010). Employees can also be motivated by rewarding their achievements (Bertels et al., 2010; Doppelt, 2003; Del Brio et al., 2008; Interviewees T, B). People feel proud when their accomplishments are displayed, and are motivated to continue and to inspire others when their achievements are acknowledged (Dunphy et al., 2003; Hagen, 2008). Motivating people by emphasizing the company's purpose, telling success stories, and rewarding achievements is important for developing TSS.

3) Embedded structures:

Embedding sustainability within the organization and in its core business activities is key for TBST. The following paragraphs summarize how the structure of an organization is a key element in ensuring that sustainability is embedded throughout the organization, and how this embedded structures foster the development of TSS.

Clear responsibilities: Defining clear responsibilities helps to push sustainability throughout the business, which is key for TSS, as Interviewees B, N, and T point out. Additionally, establishing a sustainability board ensures that sustainability cuts across the entire organization. The board monitors the strategy development process and bundles expertise around sustainability, suggest Interviewees B, C, T, and I. Lastly, establishing cross-departmental functions for sustainability embeds sustainability throughout the organization and ensures the connectedness between sustainability and the core business (Dyllick & Muff, 2017; Interviewees M, A; Bertels et al., 2010).

Incentivization: Integrating sustainability into employees' roles would help incentivize employees to adopt sustainability. This, in turn, fosters pro-sustainability decision making at all levels, state Interviewees C and N. Setting sustainability goals at the level of the organization, business units, and individuals also helps to embed sustainability throughout the organization (Interviewee T; Bertel et al., 2010).

Specific roles: Interviewees T and M say that defining specific roles for internal champions and change makers can reinforce the embeddedness of sustainability across different levels. Including these ambassadors in the strategy development process and recognizing their efforts fosters creativity and motivates these employees throughout the process (Bertels et al., 2010; Interviewees A, R). Integrating external challengers in open and dynamic organizational structures can facilitate the development of TSS too. Furthermore, the integration of outside players serves as a source of inspiration when developing sustainability strategies (Grayson et al., 2018).

4) Innovative Employees:

Employees form the core of an organization and can be key enablers of TSS. Staffing decisions can push organizations toward sustainability when, for example, recruiting people passionate about sustainability or promoting people with a sustainability orientation to higher positions (Interviewee T; Bertels et al., 2010). A workforce that is innovative and keen about sustainability can foster the development of TSS, as discussed below.

Intrapreneurship: Encouraging intrapreneurship reinforces innovation among employees and during the strategic development process. One concept to foster intrapreneurship is open innovation. This cooperative process helps to increase creativity by including internal and external ideas (Chesbrough, 2003; Kennedy et al., 2017; Interviewee F). Creating space and time for informal interactions among people is another way to promote innovation. These informal interactions foster sustainability, commitment, and engagement among employees (Dunphy et al., 2003; Bertels et al., 2010). Further, design thinking is

method to foster innovation and helps to creatively solve problems as it includes iterative feedback loops (Brown, 2008). Interviewees K and S agree with the importance of feedback loops and add that changing the perspective within this process is important to foster innovation. Back-casting is another helpful tool within the strategy development process (Robinson, 1982). This tool includes the idea of designing a desired future and working backward to the present. Bertels et al. (2010) and Davis-Peccoud et al. (2018) confirm that this process helps to embed sustainability into the business's core activities and to tune business toward sustainability.

Creativity: Creativity is a key element underlying all intrapreneurship models. Challenging existing assumptions and thinking the impossible is important to fostering innovation (Scharmer, 2016). Especially for TSS, an openness toward the impossible is key, as the challenges are rapidly changing, suggests Interviewee L. Interviewees B and N propose having diversity in organizational teams to foster creativity. This proposition is only partly confirmed by the literature though, as diversity can also have negative effects on creative processes (Bocquet et al., 2019; Lechner & Müller-Stewens, 2000).

Training: Researchers and interviewees agree that training for sustainability is important when including employees in the strategy development process and when fostering innovation. Equipping employees and leaders with the necessary expertise for coping with sustainability issues promotes engagement with and innovation for sustainability (Interviewee F; Anderson et al., 1992; Bertels et al., 2010).

Contributions and implications

The findings of this research contribute a better understanding of how TSS are developed. The research specifies the organizational characteristics which enable the development process of TSS, which enhances research on sustainability strategy development (Hutzschenreuter & Kleindienst, 2006; Neugebauer et al., 2016; Simons & Thompson, 1998).

Hutzschenreuter and Kleindienst (2006) call for more research on the effects of individuals on the strategy process. The results of this dissertation answer their call by analyzing how leaders and employees influence the process. Further, showing how the organizational characteristics shape the development process helps to explain differences in sustainability strategies, as suggested by Hutzschenreuter and Kleindienst (2006).

This increased understanding of the strategy development process has important implications for firms. Knowing what supports the development of TSS can help companies move toward TBST. The description of an ideal process makes managers to reflect on their own strategy making and provides orientation and guidance for improvement. More specifically, a company can critically review its culture, leadership style, structures, and employees to identify how it can increase its effectiveness toward sustainable development. These results contribute to the discussion on how to organize for and manage TBST started by Dyllick and Muff (2017). Since the authors only briefly outline the organizational characteristics that help a company move toward higher levels of business sustainability within their TBST typology, the results of this research add to their concept by further refining the organizational consequences of becoming truly sustainable TBST. This research provides businesses with a guide to address broader societal issues, called for by researchers and practitioners alike (Dyllick & Muff, 2016; Whiteman et al., 2013; Baumgartner & Rauter, 2017; Lankowski, 2016; WWF, 2017; Ferraro et al., 2015).

Limitations and further research

Further research on the facilitators of the strategy development process of TSS can address three main aspects:

First, since the analysis focuses exclusively on organizational characteristics as influencing factors of the strategy development process, other determinants—such as situational, environmental, and individual factors—are not considered. Simons and Thompson (1998) point to the multidimensional interaction between these factors. Hence, further research and deeper development of the

organizational consequences are necessary to refine and test the detected enablers and determine the interaction of the organizational characteristics with other factors.

Second, the analysis and results focus exclusively on factors facilitating the development of TSS. However, to implement these strategies additional business processes, policies, and systems are required, such as reporting on the goals to monitor and track strategy implementation (Bertels et al., 2010). Further research could focus on the supporting factors of the implementation of TSS.

Third, the results build on a planning based approach of strategy formation, as shown in the conceptual framework in section 1.2.1. This approach has its limitations. Neugebauer et al. (2016) suggest that sustainability strategy research would benefit from considering emergent approaches of strategy development as sustainability problems are complex and wicked. However, they also show that both planned and emergent approaches are legitimate under certain circumstances, and emphasize that they complement each other. Future research could test the applicability of a planned strategy development for TSS in practice and study the circumstances under which to use an emergent approach.

Emergent vs. planned strategy development – Acknowledging dynamics

As argued at the beginning of this dissertation, the planning based approach by Learned et al. (1965) is applicable for this research context: outlining a clear structure and the ideal process of strategy formation seem suitable as the dissertation aims to provide orientation and guidance to design and develop TSS. However, a certain degree of flexibility and adjustment are needed throughout the process due to interdependencies, uncertainties, complexity, or time constraints. Worley and Mohrman (2015) argue that agility is needed to navigate through the sustainability journey. Agile organizations are described as effectively managing changes that lead to increased sustainability performance. To that end, flexibility and openness are imperative in order to avoid being stuck in rigid structures (Worley & Mohrman, 2015). This finding

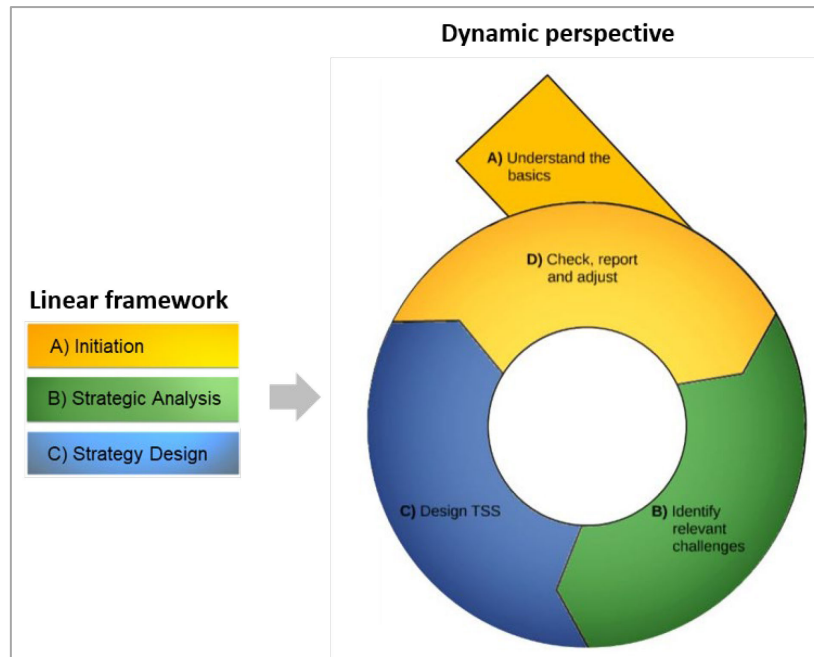
is in line with other sustainability strategy researchers (e.g., Neugebauer et al., 2016; Zhexembayeva, 2014), and the argumentation of this dissertation—that the strategy development process cannot be precisely predetermined by management and that total determinism is not realistic. Dynamics throughout the development process have to be taken into account. Agility and flexibility to react and adapt to the changing environment are essential to account for ambiguity and complexity inherent in sustainability issues.

Additionally, the assumption of the planning based approach to separate strategy formulation from implementation can be critiqued. The two phases cannot always be separated and conducted in a sequential order; overlaps occur and need to be acknowledged (Müller-Stewens & Lechner, 2016).

The following paragraphs show how flexibility and agility can be incorporated into the developed frameworks of the dissertation, and how overlaps between the two phases of strategy formation can be acknowledged. This analysis serves to show how aspects of emergent strategy formation and general characteristics of innovation theories can be integrated into the development process of TSS.

Figure 45 shows how the linear conceptual framework of the dissertation can be adjusted to acknowledge for these dynamics. The conceptual framework on the left in figure 45 shows the linear process of strategy formation based on Learned et al. (1965). On the right, the dynamic perspective of this process is illustrated:

Figure 45: Framework to develop TSS - Dynamic perspective



Source: Own illustration

A) After initiating the strategy formation process by understanding the basics of TSS, B) a strategic analysis is conducted by identifying the relevant challenges. C) Based on this analysis, strategies are designed to address these challenges. D) Checking if the developed strategy meets the characteristics of TSS is an important step to allow for adjustments. The intended strategy may differ from the emergent or realized strategy due to changing circumstances or unexpected opportunities or threats (Mintzberg & Waters, 1985). Therefore, checking, reporting, and adjusting are important steps in the dynamic framework to ensure that the characteristics of TSS are met. To account for dynamics throughout the process, these steps are conducted in a circular order, which adds an element of flexibility and agility to the linear process and ensures the suitability of the developed strategy for the specific challenge.

This dynamic approach ensures a continuous loop of reflection, which is key for innovative strategies. A circle of continuous reflection and space for improvement can increase the overall level of innovation throughout the strategy formation process (Brown, 2008; Krgovic, 2019). This process of reflection and improvement follows the idea of companies as learning entities (Simons & Thompson, 1998), which is an important aspects of innovation theories.

3 Conclusion

The conclusion is composed of five parts: In the first part, the research findings are summarized and the answers to the research questions are shown (section 3.1). In the second part, the findings are discussed by contextualizing them within existing knowledge (section 3.2). In the third part, theoretical and practical implications are derived and recommendations for the food sector are made (section 3.3). The fourth section discusses the limitations of the study as well as further research opportunities (section 3.4), and final remarks close the dissertation (section 3.5).

3.1 Summary of Research Findings

The purpose of this dissertation was to refine the concept of True Business Sustainability (TBS) (Dyllick & Muff, 2016) by identifying business strategies that effectively address societal challenges—which this dissertation calls truly sustainable strategies (TSS). The lack of guidance for businesses about how to effectively address societal challenges was the motivation for this research.

So far, business sustainability approaches have focused predominantly on the business benefits rather than on the societal impact of sustainability strategies. Such an inside-out perspective results in a big disconnect between societal needs and businesses, which is the starting point for this research. The outside-in perspective in Dyllick and Muff's TBS concept is seen as a promising approach to reduce this disconnect as it focuses on the societal impact of business's sustainability activities. However, studies on TBS have not yet fully specified what an outside-in perspective means for business strategies and what TSS look like. Clarifying the characteristics, types, and facilitators of TSS helps managers to design such strategies and positively contribute to sustainable development.

Figure 45 illustrates the motivation of the research and shows how the findings of this research address the neglected issues in the literature.

Figure 46: Revised view: Addressing the big disconnect

	<u>What we know</u>	<u>Neglected issues</u>	<u>Revised view</u>
Big disconnect	- Increasing interest of business to integrate sustainability and to contribute to societal challenges (KPMG, 2017; BSR & GlobeScan, 2016; PWC, 2015; AlphaBeta, 2016) - BUT: not intended results at societal level (Dyllick & Muff, 2016; Whiteman et al., 2013; Lankoski, 2016; Baumgartner & Rauter, 2017; Ferraro et al., 2015; George et al., 2017)	- Missing outside-in perspective: Approaches to managing sustainability do not focus on societal impact - Missing guidance for business on how to actually deliver effective contributions → How can business effectively contribute to sustainable development	- Specify an approach that focuses on societal impact - Provide guidance on how to implement such an approach
TBST	- TBST as a promising way to reduce the disconnect (Morratis & Melissen, 2020) - Different strategic approach needed to effectively address societal challenges (Dyllick & Muff, 2016)	Unclear what a strategic approach for TBST looks like and how business can strategically address societal challenges → What do truly sustainable strategies look like?	Define characteristics, types, and facilitators of TSS

Source: Own illustration

Overall, the dissertation is divided into three parts: A) Approaches to Sustainability, B) Food Sector Analysis, C) Truly Sustainable Strategies.

A) Approaches to Sustainability: The dissertation started by analyzing how TBST interprets the relationship between business and society and the role that business plays in society. Clarifying these values and attitudes of TBST is an important step to designing TSS.

The findings in section A show that TBST perceives business as a responsive citizen embedded in society and the environment. Being embedded in, and dependent on, a functioning surrounding result in business's responsibility of caring for its surroundings. The success of a truly sustainable business depends upon business's ability to positively contribute to its ecosystem.

An analysis of Dyllick and Muff's (2016) concept further shows that TBST perceives business as agents for social change being able to deliver solutions to societal challenges. This understanding results in a moral obligation for business to live up to its possibilities to create solutions to societal concerns.

Additionally, a truly sustainable business takes an outside-in perspective and interprets unsolved sustainability challenges as future business opportunities. It finds creative solutions to make business sense of societal challenges.

Finally, section A shows that a truly sustainable business takes into account both short and long term aspects in at least an equal weight. Hence, a truly sustainable business is responsible and accountable for its impact both today and in the future.

B) The Food Sector: Section B analyzed the societal challenges and business opportunities in the food sector. Assessing, identifying, and quantifying the challenges and related opportunities in a company's external environment is an important step to designing TSS. The analysis supports businesses in understanding their external environment and selecting the challenges they aim to address. The findings of this analysis are summarized next:

Assessing the challenges: The food sector is a complex, dynamic, and interactive system as it is influenced by policies and market factors—like subsidies, tax, or consolidation of market power—and technological and societal trends—like digitalization or demographic changes. The assessment of the challenges in the food sector shows that current food production and consumption patterns are alarming, both for human health and the planet. In food production and processing, the quality and availability of resources as well as the working conditions are the main challenges. Challenges related to human health and access to food are most prevalent during the distribution and consumption of food. The analysis further shows that changes at all stages of the food supply chain—production, processing, distribution, and consumption—are required to create a healthy food system.

Identifying the challenges: In order to use business's potential to contribute to societal challenges in the food sector, managers first need to create an awareness of the challenges. Analyzing the expert interviews as well as the literature on organizational agenda setting and environmental scanning shows how different factors help to bring sustainability on the strategic agenda; factors like

education and training in sustainability or pressure from external stakeholders. Further, it shows that that engaging in platforms, exchanging best practice, or involving different stakeholders helps to identify sustainability challenges in the external environment.

Quantifying the opportunities: An analysis of the literature on the societal impact of companies shows that companies can realize billions of dollars by addressing sustainability challenges in the food sector. In developed countries, the highest values can be achieved by reformulating products, fostering a dietary switch, and reducing consumer food waste. In developing countries, the business opportunities arise from focusing on low income markets and reducing food waste during production.

C) Truly Sustainable Strategies: Section C focuses on the design of TSS by answering the three research questions about the characteristics of TSS, types of TSS, and facilitators of TSS. Figure 47 shows how the answers to the research questions address the neglected issues.⁴²

Figure 47: Revised view: Defining TSS

Research question: What do truly sustainable strategies look like?		
	What we know	Neglected issues
TSS	Different characteristics of sustainability strategies (Dyllick & Muff, 2017; Caviezel, 2018; Stead et al., 2004; Kolk & Mauser, 2002)	Existing definitions based on inside-out; Insufficient definition of what constitutes TSS
	Different strategy types and frameworks (Hart, 1997; Dyllick et al., 1997; Nidumolu et al., 2009; Porter & Kramer, 2011; Zhexembayeva, 2014; Sardá & Pogutz, 2019)	Existing concepts focus on business benefits and reduced negative outcomes
	Different factors proposed that facilitate the development (Dyllick & Muff, 2017; Caviezel, 2018; Moratis & Melissen, 2020; Neugebauer et al., 2016; Simon & Thompson, 1998)	Not fully specified how the development of TSS is facilitated
		Revised view
		Define clear characteristics of TSS that make it easier to identify and design them
		Define types of TSS to provide guidance on how business can contribute to societal challenges
		Define facilitators of TSS to support their development

Source: Own illustration

The answers to the three research questions are summarized in the following paragraphs.

⁴² The specific contributions are discussed in more detail in section 3.3.

Characteristics of TSS: To define how business strategies can effectively contribute to sustainability challenges, the first step is to specify the characteristics of TSS. Existing definitions of sustainability strategies often do not integrate an outside-in perspective and do not focus on the effective contributions to solving societal challenges. The analysis of parameters relevant to qualifying sustainability strategies sheds light on what constitutes TSS and results in a set of seven characteristics of TSS:

- Positive societal values are created
- Challenges relevant to society are addressed
- System-wide changes are initiated (transformative)
- Sustainability is fully integrated into the core of a business
- Activities are impact oriented and proactive
- Radical innovations are triggered
- Different forms of collaboration are used

Hence, TSS are characterized as proactive and collaborative strategies designed to deliver positive contributions to societal challenges and to initiate radical, system-wide changes toward sustainability by using business's core competencies.

Types of TSS: Different strategic actions of how businesses can deliver societal contributions are categorized into a portfolio of TSS based on the potential impact of these actions on societal challenges. Existing concepts of strategy types primarily focus on the business benefits and do not offer an integrated perspective combining business and sustainability values. The TSS portfolio takes an outside-in perspective and focuses on generating positive business and sustainability values by addressing societal challenges. The four types of TSS are:

- Optimizing existing activities: This strategy type describes measures that optimize internal business activities, which include process innovations, eco-efficiency, and different social or environmental management systems. These strategies are an important step toward TBST. However, the positive impact they create does not spread beyond the company's boundaries.

- Engaging with the supply chain: Strategies of this type push the positive impact beyond the organization's boundaries by engaging with the supply chain. These strategies include upstream strategies, like capacity building and strong partnerships with suppliers, and downstream strategies, like consumer awareness and education. These strategies can unlock additional levers for positive value creation as they involve multiple actors along the supply chain.
- Innovate products and services: This strategy type describes activities that radically innovate and redesign products and services. Through industry-wide collaborations, these strategies unlock additional levers to create business value and to deliver significant contributions to sustainability, which include the design of new need centered products, like meat alternatives, or the redesign of existing products with circularity or upcycling.
- Rethink business models: With this type of strategy, firms entirely change their business model and the way they conduct business. These strategies aim at system-wide changes by engaging in multiple partnerships with different actors. They become a role model to other businesses by adopting sharing models or engaging in industrial symbiosis and multistakeholder initiatives across industries. These activities leverage multiple sources to generate business value and change the rules of the game to support sustainability.

The description of the different strategy types shows that businesses can use different levers to increase their positive value creation—expanding the strategic actions beyond company's boundaries, for example by engaging with the supply chain, or redesigning products, balancing short and long term implications of strategic actions, and engaging in partnerships with different actors. The findings indicate that cooperation is especially important to address the political and institutional framework and to achieve system-wide changes.

To sum up, businesses have to ensure the following three requirements when designing their strategic actions:

- Acting both inside and outside organizational boundaries
- Balancing short and long term implications of strategic actions
- Engaging in various partnerships

Facilitators of TSS: Finally, the facilitators of TSS are defined. The literature has not yet specified how the development of TSS can be supported. Therefore, the dissertation's findings define a set of organizational characteristics that help to development TSS. Analysis of the expert interviews and of the literature on the strategy development process shows that there are four main factors that shape and facilitate the development process of TSS:

- Purpose oriented culture: Organizational culture plays a key role in facilitating TSS. The company's purpose guides the decision making process, helps establish a culture of openness, and creates possibilities for change, and thus helps to develop TSS.
- Responsible leadership: Leadership is crucial for shaping and facilitating the development process of TSS. Commitment to sustainability by the top management enables TSS, as does the empowerment of employees, their integration in the decision making process, and their motivation.
- Embedded structures: Companies should embed sustainability throughout their organization and thus facilitate TSS by defining clear responsibilities and creating specific roles to oversee sustainability implementation. Further, incentivizing employees by including sustainability in their roles also enables TSS.
- Innovative employees: Innovative employees are key to enabling TSS. Innovation among the workforce can be triggered in multiple ways: supporting intrapreneurship and creativity, and providing training to equip employees with the necessary skills in sustainability.

In addition to these facilitators, the findings show that although this dissertation follows a planning based approach suggested by Learned et al. (1965), a certain degree of flexibility and adjustment is needed throughout the process due to uncertainties, complexity, or time constraints. Acknowledging these influences

by monitoring, reporting, and adjusting the developed strategy, and allowing for continuous reflection and space for improvement are key to avoiding rigid processes and accounting for dynamics in strategy development.

3.2 Discussion of Findings

This section contextualizes the findings in relation to previous research. It shows how the findings build on existing work and where they go beyond established knowledge. The section's focus is on studies around TBST as this is the central concept of the dissertation.

The dissertation builds on the concept of TBST by Dyllick and Muff (2016). It specifies a “fundamentally different strategic approach” (Dyllick & Muff, 2016, p. 170) by defining the implications of an outside-in perspective for strategy design and development. The findings refine the concept of TBST in two principal ways: First, the portfolio of TSS specifies how different strategic actions for TBST may look like. The varying potential of the different strategy types to create positive value shows that a truly sustainable business combines the strategy types and creates a balanced portfolio by cooperating with various actors, balancing short and long term aspects, and engaging with internal and external stakeholders.

Second, the definition of TSS facilitators expands the TBST concept by shedding light on the facilitating organizational processes of an outside-in perspective. For example, top management commitment to sustainability and sustainability related training for employees help to develop TSS.

Dyllick and Muff (2017) discuss how to become truly sustainable by defining the organizational consequences of TBST. Some of Dyllick and Muff's (2017) organizational characteristics of TBST apply to TSS, like the primary focus on society and the planet, and the proactive engagement with a variety of players. Further organizational aspects are added through several characteristics of TSS, such as the initiation of system-wide changes and radical innovations. Second, the TSS facilitators add organizational consequences of TBST to Dyllick and

Muff's (2017) findings, like the integration of sustainability into employees' roles, and the reward of achievements to motivate employees for sustainability. Caviezel (2018) discusses strategies as part of her application model to implement effective business sustainability. The results of this dissertation are similar to Caviezel's findings in terms of the need to embed sustainability throughout the organization, and the need to use the business's core competencies. Additionally, the importance of leadership and organizational culture in making the shift toward TBST are similar findings in both studies. Further, Caviezel (2018) points to the importance of cooperation between different actors from business, society, and politics to achieve sustainability effectively and efficiently, which also holds true for TSS. This dissertation goes beyond Caviezel's (2018) findings by specifying additional characteristics that support TSS. For example, the dissertation finds two additional levers to increase business's societal impact— engagement with internal and external stakeholders and the focus on short and long term implications of strategic actions. In terms of the facilitators of TBST, this dissertation finds that innovative employees are an additional facilitating factor.

Moratis and Melissen (2020) propose factors that help to become truly sustainable, including developing narrative intelligence, which closely relates to the finding of storytelling as a facilitator of TSS. The dissertation's findings go beyond their suggested factors by holistically qualifying structural, cultural, leadership-, and employee-related facilitators of becoming truly sustainable.

This section shows that the dissertation's findings are grounded in established knowledge and provide new insights that go beyond existing studies on TBST. In particular, the holistic perspective on the strategic implications of TBST provides novel insights on the strategic actions and internal processes associated with taking an outside-in perspective.

3.3 Implications and Contributions

The following section elaborates what the findings mean for researchers and practitioners. Section 3.3.1 discusses the theoretical contributions, section 3.3.2 discusses the managerial implications and practical applications of the research, and section 3.3.3 makes recommendations for different actors in the food sector. The managerial implications are in the foreground of the elaborations as this dissertation belongs to the problem oriented science.

3.3.1 Theoretical Contributions

Corley and Gioia (2011) define originality and utility as key requirements for a theoretical contribution. Refining the understanding about a phenomenon or concept would fall into this category of original and useful research; this dissertation provides a better understanding of the strategic actions and processes for TBST. Answering the research questions about TSS sheds light on Dyllick and Muff's call for a "fundamentally different strategic approach" (2016, p. 170). A clearer delineation of this strategic approach helps to reduce the disconnect between societal and business goals and guides businesses in how to effectively contribute to sustainable development, called for by several researchers (Baumgartner & Rauter, 2017; Dyllick & Muff, 2016; Ferraro et al., 2015; Lankoski, 2016; Whiteman et al., 2013).

The findings also contribute to defining new ways of managing business sustainability, including redefining business success in terms of overcoming financial dominance and moving toward a balanced creation of value. The facilitators of TSS show how this new definition of business success can be operationalized within the firm, by describing the consequences for culture, leadership, employees, and organizational structures.

The dissertation contributes to the debate about the purpose of business and business's role within society. The debate incorporates two extremes: a passive role with a focus on stakeholder value and a proactive role with a societal

purpose. The TSS portfolio shows how business can take an active role in society and effectively contribute to societal challenges.

Further, the dissertation's findings contribute to the literature on strategy development processes. The understanding of strategy formation is enhanced by applying the planning based approach to the context of TBST. The facilitators of TSS contribute to a clearer picture of the factors that help develop sustainability strategies with a societal focus: A purpose oriented culture, responsible leadership, embedded structures, and innovative employees. The findings of this dissertation answer Hutzschenreuter and Kleindienst's (2006) call for research on the effects of individuals on the strategy development process by showing how leaders and employees shape this process.

The research on positive organizational scholarship also receives some contributions from this dissertation. Cameron and Dutton (2003) call for more research on pro-societal organizational behavior focusing "on positive dynamics or on the best of the human condition [rather than] overcoming ills, problems, and difficulties" (p.10). The dissertation answers this call by exploring strategic actions and facilitators of positive organizational behavior. These findings help researchers to better understand the phenomenon of positive organizational deviance and how this behavior can be facilitated.

3.3.2 Practical Implications

The findings of this research have important implications for businesses, as they contribute to the practical realization of sustainable development. This responds to George et al.'s (2016) call for providing more management insights on how societal problems can be tackled effectively, which is in line with the problem oriented research approach adopted in this thesis. The answers to the research questions deliver managerial orientation and support for strategy design and development. Managers can use the results to analyze their processes, and to improve their effectiveness to contribute to sustainable development, as shown in the following paragraphs.

Characteristics of TSS: The findings show that it is particularly important to fully integrate sustainability into the core business activities. TSS must be an integral part of a business's strategy and its core activities, rather than at the outskirts of what business is doing. Additionally, managers should focus on increasing positive societal value rather than on creating business benefits; societal impact should be at the center of any strategic considerations. Further, using different forms of collaboration can help companies initiate system-wide changes toward solving societally relevant challenges.

Understanding the characteristics of TSS is an important step to clarifying what TBST means for strategies. A clear set of characteristics makes it easier for managers to identify TSS and to differentiate between symbolic strategic actions that primarily improve the business value and substantial contributions to address societally relevant challenges. This differentiation is necessary for the design of TSS as it guides businesses in their target. Further, managers should use the list of criteria to check if their strategies fulfill the requirements of TSS, and make adjustments if needed.

Types of TSS: The TSS portfolio demonstrates that strategic actions can be categorized by their potential to create societal and business value. The portfolio shows that a business can extend its impact beyond its own operations into the supply chain, over products, and to the entire business model. Managers should use the knowledge about these possibilities to reflect on their strategies with regards to the positive impact on business and society. The different ideal types of TSS should guide managers in developing new strategies and support them in building a balanced portfolio that uses multiple levers of value creation.

Further, the portfolio provides a framework to analyze and assess sustainability strategies. By mapping current business strategies into the portfolio, managers—but also researchers, students, and organizations analyzing businesses or developing business guidelines—obtain a more precise idea about the potential positive impact of a company on sustainable development. This process can unfold new business opportunities and unseen possibilities for

value creation. Mapping current business strategies onto the portfolio can also serve as a tool to compare companies or to benchmark a company against competitors.

Facilitators of TSS: Identifying the facilitators of TSS has important implications for corporate governance. The findings show that companies should establish dedicated roles and committees to embed sustainability within organizational structures. In addition, sustainability goals can be integrated into employees' roles to support the dissemination of sustainability engagement throughout the company.

In terms of leadership, the findings show the high importance of the top management's commitment to sustainability. The top management should walk the talk and lead the changes required for TSS. In addition, leaders should empower employees and integrate them in the strategy development process, ensuring the employees are chosen from different levels of the organization. Such an integration fosters innovation and support of strategy implementation later on.

With regards to the organizational culture, the findings show that being purpose oriented helps to develop TSS. A company's strategic decisions should be guided by a pro-societal purpose. Further, a company's organizational culture should be open to change and failures. It should foster innovation, openness, and a sense of community, which is beneficial to developing TSS.

In terms of innovation, employees play a crucial role. Companies should provide training on sustainability related topics to their employees in order to foster creativity in their efforts to tackle societal challenges. Further, companies should focus on making teams diverse and allowing open innovation to happen in order to increase innovation potential for strategy design.

These facilitators of TSS support managers in assessing their strategy process and in designing organizational characteristics that facilitate TSS. An understanding of these organizational consequences and internal processes

supports managers in making their business truly sustainable. The findings should be used to guide them in reviewing business's culture, leadership style, structures, and employees in order to identify how they can increase its effectiveness to contribute to sustainable development.

3.3.3 Recommendations for the Food Sector

In addition to the managerial implications in section 3.3.2, the findings allow us to derive recommendations for different actors in the food sector, including businesses, government, and consumers.

Firstly, the dissertation shows and emphasizes the importance of the entire food sector in enabling sustainable development. Given its great environmental impact and its importance for human health and socioeconomic wellbeing, the food sector plays a crucial role in ensuring the good health of the planet and of humanity. Its high relevance to the environment is a call to action for all players in the food sector, including businesses, government, and consumers: In order to nourish 10 billion people well and within planetary boundaries, transformational changes toward sustainable production and consumption patterns are needed, which require businesses, policy makers, and consumers, to combine resources and knowledge. The specific recommendations for the different actors are shown next.

Recommendations for food businesses

The dissertation points in particular to the responsibility of food businesses to make the transformation toward a sustainable food system. Several implications for businesses in the food sector can be derived based on the TSS portfolio developed in this dissertation. Each of these strategies are an important building block to ensure healthy food production with planetary boundaries.

The challenges in the food sector are complex and interconnected. The TSS portfolio points out that truly sustainable solutions require systemic approaches to tackle them. Bundling resources and jointly addressing challenges by lifting the industry-wide standards, and using cross-industry collaborations is key to

transforming the food sector into a sustainable one. The TSS portfolio points to the importance of multistakeholder alliances and illustrates several initiatives that successfully work together on a sustainable food system, like the “Future Food Initiative.” Companies should engage in such alliances to jointly address industry-wide challenges.

Making the change toward a plant based diet is particularly important in developed countries as the environmental burden of animal products is intensifying planetary distress: Feed production uses high amounts of land and pesticides which, together with monocultures and methane emissions, have severe impacts on ground water, biodiversity, and the climate. The TSS portfolio shows that such a change is not purely consumer driven but should be stimulated and reinforced by businesses. The product innovation strategies in the TSS portfolio illustrate how companies can drive such changes: Creating healthy and delicious plant based products is a key driver in making the food system sustainable. Such products are also important to address the increasing challenge of obesity and silent malnutrition among Western societies.

Besides dietary changes, companies should reduce food waste in their supply chain and at the consumer level. The supply chain strategies of the TSS portfolio show how firms can engage with their stakeholders upstream and downstream to reduce the amount of food wasted: Close cooperation with suppliers as well as consumer education on food waste are effective ways to address this issue. Besides these environmental challenges, food businesses should address social issues in their supply chain, like poor working conditions. Especially in international supply chains with suppliers in the Global South, business should address issues related to poor working conditions, inequality, insecurity, and low wages, and provide access to food for vulnerable people. The thesis illustrates how this can be done by, for example, building strong partnerships with suppliers.

Finally, companies should reduce the environmental footprint of their operations. Improved production processes by using new technologies can

lower the amount of food wasted and increase the efficiency of production in terms of water or fertilizer usage. A responsible usage of scarce resources, like water, and more efficient production processes are important to limit the environmental burden of food production and to ensure healthy soil and good air quality. The TSS portfolio illustrates strategic actions by showing how to optimize existing processes.

Recommendations for policy makers

Policy makers can use the TSS portfolio to guide political interventions toward sustainable food production and consumption.

First, due to the high importance of multistakeholder actions, policy makers should engage with businesses and other actors in the market to develop system-wide solutions for a sustainable future of food.

Further, a reorganization of subsidies toward organic farming and incentives for plant based products could support the dietary change indicated in the TSS portfolio. Policy makers should promote the internalization of external costs in the products so that sustainable food choices become more affordable. For this, prices on emissions and pollution should be implemented.

At the supply chain level, political interventions should aim to increase transparency and accountability of business's social and environmental impacts in the supply chain. Legally binding, country-wide standards, like the currently discussed "Konzernverantwortungsinitiative" in Switzerland, would benefit the goal of sustainable food systems and lift the competitive field of business to a higher level.

Political incentives can also intervene at the lowest level of the TSS portfolio by, for example, requiring higher standards of energy efficiency in production or implementing a ceiling for the amount of fertilizer used in agriculture.

Recommendations for consumers

Consumers too can use the TSS portfolio to cocreate and facilitate the required changes in the food sector. By demanding sustainable and plant based products, consumers force companies to innovate their products and improve their production processes. So far, the percentage of vegetarian and/or vegan people living in developed countries is still in the single digits. Consumers in developed countries in particular have the possibilities and alternatives to shift to plant based diets and to lead the change. An increased demand for sustainable and plant based products would push businesses toward product and process innovations.

Further, consumers can contribute to sustainability in the food sector by asking for transparency throughout the supply chain. A higher demand for transparency puts pressure on businesses to engage with their stakeholders in the supply chain and fosters strategic actions at the supply chain level of the TSS portfolio.

This section showed that the dissertation has important implications for research and practice. The problem oriented research paradigm adopted in this thesis means that the practical implications are foregrounded as this paradigm seeks to explain and solve societal problems. Therefore, this section emphasized what the dissertation's findings imply for businesses, policy makers, and consumers.

3.4 Limitations and Further Research Opportunities

This section discusses the limitations of the study and outlines opportunities for further research.

There are two limitations related to the scope of the study: First, the dissertation focuses on the development and design of strategies. The implementation and institutionalization of sustainability strategies are not covered, which are the next phases according to the planning based approach of strategy formation by Learned et al. (1965). Understanding how strategies are implemented and institutionalized in the company is important in order to make effective change and to transform toward sustainability. Therefore, further research may address this limitation by specifying factors, like business processes, policies or systems, that help to implement and institutionalize these strategies.

The second limitation of this dissertation is that it focuses exclusively on the organizational factors of the strategy development process. Other determinants, like situational or environmental factors, have not been considered. Further research may investigate additional facilitators of TSS and look into interactions with the organizational factors defined in this research.

In addition to the limitations regarding the scope of the study, there are three opportunities for further research:

First, the concepts developed here describe what the strategy development process and the strategy design look like in principle. The research design allows us to describe an ideal process and a simplified picture. In reality, the different strategy types may not occur in precisely this form. Nuances between the different types exist and they cannot always be separated unambiguously. Additionally, other influences, like time constraints, bounded rationality, or the limited ability to process information may not allow the development process to occur in such an ideal and clear fashion as proposed in this research. Therefore, further research needs to empirically test these types and facilitators in order to refine them and to define the influencing factors of the process that

occur in reality. Similarly, the definition and characterization of TSS provides a good starting point for further studies that aim to verify and refine the parameters mentioned in this thesis.

Second, the findings illustrate only the *potential* impact of the strategies in making positive societal contributions; the *actual* potential is not considered. The research does not show under which circumstances a strategy is most suitable for a specific company and which strategy is the most effective in addressing certain challenges. Context specific aspects, like the size of the company, are not addressed, which may influence the actual potential of the strategy. It can be assumed that the strategies and the facilitators are different for large and small companies. Therefore, further research is needed to test the actual potential of the strategies. Additionally, further research could provide detailed insights into the contingency factors of the types of strategies as well as the conditions for their application.

Third, although the experts interviewed for the thesis are all related to the food sector, some of the insights can be transferred to other resource intense consumer goods sectors, like cosmetics or textiles. Although these industries have their own challenges and specifications, there are some similarities, like the international supply chains due to commodities mostly being grown or produced in the Global South. Another similarity of these consumer goods industries is their importance for sustainable development, as hygiene products and clothes satisfy basic needs, similar to food. Due to these similarities between the industries, it can be assumed that the basic concepts of the TSS typology are transferable to these sectors: The different levels of action and the importance of collaboration to increase positive impact are likely to hold true for these sectors as well. Also, the characteristics and facilitators of TSS are assumed to be generalizable to other industries as well. Further research could test the application to other industries and refine the findings to the specific industry settings.

3.5 Closing Remarks

The current corona virus disease (COVID-19) pandemic is an example of how much our society and economic system depend on a functioning environment. The increasingly harmful and improper interaction between humans and nature is a fundamental driver for transmitting diseases from animals to humans, which led to an almost complete halt of public life and a shutdown of large parts of our economy (Lambertini et al., 2020; WWF, 2020). The conversion of large areas of land for agricultural and animal husbandry, and the fragmentation of habitats because of deforestation threaten nature lead to closer contact between wildlife, livestock, and humans. Hence, unsustainable food systems are a main reason for the broken relationship between humans and nature, for which society and the economy are now paying the bill (WWF, 2020). Businesses are struggling to recover from the effects of the shutdown while governments around the world are challenged to implement recovery programs and create economic stimulus packages to limit the far reaching social consequences of the shutdown.

This vulnerable dependency of our society and economic system on a functioning nature again emphasizes the urgency of changing the way we interact with the natural environment. Inger Andersen, executive director of the UN Environment Programme, warns that economic thinking has to recognize the dependency between human and nature's health (Dasgupta & Andersen, 2020). Businesses play a significant role in delivering solutions to societal challenges, including the COVID-19 pandemic, climate crisis, or social inequality. Companies are well situated and well equipped to address those challenges because of their global reach and their technological and financial capacity (Hoffman, 2018). This dissertation emphasizes that companies have both the opportunity and the responsibility to live up to their possibilities of delivering solutions to societal challenges.

Companies also benefit from being a part of the solution to societal challenges as they realize new business opportunities, maintain societal acceptance, and prepare themselves for future changes (AlphaBeta, 2017; Ioannis & Serafeim, 2019). This dissertation shows that establishing strong business partnerships among multiple actors, and building resilient business models and supply chains, is becoming increasingly important for both the planet and businesses.

It is difficult for a company to become truly sustainable and to effectively address societal challenges with a balanced strategy portfolio. Issues like global warming, social inequality, or biodiversity loss are complex and not easy to understand, let alone address. The suggested strategies in this dissertation and associated changes in structure, leadership, and culture are challenging. Providing insights on strategy design like in this dissertation is important to encourage and support businesses in delivering solutions to societal challenges. This dissertation has illustrated some helpful ideas and good examples of how companies can live up to their opportunity and responsibility to generate positive societal contributions.

Creating knowledge on what truly sustainable strategies look like is one part of the whole puzzle in making a shift toward sustainable development. Besides the need for different players to make radical changes toward sustainability—like government, consumers, educational institutions—it is also important for them to put this knowledge on how to become truly sustainable into action. Therefore, the hope in writing this dissertation is for business leaders to adopt the findings of this dissertation and for people to be inspired to test and implement truly sustainable strategies.

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Appendix

Appendix I – Details to the interviews

Interview Partner	Affiliation / Background	Interview Dates
Laura Barneby	Unilever	25.09.2018; 11:00-11:45 am; via zoom
Dr. Karen Cooper	Nestlé SA	15.08.2018; 2:00-3:00 pm; via zoom
Jacobine das Gupta	DSM	03.09.2018; 11:05-11:55 am; via zoom
Agnes Martin	Danone	06.09.2018; 9:00-10:00 am; via zoom
Bruno Cabernard	Coop	07.09.2018; 10:30-11:30 am; via skype
Jenny Weilenmann	Migros	05.09.2018; 9:00-9:50 am; via zoom
Thomas Camenzind	Google	14.08.2018; 2:00-3:00 pm; via zoom
Dr. Beatrice Conde	Bühler	27.09.2018; 12:40-1:20 pm; IWÖ-HSG, Tigerbergstrasse 2, 9000 St.Gallen
Stephan Hirschi	PWC	04.09.2018; 9:00-10:00 am; via zoom
Moritz Teriete	Sustainable Food Systems GmbH	23.08.2018; 3:00-4:00 pm; via zoom
Imme Witzel	Sustainability consultancy	13.08.2018; 2:00-3:30 pm; via zoom
Christine Crosby	Foodways and Impact Hub Basel	21.09.2018; 11:00-11:45 am; via zoom
Julian Hill-Landholt	WBCSD	05.09.2018; 2:00-2:40 pm; via zoom
Sarah Hündgen	Utopia GmbH	11.09.2018; 10:00-11:00 am; via zoom
Philippe Schenkel	Greenpeace	19.09.2018; 4:00-5:00 pm; via zoom
Dr. Daniela Hoffmann	WWF	24.08.2018; 9:00-10:00 am; via zoom
Prof. Frank Belz	Technical University of Munich	17.08.2018; 5:00-5:50 pm; via skype
Michelle Grant	ETH World Food System Center	16.08.2018; 2:00-2:45 pm; ETH-WFSC, Stampfenbachstrasse 52, 8092 Zürich
Prof. Stefano Pogutz	University Bocconi	07.09.2018; 3:35-4:15 pm; via zoom
Prof. Rafael Sardá	University Barcelona ESADE	22.08.2018; 9:00-10:10 am; via zoom
Prof. Günter Müller-Stewens	University of St.Gallen	18.12.2018; 12:00-1:00 pm; IfB-HSG, Dufourstrasse 40A, 9000 St. Gallen
Workshop at the Unconference St.Gallen	Practicioners and students interested in sustainability	29.08.2019; 10:30-11:30 am; Main building of the University of St.Gallen

Appendix II – Information provided before the interview

a. Example of email or LinkedIn request for an expert interview:

Dear Karen, I write my dissertation on “Truly sustainable strategies in the food sector” in St.Gallen (HSG). In order to further develop and refine the results, I am looking for experts and visionary thought-leaders. Due to your experiences, I would be very happy to talk to you. Kind regards, Tabea

Guten Tag Frau Witzel, ich schreibe meine Dissertation zu «Echten Nachhaltigkeitsstrategien im Lebensmittelsektor» an der Universität St. Gallen. Es geht darum einen Ansatz zu entwickeln, der den Nachhaltigkeitsbeitrag von Unternehmen ins Zentrum stellt – also wie Unternehmen echte Problemlösungen gestalten können.

Um die bisherigen Ergebnisse weiterzuentwickeln, bin ich auf der Suche nach Experten und Vordenkern. Durch Ihre Kompetenzen und Erfahrungen sind Sie dafür besonders geeignet und passend. Ich würde mich daher sehr freuen, mich mit Ihnen zu der Thematik meiner Dissertation auszutauschen und vor dem Hintergrund Ihrer Erfahrungen die bisherigen Ergebnisse zu diskutieren. Hätten Sie Zeit für ein etwa 30-minütiges Gespräch?

Ich würde mich sehr freuen, wenn es klappt.

Besten Dank und freundliche Grüsse aus St.Gallen, Tabea Bereuther

Handout:

Truly Sustainable Strategies in the Food Sector

Interview guideline

Introduction:

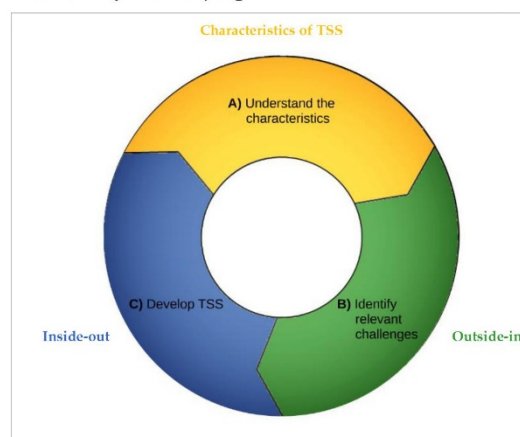
Short personal introduction and notes on the procedure of the interview:

- Expert interviews will serve for further development and refinement of the preliminary findings; Data will only be used anonymously and for the purpose of the dissertation

Overview of the dissertation topic:

- Dissertation on sustainability strategies in the food sector: Definition of strategy development process and sustainability strategies that are oriented towards solving relevant sustainability challenges
- Starting point/motivation: Lack of sustainability impact of business activities at the societal level (big disconnect)
- That is why Truly Sustainable Strategies (TSS) focus on companies' contribution to sustainability challenges (true problem solving; change von inside-out to outside-in)¹:
 - not an incidental, marginal contribution, but *purposeful, positive* contributions to relevant challenges (aiming for *far-reaching changes at the social level*)
 - Complete *integration* of sustainability into *core business* (use the core competencies)
- TSS is a future-oriented, (yet) normative approach; practical relevance and applicability is of great importance

Framework for developing TSS:



¹ Concept of «True Business Sustainability»: Dyllick, T. & Muff, K. (2016). Clarifying the Meaning of Sustainable Business: Introducing a Typology From Business-as-Usual to True Business Sustainability. *Organization & Environment*. 29 (2). pp. 156–174.

Questions:

1.) Relevant sustainability challenges in the food industry (outside-in)

- What are the most important sustainability challenges in the industry?
*Which topics and problems are of societal relevance and particularly urgent?
What are trends that influence the industry (economic, social, political)? What challenges will
companies face in the future?*
- How can a company identify and select the challenges?
*What helps businesses to align their activities with external challenges? What is needed to
support companies to organize around and to focus on their contribution to sustainability
challenges? How to build the outside radar?*
- Together we have a look at: "Challenges, Drivers and Contributions in the food
sector" and "Facilitators of outside-in"

2.) Definition and development of TSS (inside-out)

- What do sustainability strategies look like that are oriented towards solving
sustainability challenges?
*What could sustainability strategies look like that focus on the sustainability contribution and
enable companies to make purposeful, positive contributions at societal level? How can
companies contribute to societal issues in different ways? What are strategic ways to increase
and broaden the sustainability impact at the societal level? What types of strategies can be
distinguished? What are fundamental characteristics and important distinguishing factors?*
- How can such sustainability strategies be developed?
*Which organizational characteristics support the development of sustainability strategies
(structure, processes etc.)? What is particularly important for developing such strategies?
What are obstacles to the development? What would an ideal process look like?*
- Together we have a look at: "Strategy types for TSS" and "Approaches for developing
TSS"

Final Remarks

- Do you have any further questions, comments or topics that seem relevant to you?
- Do you have any recommendations for further interview partners?

THANK YOU VERY MUCH!

Appendix III - My personal interview guideline

My personal interview guide

Technically everything ok? Hear and see me?

Great, I'm glad you took the time to speak to me!

General introduction:

I would suggest, that:

- first I say 1-2 sentences to myself and a few general points about the procedure
- then you can shortly introduce yourself; maybe want to say 2-3 sentences on current topics or projects that are particularly important/relevant.

Short personal introduction:

- PhD student at **Chair of Sustainability Management** with Prof. Dyllick
- Studied Business Administration with **focus on sustainability management** in the Master's degree
- Worked on topics of **sustainability from different perspectives** (private companies/consultancy, politics and currently science)
- Since 2,5 years I am working on my dissertation

Some general points on the procedure of the interview:

- Expert interviews will serve the **further development and refinement** of the preliminary findings; Data will only be used for **dissertation purposes and anonymously; transcription is only available to the supervisors**; in printed version a list with interviewees will be provided, but **no assignment of the statements** (agree? or explicitly mentioned by name desired?))
- **Audio recording** (accept?)
- **Duration about 30 minutes**; depending on the answers could take a bit longer; Would you also be available a bit longer? Just need to know for **time management**

Any further questions to the procedure?

Introduction of the expert:

2-3 sentences on yourself; on current topics or projects that are particularly important/relevant

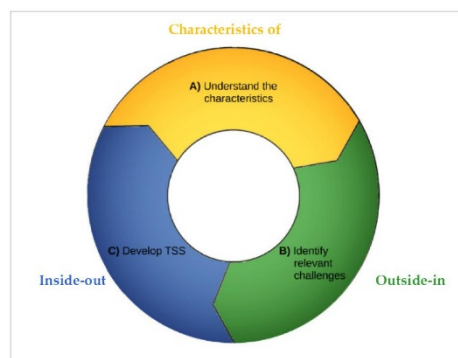
Overview of the topic:

- Dissertation is about sustainability strategies in the food sector. Aim: to define strategies that are **oriented towards solving relevant sustainability challenges** (solving real problems);
- Starting point/motivation: Lack of sustainability impact of business activities at societal level (big disconnect)

That is why TSS focuses on the effective contribution to sustainability challenges; essential and core to this: **Change from inside-out to outside-in** (independent of financial/economic aspects)

- not an accidental, incidental contribution, but *purposeful, positive* contributions to relevant challenges (**aiming for far-reaching changes at the social level**)
- TSS is a **future-oriented**, (yet) **normative approach**; practical relevance and applicability of great importance (therefore expert interviews)

Share the screen and explain framework briefly (questions will also be based on this framework)



All clear so far? Any questions?

Questions:

1.) Relevant sustainability challenges in the food industry (outside-in)

- What do you think are the most important sustainability challenges in the industry?

*Which topics and problems are of societal relevance and particularly urgent? (**current challenges**)*

*What are trends that influence the industry (**economic, social, political**)? What will companies face in the future? (**latent and potential challenges**)*

- How can companies identify and select the challenges?

*What helps businesses to **align their activities with external challenges**?*

*What is needed to **support companies to organize around and to focus on their contribution to sustainability challenges**? How to build the “outside radar”?*

- Look at table on "Challenges, Trends and Contributions" and briefly explain:

*Does this include all challenges? Does the **logic and structure make sense**? Does it help companies identify the challenges? Or is **different orientation needed**?*

- Look at table on "Facilitators of outside-in" and briefly explain:

*Can you confirm them? Are there **any supplements, further comments**? Are these the **most important points**?*

2.) Definition and development of TSS (inside-out)

- What do sustainability strategies look like that enable companies to make purposeful, positive contributions to sustainability challenges?
- Again: it is about outside-in strategies, i.e. strategies that are **oriented towards solving sust. problems**; meaning, it's about **ideal states (how ideally would look like)**; initially independent of economic success (comes afterwards, but not first)
- Could be strategies that **already exist somewhere**; or **in other industries**; or **new strategies**

What could sustainability strategies look like that focus on the sustainability contribution and changes at the social level? How can companies contribute to societal issues in different ways?

What are strategic ways to increase and broaden the sustainability impact at the societal level?

What types of strategies can be distinguished? What are fundamental characteristics and important distinguishing factors?

- How can such sustainability strategies be developed?

*Which organizational characteristics support the development of sustainability strategies (structure, processes etc.)? What is particularly important for developing such strategies? What are obstacles to the development? What would an **ideal process** look like?*

- Look at "Strategy types for TSS" and briefly explain:

Does this help companies and practitioners? Are all the most important ones included? Does this support the development of TSS? Does this provide orientation? What is good? What needs to be changed?

IMPORTANT: This is about the ideal situation; How should strategies ideally look, which orient themselves towards solving sust. challenges? thus thinking ahead!

- Look at "Approaches for developing TSS" and briefly explain:

Confirmation, Supplements? Are these the most important points? Are there additional ones?

Final Remarks

- Further questions, remarks or comments?
Further topics you want to talk about? Additional points that are relevant in the context of sustainability strategies or the food sector?
- Recommendations for further interview partners? (looking for open-minded, visionary)
- **Acknowledgment (Thank you so much!!)** and farewell

Appendix VI

Table 21: Overview of sustainability strategy typologies

Source	Titel of Model	Strategy Types/Categories					Criteria
Steger (1988)	Four generic strategies	Indifferent	Defensive	Offensive	Innovative		Risks and opportunities for the company: corporate environmental risk (small/large); market opportunities through environmental protection (small/large)
Müller & Koechlin (1992)	Four stages of environmental strategy	Inactive, ignore 'ostriches'	Reactive, respond 'chicken lickers'	Proactive, anticipate 'green hornets'	Hyperactive, provoke, 'Robin Hood'		Strategic behavior/response to environmental issues
Shot (1992)	Five environmental management strategies	Dependent	Defensive	Offensive	Innovative	Niche	General response/attitude to regulations (specifically emissions); top management support of environmental policy and its implementation; approach towards environmental problems (i.e. external/internal; technical/organizational; problem/search for solutions)
Roome (1992)	Five strategic options to react to environmental pressures	Non-compliance	Compliance	Compliance plus	Commercial and environmental excellence	Leading edge	Standards/degree of compliance with legal requirements; response to social pressure; understanding of sustainability
Meffert & Kirchgeorg (1993)	Five basic environmental strategies	Opposition	Passivity	Retreat	Adaptation	Innovation	Strategic behavior/response, risks and opportunities, strategic orientation
Elkington (1994)	Stages of response to environmental problems	Ignorance	Awakening	Denial	Guilt reduction/displacement behavior/tokenism	Conversion; integration	Strategic behavior/response; basic strategic orientation; degree of integration
Buitelaar (1995)	Stages of environmental strategies		Passive/defensive	Offensive	Innovative	Critical sustainable	Strategic behavior/response; strategic orientation
Crosbie & Knight (1995)	Strategic options for management	Do nothing	Defensive posture	Social responsibility	Strategic opportunity	Sustainable business	Strategic behavior/response; strategic orientation; risks and opportunities; focus and motivation of the strategy

De Vries & Altenburg (1995)	Environmental strategies		Green jacket	Offensive	Innovative	Green mission	Strategic behavior/response; strategic orientation; risk and opportunity; focus
Müller (1995)	Typology of environmental strategies	Environmental ignorance	Additional environmental protection	Integrated environmental protection			Strategic behavior (active/reactive); degree of integration
Shrivastava (1995)	Sustainable competitive strategies			Least cost	Differentiation	Niche	Competition; strategic positioning
Shrivastava & Hart (1995)	Responses to environmental challenges		Brand-aid	More serious	Deep change		Degree of innovation and integration; strategic orientation (Focus and Aim)
Bhargava & Welford (1996)	Environmental strategies for competitive advantage		'Excellence' and 'Leading edge'	Incorporation of environmental strategy into overall strategy	Line driven, short- versus long-term strategy	Effective communication	Degree of integration; basic orientation
Hart (1997) and Hart & Bilstein (2003)	Sustainable value portfolio		Pollution prevention	Clean technology	Product stewardship	Base of the pyramid	Strategic orientation: today/future; internal/external
Brockhoff et al. (1999)	Environmental business strategy	Defender	Escapist	Dormant	Activist		Strategic behavior; basic strategic orientation
Reinhardt (1999)		Differentiating products	Managing competitors	Saving costs	Managing risks	Redefining markets	Risks and opportunities; levels of strategies
Dyllick et al. (1997); Bieker et al. (2001)	Competitive environmental strategies	Secure/Safe (risk mitigation)	Credible (image and reputation)	Efficient (productivity and eco/socio-efficiency)	Innovative (market differentiation)	Transformative (market development)	Strategy motives (focus, motivation, aim); business benefits

Willard (2005)	Five stages of sustainability	Pre-compliance (no obligation beyond profits)	Compliance (obey the law, reactions to pressure)	Beyond compliance (proactive and incremental improvements)	Integrated strategy (transformational change; sust. integrated into strategy; do the right things in order to be successful)	Purpose and passion (build a better world because it is the right thing to do)	Purpose and impact of the firm; degree of innovation and integration
Hahn & Scheermesser (2006)	Levels of sustainability			Traditionalists	Environmentalists	Sustainability leaders	Strategic understanding / orientation
Nidumolu et al. (2009)	Stages of change	Viewing compliance as opportunity	Making value chains sustainable	Designing sustainable products and services	Developing new business models	Creating next-practice platforms	Benefits and value potentials of sustainability for business; collaborations/partnerships, different levels and strategic orientation
Miles et al. (2009)		Sustainable product/market	Process rejuvenation	Redefining strategy to reflect sustainability	Changing the core of shifting the domain of business	Business model reconstruction	Levels of strategies
Baumgartner & Ebner (2010)	Strategy types	Introverted	Extroverted	Conservative	Transformative (actively change market conditions)	Visionary	Strategic orientation; collaborations / partnerships
WEF (2010)	Stages of sustainability		Foundations	Rebuilding business	New value chains	Balanced systems	Levels of action
Porter and Kramer (2011)	Shared value creation		New definition of products	New definition of productivity in the value chain	Support regional clusters		Scope; width; collaboration

Source: Own illustration

Curriculum Vitae

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Education

02/2016 – 10/2020	University of St. Gallen (HSG), St. Gallen, CH PhD in Management
10/2012 – 10/2015	University of Graz, Graz, AT Master of Arts in Global Studies Exchange Semester: Universidad Nacional del Sur, Bahía Blanca, AR
09/2008 – 08/2011	University of Mannheim, Mannheim, DE Bachelor of Science in Business Administration Exchange Semester: University of Washington, Seattle, USA

Professional Experience

01/2020 – present	Institute for Economy and the Environment, University of St. Gallen (HSG), St. Gallen, CH Manager Responsibility and Sustainability
11/2015 – 12/2019	Chair for Sustainability Management, University of St. Gallen (HSG), St. Gallen, CH Research and Teaching Assistant
03/2015 – 02/2016	Adelphi Research, Berlin, DE Research Assistant in Strategy and Policy Advice
07/2014 – 10/2014	BSD Consulting, Berlin, DE Sustainability Consultant and Event Manager
02/2014 – 04/2014	German Federal Ministry of Labor and Social Affairs, Berlin, DE Assistant in Sustainability Policy, CSR Department
03/2013 – 06/2013	Joanneum Research, Graz, AT Assistant in Research Policy and Advice
10/2012 – 02/2013	University of Graz, Graz, AT Research Assistant, Research Center for Business Ethics and CSR