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# **A Benchmarking Toolkit for Corporate Sustainable Development in Supply Chains**

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## **ABSTRACT**

The objective is to describe and apply a benchmarking toolkit to prioritize managerial implications for the measurement and assessment of sustainable development in supply chains. A case study approach of a Scandinavian hotel chain, which is well-known for its dedication and commitment to the sustainable development of its business practices, is used. The outcome of a TBL dominant logic consisting of dimensions, indicators and items across economic, social and environmental aspects, which yields various benchmarking priorities of implications for supply chains is discussed. The priority of sustainable development in supply chains depends on the others involved who may have contradictory views on what to do and how to progress sustainable development. The assessment scheme reported stresses through an asymmetric benchmarking approach and interpretation, rather than a symmetric one, so as to deal effectively with the priority of managerial implications of corporate sustainable development in supply chains. Suggestion for further research are provided. This study provides the foundation of a benchmarking toolkit for corporate sustainable development that offers relevant and valuable insights into the priority of managerial implications across economic, social and environmental aspects in connection with business sustainability in supply chains.

**Keywords:** benchmarking, sustainable business development, triple bottom line, corporate social responsibility (CSR), Scandinavia

## **INTRODUCTION**

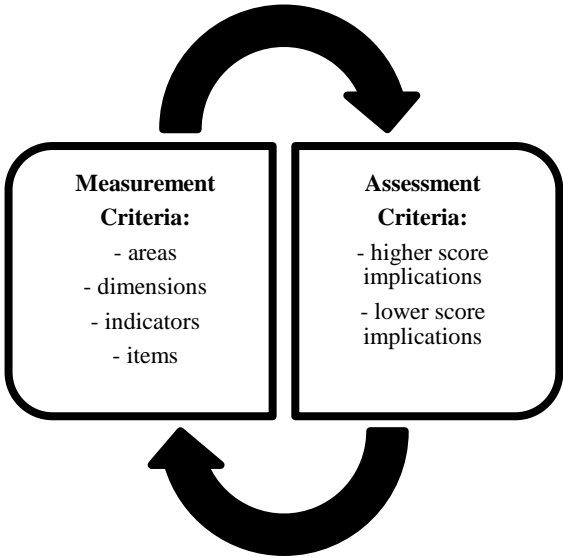
The World Commission on Environment and Development (WCED, 1987) defines sustainable development as inter-generational well-being, highlighting transformational and long-term change, rather than short-term planning cycles and strategies. Svensson *et al.* (2016) define business sustainability as a company's efforts to go beyond focusing only on profitability, but also to manage its environmental, social and broader economic impact on the marketplace and society as a whole, in line with several other definitions in the literature (e.g. Lüdeke-Freund, 2009; Smith and Sharicz, 2011) that take the logic of the Triple Bottom Line (TBL) into account (Elkington, 1997 and 2004).

There are a number of recent managerial frameworks for measuring and assessing the sustainable development of corporate practices within and beyond firms (e.g. Buried Treasure, 2001; FTSE, 2013; Heemskerk, Pistorio and Scicluna, 2002; Mondi, 2013; RobecoSAM, 2013;

Shell, 2013; Siemens, 2012; Stoxx, 2013). Their impact on business practices is though, rather minor (Milne and Gray, 2013; Parris and Kates, 2003; Pinter, Hardi, and Bartelmus, 2005) due to insufficient underlying theory, poor data gathering and weak analyses (Schalegger and Burritt, 2010). There is also a lack of consensus and consistency between managerial measures, because of different disciplinary approaches, ideology, international treaties (Litido and Righini, 2013). The common denominators between managerial frameworks are the consideration of economic, social and environmental concerns.

This study is therefore also based on the logic of Triple Bottom Line (TBL), taking into account the findings of Svensson *et al.* (2016) who developed and tested a framework of a TBL dominant logic in connection with business sustainability. Furthermore, this study is based on their measurement criteria, consisting of the areas of TBL (economic, social and environmental) and twenty dimensions consisting of sixty indicators and items used as summarized in Figure 1 (see Tables 1a, 1b and 1c for further details).

**Figure 1: A Benchmarking Toolkit for Corporate Sustainable Development in Supply Chains: Measurement and Assessment Criteria.**



This study expands the developed theory and tested empirical findings of the TBL dominant logic by Svensson *et al.* (2016) based on a case study approach to exploring the benchmarking criteria of the implications from their measurement criteria. The research objective is to describe and apply a benchmarking toolkit for the measurement and assessment of sustainable development in supply chains.

The rest of the article frames sustainable development in connection with benchmarking business sustainability efforts, describes the methodology, structures the interconnection between measurement and assessment criteria, reports the empirical findings which are linked to the managerial implications, presents the conclusions of the benchmarking toolkit for sustainable development in supply chains, and finally provides suggestions for further research.

**FRAMING SUSTAINABLE DEVELOPMENT AND SUSTAINABILITY**

In the 1980s, business initiated to a change from only taking into account economic responsibility in the market and society, to include social and environmental responsibility as well (Evans and Sawyer, 2010; Robinson, 2000). In the 1990s, the environmental emphasis continued in order to manage sustainable development in connection with business practices (Schuftan, 2013). In the 2000s, sustainable development became a global concern (Hart and Milstein, 2003). Nevertheless, environmental and societal concerns, as well as the ethical ones,

were addressed even in the 1960s (Carson, 1962). However, research on sustainable development has been undertaken mainly in recent decades, as shown in literature reviews from Chabowski (2011), Mena and Gonzales-Padron (2011), Leonidou and Leonidou (2011) and Seuring and Müller (2008).

Research on global warming and climate change evolve along different paths as well, as they are taken into consideration differently in different markets and societies worldwide. The unifying, underlying logic and purpose across the various paths is to care for the natural environment. This is a focus that requires additional insights into how to measure and assess corporate sustainable development in connection with business sustainability.

### **Sustainable Development**

Elkington (1997 and 2004) contends that sustainable development should address economic, social and environmental concerns, so as to manage the challenges in connection with the sustainable development of business practices (Høgevold *et al.*, 2014). In this age of global warming and climate change, it is essential to measure the progress of sustainable development in to the context of business sustainability efforts through time and across contexts. This study makes a contribution by reporting on a toolkit for assessing the implications of sustainable development.

Vos (2007) concludes that the way sustainability is defined has common denominators, such as economic, social and environmental considerations in the marketplace and society, all of which should be addressed in combination (Svensson *et al.*, 2016). Senge *et al.* (2008) frame definitions beyond compliance, while Høgevold and Svensson (2012) argue that sustainable development in connection with business sustainability should be a continuous process.

It should be noted that there is no consensus regarding the definitions of sustainable development. As indicated above, there are several definitions and frameworks in both theory and practice (Svensson *et al.*, 2016). Research on sustainable development has evolved from existing theory and previous research, such as on corporate social performance, institutional, political economy, resource-based and stakeholders, (Wood, 1991), cause-related marketing (Varadarajan and Menon, 1988), corporate environmentalism (Banerjee *et al.*, 2003) and “enviropreneurial” marketing (Menon and Menon, 1997).

Sustainable development in connection with business practices has considered various different subject areas. Faber, Jorna and van Engelen (2005) address the principles of sustainability, placing emphasis on whether sustainability is in itself sustainable. Others emphasize the meaning of the sustainability concept (Glavic and Lukman, 2007) as a fundamental direction (Shrivastava and Berger, 2010). Guest (2010) emphasizes economic considerations of sustainability, which are linked to climate change. Hassini, Surti and Searcy (2012) provide a literature review and apply a case study approach to sustainable development.

### **Sustainability**

Sustainability is taken into consideration across subject areas. For example, Chabowski *et al.* (2011) look into the development of sustainability in the field of marketing and Leonidou and Leonidou (2011) take the standpoint of environmental aspects based on research in management and marketing.

Vaaland, Grønhaug and Heide (2008) explore Corporate Social Responsibility (CSR) in the the same subject area, while Pelozo and Shang (2011) address the value creation capability of CSR. Kolk and van Tulder (2010) combine CSR and sustainable development; based on the perspective of international business. Goyal, Rahman, and Kazmi (2013) focus on the performance of corporate sustainability.

Furthermore, there are a number of literature reviews. For example, Seuring and Müller (2008) review the existing literature, providing a framework for sustaining supply chain management. Ashby, Leat and Hudson-Smith (2012) link supply chain management with the literature on sustainability, while Gimenez and Tachizawa (2012) link sustainability to suppliers in an organizational supply chain.

Practices of sustainability in tourism have also been reviewed (Saarinen, 2006), as well as methods for evaluating the sustainability of tourist destinations (Schianetz, Kavanagh and Lockington, 2007). Haiyan, Jingyan and Gezhi (2013) address the governance of value chain tourism.

### **Status of Sustainable Development and Sustainability**

The framing of sustainable development and sustainability in the literature shows that there is no consensus. On the contrary, multiple measurement and assessment criteria are proposed. Nevertheless, the literature reviews show that economic, social and environmental are frequently mentioned, though existing research does not explore them in conjunction.

Therefore, this study apply a framework consisting of economic, social and environmental elements aimed at exploring the managerial implications based on each element in the TBL dominant logic of Svensson *et al.* (2016).

## **METHODOLOGY**

The Scandinavian countries (Denmark, Norway and Sweden) possess an appealing environmental profile ranking, all among the top ones of 178 countries, according to the Environmental Performance Index (EPI, 2014).

A case study approach of a Scandinavian company that is well-known for its efforts in connection with sustainable development of business practices, was therefore applied. The company's dedication and commitment to sustainability is outstanding, extending far beyond mere compliance with existing laws and regulations (Senge *et al.*, 2008).

The case study is based upon on one of the major hotel chains in Scandinavia with approximately 6.000 employees (full time equivalent) and an annual turnover of approximately 800 million euros. It has a vision and mission to provide sustainable development: "...with energy, courage and enthusiasm, we create a better world..."

The primary data collection was based on interviews with key executives in the studied hotel chain. The outcome of interviews was continuously transcribed, proofread and the content checked. A content analysis took place after each interview.

Semi-structured interviews with key executives were performed, lasting between one and three hours with follow-up questions. The interviews were based on the researchers' previous case study work in the hotel chain. The researchers presented the findings in person to the key executives, or order to clarify and confirm the accuracy of the implications and conclusions drawn from the interviews. The series of interviews ended when researchers experienced knowledge saturation and no further insights were provided by the key executives.

The content of interviews with key executives were categorised so as to structure the statements and answers collected. Other secondary sources of data collection were also used, such as organizational documents, websites and other available information.

The researchers strove to be sensitive and receptive to insights and interpretations communicated by the key executives during the case study, applying a sequential and organized process which ensure both rigor and relevance. Furthermore, the researchers applied the

approach of abductive matching (Dubois and Gadde, 2002) to reveal categories, patterns and themes, in an effort at iterative content analysis. The information gathered from each key executive was assessed individually, and compared to the information gathered from the other key executives, as advised by Dubois and Gadde (2002), as a means of verifying the relevance of categories, patterns and themes found in the current case study.

The case study process also strove to triangulate the information gathered from key executives by assessing both primary and secondary sources, and with the use of several interviews (Miles and Huberman, 1994). The findings reflect the researchers’ interpretation of potential managerial benchmarking implications.

The aim of the current case study was not to report generalizable findings, but rather to provide general insights (Bonoma, 1985) of the managerial benchmarking implications, based on the measurement and assessment criteria developed and tested by Svensson *et al.* (2016). This method offers opportunities for further research examining the benchmarking applicability to other companies and industries (Punch, 1998).

**EMPIRICAL FINDINGS AND MANAGERIAL BENCHMARKING IMPLICATIONS**

This section reports the empirical findings and managerial benchmarking implications, based on the framework of the TBL dominant logic of business sustainability from Svensson *et al.* (2016). The empirical findings and associated managerial benchmarking implications are shown in Table 1a (Economic Aspects), Table 1b (Social Aspects) and Table 1c (Environmental Aspects).

**Table 1a: A Benchmarking Toolkit for Corporate Sustainable Development in Supply Chains.**

<b>A Benchmarking Toolkit for Corporate Sustainable Development in Supply Chains</b>				
<i>Economic Aspects – Assessment Scheme</i>				
<b>Measurement*</b>			<b>Benchmarking Implications</b>	
<b>Dimension</b>	<b>Indicators</b>	<b>Items</b>	<b>Higher Scores</b>	<b>Lower Scores</b>
Profitability	<ul style="list-style-type: none"> <li>• business driven</li> <li>• profit-oriented</li> <li>• about making money for all involved</li> </ul>	<ul style="list-style-type: none"> <li>• are <u>business driven</u> (e.g. based upon company objectives).</li> <li>• are <u>profit-oriented</u>.</li> <li>• are about <u>making money</u> for all stakeholders involved.</li> </ul>	<ul style="list-style-type: none"> <li>• economic orientation, motivated by financial performance</li> <li>• identify business opportunities</li> <li>• less about costs and more about value</li> </ul>	<ul style="list-style-type: none"> <li>• non-economic orientation</li> <li>• focus on regulatory issues; compliance</li> </ul>
Competitiveness	<ul style="list-style-type: none"> <li>• improve competitive position</li> <li>• create competitive advantage</li> <li>• perceived success factor</li> </ul>	<ul style="list-style-type: none"> <li>• <u>improve the competitive position</u> of the company.</li> <li>• <u>create a competitive advantage</u> for the company.</li> <li>• perceived to be an important key <u>success factor</u>.</li> </ul>	<ul style="list-style-type: none"> <li>• perceived economic benefits in the marketplace</li> </ul>	<ul style="list-style-type: none"> <li>• do not see much value for business survival</li> </ul>
Cost reduction	<ul style="list-style-type: none"> <li>• contribute to cost reduction</li> <li>• improve cost efficiency</li> <li>• reduce expenses</li> </ul>	<ul style="list-style-type: none"> <li>• <u>contribute to cost reduction</u>.</li> <li>• <u>improve cost efficiency</u>.</li> <li>• <u>reduce the company’s expenses</u>.</li> </ul>	<ul style="list-style-type: none"> <li>• actions more basic</li> <li>• earlier stage of process performance and conditions</li> </ul>	<ul style="list-style-type: none"> <li>• actions more complex</li> <li>• later process performance and conditions</li> </ul>
Brand value	<ul style="list-style-type: none"> <li>• improve reputation</li> </ul>	<ul style="list-style-type: none"> <li>• <u>improve the corporate reputation</u> of the company.</li> </ul>	<ul style="list-style-type: none"> <li>• mature market view</li> </ul>	<ul style="list-style-type: none"> <li>• immature market view</li> </ul>

	<ul style="list-style-type: none"> <li>• enhance image</li> <li>• influence profile communicated</li> </ul>	<ul style="list-style-type: none"> <li>• <u>enhance</u> the company's <u>image</u> in the market.</li> <li>• positively <u>influence</u> the company's <u>profile</u> communicated to stakeholders.</li> </ul>	<ul style="list-style-type: none"> <li>• long-term experiences</li> </ul>	<ul style="list-style-type: none"> <li>• short-term experiences</li> </ul>
Finance	<ul style="list-style-type: none"> <li>• add to performance</li> <li>• generate benefits</li> <li>• improve finances</li> </ul>	<ul style="list-style-type: none"> <li>• <u>add to</u> the financial <u>performance</u> of the company.</li> <li>• <u>generate financial benefits</u> for the company.</li> <li>• <u>improve</u> operational <u>finances</u>.</li> </ul>	<ul style="list-style-type: none"> <li>• major impact on economic outcomes</li> </ul>	<ul style="list-style-type: none"> <li>• no or minor impact on economic outcomes</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>• widely reported</li> <li>• not hidden from scrutiny</li> <li>• transparent to all interested</li> </ul>	<ul style="list-style-type: none"> <li>• <u>widely reported</u>.</li> <li>• <u>not hidden</u> from public scrutiny.</li> <li>• <u>transparent</u> to all those interested.</li> </ul>	<ul style="list-style-type: none"> <li>• realise value-adding benefits</li> <li>• more openness and sharing</li> </ul>	<ul style="list-style-type: none"> <li>• underestimate the value of communication</li> <li>• more closeness and secrecy</li> </ul>
Tradeoffs	<ul style="list-style-type: none"> <li>• lead to re-allocation of resources</li> <li>• non-economic aspects impact on decisions</li> <li>• require trade-offs</li> </ul>	<ul style="list-style-type: none"> <li>• <u>lead to</u> the <u>re-allocation of resources</u>.</li> <li>• imply that <u>non-economic aspects</u> impact on the company's <u>decisions</u>.</li> <li>• <u>require</u> the company to make economic <u>trade-offs</u> (e.g. price and quality).</li> </ul>	<ul style="list-style-type: none"> <li>• acknowledgement of priorities between one action and another;</li> <li>• one cannot do all</li> <li>• make choices</li> </ul>	<ul style="list-style-type: none"> <li>• less advanced development</li> <li>• limited implementation</li> <li>• obscure agenda</li> <li>• weak goal-setting</li> </ul>
Spinoffs	<ul style="list-style-type: none"> <li>• contribute to other aspects of business operations</li> <li>• generate unexpected opportunities</li> <li>• provide unexpected benefits</li> </ul>	<ul style="list-style-type: none"> <li>• <u>contribute positively</u> to <u>other aspects</u> of the company's business <u>operations</u>.</li> <li>• <u>generate unexpected opportunities</u> for the company.</li> <li>• <u>provide unexpected benefits</u> for the company.</li> </ul>	<ul style="list-style-type: none"> <li>• achieve the bigger picture</li> <li>• broader overall insights</li> </ul>	<ul style="list-style-type: none"> <li>• narrow perspective</li> <li>• minor insights and efforts</li> <li>• narrow-minded</li> </ul>

**Table 1b: A Benchmarking Toolkit for Corporate Sustainable Development in Supply Chains.**

A Benchmarking Toolkit for Corporate Sustainable Development in Supply Chains				
<i>Social Aspects – Assessment Scheme</i>				
Measurement*			Benchmarking Implications	
Dimension	Indicators	Items	Higher Scores	Lower Scores
Organizational support	<ul style="list-style-type: none"> <li>• need top management guidance</li> <li>• insignificant without leadership support</li> <li>• superficial without staff support</li> </ul>	<ul style="list-style-type: none"> <li>• need <u>top management guidance</u>.</li> <li>• are <u>insignificant</u> without corporate <u>leadership support</u>.</li> <li>• are <u>superficial</u> without support from all <u>staff</u>.</li> </ul>	<ul style="list-style-type: none"> <li>• top-down guidance</li> <li>• hierarchical value</li> <li>• provide role model</li> </ul>	<ul style="list-style-type: none"> <li>• bottom-up initiatives</li> <li>• lower degree of organisational penetration</li> <li>• intra-entrepreneurial desires to take certain actions</li> </ul>
Whole business network	<ul style="list-style-type: none"> <li>• require direct partners to be engaged</li> <li>• united ambition of business network</li> <li>• common ambition of entire network</li> </ul>	<ul style="list-style-type: none"> <li>• <u>require</u> that all <u>direct</u> business <u>partners</u> be <u>engaged</u> in such practices.</li> <li>• need to be the <u>united ambition</u> with the company's entire <u>business network</u>.</li> <li>• required to be the <u>common ambition</u> of the company's entire <u>business network</u>.</li> </ul>	<ul style="list-style-type: none"> <li>• network approach</li> <li>• chain and channels</li> <li>• multiple relationships</li> </ul>	<ul style="list-style-type: none"> <li>• organisational approach</li> <li>• single relationships</li> </ul>

Longevity of perspective and consistency	<ul style="list-style-type: none"> <li>• require consistent decisions</li> <li>• long-term perspective</li> <li>• supported by consistent view</li> </ul>	<ul style="list-style-type: none"> <li>• require <u>consistency</u> of corporate <u>decisions</u> over time.</li> <li>• are based upon a <u>long-term</u> business <u>perspective</u>.</li> <li>• are supported by a <u>consistent</u> corporate <u>view</u>.</li> </ul>	<ul style="list-style-type: none"> <li>• long-term emphasis</li> <li>• reliable and stable efforts</li> </ul>	<ul style="list-style-type: none"> <li>• short-term emphasis</li> <li>• instability</li> <li>• volatile efforts</li> </ul>
Commitment and dedication	<ul style="list-style-type: none"> <li>• need substantial investment</li> <li>• substantial effort</li> <li>• dedication</li> </ul>	<ul style="list-style-type: none"> <li>• <u>need substantial investment</u> from the company.</li> <li>• <u>require</u> substantial corporate <u>effort</u>.</li> <li>• based upon corporate <u>dedication</u>.</li> </ul>	<ul style="list-style-type: none"> <li>• greater involvement</li> <li>• perceived significance to the organisation</li> </ul>	<ul style="list-style-type: none"> <li>• restricted actions</li> <li>• low confidence</li> </ul>
Corporate culture	<ul style="list-style-type: none"> <li>• reflect values</li> <li>• reflect norms</li> <li>• based upon principles</li> </ul>	<ul style="list-style-type: none"> <li>• <u>reflect</u> corporate <u>values</u>.</li> <li>• <u>reflect</u> corporate <u>norms</u>.</li> <li>• based upon corporate <u>principles</u>.</li> </ul>	<ul style="list-style-type: none"> <li>• representing organisational atmosphere</li> <li>• foundation of culture</li> </ul>	<ul style="list-style-type: none"> <li>• absence of common values</li> <li>• minimal ethical or moral direction</li> </ul>
Corporate reputation	<ul style="list-style-type: none"> <li>• affect reputation</li> <li>• impact on word-of-mouth</li> <li>• stakeholder appreciation</li> </ul>	<ul style="list-style-type: none"> <li>• positively affect the corporate <u>reputation</u> of the company.</li> <li>• positively impact the '<u>word-of-mouth</u>' about the company.</li> <li>• are appreciated by all <u>stakeholders</u>.</li> </ul>	<ul style="list-style-type: none"> <li>• value-adding in market and society</li> <li>• stakeholder awareness and interaction</li> </ul>	<ul style="list-style-type: none"> <li>• underestimate marketplace dynamics</li> <li>• ignore societal potential</li> </ul>

**Table 1c: A Benchmarking Toolkit for Corporate Sustainable Development in Supply Chains.**

<b>A Benchmarking Toolkit for Corporate Sustainable Development in Supply Chains</b>				
<i>Environmental Aspects – Assessment Scheme</i>				
<b>Measurement*</b>			<b>Benchmarking Implications</b>	
<b>Dimension</b>	<b>Indicators</b>	<b>Items</b>	<b>Higher Scores</b>	<b>Lower Scores</b>
Footprint and the natural environment	<ul style="list-style-type: none"> <li>• impact of partners</li> <li>• diminish own impact</li> <li>• reduce partners' impact</li> </ul>	<ul style="list-style-type: none"> <li>• take the <u>impact</u> of business <u>partners</u> on the natural environment into account.</li> <li>• <u>diminish corporate impact</u> on the natural environment</li> <li>• <u>reduce</u> business <u>partners' impact</u> on the natural environment</li> </ul>	<ul style="list-style-type: none"> <li>• inter-organisational concerns</li> <li>• including organisational footprints in the environment beyond judicial boundaries</li> </ul>	<ul style="list-style-type: none"> <li>• intra-organisational concerns</li> <li>• focus on within-organisational or dyadic footprints in the environment</li> </ul>
Climate change and global warming	<ul style="list-style-type: none"> <li>• response to climate change</li> <li>• effects of business operations</li> <li>• strive towards minimizing global warming</li> </ul>	<ul style="list-style-type: none"> <li>• are implemented in <u>response</u> to ongoing <u>climate change</u></li> <li>• consider the <u>effects</u> of corporate <u>business operations</u> on global warming.</li> <li>• strive to <u>minimize</u> the generation of <u>global warming</u> gases.</li> </ul>	<ul style="list-style-type: none"> <li>• stronger willingness to change</li> <li>• desire to make a contribution to the well-being of natural environment</li> </ul>	<ul style="list-style-type: none"> <li>• less efforts to adapt</li> <li>• weak interest in protecting and caring for the environment</li> </ul>
Multitude of initiatives	<ul style="list-style-type: none"> <li>• comprehensive effort</li> <li>• beyond company</li> <li>• multiple initiatives</li> </ul>	<ul style="list-style-type: none"> <li>• <u>involve</u> a <u>comprehensive</u> strategic <u>effort</u> from the company.</li> <li>• go <u>beyond</u> the <u>company</u> itself.</li> </ul>	<ul style="list-style-type: none"> <li>• holistic acknowledgement present in environmental initiatives</li> <li>• more far-reaching</li> </ul>	<ul style="list-style-type: none"> <li>• myopia pre-dominant in environmental initiatives</li> <li>• more short-sighted</li> </ul>



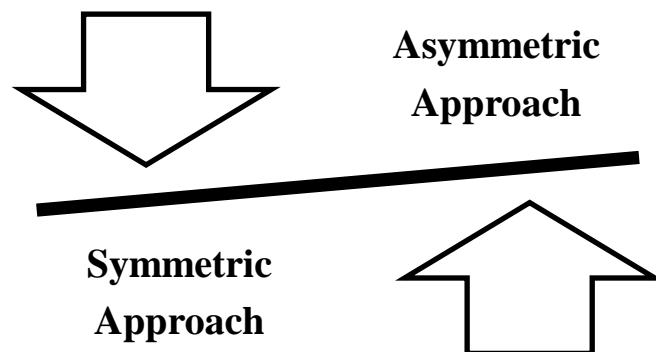
		<ul style="list-style-type: none"> <li>• consist of <u>multiple initiatives</u>.</li> </ul>		
Efficiency programs	<ul style="list-style-type: none"> <li>• environmental efficiency efforts</li> <li>• monitored through continuous improvement</li> <li>• continuous process</li> </ul>	<ul style="list-style-type: none"> <li>• part of company's <u>environmental efficiency efforts</u>.</li> <li>• is monitored through <u>continuous improvement</u>.</li> <li>• is a <u>continuous process</u>.</li> </ul>	<ul style="list-style-type: none"> <li>• more focus on continuity and revised environmental efforts</li> <li>• planned, formalized and structured actions</li> </ul>	<ul style="list-style-type: none"> <li>• more focus on separate and disconnected environmental efforts</li> <li>• sporadic, unstructured and informal actions</li> </ul>
Product process dematerialization	<ul style="list-style-type: none"> <li>• address activities to product impact</li> <li>• products becoming ecological-friendly</li> <li>• suitable for natural environment</li> </ul>	<ul style="list-style-type: none"> <li>• <u>address activities</u> related to the <u>environmental impact</u> of products.</li> <li>• have led to company <u>products</u> becoming <u>more ecologically friendly</u>.</li> <li>• are considered <u>suitable</u> for dealing with the <u>natural environment</u>.</li> </ul>	<ul style="list-style-type: none"> <li>• greater importance of environmental products/processes</li> <li>• whole product development processes;</li> </ul>	<ul style="list-style-type: none"> <li>• less attention to environmental improvements and modifications of products/processes</li> <li>• fewer changes, updates and refinements</li> </ul>
Product/Process decarbonizing	<ul style="list-style-type: none"> <li>• highlight each product's footprint</li> <li>• visible to stakeholders</li> <li>• each product's impact on environment</li> </ul>	<ul style="list-style-type: none"> <li>• <u>highlight</u> each <u>product's footprint</u> on the natural environment.</li> <li>• are <u>visible</u> to <u>stakeholders</u>.</li> <li>• show each <u>product's impact</u> on the natural environment.</li> </ul>	<ul style="list-style-type: none"> <li>• awareness of the sum of actions intended to reduce footprint</li> <li>• specification of impact of environment</li> </ul>	<ul style="list-style-type: none"> <li>• limited insights of the impact of each action to total footprint</li> <li>• environmental impact seen as generic</li> </ul>

Based upon the empirical findings shown in Tables 1a, 1b and 1c, it is evident that the outcome of the TBL dominant logic, consisting of the dimensions, indicators and items across economic, social and environmental aspects from Svensson *et al.* (2016), leads to a variety of different managerial benchmarking implications in supply chains.

The benchmarking assessment scheme reported in Tables 1a, 1b and 1c indicate that higher or lower scores impact differently on corporate sustainable development in different supply chains. The benchmarking assessment criteria (i.e. higher or lower scores) are not necessarily mutually contradictory, but other managerial benchmarking implications are revealed, depending on what is at stake (i.e. dimension, indicators and items) in supply chains.

The benchmarking assessment scheme reported in Tables 1a, 1b and 1c therefore stresses an asymmetric approach and interpretation, rather than a symmetric one, in order to manage the managerial benchmarking implications of corporate sustainable development, as shown in Figure 2.

**Figure 2: Symmetric versus Asymmetric Benchmarking Approach to Corporate Sustainable Development in Supply Chains.**



The asymmetric approach and interpretation of the managerial benchmarking implications is appropriate, as corporate sustainable development in supply chains is complex, and by no means trivial. On the one hand, there is no easy way forward in terms of what to do and how to do it, when shortcomings are revealed in to the context of business sustainability. On the other hand, although highly satisfactory efforts and a sound evolution of corporate sustainable development may have been achieved, one cannot assume that this will remain the case, as the progress is relative to what is happening in the marketplace and society at any given time.

Sustainable development in supply chains depends on the others involved, who may have contradictory views on what to do and how to progress sustainable development. Development also depends on whether the other organisations in the supply chain are predominantly service- or goods-oriented, as well as their willingness to go beyond mere compliance with laws and regulations. The organisational vision and mission in terms of sustainable development also influences what can be done and how sustainable development can be achieved in supply chains.

Integrating business sustainability in organizations is about decisions made every day by management and employees, how the business is run and how the organization invests and influences its stakeholders. A benchmarking toolkit as described can guide organizations toward more sustainable decisions and make it easier to take decisions that will have a sustainable positive impact on both the environment and society as a whole.

The benchmarking toolkit for measuring and assessing sustainable development may be used as a whole or only in part. An organisation may select the aspects of TBL at their own discretion, as well as the dimensions to be used for measuring and benchmarking their own and others' progress towards sustainable development in the supply chain.

## **CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH**

We contend that the benchmarking toolkit for sustainable development reported in Tables 1a, 1b and 1c makes a relevant and valuable contribution to existing measurement and benchmarking criteria in connection with business sustainability through time and across contexts.

Based on the industry insights reported from the current case study, we argue that the TBL dominant logic of Svensson *et al.* (2016) may be applicable across companies and industries, as well as across countries and continents. It appears to be valid and reliable benchmarking toolkit, yielding evidence of generalizability to corporate sustainable development in supply chains.

In particular, the current case study provides a basic benchmarking toolkit for corporate sustainable development that offers relevant and valuable insights into the managerial benchmarking implications across economic, social and environmental aspects in connection with business sustainability in supply chains. Tables 1a, 1b and 1c summarize the empirical findings and associated managerial benchmarking implications.

Nevertheless, the current case study offers at least three opportunities for further research in terms of corporate sustainable development in supply chains. One clear option is the application of the benchmarking toolkit reported here in other companies and industries. Another is an benchmarking exploration among several companies within the same industry, in search of similarities and differences with regard to sustainable development. A third approach is to continue exploring benchmarks of sustainable development in supply chains, taking into account the economic, social and environmental aspects in future research.

The current case study demonstrate that the bottom line of measurement and benchmarking assessment, as displayed in Tables 1a, 1b and 1c, is that sustainable development in supply chains is complex to achieve, maintain and manage. The benchmarking toolkit is also asymmetric in terms of what to do and how to do it, because each organisation in the supply chains has its own reasons and motives to strive for corporate sustainable development, or not to do so.

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