

# Corporate sustainability in practice: An exploratory study of the Sustainable Development Goals (SDGs)

## Abstract

Companies applying the SDGs are likely to face a tension between business strategy and societal development. I develop this claim through inductive reasoning, drawing on an exploratory and longitudinal case study of the company Plasto. The findings indicate that the SDGs framework is a well-suited platform for debating social and environmental concerns with societal stakeholders. In addition, the framework facilitates organizational learning and internal collaboration. However, actors such as customers may see the generic nature of the SDGs as irrelevant when it comes to specific business operations. Following the inductive logic, I position the findings within ongoing debates in the field of corporate sustainability. Further research should acknowledge contradictory requirements from stakeholders as a theoretical starting point. This implies that the emerging management literature on paradox theory fits well to advance insights on SDG application in a business context.

## Key words

Case study; Corporate Sustainability; Exploratory research; Inductive reasoning; Management tensions; Paradox theory; SDGs;

## 1. Introduction

A workshop series, “SDGs – Learning by doing,” was run in the period of September 2016 to May 2017, and involved actors from private companies, governmental and non-governmental organizations. This paper presents exploratory findings of how the company Plasto made use of this workshop series and of how related insights have influenced its business operations.

The analytical starting point for the case study research is the initial decision by Plasto’s management to engage with the SDGs. More specifically, the company’s management group decided to prioritize four of the 17 SDGs as the starting point for integration in already existing activities and as a platform for further development. The reasoning behind the selection was that goals number 9, 12 and 17 are closely related to the company’s core activities, and that goal number 14 concerns the market of Plasto’s most important customer, AKVA group. Figure 1 highlights Plasto’s selected SDGs.

As a response to the call for empirical insights on the practical use and business integration of the SDGs (Fleming et al., 2017, Howard-Grenville et al., 2017), the following question guides the study:

*How has Plasto integrated the selected SDGs in its business operations?*

The following chapter provides details on the exploratory approach and related research methods of the case study, which enables the reader to evaluate its scientific quality. Next, I present the paper’s argument through *inductive reasoning*, i.e. where specific insights form the basis for a discussion of general claims (Jupp, 2006). Accordingly, the structure follows a logic where empirical findings precede theoretical positioning. Finally, I offer concluding reflections and develop avenues for further research.

 <p>1. End poverty in all its forms everywhere.</p>	 <p>7. Ensure access to affordable, reliable, sustainable and modern energy for all.</p>	 <p>13. Take urgent action to combat climate change and its impacts.</p>
 <p>2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture.</p>	 <p>8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.</p>	 <p>14. Conserve and sustainable use of the oceans, seas and marine resources for sustainable development.</p>
 <p>3. Ensure healthy lives and promote well-being for all at all ages.</p>	 <p>9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.</p>	 <p>15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and biodiversity loss.</p>
 <p>4. Ensure inclusive and equitable quality education and promote life-long learning opportunities for all.</p>	 <p>10. Reduce inequality within and among countries.</p>	 <p>16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.</p>
 <p>5. Achieve gender equality and empower all women and girls.</p>	 <p>11. Make cities and human settlements inclusive, safe, resilient and sustainable.</p>	 <p>17. Strengthen the means of implementation and revitalise the global partnership for sustainable development.</p>
 <p>6. Ensure availability and sustainable management of water and sanitation for all.</p>	 <p>12. Ensure sustainable consumption and production patterns.</p>	

Figure 1 The 17 SDGs and the four goals selected by Plasto. The original figure stems from Fleming et al. (2017, p.95).

## 2. About the case study

Research on the SDGs in a business context benefits from an exploratory research design because the existing knowledge base is poor (Howard-Grenville et al., 2017) and there is a lack of literature to provide conceptual frameworks or hypotheses (Yin, 2014, p. 39). Further, the case study approach is suitable for exploratory research, and Yin (2014) recommends a single case study when the researcher “*has an opportunity to observe and analyze a phenomenon previously inaccessible to social science inquiry*” (pp. 52-53), and especially when it is possible to follow a process over time. Thus, given the current of state of related research and my access to Plasto and its network, I designed an exploratory single case study for this research.

At a fundamental level, the methodological approach resonates with the pluralist epistemology asserted by Vildåsen et al. (2017). A pluralistic setting implies that actors other than trained scholars can provide valid contribution to a knowledge debate, since real-world complexities of social and environmental concerns require collaboration between different actors, e.g. academics and practitioners, to jointly define relevant problems (Schaltegger et al., 2013) and co-create solutions (Arnold, 2017). In such a *transdisciplinary methodology*, ‘field validity’ is key (Witjes, 2017); meaning that researchers’ need to generalize results must be balanced by practitioners’ need for salience. I applied this principle by introducing the general topic of SDG application to Plasto’s salient problem of wanting to develop a circular business model (CBM).

The recurring unit of analysis is Plasto’s ongoing business operations as represented by its CBM project. This follows the fact that Plasto’s initial motivation to engage with the SDGs came from ongoing CBM activities. The following section describes main features of the case company and its process of developing a CBM, which began before the data collection period of this study. In the last section, I present details on the methods used while collecting data in the period from September 2016 – April 2018.

### 2.1. The case company and its project to develop a CBM

Plasto is a small producer of plastic components in the business-to-business market. It had about 30 employees at the end of 2017. Plasto grounds its business idea in research and development (R&D), which the board of directors has established in the company’s strategy documents.

In the period from 2014-2017, the company experienced high fluctuations in market demand. This led to cost reductions and a lower capacity in production. However, Plasto was able to continue its investments in R&D through its large project portfolio. The strategic plan for 2017 – 2018 still maintains this focus and states that R&D collaboration with external actors is the company’s most important promotion channel.

Plasto is a core partner in the project “Sustainable Innovation and Shared Value Creation in Norwegian Industry” (SISVI), which is an academia-industry research project that started in May 2014 (see [www.sisvi.no](http://www.sisvi.no)). Plasto’s focus has been to investigate what we refer to in the project as a CBM. More specifically, the idea is to explore how the company can use recycled plastic materials in its production of components for their most important customer, AKVA group.

AKVA group is a supplier to the aquaculture industry that offers “*complete technical solutions and service*” (AKVAgroup, 2018). Its main product is the fish farming cage, and Plasto supplies the brackets used to hold plastic pipes together, along with walkways. The plastic material used in this production can be recycled, and Plasto has investigated such possibility since May 2014. The core challenge of the CBM is product quality. Indeed, there is an inherent uncertainty whether Plasto can fulfill the technical requirements set by AKVA group when recycled plastics are used as raw materials in its production process. Actors in AKVA group have expressed this concern to Plasto’s representatives on several occasions.

The quality issue has led Plasto to focus its R&D efforts on the technical testing of material properties. This began in June 2017, and as of April 2018, the results are satisfactory. In fact, AKVA group has agreed to use recycled plastics in the production of walkways as long as Plasto guarantees quality within the specified range. Plasto plans to start this production in the early fall of 2018 (Otterlei, 2018). In general, the feedback from AKVA group has changed over time, and especially after new actors, those who see the strategic relevance of Plasto’s CBM project, have become involved in the process.

Plasto has at least three strategic motivations in aiming for a CBM. First, successful implementation provides the company a new source of raw materials. Currently, it is dependent on one supplier, the large company Borealis, for the production of components to AKVA group. This limits its flexibility. Second, Plasto’s calculations show that the material cost per kilogram of plastic can be reduced by at least 30%, leading to significant savings.

Finally, the CBM project signals to external stakeholders that the company takes its responsibility seriously and aims to undertake voluntary measures independent of regulatory pressures. This should be seen in relation to the emerging attention on plastic pollution, especially when it comes to waste in the oceans. Indeed, there is a pressure from research communities (Li et al., 2016) and governments (EU, 2017) for industry to take responsibility for the end-of-life of products through recycling and upgrading programs.

In September 2016, I encouraged the project manager of the CBM activity to see how the SDGs could relate to and strengthen ongoing efforts. My initiative was linked to the planned “SDGs – Learning by doing” workshop series. This process was the basis for the primary data collection presented in this paper.

## 2.2. Case study process and methodology

In June 2016, the Polytechnic Society, a non-profit organization working to establish arenas for debating societal challenges, established a subgroup called Polytechnic Sustainability (PS). PS decided to organize the “SDGs – learning by doing” workshop series with the goal of exploring how Norwegian companies could transform the SDGs for practical use in their operations.

At the time, I had an active role organizing events together with seven other people in PS (PolytechnicSustainability, 2018). PS is led by the CEO of a small consultancy working with the SDGs in a business context. The other members represent three NGOs, one governmental actor and two private companies. On August 31, 2016, I sent a formal invitation to the workshop series to Plasto’s project manager on behalf of PS, and we had an informal dialogue about the initiative at a circular economy conference on September 2. I then re-sent the invitation on September 5, and included Plasto’s CEO and another board member of PS who had also approached the company.

On September 12, the project manager responded that the company would like to take part in the process with the following email:

*“[The CEO] hopes our participation will make us better prepared for our sustainability ambitions within the aquaculture industry. We accept the invitation, and are looking to forward to getting to know the network. Because of the current market situation, we need to be careful with regards to resources spent on the process, but we will be sufficiently involved and contribute so that both we and you receive output from our participation”* (Plasto’s project manager, September 2016).

On September 23, Plasto’s project manager attended his first workshop in PS (SISVI, 2016). He committed to present the SDGs to key actors in the company in order to identify the framework’s relevance from Plasto’s perspective. The organizers of the process emphasized that the company should structure ideas and reflections based on current company activities relevant for the SDGs on the one hand, and with future risks and innovation opportunities stemming from the SDGs on the other hand.

I explored the process following the first workshop in September 2016 by conducting a case study guided by the research question of this paper. Table 1 shows details of the data collection, which took place from September 2016 to April 2018 and specifically

concerns Plasto’s application of the SDGs. In addition, I utilized secondary data about the CBM process comprised of 25 interviews, 14 observations, and two documents that took place in the SISVI project. This data is presented in detail in the appendix of this paper.

I collected the primary data, while secondary data gathering also involved other SISVI project researchers and Master’s students. The main source of qualitative data has been interviews. However, as recommended by Yin (2014), I actively sought to triangulate the findings by including observations of the CBM project manager along with document analysis.

*Table 1 Details on primary data*

<b>Date collected</b>	<b>Data type</b>	<b>Relevance for the case study</b>
September 23, 2016	Active observation	The project manager presented the CBM case at a PS workshop, and received feedback from other participants.
December 16, 2016	Active observation	The project manager reported on progress concerning application of the SDGs at a PS workshop, and received feedback from other participants.
May 23, 2017	Passive observation	The project manager reported on progress concerning application of the SDGs at a PS workshop, and reflected on lessons learned during the process.
October 3, 2017	Document	An application for funding was sent to the agency, Innovation Norway for a project that applies the SDGs in the context of the CBM process.
November 23 / 24, 2017	Semi structured interview	Plasto’s project manager reflected on the CBM case and the SDGs process.
November 23, 2017	Semi structured interview	Plasto’s CEO and CTO (the owners) reflected on the CBM case and the SDGs process in separate interviews.
January 19, 2018	Open ended interview	AKVA group’s representative gave reflections on relevance and usage of the SDGs in the context of a workshop on January 11 <sup>1</sup> .
January 22, 2018	Open ended interview	Plasto’s CEO reflected on the output from the workshop on January 11.
April 19 2018	Semi structured	Plasto’s project manager reflected on the CBM case and the SDGs process.

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<sup>1</sup> The workshop was initiated by Polytechnic Sustainability and addressed SDGs number 9, 14, and 17. The context was environmental challenges of the aquaculture industry. I did not take part because of practical concerns.

My active role in introducing the SDGs to the company is a topic for methodological reflection. It is evident that I have influenced organizational actors since they did not know the framework before. However, given the nature of an exploratory case study, the goal is not to verify theoretical hypotheses in the role of passive observer, but to develop new and hopefully more interesting research questions based on the learning outcomes of the study (Yin, 2014). Moreover, following a pluralist epistemology and a transdisciplinary methodology, my role as researcher has been to engage with practitioners to test and experiment with new ideas and approaches. Thus, the next chapter reports on the experiences of Plasto's SDG application in the context of its CBM project, based on the interactive process of academia-industry collaboration.

### 3. How has Plasto integrated the selected SDGs in its business operations?

The following sub sections serve different purposes. First, I describe how Plasto applied the SDGs in context of its business operations. Then, I present further details on the activity links between the CBM project and the SDGs process. Together, these empirical descriptions will ground the discussion of theoretical positioning in chapter 4, adhering to the inductive logic of this paper.

#### 3.1. Application of the SDGs framework

After the first workshop in PS in September 2016, the project manager committed to work with the SDGs internally at Plasto, and to report on the experiences at a meeting later that year. The "homework" was structured so the company could identify current activities contributing to the SDGs, along with future risks and innovation opportunities. At meeting in December, the project manager presented the result, as shown in Figure 2. Plasto's management group had discussed the homework questions (shown in the figure) in a workshop where all company functions were represented.

In the workshop invitation sent to the management group, the project manager writes:

*"The goal with our participation [in PS] is to gain insights into the SDGs and how our operations affect and are affected by these goals. The Norwegian Research Council has signaled that future project applications can be evaluated on the basis of whether they contribute towards the SDGs. These insights can therefore be valuable with regards to securing our success rate for project applications also in the future."* (Plasto's project manager, November 2016)

## Current operations

### To which of the SDGs does Plasto contribute today?

- SDG 9,12, and 17 through the company's core activities.
- SDG 14 through the largest customer, AKVA group.

## Concrete activities

### What does Plasto do?

- SDG 9: approximately 10% of financial turnover is allocated to research and development (R&D).
- SDG 12: A goal of 50% recycled material in products supplied to AKVA group / aquaculture industry, within four years.
- SDG 17: R&D activities in regional, national, and international networks.
- SDG 14: Development and production of components used in fish farming cages.

## Risks

### What are the risks linked to the SDGs?

- SDG 9: The company is not able to follow the technological development.
- SDG 9: The company is not able to adapt its business model to a circular value chain
- SDG 12: Plastic material has a bad reputation.

## Opportunities

### What are the future opportunities linked to the SDGs?

- SDG 12: New production technology makes it profitable to use recycled materials.
- SDG 12: Development of new cages fit for offshore fish farming.

Figure 2 The management group's prioritization of the SDGs

The selection of the four goals follows strategic considerations. Goals 9 (“Industry, Innovation and Infrastructure”) and 17 (“Partnerships for the Goals”) reflect the company’s current strategy of investment in R&D based on collaborative processes with its customers and research institutions. Goal 14 (“Life Below Water”) is applicable to the aquaculture industry, and Plasto sees it especially relevant for its relationship with AKVA group. Additionally, the company has stated its ambition to use 50% recycled materials within 2020 as contribution to goal 12 (“Responsible Consumption and Production”).

When asked about the company’s decision to select four of the 17 goals, the project manager argued that the company, in principle, affects, and is affected, by all the goals. However, this makes it difficult to focus and operationalize the goals. After presenting lessons learnt at the third workshop in May 2017, his view was that they were able to

place the company's activities in a larger context through an efficient organizational process. Moreover, the framework had helped them to communicate between organizational units, especially between those responsible for day-to-day operations and those responsible for R&D.

Plasto's owners, i.e. the CEO and the CTO, relate the SDG framework to new market opportunities. The CEO reflected upon the trend of politicians and interest organizations increasingly using the SDGs. This increases the SDG relevance for Plasto so they may stay prepared for future regulations and governmental requirements. Moreover, the owners see that the SDGs can be used to frame offerings to public sectors, such as in infrastructure projects where the company has relevant competence.

The CTO also reflected upon whether Plasto should actively promote some of the goals, for example numbers 9 and 12, while ignoring others. This could make them vulnerable to "attacks" from external stakeholders about other goals to which the plastics industry negatively contributes. In other words, *the CTO perceives a tension between strategically prioritizing a few goals, and holistically considering all goals.*

### 3.2. Linking the SDGs with the CBM project

After the third workshop of PS in May 2017, the project manager signaled that the process had been fruitful. One of the concrete outputs was the management group's decision to establish a goal of 50% recycled plastics in the aquaculture business area within the year 2020. Thus, the project manager decided to continue the SDGs process as a way of creating momentum in the CBM project. The case study reveals three activity links following the workshop in May 2017.

The first activity link was an application for funding to support their CBM project that was developed during the fall of 2017. This was sent to Innovation Norway, a governmental agency that provides financial support for different kinds of business development with the overall aim of increased competitiveness. Additionally, the agency is a strong advocate of the SDGs (IN, 2017). In the application document, Plasto explicitly referred to the SDGs, i.e. goals 9, 12, 14 and 17, and evaluated potential innovation opportunities and risks based on the material presented in the PS workshop series.

The second activity link relates to the R&D project, MegaMould, which began in November 2016. This projects deals with technical issues of the CBM project to provide quality assurance, and AKVA group is partner in this project. The linkage to SDGs was done by Further, the MegaMould project manager who chose to include the SDGs in the project communication to societal stakeholders. The project webpage reads:

*“MegaMould has identified the SDGs that the project affects, and these goals will be used to describe project results in relation to sustainability” (MegaMould, 2017).*

This statement was a direct result of the management group’s prioritization (Figure 2), as MegaMould’s original project description did not include a reference to the SDGs.

The final activity links reflects the process of actively involving AKVA group in the SDG process. In January 2018, PS organized a workshop that specifically targeted the aquaculture industry. The topic for discussion was how the industry, as a whole, could contribute to the SDGs. Three actors from the aquaculture value chain were represented, including Plasto and AKVA group. SDGs 9, 14, and 17 framed the discussion, and the challenge of plastics in the oceans framed the scope.

AKVA group’s representative reflected on the workshop in a follow-up interview. Positively, she commended Plasto for taking part in such initiative and especially for the concrete results that were emerging from the CBM project. She also, however, signaled some skepticism towards the SDGs, making the argument that the SDGs represent a trend to which several actors are attracted, many by means of self-promotion and positioning.

Her perspective was that SDG engagement could result in superficial discussions on the level of strategy and communication. However, when tackling problems in a specific industry, actors must respect the contingent factors and the unique insights that already exist, for example with regards to the issue of plastic pollution. In other words, *the AKVA group representative perceives a tension between the generic nature of the SDGs and the specific problems in an industrial context.*

#### 4. Theoretical positioning of the findings

The exploratory findings presented in this paper provide some “abductive hunches” (Howard-Grenville et al., 2017) that could motivate a more theory-oriented debate. However, to have a meaningful conversation about possible generalization following the inductive structure of this paper, we need to establish a conceptual bridge between the empirical and theoretical worlds.

The concept of corporate sustainability (CS) serves this purpose, and I select the established definition given by Van Marrewijk (2003, p. 102) for this paper, *“Company activities - voluntary by definition - demonstrating the inclusion of social and environmental concerns in business operations and in interactions with stakeholders.”*

In the following, I use this definition to position my findings in a wider scientific debate. The phenomenon at hand is how the company includes new *company activities*, i.e. the SDG process, in already existing *business operations*, i.e. the CBM project.

#### 4.1. The theoretical link between CS and the SDGs

Contemporary debates in the field of CS consist of several theoretical positions (Bansal and Song, 2017, Hahn et al., 2017). A fundamental difference exists between those who adapt a management-oriented perspective (e.g. Hahn et al., 2014, Baumgartner and Rauter, 2017) and those who use a society-oriented perspective (e.g. Whiteman et al., 2013, Upward and Jones, 2016). Interestingly, empirical phenomena related to SDG application in a business context can be illuminated by both perspectives, and thus we find interesting avenues for theory development.

The SDG framework is, by nature, a society-level phenomenon (Pradhan et al., 2017), and the result of political ambition to tackle the social and environmental challenges of our world by 2030. The private sector plays an important role (Scheyvens et al., 2016), and many top-executives recognize the SDGs as a framework for innovation and opportunity spotting (Accenture, 2016). However, a puzzle emerges when thinking about the linkages between the SDGs and CS activities in more detail.

For example, how do firms interpret the general terms used by the SDGs? In general, what happens when we shift the analytical perspective from high-level societal challenges to the local context of a specific firm? This is a fundamental problem about the systemic context of business operations and is the heart of the debate among CS scholars (Vermeulen and Witjes, 2016, Bansal and Song, 2017, Williams et al., 2017). Thus, it should be possible to use the field of CS as a theoretical home for our exploration of the SDGs.

Indeed, the contribution by Sullivan et al. (2018) suggests that CS scholars should utilize strategic management theory to analyze and discuss business contributions to the SDGs. Their text analysis of the 17 goals and the associated 169 target descriptions shows that topics such as “innovation”, “partnerships”, and “strategic positioning,” act as a conceptual bridge to the CS literature. The following section explores this idea, and uses insights from the case study to enrich the theoretical discussion.

#### 4.2. From strategic management to paradox management

Taking a strategic management perspective on SDG application, a basic question deals with how a firm can use the framework to develop a strategy based on unique resources and capabilities that competitors are not able to imitate and copy (Russo and Fouts, 1997, Hart, 1995). However, according to Neugebauer et al. (2015), CS strategies are difficult to plan and tend to ‘emerge’ over time.

The difficulty of strategic planning is especially the case for situations based on complexity, societal impacts and long-term considerations (Neugebauer et al., 2015). Arguably, this resonates well with the SDGs. The framework has a 15-year horizon, it is based on societal challenges, and its complexity is illustrated by the discussion of interrelations between goals, including possible trade-offs (Spangenberg, 2017, Nilsson et al., 2016). We can therefore assume that integration of the SDGs in strategic decision making likely contain strong features of an emergent process.

Viewing SDG application as an emergent process “(...) *implies learning what works – taking one action at a time in search for that viable pattern or consistency*” Mintzberg & Waters (1985, p. 271). Moreover, the role of learning in for organizational development is generally highlighted by CS scholars (Siebenhüner and Arnold, 2007, Lozano, 2014). Interestingly, in the Plasto case, we recognize a pattern in the way SDGs serve as the platform for learning in interaction with both external stakeholders and internal actors at workshops. Integration in the MegaMould project and the application to Innovation Norway are examples of learning outcomes.

However, the case study reveals that the learning process involves conflicting requirements from actors. AKVA group’s representative argues a tension between the generic nature of the SDGs and the specific problems of the aquaculture industry. The Plasto CTO asserts the risk of actively promoting a few SDGs since external stakeholders may question why the company leaves out the other goals. As argued by the project manager, Plasto affects and is affected by all the goals in principle, but in practical decision making the involved actors feels the need to prioritize. In general, the findings indicate an underlying tension between business strategy and societal development.

Recognizing the tension involved with SDG application, our discussion benefits from the emerging paradox perspective on CS (Van der Byl and Slawinski, 2015, Hahn et al., 2018). This perspective posits that any company that engages with the framework will encounter tensions between, for example, societal and organizational levels of analysis (Hahn et al., 2015). The underlying position draws on a “theory of paradox” (Smith & Lewis, 2011), which asks the question, “*How can organizations and their managers effectively engage A and B simultaneously?*” (p. 395). For our purpose, this translates to the objective of understanding how business actors can simultaneously meet the requirements of specific industry problems and the societal requirements reflected by all SDGs.

Proposing the paradox perspective as a theoretical position concludes the inductive argument presented in this chapter. In the final chapter of this paper, I draw some concluding remarks that provide a starting point for further debate.

## 5. Concluding remarks and further research

A long-standing dilemma in the field of CS surrounds the divide between the interests of business actors and the requirements of the larger social and environmental systems of which they are part. Interestingly, the SDGs have emerged as a possible link to narrow the gap between micro-level actors and macro-level systemic concerns.

The role of the SDGs in a business context has spurred a conceptual debate (Scheyvens et al., 2016, Sullivan et al., 2018), but practical insights are needed to empirically ground the discussion. Indeed, Howard-Grenville et al. (2017, p. 108) assert the state of the debate as “ (...) *exploratory pre-theory stage of empirical description, diagnoses of important phenomena, and abductive hunches of phenomena, rather than more traditional theory development or testing.*” In other words, we are stepping into an uncharted knowledge territory.

Following the suggestion by Sullivan et al. (2018), the knowledge debate should draw on strategic management theory to illuminate empirical phenomena. However, there is reason to argue that the strategic management perspective fails to capture the complexities and dynamics involved. In fact, the review by Hart and Dowell (2011) shows a lack of empirical research on the broader strategy of “sustainable development.” This points to the idea that business strategy in a CS context is a dynamic process of learning (Neugebauer et al., 2015) and actor interaction (Vildåsen and Havenvid, 2018), as opposed to a planned approach by management actors.

Assuming that CS phenomena, in general, and SDG application, in particular, are dynamic processes of learning, paradox theory provides interesting avenues for further research. The core question is then to understand how organizations and their managers can address contradicting requirements through acceptance and resolution strategies (Smith and Lewis, 2011). Following the principle that an exploratory study should end in theory-oriented questions (Yin, 2014), I suggest the guidance for further research:

- Is it a trend that firms select and prioritize some SDGs as opposed to a holistic consideration of all the goals? If so, why?
- How do firms’ prioritizations of the SDGs change over time based on learning outcomes and feedback from stakeholders?
- How do firms resolve contradicting requirements of stakeholders in the context of the SDGs?

The SDGs appear to be a valuable framework for attracting attention to social and environmental concerns in a business context. This paper hopes to inspire further inquiries and knowledge debates, and actual change in business operations.

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## References

- ACCENTURE. 2016. *The UN Global Compact-Accenture Strategy CEO Study* [Online]. Available: <https://www.accenture.com/us-en/insight-un-global-compact-ceo-study> [Accessed 03.12 2017].
- AKVAGROUP. 2018. *Your Aquaculture Technology and Service Partner* [Online]. Available: <http://www.akvagroup.com/> [Accessed 28.04 2018].
- ARNOLD, M. 2017. Fostering sustainability by linking co-creation and relationship management concepts. *Journal of Cleaner Production*, 140, 179-188.
- BANSAL, P. & SONG, H.-C. 2017. Similar But Not the Same: Differentiating Corporate Sustainability from Corporate Responsibility. *Academy of Management Annals*, 11, 105-149.
- BARNEY, J. 1991. Firm resources and sustained competitive advantage. *Journal of management*, 17, 99-120.
- BAUMGARTNER, R. J. & RAUTER, R. 2017. Strategic perspectives of corporate sustainability management to develop a sustainable organization. *Journal of Cleaner Production*, 140, Part 1, 81-92.
- ENGERT, S. & BAUMGARTNER, R. J. 2016. Corporate sustainability strategy – bridging the gap between formulation and implementation. *Journal of Cleaner Production*, 113, 822-834.
- EU. 2017. *Strategy on Plastics in a Circular Economy* [Online]. Available: [http://ec.europa.eu/smart-regulation/roadmaps/docs/plan\\_2016\\_39\\_plastic\\_strategy\\_en.pdf](http://ec.europa.eu/smart-regulation/roadmaps/docs/plan_2016_39_plastic_strategy_en.pdf) [Accessed].
- FLEMING, A., WISE, R. M., HANSEN, H. & SAMS, L. 2017. The sustainable development goals: A case study. *Marine Policy*, 86, 94-103.
- HAHN, T., FIGGE, F., ARAGÓN-CORREA, J. A. & SHARMA, S. 2017. Advancing research on corporate sustainability: Off to pastures new or back to the roots? *Business & Society*, 56, 155-185.
- HAHN, T., FIGGE, F., PINKSE, J. & PREUSS, L. 2018. A Paradox Perspective on Corporate Sustainability: Descriptive, Instrumental, and Normative Aspects. *Journal of Business Ethics*, 148, 235-248.
- HAHN, T., PINKSE, J., PREUSS, L. & FIGGE, F. 2015. Tensions in Corporate Sustainability: Towards an Integrative Framework. *Journal of Business Ethics*, 127, 297-316.
- HAHN, T., PREUSS, L., PINKSE, J. & FIGGE, F. 2014. Cognitive frames in corporate sustainability: Managerial sensemaking with paradoxical and business case frames. *Academy of Management Review*, 39, 463-487.
- HART, S. L. 1995. A natural-resource-based view of the firm. *Academy of management review*, 20, 986-1014.
- HART, S. L. & DOWELL, G. 2011. Invited editorial: A natural-resource-based view of the firm fifteen years after. *Journal of management*, 37, 1464-1479.
- HOWARD-GRENVILLE, J., DAVIS, J., DYLLICK, T., JOSHI, A., MILLER, C., THAU, S. & TSUI, A. S. 2017. Sustainable Development for a Better World: Contributions of Leadership,

- Management and Organizations Submission deadline: July 1 to July 30, 2018.  
*Academy of Management Discoveries*, 3, 107-110.
- IN. 2017. *About Innovation Norway* [Online]. Available:  
<http://www.innovasjon Norge.no/en/start-page> [Accessed 16.10 2017].
- JUPP, V. 2006. *The Sage dictionary of social research methods*, Sage.
- LI, W., TSE, H. & FOK, L. 2016. Plastic waste in the marine environment: A review of sources, occurrence and effects. *Science of the Total Environment*, 566, 333-349.
- LOZANO, R. 2014. Creativity and organizational learning as means to foster sustainability. *Sustainable development*, 22, 205-216.
- MEGAMOULD. 2017. *Project summary (Norwegian)* [Online]. Available:  
<https://www.forskningsradet.no/prosjektbanken/#/project/NFR/256819> [Accessed 30.04 2018].
- MINTZBERG, H. & WATERS, J. A. 1985. Of strategies, deliberate and emergent. *Strategic management journal*, 6, 257-272.
- NEUGEBAUER, F., FIGGE, F. & HAHN, T. 2015. Planned or emergent strategy making? Exploring the formation of corporate sustainability strategies. *Business Strategy and the Environment*.
- NILSSON, M., GRIGGS, D. & VISBECK, M. 2016. Policy: map the interactions between Sustainable Development Goals. *Nature*, 534, 320-322.
- OTTERLEI, I. 2018. Walkways of plastics. *Sunnmørsposten (regional newspaper)*.
- POLYTECHNICSUSTAINABILITY. 2018. *About Polytechnic Sustainability* [Online]. Available:  
<http://www.polyteknisk.no/polynettverk/pf-baerekraft/> [Accessed 26.04 2018].
- PRADHAN, P., COSTA, L., RYBSKI, D., LUCHT, W. & KROPP, J. P. 2017. A Systematic Study of Sustainable Development Goal (SDG) Interactions. *Earth's Future*, 5, 1169-1179.
- RUSSO, M. V. & FOUTS, P. A. 1997. A resource-based perspective on corporate environmental performance and profitability. *Academy of management Journal*, 40, 534-559.
- SCHALTEGGER, S., BECKMANN, M. & HANSEN, E. G. 2013. Transdisciplinarity in corporate sustainability: mapping the field. *Business Strategy and the Environment*, 22, 219-229.
- SCHEYVENS, R., BANKS, G. & HUGHES, E. 2016. The Private Sector and the SDGs: The Need to Move Beyond 'Business as Usual'. *Sustainable Development*.
- SIEBENHÜNER, B. & ARNOLD, M. 2007. Organizational learning to manage sustainable development. *Business strategy and the environment*, 16, 339-353.
- SISVI. 2016. *Implementing sustainability through stakeholder collaboration* [Online]. Available:  
<https://sisvi.no/2016/09/23/implementing-sustainability-through-stakeholder-collaboration/> [Accessed 26.04 2018].
- SMITH, W. K. & LEWIS, M. W. 2011. Toward a theory of paradox: A dynamic equilibrium model of organizing. *Academy of management Review*, 36, 381-403.
- SPANGENBERG, J. H. 2017. Hot Air or Comprehensive Progress? A Critical Assessment of the SDGs. *Sustainable Development*, 25, 311-321.
- SULLIVAN, K., THOMAS, S. & ROSANO, M. 2018. Using industrial ecology and strategic management concepts to pursue the Sustainable Development Goals. *Journal of Cleaner Production*, 174, 237-246.
- UPWARD, A. & JONES, P. 2016. An ontology for strongly sustainable business models: Defining an enterprise framework compatible with natural and social science. *Organization & Environment*, 29, 97-123.

- VAN DER BYL, C. A. & SLAWINSKI, N. 2015. Embracing Tensions in Corporate Sustainability: A Review of Research From Win-Wins and Trade-Offs to Paradoxes and Beyond. *Organization & Environment*, 28, 54-79.
- VAN MARREWIJK, M. 2003. Concepts and definitions of CSR and corporate sustainability: Between agency and communion. *Journal of business ethics*, 44, 95-105.
- VERMEULEN, W. J. & WITJES, S. 2016. On addressing the dual and embedded nature of business and the route towards corporate sustainability. *Journal of Cleaner Production*, 112, 2822-2832.
- VILDÅSEN, S. S. & HAVENVID, M. I. 2018. The role of interaction for corporate sustainability. *IMP Journal*, 12, 1-24.
- VILDÅSEN, S. S., KEITSCH, M. M. & FET, A. M. 2017. Clarifying the Epistemology of Corporate Sustainability. *Ecological Economics*, 138, 40-46.
- WHITEMAN, G., WALKER, B. & PEREGO, P. 2013. Planetary boundaries: Ecological foundations for corporate sustainability. *Journal of Management Studies*, 50, 307-336.
- WILLIAMS, A., KENNEDY, S., PHILIPP, F. & WHITEMAN, G. 2017. Systems thinking: A review of sustainability management research. *Journal of Cleaner Production*, 148, 866-881.
- WITJES, S. 2017. *Leapfrogging through retrospection: Ferreting out sustainability integration within organisations*. Doctoral thesis, Utrecht University
- YIN, R. K. 2014. *Case study research: Design and methods - Fifth edition* Sage publications.

## Appendix

Table AI Details on secondary interviews

Date	Type	Interviewees	Comment
December 10, 2014	Open ended	Project manager and Engineer	Two separate interviews with Plasto representatives
February 8, 2015	Open ended	Purchasing manager	Plasto representative
April 16, 2015	Open ended	CEO, Project manager, R&D manager, and Engineer	Four separate interviews with Plasto representatives
October 27, 2015	Open ended	Purchasing manager and R&D Manager	Two separate interviews with AKVA group representatives
February 19, 2016	Open ended	Project manager	Plasto representative
March 7, 2016	Open ended	Technical sales manager	Representative of AKVA group subsidiary
June 10, 2016	Open ended	Project manager	Plasto representative
March 9, 2016	Open ended	R&D manager	Representative of AKVA group subsidiary
September 19, 2016	Open ended	CEO, Project manager, Engineer and CFO	Four separate interviews with Plasto representatives
October 27, 2016	Semi structured	Project manager	Plasto representative; transcriptions available
November 8, 2016	Semi structured	CEO	Containerservice representative; transcriptions available
November 10, 2016	Semi structured	Business developer	AKVA group representative; transcriptions available
November 22, 2016	Semi structured	Project manager	Plasto representative; transcriptions available
April 5, 2017	Semi structured	Project manager	Plasto representative
June 6, 2017	Semi structured	CEO and Project manager	Plasto representatives
April 19, 2018	Open ended	Quality manager	Containerservice representative; informal setting

Table AII Details on secondary observations of Plasto

Date	Role of the researcher(s)	Company actors at Plasto	Comment
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May 28, 2014	Passive participant	CEO	First formal meeting in the project; written minutes available
November 28, 2014	Passive participant	CEO Project manager	First research seminar in the project; written summary and company slides available
March 19, 2015	Passive participant	R&D manager	Company presentation in research seminar; slides available
May 21, 2015	Passive participant	Project manager	Discussions at research seminar; written summary available
September 28, 2015	Passive participant	Project manager COO	Research seminar at Plasto's facilities; written summary and company slides available
February 22, 2016	Passive participant	R&D manager Engineer	Interactive workshop; written summary and company slides available
March 8, 2016	Passive participant	CEO	Company presentation at research seminar
May 18, 2016	Passive participant	Project manager	Discussions at research seminar; written summary available
September 2, 2016	Active participant	Project manager,	Company presentation at circular economy conference; company slides available
March 24, 2017	Active participant	Project manager	Interactive workshop; written summary and company slides available
June 2, 2017	Active participant	Management group	Interactive workshop; written summary available
June 8, 2017	Passive participant	Project manager	Presentation and group discussions at an industrial networking event
September 28, 2017	Passive participant	Project manager	Discussions at research seminar; written summary and company slides available
April 18, 2018	Passive participant	Project manager	Company presentations at circular economy conference; written summary and company slides available

*Table AIII Details on secondary documents*

<b>Type</b>	<b>Date retrieved</b>	<b>Relevance for the CBM case</b>
Strategy document	November 7, 2017	Shows Plasto's strategic priorities for 2017 and 2018
Plan for research project	April 7, 2017	The R&D project MegaMould deals with core activities of the CBM project.