

Chapter 21

Transition to Sustainability



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Abstract Companies are increasingly faced with the challenge of how to implement sustainability strategies in their business performances. This chapter discusses transition processes, presents mechanisms, and clarifies how tools and methodologies from Part II of this book can help companies in the transition process towards more sustainable practices. It further elaborates on how the CapSEM Model contributes to bottom-up approaches to sustainability transition processes as well as the importance of stakeholder collaboration and involvement.

21.1 Introduction

The different parts of this book have illustrated how the tools in the CapSEM Model can be used systematically to build knowledge and competence in sustainability towards more systemic and inclusive interactions. It is important to perceive the development of the model as a transitional process where sustainability strategies become increasingly holistic and comprehensive, while the tools on each level build upon each other. Each wave movement between the levels, (Cf Fig. 2.1 in Chap. 2), symbolizes a growth of the number of sustainability impacts managed and stakeholders incorporated. The CapSEM Model provides thereby a common onset for several actors regarding their interplay and collaboration.

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21.2 The CapSEM Model as a Means for Transition

A transition to sustainability is defined as a “radical transformation towards a sustainable society, as a response to a number of persistent problems confronting contemporary modern societies” (Grin et al. 2010). Transitional change refers here not only to an understanding of how the tools presented in this book can help companies to move from a lower level to a higher level of maturity, but also how they can stimulate their efforts to develop own pathways that will enable a shift towards sustainability. Capacity building to achieve transition to sustainability thereby requires generating, structuring, storing, retrieving, communicating, and acting upon information and knowledge. Transitions are achieved through decisions to trigger small or large-scale change from one state to another.

The CapSEM Model represents the toolbox for transition to sustainability. Level 1 and 2 are analytical methods for quantification of environmental aspects and impacts, and tools for improvement as, for example, Cleaner Production on Level 1 or Supply Chain Management on Level 2, while Level 3 tools focus on how to achieve strategic changes through dialogues with stakeholders. Level 4 addresses larger systems as for example cities and their role to meet the needs of communities, providing leading visions and strategies in achieving sustainability in collaboration with stakeholders.

21.3 A Toolbox for Transition to Sustainability

Looking back to Part I of this book, Chap. 2 gives an overview of earlier models that have led up to the CapSEM Model as presented in Fig. 2.1. While Fig. 2.3 is an attempt to classify the set of principles for environmental performance improvement as appeared in the literature at that time, Fig. 2.4 shows adaptations from the first model, most notably the addition of specific tools and methods for life cycle-based environmental assessment management mapped along environmental performance improvement levels.

The CapSEM Model is designed to help companies understand their role and the relations of their actions within different levels of related systems. A systematic use of the tools helps companies investigate the potential for appropriate actions to change the environmental and sustainability performance related to each level (Fet et al. 2013, Fet & Knudson 2021).

The term *change* on each level in the CapSEM Model is used to mean the reduction of negative impacts and increase of, or replacement with, positive impacts—ultimately leading to strong, proactive, and holistic sustainability as companies move toward the upper right of the model. As an organisation traverses the levels, knowledge and tools from the previous levels are used as input to more extensive methods, meaning that each level encompasses the level(s) below it. These small stepwise changes have been important parts of the transition towards sustainability.

Over years these have led to incremental changes in business performances. An important question is however if these steps are sufficient to meet the global challenges the world is facing.

The UN General Assembly held an international meeting entitled “Stockholm+50: a healthy planet for the prosperity of all – our responsibility, our opportunity” in Stockholm, Sweden, from 2–3 June 2022 (United Nations, 2022). This was a conference reflecting back to the first UN conference on the human environment held in Stockholm in 1972 (United Nations 1973). The goal of Stockholm+50 contributes to accelerate the implementation action for meeting the 17 Sustainable Development Goals (SDGs) that define the future development agenda for 2015–2030. The aims of the SDGs advance the discussion on a better world, with emphasis on values for human rights, justice, health, and well-being. Ecological, social and economic developments are considered interrelated (Keitsch 2018). The following sections discuss how the CapSEM Model responds to the SDGs, as well as mechanisms and roadmap, and stakeholder collaboration to approach transitions to sustainability.

21.4 The CapSEM Model Meets the SDGs

The CapSEM Model with the SDGs integrated as presented in Chap. 3, Fig. 3.3, is a way of structuring the SDGs according to how they can be a pathway in the transition to sustainability at each of the 4 Levels. The additional value provided by the SDGs placement in the CapSEM Model is the toolbox to be used by companies and other organisations in this transition. The CapSEM Model helps make sense of the many methods available for tracking, measuring and improving sustainability performance by grouping them by level.

In business practice, cherry-picking of selected SDGs that neatly meet ongoing operations is common, as is ignoring interactions between them, or failing to reflect upon the system as a whole. A clear company strategy is needed in order to prioritize areas for sustainability improvement, related SDGs and targets. For that reason, the placement of the SDGs in the CapSEM Model represents suggestions for paving the way for business in identifying how their operations initially relate to each goal rather than absolute positions.

If companies better understand, and engage with the goals, their ability to prioritize and make strong measurable contributions to their targets increases. This includes minimizing resource use and avoiding pollution and the unnecessary expense and disposal of resources, especially into natural systems. Input-output (I/O)-analyses can be used to quantify material flows within a production process or a company’s production site. Then, the quantified information can help inform decisions about the best solutions for designing new or adapting processes to reduce negative environmental impact, and meeting SDG targets, for example, for SDG number 6, Clean water and sanitation, the increase in efficiency of water use (target 6.4) and the protection and restoration of water-related ecosystems (target 6.6). The

selected goals and targets for improving sustainability can be used to guide companies in selecting indicators and making strategic decisions on how to reach them using the tools and methods at this level.

Similar reflections can be carried out for SDG 13 Climate action, SDG 14, Life below water, and SDG 15, Life on land. It is worth mentioning that these SDGs, placed at Level 1 are highly relevant for all levels, but the impacts on these elements of the nature are caused by flows of material (natural resources) out of nature and likewise into nature as a result of system interactions between natural systems and technology, most often grouped as man-made systems.

Moving from Level 1 to Level 2 means that in addition to production processes, all other impacts related to a product and its value chain are considered, such as transportation of materials and components in the upstream life cycle of the product. In addition, downstream issues of distribution, maintenance and repair during the use phase and end of life treatment should be monitored for the entire life cycle of the product. Development shows an increased requirement for documentation of, for example, the carbon footprint of products. This means that the company should take responsibility for achieving quantified information from the suppliers of materials, components, and services across the life cycle. Based on quantified information, solutions for reducing GHG-emissions could be achieved through changes to renewable energy sources. SDGs 7 (clean energy) and 12 (responsible consumption and production) are therefore grouped on Level 2 to capture both upstream and downstream value chain sustainability improvements. SDG 12 places a focus on the entire value chain, and here SDG 7 requires that products are designed and manufactured for cleaner energy systems. Because Level 1 can be seen as an input, or subsystem, to Level 2, the goals and targets at Level 1 must necessarily also be accounted for.

SDG 8 (decent work & economic growth), SDG 9 (industry, innovation & infrastructure), and SDG 10 (reduced inequalities) are part of the economy as illustrated in Fig. 3.1 in Chap. 3 and are therefore placed on Level 3 in the SDG-CapSEM Model. Pressure from public procurement and customer demands for products that support more sustainable living or help clean-up past damage, encourage companies to report and communicate their progress toward improved sustainability. They must, therefore, develop their organizational strategies and practices (Level 3) in accordance with known guidelines and frameworks including SDGs. This requires information from the companies across all levels being dependable. For example, that all Level 1 processes are controlled and managed in a sustainable way, that systems for quantification of for example the carbon-footprints are in place at Level 2, and that the companies can present a certified environmental management system at Level 3, for example according to ISO 14001, that supports the company in their annual assessment of improvements. The tools presented for Level 3, as well as for Levels 1 and 2, should help the company to communicate the performance and give the stakeholders the information they need for an eventual approval of the sustainability performance or ranking of the company. SDG 10 is placed on Level 3 and relates to the social aspects of, for example, equal employment and income and stakeholder inclusion to be mandated within the company's sustainability

management systems and strategic organizational goals. SDGs 8 and 9 have also been grouped on the organizational level. This is because they pertain to the economic viability of a company and may further support its knowledge and innovation development related to products that support a sustainable society.

Level 4 relates to tools, strategies and policies that drive systemic societal change and mandate the company view itself as one actor within a network of actors. SDGs 1 (no poverty), 2 (zero hunger), 3 (good health and well-being), 4 (quality education) and 5 (gender equality), are placed at this level as they represent the basic criteria for thriving livelihoods. Without meeting these livelihood goals, sustainability will not be reached or maintained over time. They also require that companies consider all stakeholders in their actions. SDGs 7 (affordable and cheap energy), 16 (peace, justice and strong institutions) and 17 (partnerships for goals) are also on Level 4 as they help companies recognize their place in the regional, national and global system. In a smart and sustainable city system, for example, there are increasing requirement to document the carbon footprint of subsystems, from furniture used in public spaces and private homes, to infrastructure that is designed for easier repair and supports smart renewable energy systems. The need for take-back systems and sharing economy systems will also appear more frequently, and industrial ecology (IE) is one of the tools for symbioses within a circular economy. Similarly, systems engineering is an important tool for seeing systems and their interactions from a holistic perspective. Level 4 embraces also the underlying features of Levels 1, 2 and 3.

21.5 Mechanisms and Roadmaps

Since the first world UN conference on sustainability took place in 1972, a plethora of models, guidelines, goals and scenarios have been produced. Some are referred to in this book to reflect on their effect on the transition to sustainability. Mechanisms and roadmaps such as the Taxonomy (Schütze, F & Stede, J, 2020), the Norwegian Transparency Act relating to enterprises' transparency and work on fundamental human rights and decent working conditions (Transparency Act, 2022) and the European Green Deal, the EU's guidelines for a sustainable economy (European commission, 2019), are important to facilitate sustainable transitions. In addition, there is an increased focus on ESG-reporting since the financial sector has become more active in requiring business to hold and report this type of information. The EU Taxonomy, the Transparency Act and ESG-reporting scheme are presented in Chap. 7.

The European Green Deal contains several opportunities for moving towards sustainable business performances such as innovation-based competitiveness. This concerns the potential for low-emission technologies, and sustainable products and services. Business leaders tend to take the European Green Deal on board as a growth strategy. However, systemic transformation delivers the highest growth in medium to long-term run, and short-term benefits are questionable. Further, authors

such as Pianta et al. (2020) criticize among others the EU's weak policy tools for initiating change in business:

Business has no clear set of incentives for investing in sustainable production, and Member States have no official political constraints that may push governments to implement a Green Deal agenda. (Ibid, 635)

According to Stockolm+50 a common political and business focus on qualitative growth can become an important driver to initiate transition to sustainability. Future industry might not be able to expand by manufacturing more products but by innovation and development of products and service of higher quality. Creative efforts of businesses and governments both contribute to qualitative growth.

The main goals of the European Green Deal are:
EU to become climate neutral by 2050

1. Protect humans, animals, and plants by cutting pollution
2. Help companies become world leaders in clean products and technologies
3. Ensure a just and inclusive transition.

The way in which the Green Deal can be understood as an opportunity for business management as a combination of sustainability motivation and regulation is discussed in the Green Deal Roadmap (European Commission 2019). Its main ambitions are energy security, climate neutrality, resource efficiency and circularity, smart mobility and toxic-free environment are among the areas which are focused on. In addition, the use of regulation and standardisation, investment and innovation, national reforms, dialogue with social partners and international cooperation will be strengthened (European Commission 2019).

21.6 Stakeholder Collaboration

Sustainable Development Goals define a future development agenda to encourage the international community to move toward a global sustainable future in the next few decades. Against this backdrop, the implementation of the SDGs raises questions regarding human–nature relationships in terms of sustainable resource use within the limits of ecosystems, but also in terms of just distribution, fair societies, and equal opportunities. Realising the SDGs in both broad arenas, resource consumption and nature conservation, and inclusion and justice, societal stakeholder collaboration is crucial. This means involving, among others, societal actors such as academics, business and political decision-makers on all levels in the planning and development of SDG strategies. The learning outcome of stakeholder collaboration should not be underestimated (Kerkhof et al. 2005).

The CapSEM Model facilitates stakeholder collaboration through the tools that support the design and uptake of sustainable approaches for local, regional, and global sustainable development. Although tools are more selective on Level 1 and based mainly on organisations making improvements which benefit themselves,

rather than the greater good, stakeholder involvement is required for companies to make sustainability improvements at all other levels.

Level 2 improvements rely, for example, on existing knowledge and common knowledge generation from various actors on the materials of a product, associated costs, maintenance practices, transportation and marketing, to name but a few, since stakeholder collaboration takes place in many parts of the products' and company's value chains.

Level 3 requires communication with stakeholders to best define reporting, measuring and management plans for improved sustainability. For example, in establishing strategy benchmarks, a company will need to select environmental and social performance indicators in collaboration with stakeholders to measure their progress. In this case, the collaboration comprises employees, consumers, local community members, marketing firms and company management.

At Level 4, stakeholders are extensively involved as part of an overall systems change on the macro level, with their input providing necessary information for all tools at this level.

The following chapters illustrate how different stakeholders benefit from the model and pinpoints strategies for further development. Chap. 22 has a focus on business model innovation for sustainability (BMiFS) as a means for enhancing the transition on the strategic organisation level, while Chap. 23 looks at decision support systems for Level 4 of the CapSEM Model, i.e., system change, which is a complex undertaking due to the high number of stakeholders involved.

21.7 Conclusion

This chapter discussed approaches and mechanisms that stimulate processes for transitions to sustainability in business and other organisations and connects them with the CapSEM Model. Tools for analysing the environmental aspects and impacts are placed on Levels 1 and 2 in the model. Decisions about the systems to be studied and the elements of sustainability to be covered by the analyses, are taken at an organisational level, Level 3, and at a societal level, Level 4. This can be viewed as a bottom-up approach in the process of a transition to sustainability. Competence among business leaders and politicians and their ability to take a holistic systems perspective are therefore of paramount importance in achieving such transitions.

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