

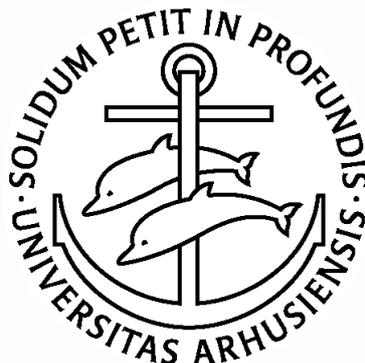
# **Chasing The Butterfly Effect Through Global Institutional and Organisational Architectures for Corporate Sustainability Reporting**

A Retrospective Study of the Sustainability Performance Captured by the Framework  
in the UN Global Compact Standard, and a Prospective Conceptualisation  
of a More Effective Capability-based Framework with Best Practices  
Differentiated by the Level of Materiality and Value Chain Integration

**By Thomas Kjærgaard**

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## **Executive Summary**

Edward Norton Lorenz phrased the question, “Does the Flap of a Butterfly’s Wings in Brazil Set off a Tornado in Texas?” in the title of his famous paper on predictability in 1972. At the time, Norton might have anticipated some of the recognition that would follow, but hardly imagined his concept of the Butterfly Effect and the notion that small causes can have large effects, to be massively popularized. Norton was a mathematician, meteorologist, and a father of chaos theory. Rather than engaging with his concept in its origins, this thesis, however, sets out on chasing “The Butterfly Effect” (McDonough & Braungart, 2013) in the very receptive domain of sustainability, through global architectures for sustainability reporting in particular. Subsequently, this author argues that International Accountability Standards' (IAS) has not fully reached the acclaimed potential as facilitators of the global transfer and scaling up of best practices for sustainability among corporations.

Furthermore, two primary objectives are identified for this thesis, one retrospective and one prospective, and were described briefly. First, this author aims to empirically investigate the implementation level of the ten principles of the UN Global Compact (UNGC) among their corporate signatories. Second, this author aims to conceptualise an IAS framework, which is designed to effectively capture the sustainability performance in corporate value chains. Thus, the two objectives form the backbone of a single primary research question, formulated as follows:

*How can an IAS framework be designed to effectively capture corporate sustainability performance measured by compliance to best practices, with differentiated implementation levels reflecting learning progress and value chain integration?*

The expectation was that the sustainability performance framework, embedded in the Advanced Level of the UNGC Differentiation Programme for corporate sustainability reporting, could partly leverage the first objective concerning the implementation of the ten principles. Thus, it was also expected that such an IAS which is based on best practices would be challenged on, e.g. effectiveness and that addressing the shortcomings would require further conceptualisation to be detached from the current UNGC framework, although remaining compatible. Corporate

stakeholders constitute the intended primary target group for sustainability reports submitted to IAS. Therefore, capturing sustainability performance effectively is essential to their perception of the corporation's sustainability practice.

In order to address the stated objectives, primary research question and expectations, this author engaged in three separate research projects over a period of four years. First (1), in a project commissioned by the UNGC Nordic Network; then (2), in the Sustainable Sourcing Excellence (SSE) project in Germany; and finally (3), in a third research project independent of any authority. Three additional research questions were formulated to focus the contribution of each project towards the primary research question:

- *How do corporations perform on sustainability when measured as the level of implementation of the ten UNGC principles, by adherence to the criteria and associated best practices in the Advanced Level of reporting in the UNGC standard?*
- *Which range of best practices should constitute the core of a framework that effectively captures sustainability performance in corporate value chains and how should the framework be designed to differentiate implementation levels reflecting learning progress and value chain integration?*
- *To which extend does contextual factors influence corporations' sustainability performance in their value chains and how should the framework be designed to capture this influence?*

The three projects overlap some in terms of time periods, but represent three consecutive phases, which addressed the research questions by applying a variety of research methods.

Following a critical realist approach to research, this author allowed methodological pluralism in the choice of research methods and the ability to conduct retrospective as well as prospective studies within the realm of this dissertation. Following this approach also entailed a progression from the *concrete* to the *abstract* and back to the *concrete*. Furthermore, it involved shifts between the deductive and abductive modes of inference applied in each of the research phases.

The first phase of the study was largely descriptive, but concrete in the sense of leveraging a data set for the sustainability performance of a sample of 67 Scandinavian corporations, through content analysis of their sustainability reports submitted in 2011. The study is considered inductive, because it attempts to reflect the results in the perspective of the whole population of 427 Scandinavian corporations who were signatories to the UNGC in 2011. In response to the

shortcomings of the UNGC framework evaluated in the first phase, the second phase moves to the abstract by stating propositions and conceptualising a framework for sustainability performance in corporate value chains. Hence, this was done by using abduction as the mode of inference. The methods applied in this phase include interviews, literature review, and theoretical conceptualisation. Phase three returns to the concrete by applying the conceptual framework in a single case study of the development of learning capabilities over a five-year period. Hence, this uses a deductive mode of inference. The single case study further identified contextual factors, specific structures and mechanisms, and also leveraged the definition of implementation levels at the most granular level of the framework. Thus, it uses an abductive mode of reference. Content analysis of sustainability reports, interviews, and document analysis were methods applied in this third and last research phase. The phases and methods led to the learnings and findings elaborated below.

The research project in the first phase was initiated with a trial assessment of 7 out of the 67 sampled sustainability reports of the corporations, which led this researcher to solely focus on applying UNGC framework in the study. The latter was decided because the trial assessment demonstrated, that the GRI framework could not leverage sufficient coherent performance data across the sampled corporations. The analysis of the UNGC performance data led to the overall conclusion that in 2011, the sampled Scandinavian corporations on an average were not performing on higher levels concerning their implementation of the four core sustainability issues promoted by the UN Global Compact: Human Rights, Labor, Environment, and Anti-Corruption. Furthermore, it was concluded that the minority of corporations that already reported to the UNGC on the Advanced Level demonstrated a significantly higher levels of sustainability performance across all core sustainability issues, than the majority of corporations reporting on the Active Level. The study also found a general gap in performance across all issues, from strategy/policy to implementation in the form of management systems, monitoring, and evaluation mechanisms. Furthermore, the study also found performance differences across the Scandinavian countries where the sampled corporations are headquartered. All in all, these findings demonstrate the explanatory power of the UNGC framework. It constitutes a significant contribution to the literature compared to studies which solely recognises the UNGC as a principle-based standard. Though, the study also demonstrates that the framework experiences difficulties in assessing sustainability performance as the level of implementation of the principles.

This study also leveraged learning of the weaknesses of the UNGC framework which, among other things, concern very limited compliance requirements, no differentiated weighing of performance criteria, limited transparency on the source of the criteria, and its assumed universal

applicability. Learning this, led the author to dedicate the further research in the PhD to focus on how to institutionally design an IAS framework for sustainability performance to address the shortcomings discovered when applying the UNGC framework. The shortcomings were most obvious concerning the *Value Chain Implementation*, which would be a focus partly leveraged through the SSE project conducted in the second research phase.

The SSE project in the second research phase had a tangible outcome, while the required delivery was a standard and complementary guideline for sustainability in corporate supply chains. The main findings of this research project were the identification of a set of 10 best practices, which represented a continuum from the acquisition to the exploitation of sustainability knowledge. Also, it serves as leading indicators for sustainability performance. This research outcome formed the basis for the reporting standard, which was conceived with two reporting levels. These levels corresponds to the structure of the Active and Advanced Level in the UNGC framework, respectively. The set of best practices and the reporting standard with guidelines represent a step towards fulfilling five propositions for a dynamic standard. This standard was derived from the research process in the SSE project. Also, it represents important findings in themselves. The fulfillment of the propositions would require the framework to integrate the concept of materiality, to be industry-specific applicable, to be able to capture the development of capabilities over time, and to be empirically validated. Taking further steps toward a dynamic standard and addressing the wider value chain perspective was on the agenda of this author, who therefore engaged in a final independent research project.

The independent project allowed this author to pursue an extension of the framework developed in the SSE project, with additional best practices, a wider value chain perspective (upstream/downstream), and the investigation of the role of contextual factors influencing the development of learning capabilities. Following an additional round of literature review, sufficient support was established for additional two best practices, which led to the completion of a coherent continuum of twelve best practices. Recognizing the need for weighing the best practices according to their assumed impact on performance, each of the four dimensions of the Absorptive Capacity (ACAP) construct was assigned three best practices. The ACAP is one of the most studied constructions for knowledge absorption. Thus, this author's adaptation of the seminal reconceptualisation by Zahra & George (2002) was an essential first step in enhancing the ability of the framework to capture the development of capabilities over time. The extent of the corporations' implementation of the 12 best practices, along the continuum weighted with the four ACAP dimensions, would indicate their learning progress. ACAP is considered as a dynamic capability

and the framework was further aligned to the latest thought on this concept, which expect some variation in the implementation of the best practices, although they are not idiosyncratic to the corporations. Therefore, implementations levels were defined by applying the materiality concept across the full continuum of best practices and let it guide the thresholds for implementation. Through this process, this author learned that the materiality concept had to be applied at an even more granular level to be a significant improvement from the typology-based definitions of the implementation levels for the best practices found in the literature. Subsequently, factors from sustainability science principles were identified and applied to determine the implementation level of a particular best practice. This is, thus, based on the extent to which these factors were implemented. This conceptualisation of materiality is a main finding from this project while it makes this concept more applicable towards sustainability performance frameworks, as demonstrated in the case study that followed.

The selected seminal literature on ACAP suggests that the contextual factors can have a significant impact on ACAP and on whether or not it leads to a competitive advantage. Hence, the contextual factors had to be examined in order to determine the explanatory power of the framework and inform the applicability hereof in an institutional practice for sustainability reporting to an IAS. The second part of the case study was dedicated to the identification of these contextual factors and the analysis of their impact on the case corporation's development of sustainability learning capabilities. The case study concludes that the three different types of contextual factors, activation triggers, organisational determinants, and regimes of appropriability, all have a significant impact on the case corporation's development of sustainability learning capabilities. Hence, the conceptual framework alone can only partly inform on this development and would ideally be complemented by criteria and indicators for the contextual factors, when applied in an institutional practice for sustainability reporting to an IAS.

Consequently, this study recognises the availability of quantitative and benchmarkable performance data from the UNGC framework as a significant advancement compared to the qualitative information available when corporations merely report on the UNGC principles. Hence, this author first concludes that Scandinavian corporations did not implement the ten UNGC principles to any great extent. Secondly, it has been concluded that the design of this framework does not yet capture sustainability performance effectively. This study also concludes that, to be effective, an IAS framework must be dynamic and thereby hold these six features: best practice based, value chain focused, research based, learning capability centered, materiality weighted, industry- specific, and cross-industry applicable. An IAS framework with these six features has the potential to effectively capture the development of learning capabilities as leading indicators for sustainability performance

and yet remains dynamic. The framework could furthermore be integrated into corporations' framework for sustainability performance. Thus, such an implementation of the framework across institutional and corporate practice would have a great potential to leverage the long waited *Butterfly Effect* in some form in this IAS domain.

## Short Danish Summary

Internationale standarder for bæredygtighed har gennem det seneste årti oplevet en kraftig vækst i antallet af deltagende virksomheder. Denne vækst er delvist afledt af virksomhedernes stigende behov for legitimering via disse standarder, men også af disse standarders løfte om at give adgang til *Best Practice* inden for bæredygtighed. Disse best practices er typisk kendt af den standardsættende organisation og praktiseret af de mest proaktive virksomheder, der rapporterer herom til den pågældende standard. Rapporteringen er dermed et af den standardsættende organisations primære virkemidler i forhold til at gøre disse best practices tilgængelige for andre rapporterende virksomheder og deres interessenter (stakeholders).

Den eksisterende litteratur om disse standarder (International Accountability Standards - IAS) og de standardgivende organisationer indikerer en kausal sammenhæng. Jo svagere og mere upræcis disse standarder er i forhold deres struktur og definitioner, des større sandsynlighed er der for, at de leder til at virksomhedernes praksis for bæredygtighed afkobles (decoupling) fra deres kerneforretning. En af de mest kritiserede standarder og standardgivende institutioner er i denne sammenhæng UN Global Compact (UNGC), der paradoksalt nok er en af de mest adopterede standarder for bæredygtighed globalt. Kritikken hviler i høj grad på, at denne standard er kendt som værende princip-baseret, og mere specifikt anvender UNGC's ti principper for bæredygtige virksomheder. Litteraturen har dog indtil for nyligt ignoreret, at denne standard ikke alene er princip-baseret, men i 2010 fik flere avancerede niveauer for rapportering i et såkaldt *Differentiation Programme*. Herunder et *Advanced Level*, der direkte inkluderer over 100 best practices for kerneområderne: menneskerettigheder, arbejdstagerrettigheder, miljø og anti-korruption. På dette avancerede niveau beskrives disse best practices, som virksomhederne bedes rapportere på og selvangive om de implementerer og dermed efterlever dem.

Forfatteren til denne Ph.d.-afhandling argumenterer for, at de internationale standarder (IAS) for bæredygtighed endnu ikke har indfriet løftet om at tilgængeliggøre disse best practices. Samtidigt anerkender forfatteren dog, at UNGC's introduktion af et rapporteringsniveau baseret på best practices, er et vigtigt skridt på vejen mod en realisering af dette løfte. Dette i særdeleshed, når disse best practices ansues som ledende indikatorer for bæredygtig performance. Denne forfatter argumenterer for, at en fuldstændig realisering af potentialet kræver væsentlige ændringer i designet af disse standarder og forholder sig specielt til dem, der er baseret på best practices. Det primære forskningsspørgsmål, som denne Ph.d.-afhandling søger at besvare, formuleres derfor som følger:

*Hvordan kan et IAS rammeværk designes, så det effektivt opfanger virksomheders performance på bæredygtighed, målt som efterlevelse af best practices med*

*differentierede implementeringsniveauer, der reflekterer læringsfremskridt og værdikæde integration?*

Ph.d.-afhandlingen omfatter tre separate forskningsprojekter, der hver især afdækker et eller flere aspekter af det primære forskningsspørgsmål og gennemføres konsekutivt over en periode på 4+ år (2012-2016). Først i 1) et projekt kommissioneret af UNGC's nordiske netværk, så i 2) forskningsprojektet Sustainable Sourcing Excellence i Tyskland og endeligt 3) et tredje forskningsprojekt uafhængigt af nogen autoritet. Tidsperioderne for gennemførslen af de tre projekter overlapper en smule, men repræsenterer tre faser, hvori der anvendes en række forskellige forskningsmetoder. Denne forfatter anvender en kritisk realistisk tilgang til forskning, hvilket giver mulighed for at gennemføre såvel retrospektive som prospektive studier inden for samme videnskabsteoretiske ramme. Den kritisk realistiske tilgang indebærer en bevægelse fra det konkrete til det abstrakte, for så at vende tilbage til det konkrete igen.

Første fase var primært deskriptivt, men konkret i den forstand, at det tilvejebragte et datasæt for performance på bæredygtighed for et udsnit på 67 skandinaviske virksomheder. Dette gennem indholdsanalyse af deres rapporter på bæredygtighed indsendt i 2011. Som en reaktion på begrænsningerne i det UNGC rammeværk, som blev anvendt og evalueret i første fase, bevæger den anden fase sig mod det abstrakte ved at angive propositioner og konceptualisere et rammeværk for performance på bæredygtighed i virksomheders værdikæder. Metoderne anvendt i denne fase inkluderer interviews, litteraturanalyse og teoretisk konceptualisering. Fase tre returnerer til det konkrete ved at anvende det konceptuelle rammeværk i et case studie af udviklingen af case-virksomhedens miljømæssige læringskapacitet over en 5-årig periode (2010-14). Case studiet identificerede derudover kontekstuelle faktorer, der influerer på udviklingen af læringskapacitet og tilvejebragte defineringen af implementeringsniveauer på det meste finkornede niveau af rammeværket. Indholdsanalyse af rapporter på bæredygtighed, interviews og dokumentanalyse blev anvendt som metoder i denne tredje og sidste fase. Første fases analyse af datasættet for performance på bæredygtighed ledte til den overordnede konklusion at udsnittet af skandinaviske virksomheder gennemsnitligt ikke performede på høje niveauer vedrørende deres implementering af de fire kerneområder for bæredygtighed promoveret af UNGC. Denne og flere nuancerende konstateringer demonstrerede forklaringskraften i UNGC rammeværket og er i sig selv et signifikant bidrag til litteraturen på IAS, da det udfordrer opfattelsen af UNGC som kun værende en princip-baseret standard. Dertil kommer bidraget med empiriske data på implementeringen af UNGC's kerneområder for bæredygtighed. Denne fase indeholdt også en kritisk evaluering af UNGC rammeværket, som denne forfatter finder problematisk af følgende grunde: a) meget

begrænsede krav for efterlevelse, b) ingen differentieret vægtning af performance-kriterierne, c) begrænset transparens i forhold til kilden til kriterierne og den antagede universelle anvendelse af disse.

Forskningen gennemført i SSE-projektet i anden fase havde i første omgang et håndgribeligt output i form af udviklingen af en standard og tilhørende retningslinjer for bæredygtighed i virksomheders forsyningskæder. Den udviklede standard er baseret på best practices og repræsenterede et første skridt mod opfyldelsen af propositionerne for en dynamisk standard udvundet af forskningen i SSE-projektet. Den fuldstændige opfyldelse heraf ville kræve at standarden: a) ydermere integrerede konceptet for væsentlighed, b) være anvendelig industri-specifikt og tværindustrielt, c) kunne opfange udviklingen af læringsevner over tid og d) være empirisk valideret. Denne opfyldelse kunne ikke indfries inden for rammerne af SSE-projektet og denne forfatter valgte derfor at engagere sig i et tredje projekt, hvor yderligere skridt mod en dynamisk standard og et bredere værdikæde perspektiv kunne forfølges uafhængigt af autoriteter.

I den tredje fase udvidede denne forfatter rammeværket bag standarden udviklet i SSE-projektet, så denne blev baseret på et sæt af tolv best practices for virksomheders performance på bæredygtighed i værdikæder. Disse best practices blev ydermere vægtet i forhold til deres forventede indflydelse på virksomheders performance, igennem en konceptualisering med anvendelse af de fire dimensioner af det teoretiske koncept, Absorptive Capacity. Desuden blev fem generiske implementerings-niveauer for best practices konceptualiseret ved anvendelse af konceptet for væsentlighed (materiality). Muligheden for at vælge et implementeringsniveau for en best practice blev ydermere tilvejebragt gennem identificeringen af en række faktorer for væsentlighed: a) bredde af interessenter (stakeholder range), b) kvaliteter givet forrang (qualities given presence) og c) omfang (scope). Anvendelsen af disse faktorer gør estimeringen af performance mere pålidelig, da de tilvejebringer en mere finkornet og objektiv vurdering af implementeringen. Anvendeligheden af rammeværket blev bekræftet igennem casestudiet baseret på en enkelt virksomhed. Det blev endvidere bekræftet at anvendeligheden af et sådant rammeværk vil øges betydeligt, hvis det også indeholder kriterier for påvirkende kontekstuelle faktorer.

Ph.d.-afhandlingen konkluderer, at realiseringen af potentialet for et best practice baseret IAS som UNGC, der effektivt kan opfange virksomheders performance på bæredygtighed, skal være dynamisk og dermed have følgende seks features: 1) baseret på best practices, 2) fokuseret på værdikæder, 3) baseret på forskning, 4) centreret på læringsevne, 5) vægtet i forhold til væsentlighed og 6) være anvendeligt såvel industri-specifikt som tvær-industrielt.

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# Chapter 1: Introduction

## 1.1 The Butterfly Effect in the Discourse on CSR and Sustainability

The “Butterfly Effect” is a term coined by American mathematician and meteorologist Edward Norton Lorenz in his famous paper; “Predictability: Does the Flap of a Butterfly’s Wings in Brazil Set off a Tornado in Texas?” (1972). The term and title of the paper are Lorenz's popularized representations of concept in chaos theory, which in a simplified formulation expresses that small causes can have large effects. The concept and especially the more simplistic formulations have spread to other scientific domains, to various practices, and even to pop culture (Dizikes, 2008). However, no other area has adopted this concept more than that of corporate social responsibility (CSR) and sustainability.

CSR and sustainability practitioners have embraced this popularized concept in a twofold manner. On one hand, it is opposing and even antagonizing practices with a potentially major negative environmental or social impact; on the other hand, it is conversely advocating that even small steps can have a positive effect (McDonough & Braungart, 2013) on the environment and our societies. This twofold implicit application of a simple version of the butterfly effect concept along these lines has been particularly targeted toward corporations, which traditionally have been viewed as the culprits of negative effects—by NGO practitioners in particular. However, even the hardliners among these NGO practitioners seem to have realized that corporations made champions of positive impact, represents a great potential for society to adapt to the environmental and social challenges. Considering corporations as part of the problem and/or part of the solution raises the question of what is the most efficient way of addressing these challenges.

## 1.2 The Role of Business in Society’s Adaptive Efficiency

Society’s efficiency in adapting to its challenges is a core subject in economic theory. A seminal contribution to develop the understanding hereof is the concept of *adaptive efficiency* conceptualised by Nobel Prize winner Douglass C. North (1990). In his Nobel Prize lecture essay with Robert W. Fogel (1993), North frames society’s adaptive efficiency as the key to long-term growth. Moreover, in his landmark book on the political economy of institutions and decisions (1990), North describes adaptive efficiency as this:

*“Adaptive efficiency provides the incentives to encourage the development of decentralized decision-making processes that will allow societies to maximize efforts required to explore alternative ways of solving problems”*  
Douglass C. North (1990).

North does not elaborate on the role of business in society's adaptive efficiency and in these decentralized decision-making processes. However, the role of business is significant in the entrepreneurial view of Gregory J. Dees (2013), who referred to North's concept of adaptive efficiency throughout his authorship. Dees views adaptive efficiency as taking advantage of a society's dynamic ability to solve problems over time. Dees' view served to decentralize problem solving as the essence of an open-solution society. At the heart of such a society, he places social entrepreneurship, which "... is the epitome of a decentralized exploration of alternative solutions to social problems." Such problems concern both environmental and social issues. However, by engaging social entrepreneurs in addressing them, society can potentially increase its adaptive efficiency. Potentially and not with certainty, business entrepreneurs are not guaranteed success, and markets can only guide the process of assessing, evaluating, and appropriately scaling the most promising of the experimental efforts to a certain extent (Dees, 2013). Furthermore, Dees stated "...the success of decentralized social problem-solving depends on the effectiveness of other supporting institutions (legal, financial, cultural, intellectual, and more) in promoting an adequate level of social entrepreneurship, improving its effectiveness, and capitalising on what we learn through the explorations." Dees calls for "...sophisticated assessment tools that capture strengths and weaknesses as well as methods for the strategic scaling of solutions that fit the circumstances and the people involved." This is with the aim of fully harvesting the potential of the approaches developed by social entrepreneurs. He further argues that this process should be embedded in a continual process of refinement and adaptation, although there is rarely a one-size-fits-all solution to a problem. Also, what appears to be "best practice" has to be qualified and is usually temporary, best only until something better arises (Dees, 2013).

### **1.3 Reducing Negative and Scaling Positive Impact through Hard and Soft Law**

Scaling social impact has been a red thread through Dees's authorship, but his starting point has always been social entrepreneurs such as smaller business, nonprofits, NGO's etc. Nevertheless, Dees' views on adaptive efficiency are equally relevant in the context of large multinational corporations (MNCs), which in some cases demonstrate the power to scale significant social entrepreneurship initiatives within the realm of their value chain. The UN has identified the diffusion and scaling of sustainability solutions as a crucial challenge for future sustainable development (Leisinger & Bakker, 2013), but even MNCs have less power and are therefore less effective in scaling these best practices beyond their immediate reach. This is because the success of decentralized social problem solving also depends on the effectiveness of other supporting institutions (Dees, 2013). These supporting institutions include legislative and public policy-making authorities.

Legislation and policies can be effective in preventing certain corporate practices with a negative environmental or social impact, but their effectiveness is less guaranteed when it comes to proactively fostering the voluntary diffusion and scaling of sustainability solutions and best practices among corporations. The former can be described as a hard law approach, whereas the latter might require a soft law approach with a voluntary commitment from the corporations to engage. Although obviously different, “the choice between hard law and soft law is not a binary one” (Abbott & Snidal, 2000: 422). Nonetheless, it only takes a single weak dimension of hard law to make it to soft law (Abbott et al., 2000), which comes in both harder and softer forms. This is most obvious in the context of international accountability standards [IAS] (Gilbert et al., 2011) Hence, this represents the kind of informal constraints North (1993) argued to be favourable to growth. Although Dees never considered IAS in the context of scaling up social impact, the literature on IAS argues that this type of institution holds great promise as an alternate framework. However, this can provide support such as the sophisticated assessment tools called for by Dees (2013). The question is how effective IAS' are in leveraging this potential alongside the global governance of corporations' sustainability reporting to stakeholders through IAS.

#### **1.4 The Effectiveness of IAS in Facilitating the Transfer of Best Practice**

Accountability is a primary focus for IAS. Thus, corporations' motivation to adhere to the IAS is partly to demonstrate corporate accountability for environmental and social practices. Another motivation for corporations is to learn from their peers and the multiplicity of actors “. . . involved in the global accountability standards hype” (Jamali, 2010). Consequently, IAS also holds the promise of introducing best practices (Rasche & Esser, 2006), stimulating best practices (Jamali, 2010), and exchanging best practices (Gilbert et al., 2011). However, leveraging this promise seems challenging for many IAS, which are troubled by corporations' decoupling of local practices from global norms as a crucial problem—especially when the IAS accountability mechanisms are weak (Gilbert et al., 2011). The UN Global Compact (UNGC) is emphasized as particularly criticized for not providing “. . . sufficiently detailed and standardized information about firms' adoption behavior" (Arevalo & Fallon, 2008; Deva, 2006). This in turn can lead to adverse selection, with high-performing firms shying away from such IAS. However, decoupling of organisational practices from IAS norms is not merely a function of corporate behavior, as indicated by Brunsson, Rasche, and Siedl (2012). They view the dynamics of standardization in the perspective of organization studies and suggest three distinctive ways they relate:

*First, standards affect the structure and operation of formal organizations; second, standards are produced by formal organizations; third, standardization can be seen as a form of organization outside and among formal*

*organizations.* (Brunsson, Rasche, & Siedl, 2012)

Brunsson et al. (2012) identified a number of potential tensions which can arise from each of the three aspects; and here, it is most relevant to focus on the first and third aspect. When considering the fact that organizations are affected by standards, the question arises as to whether “. . . a standard should be adapted to the local context or whether the local context should be changed to fit the standard;” hence, the dynamics of “adjustment” and “translation” (Czarniawska & Sevón, 1996; Zbaracki, 1998) are sources of tension. In addition, standardization as a form of organization is associated with tension arising from “. . . the relation between the voluntariness associated with standards and their regulatory function.” It is the view of this author that decoupling and these tensions also relate to the institutional design of the IAS (Etzion & Ferraro, 2010) and that this is an underexposed research focus in the literature on IAS. Gilbert et al. (2011) outlined an agenda for future research on IAS by focusing on three directions: (a) developing a better understanding of the role of hard and soft law in the context of IAS, (b) rethinking our understanding of compliance, and (c) the production of standards. Gilbert et al. viewed institutional design as a question of the latter, but applied a retrospective perspective by calling for longitudinal studies to examine how the institutional design of existing IAS has changed over the years. This researcher applauds such an agenda, but also advocates for an extension hereof to include a more prospective focus on how IAS could be designed to leverage the promise of introducing, stimulating, and exchanging best practices. Before specifying on how this dissertation will pursue this research agenda, the types of IAS and their primary focus of application have been elaborated upon in the following section 1.5.

### **1.5 IAS Types and their Focus of Application Within or Beyond Firm Boundaries**

Gilbert et al. (2011) clustered the IAS along four categories: *principle-based standards*, *certification standards*, *reporting standards*, and *process standards*. The IAS generally differs in regard to content, scope of underlying norms, the targeted audience, geographic applicability, and orientation (Jamali, 2010; Rasche 2009a). For most IAS, the targeted audience is recognised as a multi-industry (Jamali, 2010). This is without any differentiation concerning, for example, the size and primary role (focal point or supplier) of the reporting corporation in its value chain. This differentiation is however important, whereas the types of IAS are applied differently in practice. Focal corporations typically apply principle-based standards or reporting standards to the reporting of their sustainability practice to stakeholders. At a minimum, the suppliers to these corporations are asked to comply with a code of conduct specific to the focal corporation; thus, they are, to an increasing extent, also required to comply with certain certification standards (O’Rourke, 2003) and process standards. Requirements to suppliers that are reporting are often mentioned in the

corporations' sustainability reports. In addition, leading IAS' are also paying greater attention to this dimension. This tendency is best exemplified with the strengthening of this aspect in the Global Reporting Initiative (GRI) latest G4 guidelines, which significantly expands on the supply chain indicators in the prior version of the guidelines (3.1). This strengthening and extension is also the case for industry-specific indicators (e.g., oil & gas, financial service, food) in the G4 guidelines, which reflect a general tendency to develop industry-specific methods for determining material sustainability key performance indicators (Lydenberg, 2012). However, the most recent tendency advocated by the International Integrated Reporting Council (IIRC) concerns value creation, which is presented as a fundamental concept in its final framework for integrated reporting [IR] (2013). In addition to value creation within the reporting corporation, the framework recommends outcome and performance-related content elements for effects, both up and down the value chain. Therefore, the IIRC extends significantly on the GRI's focus on the supply chain and cuts across sectors. However, despite the strategic partnerships of these institutions, the notion of a value chain is not mentioned once in the G4 guidelines. In other words, even though the GRI co-convened the IIRC and has been a driving force in developing the IR framework, the institutional design of the GRI as an IAS would likely be significantly challenged by a full integration of the value creation concept. Nonetheless, this author views the institutional design of an IAS—capturing value creation—as holding an increased potential to take advantage of the promise of introducing, stimulating, and exchanging best practices. Subsequently, the IAS would also better facilitate stakeholders in chasing the butterfly effect when understood as the environmental and social impact on and from the corporate value chain. This potential appears more clearly when viewing IAS through the lens of sustainability performance, as follows.

### **1.6 IAS and Leading/Lagging Indicators for Sustainability Performance**

Most influential on the scholarly categorization of IAS is their orientation, which generally differs in process, certification, or being foundational. However, the majority of IAS also seems to have performance orientation in common (Jamali, 2010). Nonetheless, the literature on IAS does not integrate the streams of literature on corporate sustainability performance to any great extent. Though, even a very limited application from this perspective can further show the potential of these IAS with regard to leveraging the promise of introducing, stimulating, and exchanging best practices.

Multiple frameworks and models for sustainability performance are available in the literature, but they generally agree on the distinction between leading and lagging indicators for sustainability performance (Epstein & Roy, 2001; Pelozo, 2009). The majority of indicators in the GRI guidelines (3.1 and 4) are either text based or numeric. In addition, the latter can potentially be benchmarked

quantitatively. The numeric GRI indicators concern CO<sub>2</sub>-emissions, waste reduction and so on, and can be considered to be lagging indicators, which inform retrospectively on the sustainability performance as an outcome of corporate sustainability practices. However, the numeric indicators do not inform about the specific practices implemented. Although these can be described qualitatively to some extent through text, this type of IAS performance structure does not lend itself well to leveraging the promise of introducing, stimulating, and exchanging best practices.

Conversely, the IAS literature mentions standards such as the AA1000, which according to Rasche and Esser (2006) “. . . operationalises and standardizes the SEEAR process itself by defining best practice (Leipziger, 2003). This is done by “. . .by envisaging an ideal SEEAR process undertaken within a hierarchy of principles that are aimed at securing the overall quality of the process (Beckett & Jonker 2002; O’Dwyer, 2001).” Although Jamali does not recognise AA1000 (2010) as having a performance orientation, the SEEAR process represents “a variety of approaches to the measurement, assessment, and communication of social and ethical performance,” according to the AA1000 issuer Institute of Social and Ethical Accountability (ISEA, 1999). Although best practices concern organisational practices, they can be viewed as leading indicators, which shows future sustainability performance. The IAS literature does not report on the AA1000 as containing lagging indicators. It is furthermore limited by a narrow focus on assurance and stakeholder engagement (Rasche, 2010) and relatively low adoption rate among corporations (Jamali, 2010). It seems like no IAS does it all when it comes to sustainability performance, which is part of the reason for the increased interest in collaborative governance (Utting, 2002; Zadek, 2008).

In the context of CSR and sustainability, collaborative governance solutions tend to manifest as multi-stakeholder standards (akin to IAS) complementing each other (Rasche, 2010). Process standards can support reporting standards, as exemplified by Rasche (2010) with how “. . . the AA1000 standard for stakeholder engagement can be used to specify GRI’s requirements regarding stakeholder engagement within the reporting process.” This governance achieved through complementation is however informal, whereas the strategic partnership formed between the GRI and UNGC in 2006 (Rasche, 2010) is more formalised around the common aim to encourage corporations to use the synergy between the platforms. In addition, principle-based standards can complement reporting standards, especially when concrete and quantifiable indicators in the GRI guidelines can be used to enable Global Compact participants to report on the status of the implementation of the ten UNGC principles (Rasche, 2010). The UNGC is recognised as based on principles and not on best practices, although it seeks to disseminate best practices through its extensive global learning network (Jamali, 2010; Kell & Levin, 2003; Ruggie, 2001). Thus, it thereby translates the UN Global Compact’s 10 universal principles into national contexts (Rasche & Kell, 2010). However, when the UNGC is recognised as a principle-based standard in the

literature, collaborative governance with the GRI would not collectively leverage a coherent framework for sustainability performance with both leading and lagging indicators for sustainability performance. Hence, in contrast to the network dimension of the UNGC, the GRI framework dimension does not seem to lend itself well to leveraging the promise of introducing, stimulating, and exchanging best practices. However, this author argues that solely perceiving the UNGC as principle-based is a misconception and that it should, in part, be considered a process standard and possibly a reporting standard.

Most of the research categorising the UNGC as principle-based, either has been published or was in press before 2010, the year the UNGC introduced its *Differentiation Programme* and as such added more reporting levels to its IAS framework. This included an advanced level with multiple criteria and 100+ best indicators for the four core UNGC issues: *Human Rights, Labour Rights, Environment, Anti-Corruption*. This is along with four additional categories, including *Value Chain Implementation*. The indicators are not numeric but are presented as best practices, which the corporations can report compliance with or not. Thus, this adds up to a total performance score for each UNGC issue. By basing the framework on numerous best practices, for the most part derived from official UN documents and publications, the aspect of the UNGC as an IAS appears to lend itself well to leveraging the promise of introducing, stimulating, and exchanging best practices. Furthermore, the best practices are categorised around criteria which seem to allow for a policy-practice distinction and can identify decoupling more easily. By being based on best practices and categorised as above, this aspect of the UNGC as an IAS is comparable with the structure of AA1000 which is more process-based than principle-based. In addition, the UNGC introduced this Advanced Level as a framework for sustainability performance, which does appear to provide an improved basis for evaluating the implementation of the UNGC principles. This is done through benchmarking the progress that the reporting corporations are required to communicate in their CoP reports (Communication of Progress). Although not based on numeric indicators, the framework based on best practices is quantifiable due to the total performance scores. Hence, it is more a reporting standard than a principle-based standard. With regard to collaborative governance, the UNGC's complementarity with the GRI is vastly improved over the purely principle-based level, whereas many of the best practice indicators relate directly to specific quantifiable GRI indicators. The collaboration between these IAS is focused at guiding on the relation between indicators in the respective IAS. This can also be viewed as causal relationships between leading and lagging indicators of sustainability performance. However, the latter and all other observations of this significant development of the UNGC as an IAS had, to this author's knowledge, not been studied or even described in the literature before the article by Kjaergaard (2014), included in this dissertation.

Following this introduction to the role of business in society and subsequent discussion about the social and environmental impact of soft law through IAS, sets the basis for this author to specify the objectives and questions that this research will address.

### **1.7 Research Objectives and Questions**

The sustainability performance framework embedded in the UNGC's architecture as an IAS forms the subject of the first article of this dissertation. Hence, given the background highlighted in the introduction, the first objective of this research is formulated as follows:

*To empirically investigate the implementation level of the ten principles of the UNGC among its corporate signatories and evaluate the framework for advanced-level reporting in the UNGC standard by benchmarking the corporation's sustainability performance as compliance with the best practices embedded in this framework.*

In pursuing the first objective, this research addresses Rasche's (2009) long-standing call to conduct further research into the implementation of the UNGC standard and to do so with consideration of the UNGC's premise as an IAS. The latter point concerning the premise follows from Rasche's (2009) extensive refutation of the most frequent allegations in the IAS literature toward the UNGC: being "captured" by big business (Nolan, 2005; Zammit, 2003), embodying vague principles (Bigge, 2004; Deva, 2006; Nolan, 2005), and not being accountable due to missing verification (Deva, 2006; Rizvi, 2004). Subsequently, Rasche (2009) refuted these allegations by arguing that the UN's partnership with corporations ensured cooperation versus confrontation; that the principles cannot be clear cut due to the wide variety in the type of corporate signatories or a benchmark against which to assess compliance; that the intention was not for the UNGC to be a compliance-based mechanism that verifies and measures corporate behavior. However, one can view the introduction of the mentioned Differentiation Programme in 2010, and particularly the embedded sustainability performance framework, as the UNGC's attempt to address the allegations and as a display of stronger intentions toward compliance and accountability. The framework also seems to be a significant step toward measuring the corporate signatories' learning and progress, which is in line with the core idea underlying the UNGC in creating space for learning and cooperation (Rasche, 2009). However, this author argues that effectively capturing this learning and progress also requires measurement of less than best practices, that the reporting levels in the UNGC program in general could provide further differentiation, and that the focus of institutional practice on materiality and value chains could inform such differentiation. Hence, the second objective of

this research is as follows:

*To investigate how a framework could be designed to effectively capture the sustainability performance in corporate value chains, when measuring it by compliance with best practices and informing the differentiation with the materiality concept to effectively capture corporate learning and progress on sustainability.*

By pursuing this second objective, the research also addresses Rasche's (2009) additional calls to apply a supply chain perspective and a learning perspective to the UNGC as an IAS, in empirical and theoretical research. The intention behind the stated objectives is not entirely of an academic nature. The aim is to conduct the research in close connection to both institutional and corporate practice to increase the likelihood for the research to have implications for practice. In pursuit of the first objective, the UNGC clearly constitutes the context, and the fulfillment of the objective requires a retrospective research approach. In pursuit of the second objective, the context is less IAS specific, and the fulfillment of the objective requires a more prospective research approach, although the author applies some retrospective methods. However, the two objectives focus on two aspects of the same research problem. Therefore, one can formulate them as a single common primary research question:

*RQ-A: How can an IAS framework to effectively capture corporate sustainability performance measured by compliance to best practices, with differentiated implementation levels reflecting learning progress and value chain integration?*

The implementation of such a framework in institutional practice for IAS reporting could allow corporate stakeholders and other interested parties to observe whether the reporting corporation is learning to improve sustainability practice over time. The ability to disclose this learning should be in the interest of not only the UNGC, unparalleled in its claim to be the leading facilitator of corporate learning on sustainability, but also to all other types of IAS and key scholars in the literature on IAS and sustainability performance, who have identified learning as an important area for future research.

To address the primary research question, the author engaged in three separate research projects over a 4-year period: a project the UNGC Nordic Network commissioned, the Sustainable Sourcing Excellence (SSE) project in Germany, and a third research project independent of any authority. In order to focus the research conducted in these projects, the primary research question was split into

the three sub-questions listed below:

- *RQ-B1: How do corporations perform on sustainability when measured as the level of implementation of the ten UNGC principles, by adherence to the criteria and associated best practices in the Advanced Level of reporting in the UNGC standard?*
- *RQ-B2: Which range of best practices should constitute the core of a framework that effectively captures sustainability performance in corporate value chains and how should the framework be designed to differentiate implementation levels reflecting learning progress and value chain integration?*
- *RQ-B3: To which extend does contextual factors influence corporations' sustainability performance in their value chains and how should the framework be designed to capture it?*

This author will further elaborate on these projects in the methodological part of the following chapter 2. In this chapter, the author positions the study paradigmatically and outlines the philosophy of science, before giving an overall introduction to the methodology applied and the relevant modes of inference. Then the methods are elaborated on briefly, whereas the full methodological approach is described in each of the articles included in this dissertation.

## Chapter 2: Philosophy of Science and Methodology

The worldview and philosophy of science positioning of this study guides the methodological choices of the associated research activities. The evaluation of the quality of management research depends on paradigmatic positioning (Easterby-Smith et al., 2008: 56). Therefore, identifying this positioning is essential before laying out the research design. Table 1 displays Guba and Lincoln's (1994) classification of scientific paradigms.

Item	Paradigm			
	Positivism	Postpositivism	Critical Theory et al.	Constructivism
Ontology	naive realism- "real" reality but apprehensible	critical realism- "real" reality but only imperfectly and probabilistically apprehensible	historical realism- virtual reality shaped by social, political, cultural, economic, ethnic, and gender values; crystallized over time	relativism- local and specific constructed realities
Epistemology	dualist/objectivist; findings are true	modified dualist/objectivist; critical tradition/community; findings probably true	Transactional/subject ivist; value-mediated findings	Transactional/subject ivist; created findings
Methodology	Experimental/manipulative; verification of hypotheses; chiefly quantitative methods	modified experimental/manipulative; critical multiplism; falsification of hypotheses; may include qualitative methods	dialogic/dialectical	Hermeneutical/dialectical

**Table 1** - Basic Beliefs (metaphysics) of Alternative Inquiry Paradigms (source: Guba & Lincoln, 1994)

### 2.1 Paradigm Positioning

Informed by Table 1's explication, this study lies within postpositivism primarily because this paradigm follows a *critical realism* ontology where "reality is assumed to exist but only imperfectly apprehendable because of basically flawed human intellectual mechanisms" (Guba & Lincoln, 1994). Thus, one can apprehend this kind of imperfect reality through the existing UNGC framework for sustainability performance, which is the primary object of the first phase of this research. The second and, even more so, the third phase both reflect the ontological ambition

embedded in *critical realism* “that claims about reality must be subjected to the widest possible critical examination to facilitate apprehending reality as closely as possible” (Guba & Lincoln, 1994). To leverage this ambition, the methodological approach must include triangulation, which in this study follows a trajectory towards “critical multiplism” as “a way of falsifying (rather than verifying) hypotheses.”

To extend this brief positioning of the study within the postpositivistic paradigm, focus now turns toward the quality of the scientific research, which one can only evaluate in terms of being specific to the paradigm under which the researcher is working (Healy & Perry, 2000).

Subsequently, what follows elaborates on the ontological and epistemological issues concerning this positioning, specifies the relevant terms or criteria for the evaluation of the methodological approach, and offers an account of how the work in the research projects are positioned toward them.

## **2.2 Critical Realism**

Guba and Lincoln (1994) presented critical realism as the ontological view subscribing to the postpositivism paradigm, a perspective largely emerging from the work of Karl Popper, one of the earliest critics of positivism. Popper pointed to several fundamental problems in positivism concerning induction, classical empiricism, and demarcation (Popper, 1963). Conversely, Popper proposed a *critical rationalism*, in which science should gather evidence to critically test and thereby potentially refute knowledge claims (Caldwell, 1984; Popper, 1963). However, one can also perceive critical realism as a paradigm in itself, constituting ‘a third way’ in the scientific debate (Danermark et al., 2002). Thus, critical realism lies between positivism and constructivism, but forms a separate paradigm. This research subscribes to the view of critical realism as not only an ontological view but also a paradigm on its own, which has methodological consequences that the author describes later in this chapter.

### **2.2.1 Critical Methodological Pluralism**

This research aims at both understanding how corporations report on their implementation of the ten UNGC principles in and beyond their organizations. Using the former as a springboard, this research also aims to investigate how an IAS framework can be designed to capture this sustainability performance most effectively. The *critical realist* paradigm addressing these seemingly bi-disparate aims calls for the form of critical methodological pluralism as advocated by Danermark et al. (2002). *Critical realism* is not a method, but the paradigm forms a foundation for reasoning, which guides the selection and application of methods. Also, it frames the conclusions

on the results they leverage. While researchers subscribing to the positivist or constructivist paradigms are more locked into applying either a quantitative or qualitative approach, researchers subscribing to the critical realist paradigm can apply both as a mixed method approach.

### 2.2.1.1 Research Process and Modes of Inference

The movement from the *concrete* to the *abstract* and back to the *concrete* is common in guidelines for research practice within critical realism. Therefore, the movement often happens in iterations with multiple steps forth and back. This movement is connected to the modes of inference that the researcher applies in the particular study. Thus, the following describes these elements together. Table 2 presents a brief overview of the modes of inference as described by Danermark et al. (2002).

<b>Modes of Inference</b>				
	Deduction	Induction	Abduction	Retroduction
Fundamental structure / thought operations	To derive logically valid conclusions from given premises. To derive knowledge of individual phenomena from universal laws.	From a number of observations to draw universally valid conclusions about a whole population. To see similarities in a number of observations and draw the conclusion that these similarities also apply to non-studied cases. From observed co-variants to draw conclusions about law-like relations.	To interpret and recontextualize individual phenomena within a conceptual framework or a set of ideas. To be able to understand something in a new way by observing and interpreting this something within a new conceptual framework.	From a description and analysis of concrete phenomena to reconstruct the basic conditions for these phenomena to be what they are. By way of thought operations and counterfactual thinking to argue toward transfactual conditions.

Table 1 - Fundamental structures for modes of Inference - adapted from, Danermark et al. (2002)

Each of the four different modes of inference represents a different thought operation, but the modes are complementary in research practice. Deduction and induction are both concepts in formal logic, which implies that they follow the logical form of inference, not the substantive contents (Danermark et al., 2002). The one main difference between these two forms is that in inductive inference, the conclusion does not necessarily follow from the premise, but entails new knowledge beyond what lies in the premise. Conversely, in deductive inference, a great deal of

specific knowledge follows logically from the premise, but does not tell one anything new about reality beyond what is already in the premise. Hence, to seek new knowledge of structures and mechanisms, one must complement deduction and induction with abduction and retroduction as more comprehensive ways of reasoning, arguing, and relating the individual to the universal/general (Danermark et al., 2002). Although not being a logically valid mode of inference in the sense of induction, one can perceive abduction both as a formalised inference and the recontextualization and reinterpretation (Peirce, 1932) of something as something else. Hence, this understanding of the phenomena within the frame of a totally different context may have the form of a conceptual framework or theory (Danermark et al., 2002). One can describe retroduction as a mode of inference aimed at identifying the basic characteristics of general structures, but not as a formalised mode of inference. At the core of retroduction lies transcendental argumentation, which means going beyond the empirical in an attempt to clarify the basic prerequisites for social relationships, people’s actions, reasoning, and knowledge (Danermark et al., 2002). To leverage the overall purpose, the author applies three out of four modes of inference in this study, as Table 3 shows. Table 3 also shows the iterative movement between concrete and abstract processes over time.

Phase	Period	Concrete Processes	Abstract Processes	Mode of Inference	Research Question
One	2012-2013	Literature review Content analysis		Induction	RQ-A RQ-B1
Two	2013-2015		Key informant interviews Content analysis Literature review Conceptualisation Project stakeholder reviews	Abduction	RQ-A RQ-B2
Three	2014-2015	Content analysis Interviews Document analysis		Deduction Abduction	RQ-A RQ-B3

**Table 3 - Research Phases, Process, and Modes of Inference**

The first phase of the study was largely descriptive, but concrete in the sense of leveraging a dataset for the sustainability performance of a sample of 67 Scandinavian corporations. The study is considered inductive, because it attempts to reflect the results in the perspective of the whole population of 427 Scandinavian corporations who were signatories to the UNGC in 2011. In a response to the analysis in the first phase of applying and evaluating the UNGC framework for sustainability performance, the second phase moves to the abstract by stating propositions and conceptualising a framework for sustainability performance in corporate value chains, using abduction as the mode of inference. Phase three returns to the concrete by applying the conceptual

framework in a single case study of the development of learning capabilities over a 5-year period, using a deductive mode of inference. The single case study further identifies contextual factors' specific structures and mechanisms, and it leverages the definition of implementation levels at the most granular level of the framework using an abductive mode of inference. The methods applied in each research phase are elaborated on in chapters 3-6 of this dissertation. The first two (3-4) comprises of published articles and the latter two (5-6) comprises of extensions of articles previously presented as working papers at conferences. Chapter 7 primarily concerns the dissertations conclusions and contributions to the literature and to the institutional and corporate practice for sustainability reporting. In the following section 2.2.2, the research approach and methods applied in each research phase, are described briefly for the chapter 3-6.

### **2.2.2. Introducing the Dissertation Chapters and Methods Applied**

The research presented in this dissertation aims to contribute to the understanding of how corporations implement UNGC sustainability issues. Subsequently, it is engaged proactively in research which is aimed at designing frameworks that enable IAS and corporations to effectively capture and measure sustainability performance. Thus, this research is driven not only by a desire to develop the related literature, but also by a desire to influence corporate as well as institutional sustainability reporting. Brunsson, Rasche, and Siedl (2012) viewed the dynamics of standardization from the perspective of organization studies, but IAS research which applies well-tested theoretical concepts for learning and organisational performance from the classical organisational literature is scarce. However, the latter is essential due to the purpose of this study to introduce an alternate theoretical perspective to research on IAS and to help narrow the gap with institutional and corporate practice.

The methods applied in each of the three phases were qualitative and consisted of content analysis, standardized and nonstandardized interviews, group discussions, and reviews of literature and other document sources (news articles, websites, and the likes). The range of different methods limits the risk of bias during collection and analysis of data, especially when triangulating interviews with a literature review in the second study and when triangulating content analysis with interviews and other documentation in the third study.

Chapter 3 is concerned with the assessment of the sustainability performance by 67 corporations who reported with the UNGC standard. The criteria and indicators in the sustainability performance framework embedded in this IAS were applied as a coding scheme in a content analysis of the sampled corporations' sustainability reports for 2011. The dataset retrieved provides a basis for a benchmarking, which is analysed. Also, the framework itself is evaluated in this chapter. Chapter 4

takes the first step towards a novel framework for sustainability performance in corporate value chains by first deriving five propositions from key informant interviews with sustainability professionals. Then, it identifies a continuum of ten best practices from an extensive literature review. Chapter 5 extends the continuum to a set of twelve best practices by following the previous approach to a literature review. The chapter then engages in a theoretical conceptualisation of the framework, where the twelve best practices are weighed by assigning them in pairs of three to the four dimensions of the Absorptive Capacity construct. This process also includes the identification of sustainability factors that are relevant to each best practice and qualify for the later use in determining the more granular implementation levels. Chapter 6 is concerned with the limited validation of the framework through a case study analysis, where the novel framework is applied longitudinally to the sustainability reports from a single case corporation over a five-year period. Content analysis is the primary method, but it complemented with an interview with the case corporation's key sustainability professional and document analysis of news articles.

# **Chapter 3: Sustainability Performance of Scandinavian Corporations and Their Value Chains Assessed by UN Global Compact and Global Reporting Initiative Standards - A Way to Identify Superior Performers?<sup>1</sup>**

A Case Study of 67 Multinational Corporations Based in Scandinavia

## **Abstract**

The primary purpose of this study is to introduce a new approach that combines the two most adopted multi-stakeholder standards for sustainability reporting as an alternate framework to assess the sustainability performance of Scandinavian corporations. More specifically, this novel approach leverages numeric measures on *Strategies and Policies*, *Management Systems*, *Monitoring and Evaluation Mechanisms*, and *Key Outcomes* on sustainability. In this case, sustainability is broadly defined as the *Human Rights*, *Labour*, *Environment*, and *Anti-Corruption* issues identified by the United Nations Global Compact. The study firmly concludes that Scandinavian corporations, on the average, are not performing at higher levels concerning their implementation of these issues. The uniqueness of the sustainability practice by two Danish and one Swedish corporation is highlighted. This, thus, follows their identification as superior performers across the issues. A trial-analysis rejected the use of the GRI indicators due to inconsistency in the reported data and the study therefore solely applies and evaluates the UNGC framework for sustainability performance.

## **Keywords**

Sustainability Performance, Sustainability Reporting, Multi-Stakeholder Standards, Best Practice, Performance Indicators, Sustainability Strategy

## **3.1 Introduction**

The media exposes an increasing number of global environmental, social and financial incidents on a daily basis; as such, it no longer takes a scientist to discover that the world is facing an

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<sup>1</sup> Chapter 3 comprises of a slightly adapted version of the first PhD article published by this author (solo) and appeared in the Danish Journal of Management and Business. No. 2. 2014. The article was the primary outcome of the research project commissioned by the UN Global Compact Nordic Network and the preliminary results were presented to the corporate participants at their network meeting in October 2012. Prior to publication, a working paper version of the article was accepted for the Next Generation ESG Scholar Workshop at Bentley College in 2013 and was discussed in one-to-one sessions with the esteemed scholars in the ESG field, the Professors Jeanne M. Logsdon (University of New Mexico) and Michael W. Toffel (Harvard Business School).

unprecedented level of major challenges. The need for global political leadership in addressing these challenges is imminent, but with minor exceptions establishment of several multinational negotiation tracks have primarily led to statements, strategies and non-binding agreements, displaying an apparent lack of political will to action. This has also marked the series of annual Conferences of the Parties (COP), facilitated by the United Nations Framework Convention on Climate Change (UNFCCC) and was especially obvious during the COP15 in Copenhagen. The sustainability reputed hosts created great expectations for the conference, but, as an outcome, the Copenhagen Accord was yet again only the achievement of a non-binding agreement. Many lessons were learned from COP15 and two of the key learnings were: (1) that there is interdependency between environmental and other global challenges, and (2) that the role of business in addressing these challenges cannot be understated.

It is, in this context, that this study sets out to examine whether the path of business to address these global challenges is only '*paved with good intentions*' shaped as strategies, policies and other commitments, or whether businesses demonstrate the will to act on these intentions and achieve more substantial outcomes. In other words, given the interdependency between these global challenges, the study not only examines how business performs on addressing the environmental, but also the social, and indirectly, the economic dimensions of their business.

### **3.1.1 Sustainability Performance**

The collected consideration of the three dimensions (i.e. environmental, social, and economic) is often referred to as sustainability. Sustainability reflects the widely referenced Brundtland statement (World Commission on Environment and Development, 1987) on sustainable development. However, it is embedded in accounting principles like the Triple-Bottom-Line (Elkington, 1997), which connect sustainability with performance. Hence, the primary focus of the study is on what can be termed corporate sustainability performance and is not limited to the internal performance of the corporation, but also extends to the performance in the corporate value chain. This extended view on sustainability performance is reasoned by a large number of incidents with extensive media coverage, where corporations are made responsible for the sustainability performance by their suppliers and, to some extent, the suppliers to other suppliers. These chains of suppliers constitute the corporate supply chain, also termed the *upstream*, for corporate operations. However, the tendency is towards an even wider understanding of corporate sustainability performance *downstream*, including the environmental, social, and economic dimensions (e.g. customers' end use of products). Not including the upstream in the assessment of sustainability performance would not address the corporations outsourcing (e.g., a production process with a significant negative societal impact). Not including the downstream would not address the corporations' production of

goods with significant negative sustainability impacts for the user and the society. Hence, the understanding of sustainability performance, pursued in this study, considers the environmental, social, and to some extent economic dimensions, both in the internal corporate operations and the associated upstream and downstream. Sustainability poses different challenges to corporations in different sectors of different sizes. Therefore, performance might be assessed and perceived very differently from one corporation to another. Nevertheless, corporations are, to an increasing extent, adopting international standards for sustainability reporting, which claims to be informative about the corporate sustainability performance.

### **3.1.2 International Standards for Sustainability Reporting**

The notion of a standard implies that some standardization is taking place, and hence, it was a premise for this study that sustainability reports submitted to specific standards would be informative about corporate sustainability performance in a somewhat coherent format. However, the 'market' for sustainability standards, to some extent, reflects the corporate differences on sustainability, while multiple standards and certifications are available in a fragmented space. The multiple standards are caused by a tendency to compete, rather than collaborate. This study focuses on a broad understanding of sustainability performance in the corporation and the corporate value chain. This, however, represents a complexity which only a few sustainability standards currently require their signatory corporations to report on. Multi-stakeholder standards, like the United Nations Global Compact (UNGC) and the Global Reporting Initiative (GRI), covers this complexity to a greater extent. Corporations reporting to these standards also benefit from the light integration of the two standards and their collaboration (Rasche, 2009). Given that the UNGC and GRI are among the most adopted worldwide, these two standards seem to fit the focus of this study.

### **3.1.3. Context for Study**

Scandinavian countries are generally recognised as some of the most sustainable in the world. This is reflected by their consistent top placements in various global rankings. In the aftermath of a financial crisis, opinion-leading magazines, like the Economist (2013), have pointed to the Nordic countries as role models to follow for more sustainable societies. This recognition is, to some extent, reflected in the literature on sustainability and business, but most of these studies are limited by the number of corporations, industries, sustainability dimensions or constraining factors examined, making the results less generalizable. Furthermore, many of these studies consider Scandinavian countries as a culturally homogenous entity, which must be considered a too simplistic approach. Thus, it leaves out many potentially important nuances to the seemingly similar traits.

This study examines a large number of corporations based across Scandinavian countries and industries. It addresses the environmental, social and, to some extent, economic dimensions of sustainability. This study does not compare the sustainability performance of Scandinavian countries with that of other countries or regions, but the use of international multi-stakeholders standards does provide a useful backdrop for the assessed performance levels. The broader scope naturally limits the depth of the study and firmness of the conclusions, but this wholistic approach delivers a more nuanced perspective, with strong indications pointing to avenues for further research. This study is placed in a Scandinavian context, but this article also attempts to provide a specific Danish perspective. Like the country of Denmark, Danish corporations (e.g. Novo Nordisk) have been reputed as being among the global sustainability leaders, with top placements in rankings like the Dow Jones Sustainability Index. In recent years, the media has covered numerous sustainability-related incidents involving Danish corporations, directly or indirectly, through their value chain, indicating that not all Danish corporations seem to follow the sustainability leaders.

### **3.1.4 Research Question**

Given the introduction of sustainability performance, standards for sustainability reporting and the context for this study, the research question pursued is formulated as follows:

*How do corporations perform on sustainability when measured as the level of implementation of the ten UNGC principles, by adherence to the criteria and associated best practices in the Advanced Level of reporting in the UNGC standard?*

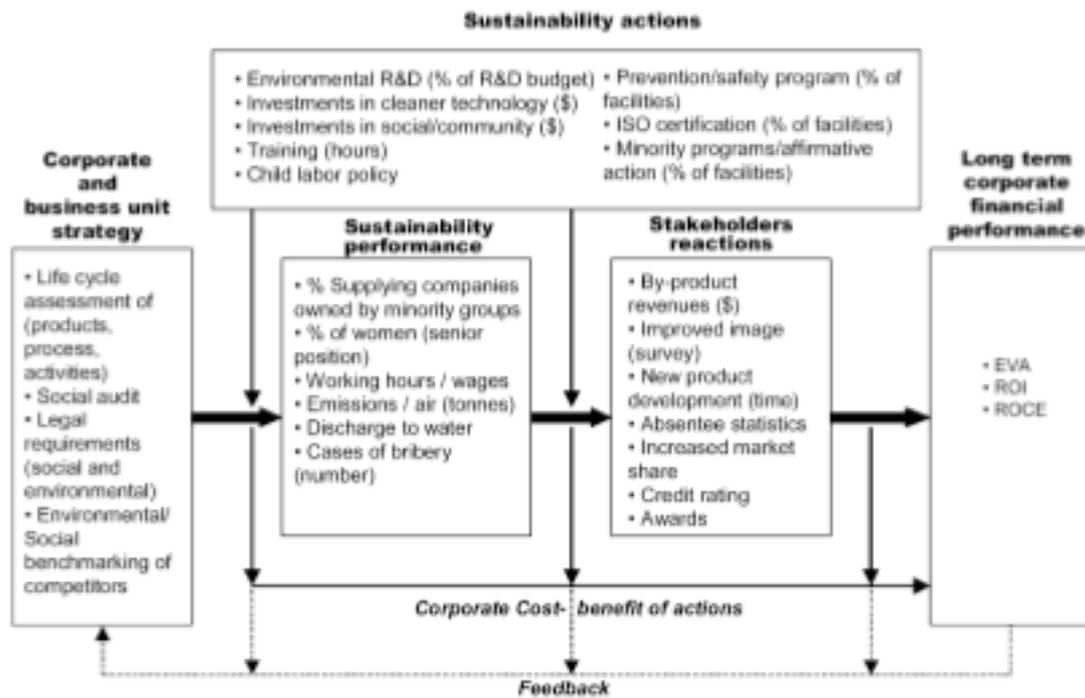
To answer this question substantially, it requires an approach with several steps. The first step involves the introduction of a relevant theoretical framework with a primary focus on sustainability performance, standards, and reporting. This is followed by a short introduction to the methodological approach and an extensive analysis. The analysis was conducted in extension of the result of a trial-analysis, which frames the main analysis assessing and analysing the sustainability performance by a sample of Scandinavian corporations. The results of the main analysis and its limitations are then discussed and concluded on. Furthermore, the managerial and institutional implications are stated and followed up with an outline of the contribution and the need for further research.

## **3.2 Theoretical Framework**

The concept of sustainability performance is central to this theoretical framework. However, in the context of this study, the concept is viewed in relation to sustainability standards and reporting. Hence, the current literature on sustainability performance and sustainability reporting and standards will be briefly introduced. This leads to the operationalization of the theoretical framework, which informs the following section on the methodological approach.

### **3.2.1 Sustainability Performance**

In a systematic literature review of the existing methodology used to measure and value environmental impacts, Kaval (2011) identified 20 methods or tools used in 180 academic and practitioner studies. Only a few of the identified methods or tools, aimed at measuring or valuing both the financial, social, and environmental impacts. The Balanced Scorecard Approach is one of such tools, originally proposed by Kaplan and Norton (1992). Later, it was modified by Figge et al. (2002), who proposed the Sustainability Balanced Scorecard. The Epstein Roy Framework (Epstein and Roy, 2001) is a more comprehensive method, which focuses on sustainability performance as the translation of strategy into action. It also describes the drivers for performance ". . . *details of the systems, structures and measures that are necessary to change organisational culture and processes . . .*" (Figure 1). The Epstein and Roy Framework consists of 5 major inter-related components: *Corporate and Business Unit Strategy*, *Sustainability Actions*, *Sustainability Performance*, *Stakeholder Reactions*, and *Corporate Financial Performance*. The explicit link between corporate strategy and sustainability actions to sustainability and financial performance is a major strength of the Epstein Roy Framework, which is based on over 25 years of extensive research (Epstein, 2000; Irwin, 1996; Epstein et al., 1976).



**Figure 1** - Epstein Roy Framework - Metrics of sustainability and financial drivers (Epstein & Roy, 2001)

A recent systematic literature review on *Valuing Business Sustainability*, by Pelozo and Yachnin (2008), highlights the Epstein and Roy framework (Figure 1) as a useful model that "... provides guidance for measuring both the leading and lagging indicators in the relationship between sustainability and financial performance." Pelozo (2009) identifies these leading and lagging indicators as mediating metrics, which are "... those that capture the "mediating variable" that generates business value" as opposed to intermediate or end state outcome metrics. With the inclusion of "... other important metrics that appear earlier in the causal chain of value creation," the review by Pelozo (2009) is a significant extension of the work of Margolis and Walsh (2003) and Orlitzky et al. (2003). Both of these highly influential reviews focus on end state outcome metrics. Even though they reveal a positive relationship between social, environmental and financial performance, it is relatively weak. Consequently, the business case for sustainability is somewhat unclear (Pelozo, 2009).

Pelozo states that "... the field of inquiry shifts to examining the structures and processes firms use"; and in this perspective, the Epstein and Roy Framework is more relevant than ever. However, Kaval (2011) found that only 2% of the academic studies and no practitioner studies that were reviewed used the framework. Perhaps this is because its complexity might make it less feasible to apply in a study and more difficult to find suitable data sources. Epstein and Roy (2001) mentioned external reporting initiatives as ways to promote good sustainability performance to various stakeholders. Epstein (2008) recognises the corporation's choice of reporting initiative as

imperative to their sustainability strategy. Several reporting standards claim to report on Sustainability Performance. This is especially true of the UNGC and GRI, because these multi-stakeholder standards characterise their frameworks as capturing sustainability performance. Hence, sustainability standards and reporting constitutes the second leg of this theoretical framework.

### **3.2.2 Sustainability Standards and Reporting**

Today, the 'market' (Rasche, 2010) for sustainability reporting is highly fragmented. Numerous standards, certifications, and principles exist, which has increased the opportunities for reporting, but certainly not made it easier for corporations and the stakeholders evaluating their performance to navigate. Reporting is a central part of corporation communication on sustainability issues to stakeholders whom ". . . *often have competing or even conflicting interests*", which the multi-stakeholder standards attempt to address (Rasche, 2010). The UNGC and the GRI are examples of such multi-stakeholder standards; they address a wide span of sustainability issues and are among the most globally adopted standards (Leipziger, 2003).

#### **3.2.2.1 The UNGC as a Standard for Sustainability Reporting**

Rasche (2010) introduced a useful categorization of standards. Using this categorization, the UNGC is termed a principle-based standard and the GRI is termed a reporting standard. Rasche (2009a) described the UNGC standard as promoting ". . . *broadly defined principles with regard to social and environmental problems that are used as a starting point for dialogue, learning, and the exchange of best practices.*"

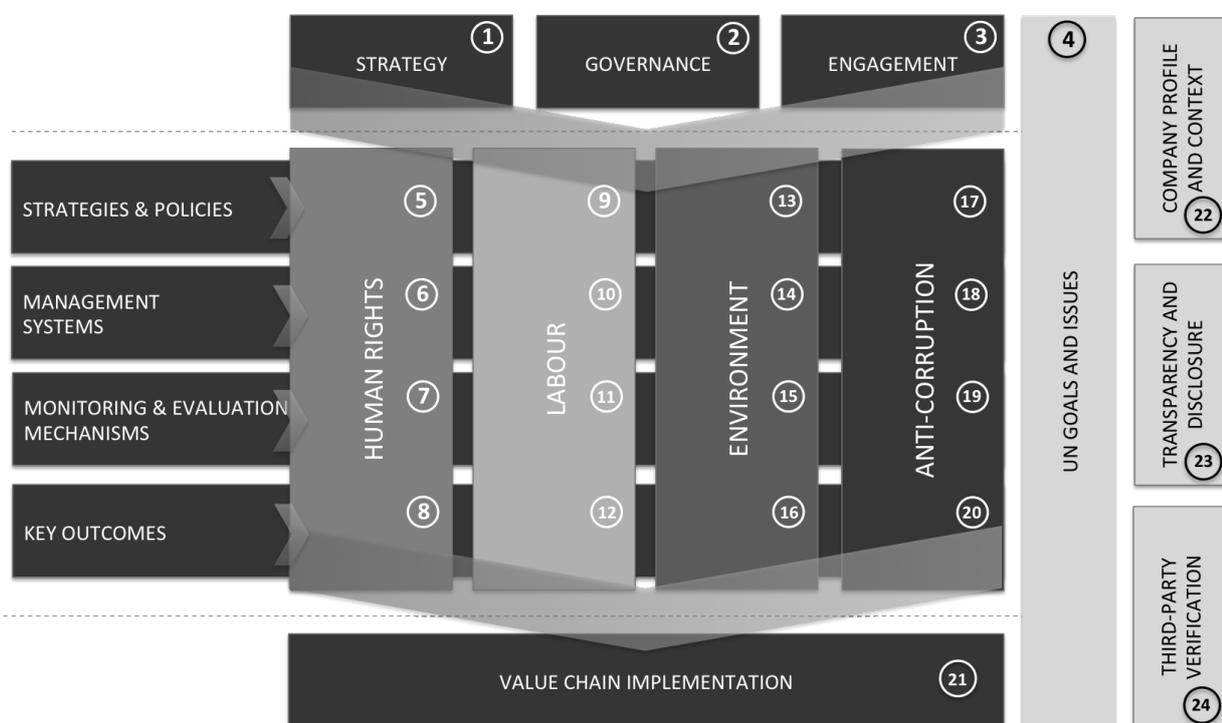
Today, the number of signatories to the UNGC standard totals over 10 000 UNGC.<sup>2</sup> With corporations comprising more than 2/3 of the signatories, the UNGC is the most widely used principle-based initiative (Rasche, 2010). Initiated in 2000, the UNGC has seen a massive increase in the number of signatories, as compared to the GRI. However, a lower bar of entry can be argued as a primary driver for this growth: *Principle-based standards are neither a seal of approval for firms' actions nor do they represent a compliance-based assessment framework for corporate responsibility issues*" Rasche (2009a).

The lack of strict requirements and enforcement hereof has drawn widespread criticism with NGO's accusing the UNGC of 'bluewashing' (Bruno & Karliner, 2000) less sustainable corporations, whom wrap themselves and their practices in the blue UN flag (Waddock, 2008). To

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<sup>2</sup> UN Global Compact Participants, <http://unglobalcompact.org/ParticipantsAndStakeholders/>

some extent, the UNGC has responded to the criticism by enforcing the signatory requirements, and thereby, expelling a larger number of corporations<sup>3</sup>. In parallel, the UNGC also introduced the Differentiation Programme in 2010, which allowed corporations with a more advanced sustainability practice to differentiate themselves by reporting to the UNGC standard on the Advanced Level (depicted in figure 2). With stricter requirements for compliance, the addition of the Advanced Level reflects an evolution of the UNGC standard, but it has been largely undetected in the literature on sustainability standards and reporting. The UNGC presents this Advanced Level as a framework for Sustainability Performance. Therefore, this article will apply and evaluate it as such.



**Figure 2** - Model connecting the 24 UNGC criteria (model developed by author)

The UNGC Advanced Level framework depicted in Figure 2 has a simple and relatively logical structure, including 24 criteria<sup>4</sup> that corporations are required to report on. As Figure 2 illustrates, 16 of these criteria are related to the 4 core sustainability issues central to the 10 UNGC principles for responsible and sustainable business behaviour: *Human Rights*, *Labour*, *Environment*, and *Anti-Corruption*. Each of these 4 sustainability issues are assigned a criterion for

<sup>3</sup> UN Global Compact Has Expelled Over 3,000 Companies, <http://www.unglobalcompact.org/news/188-02-09-2012>

<sup>4</sup> GC Advanced COP Self-Assessment,

[http://www.unglobalcompact.org/docs/communication\\_on\\_progress/GC\\_Advanced\\_COP\\_selfassessment.pdf](http://www.unglobalcompact.org/docs/communication_on_progress/GC_Advanced_COP_selfassessment.pdf)

(1) *Strategies and Policies*, (2) *Management Systems*, (3) *Monitoring and Evaluations Mechanisms* and (4) *Key Outcomes*, respectively. The term used for the criteria thereby makes the performance-related connection between strategy and action which is explicit in the framework. The framework includes 8 additional criteria distributed on *Strategy, Governance and Engagement, Value Chain Implementation, Transparency and Verification*, and *UN Goals and Issues*. Hence, the scope of this study is limited to the use of the 16 criteria related to the 4 core sustainability issues and single additional criterion: *Value Chain Implementation*.

Corporations reporting to the Advanced Level are given a performance score for each criterion based on their self-assessed compliance with a number of associated best practices. Each criterion is associated with 5-8 best practices and many of these are "...based on core United Nations and Global Compact resources (e. g. the *Blueprint for Corporate Sustainability Leadership, the Guiding Principles on Business and Human Rights, and the Anti-Corruption Reporting Guidance*)"<sup>5</sup>. It is also at this level that the framework attempts a relative integration with the GRI, while compliance with a number of best practices can be achieved if the corporation is reporting on certain GRI performance indicators. Relative, because compliance with a specific best practice cannot be connected to a single GRI performance indicator and because the best practices are not expressed quantitatively (like e.g. GRI's indicators for the energy use).

### **3.2.2.2 The GRI as a Standard for Sustainability Reporting**

The number of corporations reporting to the GRI has fluctuated since the inception of the standard in 1999. As of November 2009, more than 750 corporations globally refer to the GRI's G3 guidelines (Rasche, 2010) as part of the framework for their sustainability reports. The G3 guidelines require corporations to report on indicators in the economic, environmental, and social dimensions of sustainability performance. Most of the required quantitative information is based on metrics for a variety of sustainability issues like *Energy use in GWh, Number of accidents per million hours worked, Percentage and total number of business units analysed for risks related to corruption*, and the *Percentage of significant suppliers and contractors that have undergone screening on human rights and actions taken*. Hence, the best practices and indicators seem to be very different ways of assessing sustainability performance multi-stakeholder reporting standards. An approach combining them should therefore be operationalized in the presented theoretical perspective of sustainability performance before application.

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<sup>5</sup> GC Advanced Level, [http://www.unglobalcompact.org/COP/differentiation/GCAdvanced\\_level.html](http://www.unglobalcompact.org/COP/differentiation/GCAdvanced_level.html)

### 3.2.3 Operationalization of the Theoretical Framework

To summarize and operationalize the theoretical framework, the multi-stakeholder reporting standards will briefly be viewed in the perspective of the referenced literature on sustainability performance. The quantitative GRI performance indicators most clearly match the Epstein and Roy (2001) components of *Sustainability Performance* and *Sustainability Actions*, whereas Pelozo (2009) would describe them as the *Mediating Metrics* of the *Input/output* category in the *Stages of Financial Impact from Corporate Social Performance (CSP) Model*.

With each issue divided into strategic (strategy/policy/commitments), action (systems/mechanisms) and outcome (indicators/disclosure) focused criteria, the UNGC framework comes across as generally having a strategic orientation. Hence, many best practices clearly match the *Corporate and Business Unit Strategy* component. The numerous best practices do relate to all components, except *Corporate Financial Performance*, without the numeric values assigned to them. In Pelozo's stage model (2009), many of the best practices would qualify as *CSP Metrics*. These could be CSP initiatives, like labour policies and code-of-conducts.

All in all, a study using the quantitative GRI performance indicators seems to partly answer Pelozo's call for using *Mediating Metrics*, whereas the use of UNGC best practices would reflect the shift of inquiry ". . . to examining the structures and processes firms use" (Pelozo, 2009). Neither of the standards addresses the *Corporate Financial Performance* component or the *End State Outcome Metrics* directly, but a study combining both the UNGC and the GRI measures seems to have the potential to suggest relationships between e.g. best practices related to the environment and quantitative performance indicators related to the environment. Whether or not this potential can be leveraged, depends on the methodology applied and the following execution hereof.

### 3.3. Methodology

The purposeful selection of the corporations eventually led to 67 candidates being eligible for an assessment and analysis of their sustainability performance using their COP reports. A trial assessment and analysis was conducted on the reports of 7 corporations. Thus, this assessment was used to test the applicability of a combined approach with the UNGC and GRI frameworks. However, due to the inconsistency of the GRI data reported by the corporations, it was decided to solely use the UNGC framework, and thereby, only address the GRI performance indirectly. A content analysis and data gathering approach was modified accordingly, in preparation for the assessment and analysis of the full sample of the corporations.

### 3.3.1 Selection of Corporations

The ambition of this study was revised to focus on how Scandinavian corporations, with an engaged sustainability practice, perform when they are assessed by compliance with best practices in multi-stakeholder sustainability standards. The first step towards selecting the corporations was the identification of those who were members of, and engaged in, the UNGC Nordic Network (GCNN) in 2011/2012. With more than a 150 participating organizations, the UNGC Nordic Network was highly consolidated, when compared to the GRI Nordic Network still having a status as a GRI pilot project at this point in time. The well over hundred UNGC local networks globally all share terms of reference similar to that of the GCNN<sup>6</sup>, which states the primary objective as being "...to provide a learning forum for members of GCNN on implementation of GC principles and progress communication" accepted by all of its members. In addition, the corporations were identified by their status in the UNGC as: (a) a business participant, (b) having an *Active COP* status, (c) at the minimum, having *GC Active* as the reporting level, and most importantly, (d) having submitted a COP report for the year of 2011.

The identification process led to 79 eligible corporation candidates, 12 of which were eliminated from further analysis due to them operating in the sectors of *financial services*, *support services*, or the *media*. This was done following an elimination process practiced by Eccles et al. (2011), who eliminated 100 corporations from their study ". . . because their business model is fundamentally different and many of the environmental and social policies are not likely to be applicable or material to them." Therefore, this left 67 eligible corporation candidates, representing 25 different sectors/industries (as categorised by the UNGC). The *General Industrial* category was the most well represented (9 corporations). When the final list of candidate corporations was established, the COP reports were downloaded from the UNGC online database.

Because the corporations were purposefully selected, and not randomly sampled from the full population of Scandinavian corporations having adopted the UNGC or GRI standard, the study does not follow the general principles for drawing a good sample in a random manner, thereby guaranteeing representativeness (Knoke, et al., 2002). However, the purposeful selection of the corporations is justifiable and does achieve a level of representativeness that is acceptable given the primary purpose of the study. Within the selection, there is a good distribution of corporations across sectors/industries and across the Scandinavian countries. The selected Danish corporations amounted to around twice the number of corporations as those selected from Sweden, Norway and Finland, respectively. Nevertheless, this reflects the ratio of UNGC signatories in the full population. The purposeful selection also resulted in the inclusion of only less than a handful of

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<sup>6</sup> <http://gcnordic.net/ckfinder/userfiles/files/ToR%202012%20FINAL.pdf>

small and medium sized enterprises (SME) in the sample of corporations. The sampling does not reflect the full population, which consists of a significantly higher percentage of SME's. However, SME are still challenged in this area and do not report as much as multinational enterprises (MNE) (Wensen et al., 2011). Hence, even though the ratio of SME's is much higher in the full population, most of them would not likely be eligible due to a lack of reporting.

### **3.3.2 Trial-Assessment and Analysis**

The goal of this study was to assess the sustainability performance of the 67 selected corporations by mapping the content in their COP reports towards the UNGC best practices and GRI indicators. However, an initial screening of the COP reports illustrated that most of the reports were highly qualitative, and has a significant variation in length, structure, style, and format. Hence, given this fragmentation, it was decided to test the ambition and the research design through a trial-assessment and analysis, which was conducted using the COP's submitted by 7 corporations. The trial was conducted with (a) the UNGC Advanced Level reporting framework and (b) the GRI performance indicators which are closely related to the four UNGC issue categories.

The trial led to the key decision of not directly gathering the GRI data in the full assessment, but only indirectly addressing the GRI indicators through the relative integrated use of them in the UNGC framework. This is because the trial demonstrated a number of challenges in gathering relevant and comparable GRI data. These challenges included the: (a) corporations not reporting consistently on the same performance indicators, (b) the corporation's ways of measuring varying for each metric differing, and (c) the absolute metrics being unable to adapt to the growth in business. The decision not to focus on the GRI naturally limits the ambitions with this study, but conversely, the trial demonstrated the applicability of the UNGC framework towards the COP reports. It was necessary to extend the data gathering process to include all documents submitted as a COP report and all other relevant documents and texts referenced by the COP, including the specific web pages. The extended data demonstrated relative support for the 16 UNGC criteria and associated best practices related to the four core sustainability issues, whereas the remaining 8 criteria and associated best practices was significantly less supported in the COP's. This was to some extent expected, while corporations reporting on the lower UNGC Active Level of reporting are only required to report on the four core sustainability issues. The primary focus in this article will therefore be on the sustainability performance across the four core UNGC issues, when assessed by compliance with the 16 criteria across and associated best practices using the content analysis methodology as explained in the following.

### 3.3.3 Content Analysis and the Data Gathering Process

Content analysis allows for the synthesis of often very comprehensive text based reports into smaller categories (Weber, 1990; Stemler, 2001). This study applies a qualitative approach comparable to those advocated by Hsieh and Shannon (2005), which identified the *Three Approaches to Qualitative Content Analysis* as being conventional, directed, or summative. The approach in this study is most similar to a conventional content analysis, which implies the continual coding and categorization of data during the analysis. Though, none of the three approaches exactly match the approach applied in this study, which aims at manually synthesizing the text in the reports to the existing categories in the UNGC and GRI standards, as opposed to automatically synthesizing it using analytical software packages.

The procedure for the assessment of Sustainability Performance was as follows. The COP report documents and referenced material were downloaded, carefully processed and assessed using the criteria and all the associated best practices in the UNGC framework. Each criterion was associated with 3-8 best practices and the level of compliance with these determines a score (%) for Sustainability Performance. The determination of the score follows logic where a score of 80%, on a specific criterion, is achieved if it was assessed that 4 out of 5 associated best practices demonstrated compliance by being adequately described in the COP report. This calculation of averages is also applied on the category level exemplified with 3 criteria assessed with 40%, 60% and 80%, respectively, which results in a category average of 60%. Furthermore, this logic is embedded in the UNGC online database<sup>7</sup> for COP reports, in which stakeholders can access and retrieve the self-assessed sustainability performance data for corporations reporting on the UNGC Advanced Level. Three researchers assessed the reports independently, and 7 of the reports were double-coded to check for intercoder reliability (Stemler, 2001).

### 3.4. Analysis

The core of this section is the analysis of the sustainability performance by Scandinavian corporations assessed using the UNGC and GRI multi-stakeholder standards. Prior to, and providing context for the core, an overview of the level of adoption of multi-stakeholder sustainability standards among Scandinavian corporations is presented. The core of the analysis is divided into five sections, which present and analyse the assessed sustainability performance on the four core sustainability issues and the *Value Chain Implementation* issue, respectively. The Top 3 of the best performing corporations is listed for each issue and the uniqueness of the sustainability

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<sup>7</sup> UN Global Compact Participants, <http://unglobalcompact.org/ParticipantsAndStakeholders/>

practices applied by one or more of these corporations are highlighted. The analysis is concluded with the application of Organisational Design, as an alternate analytical perspective addressing the determinants of the superior sustainability performance for the best performing corporation across all issues.

### 3.4.1 Adoption Rate of the Multi-Stakeholder Sustainability Reporting Standards

Table 1 displays an overview of the adoption rate for the UNGC and GRI, respectively, across the Scandinavian countries in 2011. The first row in the table displays the number of corporations who are signatories to the UNGC and that have submitted a Communication of Progress (COP) report in 2011. The second row in the table displays the number of corporations who have submitted a sustainability report following the GRI guidelines in 2011. In this context, *submitted* refers to the corporations having submitted a report to the online databases<sup>8</sup> for the UNGC and GRI, respectively.

2011	Denmark	Sweden	Norway	Finland	Iceland	Total
<b>UNGC</b>	208	124	52	36	7	427
<b>GRI</b>	20	159	23	97	N/A	299

**Table 2** - Overview of Scandinavian corporations' adoption of sustainability reporting standards in 2011

Table 1 display that the UNGC standard is adopted by almost 50% more (UNGC 427, GRI 299) corporations than the GRI standard in Scandinavia. It is not the primary concern of this article to address the source of these adoption rates, but the very high adoption rate of the UNGC standard among Danish corporations might be driven by the policy and regulation. Since 2009, large businesses in Denmark (approximately 1400) have been required to account for their work on corporate social responsibility (Vallentin & Murillo, 2012). The submission of a UNGC COP report is specifically and solely referenced in the law<sup>9</sup> as a way to fulfil the requirements. Ioannou and Serafeim (2011) indicated that the corporate adoption of sustainability reporting increases significantly if the reporting is listed as a requirement in the legislation and policy addressing

<sup>8</sup> Numbers retrieved from a) the UNGC online database for participating organizations at UN Global Compact Participants, <http://unglobalcompact.org/ParticipantsAndStakeholders/> and b) the GRI online database at <http://database.globalreporting.org/search>. The numbers retrieved and presented includes corporation reporting to both standards that are not differentiated with regards to the corporation's choice of reporting level within each standard.

<sup>9</sup> Retsinformation. 2013. Lov om ændring af årsregnskabsloven, <https://www.retsinformation.dk/Forms/R0710.aspx?id=122862>

sustainability or Corporate Social Responsibility (CSR). Similar patterns seem to occur across the Scandinavian countries. With only 7 Icelandic corporations adopting the UNGC, and none adopting the GRI, the Icelandic corporations were eliminated from the study.

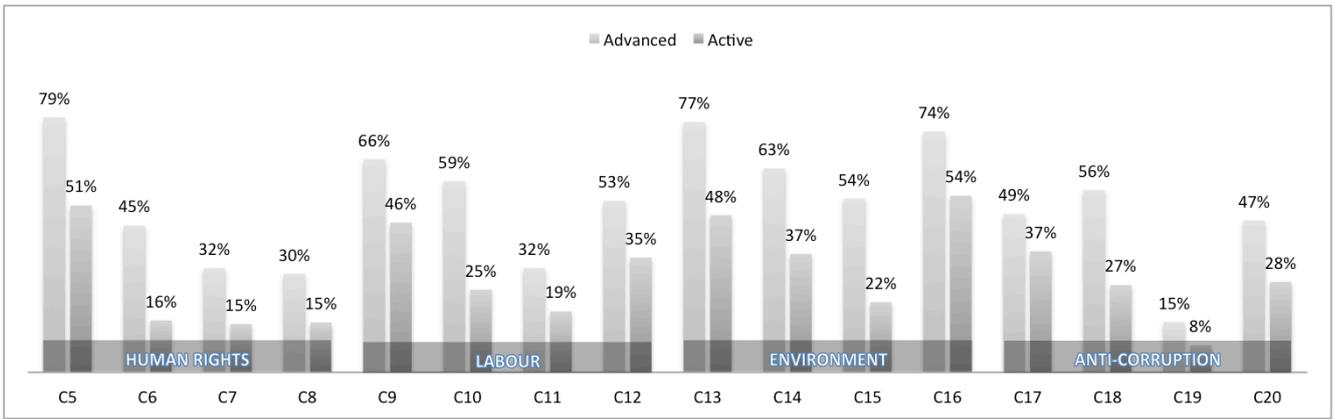
### **3.4.2 Assessment and Analysis of the Full Sample of the Corporations**

The core of this analysis is first presented with an overview of the average sustainability performance on all criteria for the four core UNGC sustainability issues, differentiated on the Active Level and Advanced Level of reporting, respectively. A separate section for each of the four core UNGC sustainability issues follows and includes the differentiation of the average sustainability performance on the criteria and country level. The core analysis is concluded with a section for the *Value Chain Implementation* criterion, including the differentiation of the average sustainability performance based on a best practice and at country level.

#### **3.4.2.1 UNGC Sustainability Performance on the Core Issues - Active vs. Advanced Level**

Corporations reporting to the UNGC are required to address their implementation of the four core sustainability issues on both the Active Level and the Advanced Level. Corporations reporting on the Advanced Level are required to address at least one best practice for each criterion, and hence, must be expected to demonstrate higher levels of Sustainable Performance. The data presented in Table 2 confirms this expectation, with significantly higher levels of Sustainability Performance on all 16 criteria for the core issues. For several criteria, the difference is close to, or more than, 30%, as compared to the Active Level average. To comply with the requirements for Advanced Level reporting, a corporation must, on average, achieve around 20% performance on each criterion. Sustainability performance levels have been assessed at significantly higher than 20% for almost all the criteria. Sustainability Performance for Active Level reporters is generally above this average, and some are just below, indicating a significant potential for more corporations to report on the Advanced Level.

Table 2 indicates the overall tendency of a consistent decline in performance from the criteria on *Strategies or Policies*, over *Management Systems*, *Monitoring and Evaluation* to *Key Outcomes*. This tendency seems to transcend both the reporting levels and the issue areas. Therefore, this will be elaborated on in more detail in section 3.4.2.2.

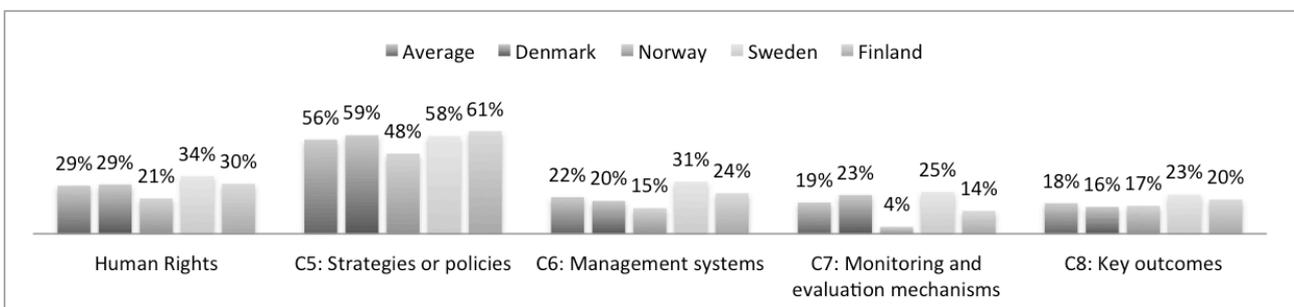


**Table 2 - UNGCS Sustainability Performance on core sustainability issues - Advanced vs Active Level**

### 3.4.2.2 UNGC Sustainability Performance on the Human Rights Issue

The specification of the performance on Human Rights, displayed in Table 3, presents coherent tendencies across the Scandinavian countries when not differentiating for the reporting levels. The overall tendency of a consistent decline from *Strategies or Policies* to the other criteria is also present for the Human Rights issue.

Table 3 displays a steeper decline in performance, from an average of 56% (Criterion C5), to averages of 22% (C6), 19% (C7), and 18% (C8). The academic literature on sustainability performance does not provide much guidance on explaining the low performance on Human Rights, exemplified by the complete absence of the issue in the systematic reviews by Pelozo and Yachnin (2008) and Kaval (2011). This lack of research on Human Rights in a performance context contrasts with the general perception in the academic literature of the Human Rights issue being a part of the social dimension of sustainability, and even more, with the strong presence of the issue in both the UNGC and GRI standards.



**Table 3 - UNGC Sustainability Performance data - Human Rights**

The assessment allows for the identification of the Top 3 corporations with the highest performance on Human Rights. Their performance levels are in sharp contrast to the averages depicted in Table

Subsequently, the Swedish corporation, Atlas Copco (industrial engineering), stands out with a superior performance of 100%, which means that they comply with all 18 best practices associated with the four Human Rights criteria. Atlas Copco's COP report indicates that this remarkable performance on Human Rights is partly leveraged by a very comprehensive implementation of their *Business Code of Practice*, which, in 2011, was further strengthened by the adoption of the *UN Guiding Principles of Business and Human Rights*. Not only do Human Rights seem to be deeply integrated in Atlas Copco's internal operations, through policies and procedures like the *Control Self-Assessment* for all group units, it is also externally integrated in the acquisition processes, the *Community Engagement Policy*, and their extensive supplier evaluation processes. In addition, their business partners are generally ". . . expected to observe the same high standards regarding human rights as Atlas Copco does". The two runner-ups in the Top 3 are Danish corporations: Novo Nordisk (73%) and Novozymes (67%) - Pharmaceuticals and Biotechnology. Thus, these corporations demonstrate high levels of performance for most Human Rights criteria, except for the *Key Outcomes*.

The sustainability performance on a criterion is determined by the corporation's compliance with the associated best practices. The distribution of compliance for each criterion informs the overall analysis. A closer look at the data for compliance with the best practices associated with C6 on management systems reveals a very poor level of compliance with three out of six best practices. These are: (a) *an on-going due diligence process that includes an assessment of actual and potential human rights impacts*, (b) *internal decision-making, budgets and oversight for effective responses to human rights impacts*, and especially (c) *processes to provide for, or cooperate in, the remediation of adverse human rights impacts that the company has caused or contributed to*, which lowers the average performance on the criterion significantly. A more average performance is achieved on two additional best practices: (a) *internal awareness-raising and training on human rights for management and employees*, and (b) *operational-level grievance mechanisms for those potentially impacted by the company's activities*. However, these two practices improve the overall criterion's performance slightly. As such, there seems to be a misfit between the initiatives taken to increase the knowledge of Human Rights in the organization and the transformation of that knowledge into action supporting the implementation.

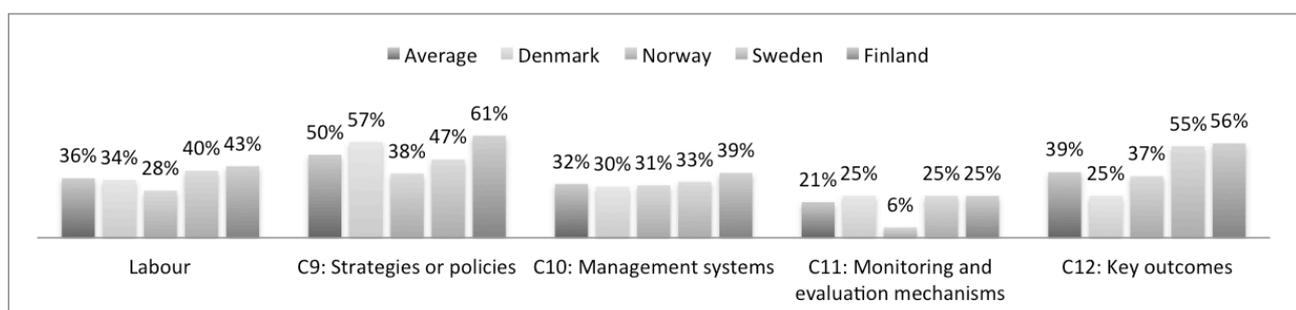
The distribution of compliance with best practices on C6 is generally coherent across the Scandinavian countries, as is the performance level for the criterion. Norwegian corporations generally seem to perform at lower levels on all criteria, especially C7, with only 4% performance for *Monitoring and Evaluation Systems*. The distribution of compliance with the best practices for C7 reveals that none of the 12 Norwegian corporations report compliance with the best practices *Monitoring drawing from internal and external feedback, including affected stakeholders and*

*Process to deal with incidents.* On the other hand, only a single corporation reports compliance with the best practices *System to monitor the effectiveness of human rights policies and implementation, including in the supply chain* and *Leadership review of monitoring and improvement results,* respectively.

### 3.4.2.3 UNGC Sustainability Performance on the Labour Issue

Table 4 presents the sustainability performance for the criteria related to the Labour issue. These criteria generally seem to follow the overall trend across all issues, with a decline in the average from 50% on *C9 Strategies or Policies* to 32% for *C10 Management systems* and 21% on *C15 Monitoring and evaluation mechanisms*. The decline in performance on Labour is comparable to that on Human Rights, except for the *Key Outcomes (C12)*, with an average performance of 39%. This deviation from the overall decline tendency contrasts with the expectation in the literature of a causal dependency between the implementation of the management systems, monitoring, and evaluation mechanisms and the ability to disclose the key outcomes (Epstein & Roy, 2001; Pelozo, 2009).

Table 4 generally illustrates a coherent level of performance across the Scandinavian countries, though with notable exceptions. The Norwegian corporations display a performance distribution on labour similar to that of Human Rights. Again, the implementation of *Monitoring and evaluation mechanisms* seems to be a major challenge with a performance of only 6% compared to the not impressive 21% average across countries. Swedish and Finnish corporations perform above average on Labour, but display a significantly better performance on *Key Outcomes (C12)* with 55% and 56% respectively compared to a 39% average. Danish corporations come short on *Key Outcomes* with 25% performance, but are generally on par with the Scandinavian counterparts on this criterion.



**Table 4 - UNGC Sustainability Performance on criteria for Labour issue**

The Top 3 of the highest performing corporations on the Labour issue is identical to the Top 3

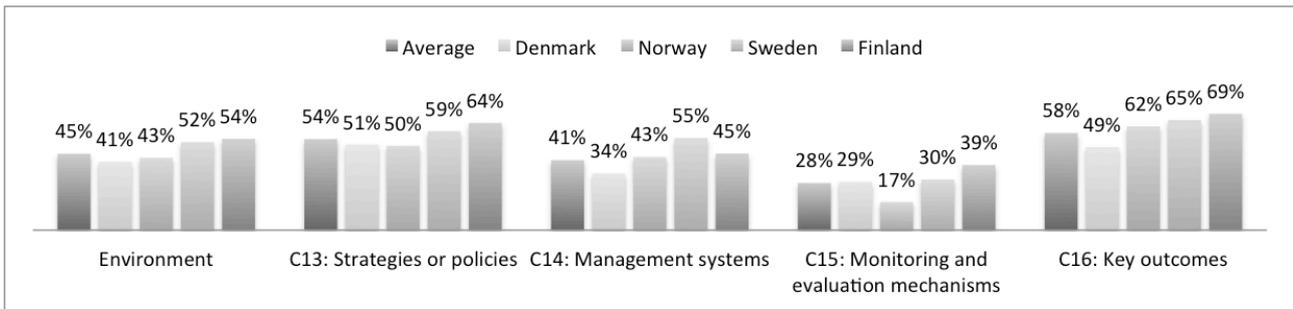
identified for the Human Rights issue. Atlas Copco again ranks first with 100% performance. This is followed by Novo Nordisk with 95% and Novozymes with 89%. The gaps in performance among the top 3 are less significant for this issue. In addition, a larger range of corporations demonstrates performance levels close to those in the Top 3.

Similar to Human Rights, Labour is also an integrated part of Atlas Copco's *Business Code of Conduct*, and hence, benefits from the extensive implementation hereof. The COP report from Novo Nordisk is more informative on the context of this high performance on Labour, which internally seems partly leveraged by several structural initiatives, like a *Global People Board*, a *Sustainability Committee*, and a *Global Human Resources Compliance Office*. The structural initiatives also include governance-related initiatives, like the integration of global standards and processes into a single management system, which includes setting "... *appropriate management systems in our affiliates*." The COP report also reports a strong focus on the supply chain with e.g. a *Procurement Committee*. Novo Nordisk demonstrates transparency by disclosing information on their key challenges like "... *finding viable ways of engaging deeper with business partners*" and the need for substantial training of procurement staff.

Danish corporations' compliance with the 5 best practices associated with the criterion *Key Outcomes (C12)* on Labour is, on average, distributed quite evenly. Only a few corporations are very compliant. The majority of the Danish corporations are not complying with any, or only a few, best practices. The highest level of compliance is achieved for the best practice *Outcome of due diligence and follow-up efforts to eliminate discrimination*. Also, the lowest level is achieved for *Disclosure of main incidents involving the company*. The majority of the Swedish and Finnish corporations are very compliant; but considering the distribution for all countries, the tendency can roughly be described as an all-or-nothing situation. Either the corporations comply fully with the best practices or they do not comply at all.

#### **3.4.2.4 UNGC Sustainability Performance on the Environment Issue**

Table 5 presents the sustainability performance for the criteria related to the Environment issue, which only, to a lesser extent, follows the trend across all of the issues. This is accompanied with a decline from 54% on *Strategies or Policies (C13)* to 41% for *Management Systems (C14)* and 28% on *Monitoring and Evaluation Mechanisms (C15)*. Though the trend stops abruptly with 58% performance on *C16 Key Outcomes*, this is the highest average level of performance on the Environment issue. Hence, there are high levels of performance on key outcomes. This was despite the relatively lower levels of performance on the management systems and the monitoring and evaluation mechanisms.



**Table 5 - UNGC Sustainability Performance on Criteria for Environment issue**

The Top 3 highest performing corporations do not change much when evaluated for the Environment issue. Once again, Atlas Copco is the top performer at 100%, while Novo Nordisk follows them closely at 95%. Novozymes is ranked third with the Finnish corporation StoraEnso (Forestry and Paper), both achieving 90% performance on the Environment.

Like its former parent company (Novo Nordisk), Novozymes' COP reports several internal structural initiatives, which supports sustainability broadly and environmental issues in particular. These initiatives seem to enable Novozymes to reach their targets for energy, water, and CO<sub>2</sub> efficiency. Novozymes also reports a strong focus on their value chain, which is highlighted by the innovation of enzymes; in application, it ". . . reduced our customers' CO<sub>2</sub> emissions by an estimated 45 million tons in 2011". Similarly, StoraEnso has a strict value chain focus on their customers, seemingly with the objective of increasing transparency and customer's trust through the development of paper profiles and the use of eco- and forest certification labels.

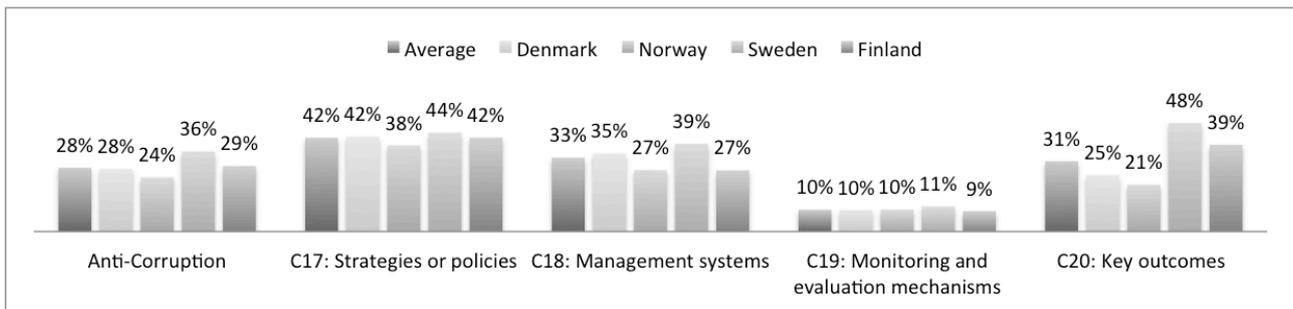
The observation of the average distribution reveals higher levels of compliance with four best practices: (1) *Indicators on uses of materials and energy*, (2) *Indicators on emissions, effluents and waste*, (3) *Indicators on the company's initiatives to promote greater environmental responsibility*, and (4) *Indicators on the development and diffusion of environmentally friendly technologies*. Approximately 2/3 of all sampled corporations report compliance with these best practices, whereas only 1/3 report compliance on the best practice *Disclosure of main incidents involving the company*. Compliance with many of these best practices can be achieved by reporting on a number of GRI performance indicators, as suggested by the UNGC.

At a country level perspective, Norwegian corporations perform low on monitoring and evaluation mechanisms which is relative to other corporations in Scandinavia.

### 3.4.2.5 UNGC Sustainability Performance on the Anti-Corruption Issue

Table 6 presents the sustainability performance for the criteria related to the Anti-Corruption issue. For all criteria, it is lower, on average, than for the other issues. Thus, the overall trend of a decline

in performance is less significant from 42% on *Strategies or Policies* (C17) to 33% on *Management systems* (C18). The average performance then drops very significantly to 10% on *Monitoring and Evaluations Mechanisms* (C19). The Anti-Corruption issue was introduced as part of the UNGC principles in 2010. This might be a reason for the general low performance on this issue, but nevertheless, the coherent low performance on C19 across all Scandinavian countries is noteworthy. In contrast, the average performance of 31% on *Key Outcomes* (C20) does not reflect a coherent performance level across countries; Danish and Norwegian corporations perform significantly lower than their Swedish, and to some extent, Finnish counterparts.



**Table 6 - UNGC Sustainability Performance on criteria for Anti-Corruption issue**

Atlas Copco maintains their superiority by taking the lead on the Anti-Corruption issue, though with a small decline in performance to 83.33%. Volvo Group comes in second with 79% performance. The COP report by the Volvo Group has a very explicit stand on Anti-Corruption "*The Volvo Group does not accept corruption in any part of its business.*" This stand is supported by a comprehensive Anti-Corruption Compliance Program, which covers all Volvo's business partners. It is overseen by the "*The Audit Committee, a function of the Volvo Group Board of Directors*". Novo Nordisk is still in the Top 3 on this issue, with 77% performance.

A very low level of compliance, with almost all associated best practices, determines the very low performance on C19. This is exemplified by the fact that only a single corporation from the sampled 67 complied with the best practice *Use of independent external assurance of anti-corruption programmes*. Furthermore, the distribution of compliance reveals that close to 1/3 of the corporations comply with the best practice *Process to deal with incidents*, whereas only a fraction of the corporations are compliant with *Leadership review of monitoring and improvement results and Public legal cases regarding corruption*. Despite this very significant lack of implementation of *Monitoring and evaluation mechanisms* (C19), the corporations have demonstrated better compliance with the best practices associated with *Key Outcomes* (C20).

The distribution of compliance reveals that the lower performing Danish and Norwegian corporations are especially non-compliant with the best practice *Outcomes of assessments of*

*potential areas of corruption, where appropriate, and to some extent, Outcomes of mechanisms for reporting concerns or seeking advice.* A few Danish and Norwegian corporations have a very high level of compliance, but this essentially means that the vast majority of corporations do not report on the *Key Outcomes* for Anti-Corruption. The tendency for this kind of all-or-nothing compliance can also be spotted in the distribution of Swedish and Finnish corporations, although to a lesser extent. In addition, these corporations demonstrate a more coherent level of performance, on an average, across the four best practices associated with the *Key Outcomes*.

The assessment and analysis of sustainability performance for the 16 criteria associated with the four core issues is central in this article. A number of the best practices associated with the 16 criteria are supply and value chain related, but in an implicit and inconsistent way. Hence, an analysis of the corporate sustainability performance must also include the criterion *Value Chain Implementation* and its associated best practices.

#### **3.4.2.6 UNGC Sustainability Performance on the Value Chain Implementation**

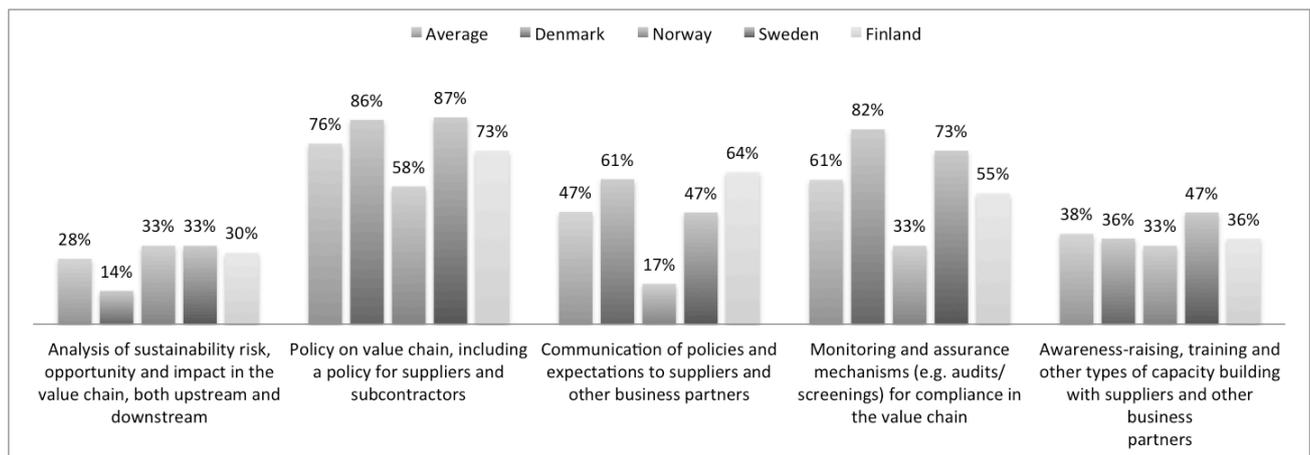
*Value Chain Implementation* (C21) is not a core sustainability issue in the UNGC framework. As such, corporations reporting on the UNGC Active Level are not required to report on it. Nevertheless, higher levels of sustainability performance for this criterion were assessed in the study. *Value Chain Implementation* had the most even performance average across the Active Level and Advanced Level, respectively. In addition, there is quite an uneven distribution of performance across the best practices.

In summary, most of the selected corporations were found to report on sustainability in their value chain, even though the majorities are not required to do so. This indicates an increasing importance of this dimension of sustainability performance for the corporation and the stakeholders. However, much is still to be learned on this topic. Best practices still need to be identified on sustainability in the corporate value chain. Therefore, this is reflected by the fewer nuances on this issue in the UNGC framework. The four core sustainability issues each amount to four criteria and numerous best practices. *Value Chain Implementation* is constituted by a single criterion and the five associated best practices. Hence, the assessed sustainability performance on this criterion is depicted on a best practice level in Table 7. An analysis hereof will only concern the country level and best practice level.

The examination of the compliance with the best practices displayed in Table 7 illustrates a very uneven distribution across the 5 best practices associated with the criterion *Value Chain Implementation* (C21). A very high level of compliance is detected for the best practice *Policy on value chain, including a policy for suppliers and subcontractors* at one end, whereas the corporations demonstrate the lowest level of compliance on the best practice *Analysis of*

sustainability risk, opportunity and impact in the value chain, both upstream and downstream at the other end. The levels of compliance for the remaining three best practices are placed in between these two poles, but the distribution pattern differs for each of the Scandinavian countries.

Despite having the highest average performance on C21, the Danish corporations demonstrate significantly lower levels of compliance with the *Analysis of sustainability risk, opportunity and impact in the value chain, both upstream and downstream* than the already low average. In contrast, very high levels of compliance are detected for the best practices of *Policy on value chain, including a policy for suppliers and subcontractors*, and *Monitoring and assurance mechanisms (e. g. audits/screenings) for compliance in the value chain*. Although not exactly on par, the distribution of compliance for Swedish and Finnish corporations is comparable to that of the Danish corporations. Norwegian corporations demonstrate noteworthy exceptions to this pattern, with an exceptionally low performance on the best practice of *Communication of policies and expectations to suppliers and other business partners* and also *Monitoring and assurance mechanisms (e. g. audits/screenings) for compliance in the value chain*, when compared to the other countries.



**Table 7 - UNGC Sustainability Performance on Best Practices for Value Chain Implementation**

In continuation with their domination of the top 3 list of high performing corporations across most of the core sustainability issues, Atlas Copco, Novo Nordisk and Novozymes were all assessed with a maximum of 100% performance on *Value Chain Implementation*. However, this time they are not exclusive, with 5 additional corporations being assessed at 100%. This is followed by 13 corporations being assessed at 80%. Most of the remaining corporations are also assessed with relatively high performance levels. Only when reviewing the performance on the 11 additional supply and value chain related best practices associated with criteria for the four core sustainability issues, does it become clear that Atlas Copco yet again demonstrates superior performance. However, this was with the smallest margin possible this time around.

At this point, it should not come as a surprise that Atlas Copco, Novo Nordisk, and Novozymes are also assessed with very high levels of performance on the remaining 7 criteria not analysed in this article. To aid in the further understanding of what facilitates such superior performance, this article will now present the sustainability performance of one of the frontrunners in an alternate analytical perspective. This article does promise a Danish perspective on the study, but in the UNGC spirit of learning from the peers and to pre-emptive ethnocentrism, the case chosen is the Swedish Atlas Copco.

### 3.4.3 Organisational Design: An Alternate Perspective on Superior Performance

Organisational Design is a management practice influenced by organisational theory (Huber, 2010), particularly contingency theory and congruence theory, as applied in a more formalised model introduced by Burton and Obel (2004). Designing the optimal mix of organisational attributes to fit a particular environment is believed to positively influence a company’s performance. With Burton et al.'s (2011) introduction of a complete set of component types, this model seems to hold the potential for the application to sustainability performance as well. Hence, it is utilized for this purpose in the following.

Atlas Copco's COP report is very informative. This data source alone addresses nine out of the fourteen major design components identified by Burton et al. (2011). Each of the design components has an X- and Y-dimension, which are assessed on a 1-5 (5=high) scale. However, this is depicted in Table 8 below. In this case, it is dependent on the information available in the sustainability report.

Component	X		Y	
<b>Goal</b>	Effectiveness	5	Effeciency	5
<b>Strategy</b>	Exploration	5	Exploitation	4
<b>Environment</b>	Unpredictability	5	Complexity	4
<b>Configuration</b>	Product/Service/Customer orientation	5	Functional orientation	3
<b>Geographic Distribution</b>	Locally Responsive	5	Optimal Sourcing	4
<b>Knowledge Exchange</b>	Virtualization	2	IT-infusion	4
<b>People</b>	Professionalization	4	Number of people	5
<b>Coordination and Control</b>	Decentralization	4	Formalization	5
<b>Information Systems</b>	Tacit nature of information	2	Amount of information	5

**Table 8** - Rating schema for 9 design component types (Burton and Obel, 2004) applied to the sustainability report

Atlas Copco is developing innovative products with a high level of energy efficiency, recycled material, and reduced emissions as key competitive features. In addition, it also develops products that are innovative by ensuring a sustainable production process. Hence, as depicted in table 8, Atlas Copco is assessed with a maximum score (5) on both *effectiveness* and *efficiency* for the *Goal* component, while demonstrating a unique capability of pursuing an ambitious sustainability agenda throughout their organization and beyond. The sustainability goals are supported by, and integrated into, a robust corporate *Strategy* with three horizons focused on: (a) a high level of *exploitation* in the first two horizons by defending the core business and building new businesses close to the core; and (b) a very high level of *exploration* in the third horizon by creating and developing new markets and businesses for their highly innovative and sustainable products.

The Atlas Copco balanced strategy of exploration and exploitation fits well with the corporation's description of their *Environment* as being with high *Complexity* and very high *Unpredictability*. This is due to a turbulent global economy and extremely low market predictability in the short term. As a result, Atlas Copco redesigned their *Configuration* significantly by introducing a new structure with business areas cutting across divisions and effectively moving the company from a divisional Configuration with a *Functional orientation* to a matrix configuration with a very high level of *Product/service/customer orientation*. The new structure provides better support for a *Geographic distribution* with a high level ability to be *Locally responsive*, with its numerous operations and production facilities around the world and more *Optimal sourcing*. They have a global reach that spans customers in the manufacturing process, mining, construction, and service sectors in over 170 countries. Their high-level configuration and geographic distribution also requires a high level ability for *Knowledge exchange*, but the assessment indicates a misfit, primarily due to a relatively low level of *Virtualization*.

Atlas Copco's sustainability report includes examples of knowledge outsourcing, training, and awareness initiatives in the value chain. It also includes a strategic statement on working "...with business partners to attract ideas and foster a culture of open innovation." Nevertheless, the magnitude and approach is not elaborated upon. The corporation recognises innovation as key in creating value and the dependency of *People* as a resource. This potential is quite significant with the case company's high level of *Professionalization* of a very large *Number of people* in the workforce.

Burton et al. (2011) considers the components *Coordination and control* and *Information systems* as constituting "...the infrastructure of the firm, that is, the underlying pathways for information sharing." They also consider the high level of *Decentralization* and very high level of *Formalization* in the form of policies, goals, certifications, and their extension to encompass business partners. Atlas Copco has a level of *Coordination and control* that requires a significant

need for information sharing. The *Amount of information* to be shared and handled is proportional to the case company's very ambitious sustainability agenda. However, *the tacit nature of information* at a low level indicates a possible misfit between the components *Coordination and Control* and *Information Systems*, which are often relationship-driven, when supporting open innovation cultures.

Many of the design components applied to Atlas Copco in Table 7 are rated with high scores on the scale for both the X- and Y-dimension, which Burton et al. (2011) would likely describe as an expression of ambidextrous behaviour by the organization. Furthermore, this ambidexterity is exemplified with Atlas Copco's *Value Chain Implementation* of sustainability. They apply a push-strategy (Harrison et al., 2003) and require the suppliers and other business partners to follow policies, guidelines, and codes-of-conduct. They also apply a pull-strategy and engage with their suppliers and business partners through knowledge outsourcing, training, awareness initiatives, and open innovation (Chesborough, 2003).

Even though the application of an Organisational Design perspective on Atlas Copco is limited in this article and the outcome cannot be generalized to the sample of corporations, it does provide an alternate analytical perspective for ". . . examining the structures and processes firms use" (Pelozo, 2009). However, Atlas Copco's sustainability report is exceptionally informative. Only a few of the sampled corporations report on a similar extent, which is a barrier for applying the perspective on the full sample of a corporation without additional data sources. The gaps between a corporation's sustainability practice and their reporting of it, the design of the reporting standards, and the consequence of all of this for research were all part of the following discussion.

### **3.5. Discussion and Conclusions**

The primary focus of the discussion will be the assessment and analysis of sustainability performance. However, there will be a secondary focus applied towards an evaluation of the UNGC standard as a framework for sustainability performance. The discussion will highlight the limitations of this study which will then be addressed. In addition, it will provide the context for a conclusion.

#### **3.5.1 Discussion**

The study found that corporations which choose to report on the Advanced Level demonstrate significantly higher levels of sustainability performance across all the cores sustainability issues, rather than those reporting on the Active Level. Before concluding on a possible causal connection between the level of reporting and sustainability performance, the difference in reporting requirements on each respective level should be considered in more detail.

Corporations reporting on the Advanced Level are required to report on all 24 criteria, but not on any specific associated best practices. Reporting on only 1 best practice per criterion is enough to achieve compliance. 3-7 best practices can be associated with each best practice, which converts to a performance range between 14.3% and 33.3%, to reach a compliance depending on the criterion. The performance level for corporations reporting on the Advanced Level is well above this range for the majority of the core issues. This finding supports the argument that the corporations reporting on the Advanced Level not only report for compliance. It also shows that there might be a causal connection between the level of reporting and the assessed sustainability performance. A cross-sectional study like this does not provide insights into the dynamics involved, whereas a longitudinal study could examine a corporation's transition from the Active Level to the Advanced Level or the reverse.

The Swedish and Finnish corporations were found to demonstrate higher performance averages across all sustainability issues, but most significantly, on the labour and environmental issues, respectively. The criteria for each issue reveal that the Danish and Norwegian corporations largely perform on par with their Swedish and Finnish counterparts on the criterion, *Strategies and Policies* across the issues. On the other hand, it displays different tendencies for performance on the remaining three criteria for each issue. Danish corporations seem to be somewhat challenged by the disclosure of the results, while they display a tendency to a lower performance on the *Key Outcomes* across the issues. Norwegian corporations seem to be seriously challenged by the implementation process, while they display a tendency towards a very low performance on *Monitoring and Evaluation Mechanisms* across the issues, especially for human rights and labour.

The Swedish and Finnish corporations interchangeably demonstrate higher performance levels on most criteria across all issues. Therefore, given that the maximum performance on each criterion is 100%, no single Scandinavian country can be viewed as a top performer under the UNGC framework. This does not exclude that some individual corporations achieve performance levels around 100%. Therefore, on a country level, the performance data points to a general lack of compliance by the Scandinavian corporations. This is when using the best practices suggested by the UNGC.

Compared to the core sustainability issues, the performance averages on *Value Chain Implementation* were higher across the Scandinavian countries. However, each practice was also phrased in much more generic terms, and not for any specific issue which makes it easier for the corporations to comply with. The average was significantly lower for the best practice *Analysis of sustainability risk, opportunity and impact in the value chain, both upstream and downstream*, especially for the Danish corporations. This is based on the fact that they only assessed a

sustainability performance of 14%. However, before concluding on the performance data on the issues, the underlying distribution of compliance with best practices and their role in the framework must be discussed.

The primary focus of the analysis was on the performance on the criteria. Hence, it does not provide a full account of the compliance with the 3-7 best practices associated with each of the 16 criteria for the core sustainability issues and the criterion for the *Value Chain implementation*. It is important to note that each best practice accounts for the same share of the performance on the criterion. Therefore, this was despite any differences concerning the difficulty for the corporation in reaching compliance and how important compliance with this practice is, overall. The differences in compliance with best practice are occurring even more frequently and significantly, when compared across countries. None of the Norwegian corporations comply with the two specific best practices associated with the criterion *Monitoring and evaluations mechanisms* for human rights. This explicitly exemplifies these differences, when compared to the significantly better performance by the Scandinavian counterparts.

The total absence of compliance with best practices for some criteria by corporations also points to the observed general all-or-nothing tendency. All-or-nothing is roughly perceived as either the corporations do not comply at all or they comply with all of the best practices. This essentially means that if the data for the fewer high performing corporations was not included in this study, then the average performance across issues would be even less impressive. This provides plenty of reasons to discuss the structure and design of the UNGC framework.

The 2010 introduction of the framework with the Advanced Level reporting might be viewed as an initiative by the UNGC to lower the critical voices. The overall structure of the Advanced Level does provide a rather logic and comprehensible overview of the reporting of sustainability performance by corporations. Furthermore, the underlying layer of best practices provides significant explanatory power. However, the way the UNGC determines performance through compliance with best practices is not without implications. The best practices are all weighed equally in the determination of an overall assessment score, whereas differentiated weighing is a key feature in other assessment frameworks (e.g. in the domain of quality management).

This principal indifference, or lack of recognition, also seems to be present in achieving compliance. Thus, this leaves corporations to comply with more than one best practice per criterion, without proper recognition for their efforts. The majority of the best practices have been developed on the basis of official UN conventions and supporting documents, which infuses the best practices with some legitimacy. The origin of the best practices cannot be considered as transparent, even though they seemingly are designed to be universal. As such, the application of them across

countries, industries, company sizes, and other variables seems troublesome.

The discussion of the assessed sustainability performance and the UNGC framework is important, but it is even more important when viewed from the perspective of the introduced theoretical framework. By recollecting the operationalization hereof, the UNGC best practices were primarily identified as *CSP metrics*. Whereas, the quantitative GRI performance indicators were primarily identified as *Mediating metrics* in Pelozo's (2009) stage model. The trial assessment and analysis reduced the role of the GRI in this study to the very relative integration of a few GRI indicators in the UNGC framework. Thus, this framework does not support the ambition of this study to examine the relationship between the two types of metrics. The study does highlight that a meaningful examination of this relationship would require a larger and even more selective sampling of corporations, reporting on specific GRI indicators, and calculating the metrics in a comparable manner.

In contrast, the use of the UNGC framework and content analysis has generated a significant amount of comparable quantitative data, which, despite the relative low average sustainability performances and the questioned validity of the framework, seems quite informative. The question is informative on what, since the UNGC best practices in Pelozo's (2009) model can be reduced to CSP metrics and mainly to strategic components in the Epstein & Roy Framework.

This study's overall Top 3 corporations: Atlas Copco, Novo Nordisk and Novozymes, are also highly successful corporations measured on the more classic financial performance indicators. As intriguing as it is, a pattern in such a small sample holds no evidence for a significant relationship. Although not generalizable, the alternate analysis of Atlas Copco in an Organisational Design perspective does indicate that an ambidextrous approach to sustainability can lead to superior performance and capitalisation on sustainability. Compared to the solely principle-based UNGC Active Level, the Advanced Level is vastly more strategically oriented and does a much better job interpreting the performance of the implementation of the UNGC principles for the four core sustainability issues. However, the UNGC framework does not appear to be well aligned to recognise the models of sustainability performance, including the financial bottom-line.

### **3.5.2 Limitations**

The discussion highlights that the structure of the UNGC Advanced Level reporting constitutes a significant key limitation of this study. Therefore, this influences how the assessed sustainability performance should be perceived. The equal weights on seemingly very different best practices is especially problematic and can only be countered, to a limited extent in this article, through the account of the distribution of the compliance with best practices on noteworthy anomalies in the

assessed sustainability performance. These limitations are not lessened by the cross-sectional nature of this study, which only provides a snapshot of the performance in a given year.

The very different formats of the selected sustainability reports are a limitation. Some reports were short, but referenced other relevant documents and/or online resources. The study addressed this limitation by extending the data collection process to include these additional materials. That being said, what to include and what constitutes a sustainability report is a highly subjective matter that is prone to be contested.

As indicated in the methodology section, there is selection bias in the sustainability reports. This is because of the purposeful selection of corporations that demonstrate engagement in sustainability. The small sample size, and the over representation of Danish corporations in the sample, limits the generalisability of the results. The small sample size also led to abstaining from collecting GRI data for the full sample of the corporations, which naturally limits the explanatory power of the study and limits the potential conclusions.

### **3.5.3 Conclusions**

Given the discussion and limitations of this study, a single firm conclusion can be made: Scandinavian corporations are, on average, not performing at the higher levels concerning their implementation of the four core sustainability issues promoted by the UNGC. This is the case when the corporation's sustainability reports are assessed with the UNGC framework for Advanced Level reporting. A few Scandinavian corporations demonstrate superior, or close to superior, sustainability performance across all issues. In this framework, it ranges between an average performance of 90% and 100%. This demonstrates that these performance levels are within reach. However, the range of top performing corporations is so limited on most issues, that they, in a statistical view, could be considered anomalies or outliers. As such, if they were removed from the dataset, it would lower the average performance to significantly lower levels.

The already lower levels of performance are especially apparent for the Human Rights, Labour, and Anti-Corruption issues. The Environment issue also does not rise above the 50% threshold in performance. The major differences in the performance are identified across the four criteria for each of the four core issues. Most notably, there is a tendency across issues to a drop in performance from the *Strategy and Policy* criterion to the *Management systems* criterion, and an even greater drop to the *Monitoring and evaluation mechanisms* criterion. The drop is most significant for the Human Rights issue. This is followed closely by the Labour and Anti-corruption issues with similar low levels of performance on systems and mechanisms.

The assessed sustainability performance does not suggest that a low level of performance on these criteria necessarily leads to a similar low performance on *Key Outcomes*, which is somewhat

unexpectedly higher than the criteria for systems and mechanisms for all issues, except Human Rights. Hence, when considering the average sustainability-reporting performance by Scandinavian corporations, it can be concluded that they generally do not report on action taken on the implementations of systems and mechanisms to the extent that they report on their strategies and policies.

The conclusions on the sustainability performance by Scandinavian corporations are based on the premise of the UNGC Advanced Level as a valid framework for evaluating the sustainability performance. However, as the methodology section indicates, and the discussion highlights, these conclusions must be viewed with a critical perspective, due to the problematic structure of the UNGC framework and its lack of alignment with other more acknowledged models for Sustainability Performance.

Nevertheless, it can also be concluded that the UNGC Advanced Level framework is an improvement over the principle-based Active Level. Furthermore, the analysis of the average sustainability performance differentiated on the Active Level and Advanced Level indicates that the choice of reporting on the Advanced Level might lead to a sustainability performance that is significantly above the level required for compliance.

### **3.5.4 Managerial and Institutional Implications**

This study provides a number of insights for managers and others engaged in, or considering, a corporate sustainability practice involving reporting to multi-stakeholder standards, like the UNGC or the GRI. Managers in corporations already reporting on the UNGC Advanced Level can use the assessed Sustainability Performance data to benchmark the performance of their corporation in ways that are currently not facilitated as part of the governance of the UNGC as standard. Furthermore, these managers can use the assessed sustainability performance to identify the clusters of best practices that seem to influence the performance on the issues critical to their corporation.

Potential, new or UNGC Active Level signatories can use the assessed sustainability performance in setting the direction of their work on implementing the ten UNGC principles in their corporation and value chain, which can be a daunting challenge. This study might even inspire some of these managers to skip the Active Level and engage with the Advanced Level head-on. After all, compliance with this level is within reach for even currently less advanced corporations. In addition, the findings in this study do indicate that this choice might lead to a performance that is significantly beyond the compliance level. However, the critical voices raised and the application of the perspective of sustainability performance models with a financial dimension in this article, hopefully also leverages a motivation among practitioners for integrating the sustainability practice and reporting with the existing performance practices.

The institutional implications of this study can be considered on multiple levels. These levels range from the individual Scandinavian country to the UNGC Nordic Network, and eventually, the governance structures of the UNGC standard. From a Danish perspective, the study provides contextual information for recent policy developments and regulations on sustainability and CSR reporting.

First and foremost, the study reveals that Danish corporations, in general, are not frontrunners on sustainability when assessed by the UNGC standard. Denmark has made an explicit commitment to sustainability by reference to the UNGC standard in laws and policy. It may go beyond encouragement to the use of the GRI, as is done in Sweden and Finland, where publicly listed corporations are required to write reports using GRI guidelines. Since many GRI indicators overlap with the UNGC best practices, such an initiative might increase the UNGC performance as well. This was indicated by the consistently higher average performance levels by the Swedish and Finnish corporations. The assessed sustainability performance might also inform the strategy of the UNGC Nordic Network, which, given the consistently low performance on the *Monitoring and Evaluation Mechanisms* across the Scandinavian countries, could be considered a priority.

The implications concerning the global governance of the UNGC involves serious consideration on the future of the Advanced Level of reporting and the Differentiation Programme, which this author considers essential for the future legitimacy of the UNGC. The structure of the UNGC Advanced Level could benefit significantly from the introduction of mechanisms, like the weighing of the criteria and best practices. Thus, this would reward more pro-active and committed UNGC signatories. Consequently, such a differentiation would be very resource demanding to establish and even more demanding to continuously improve and enforce.

### **3.5.5 Contributions and Recommendations for Further Research**

The stated implications frames the contributions to practice. However, this study also contributes to the literature on sustainability performance, reporting, and standards. To the knowledge of this author, no academic literature has previously empirically treated the UNGC Advanced Level. Business studies examining multiple sustainability issues across countries and other variables are rarities. The theoretical and methodological approach in this study is simple. The potential contribution would be more significant if business researchers from different domains and with different methodological skills would devote pro-active research time to this topic.

Several perspectives need to be addressed in such further research, starting with an increase in the scope of the research, which should include a larger sample of Scandinavian corporations. It should also conduct comparative studies with other countries or regions. This would increase the likelihood of selecting a sufficient sample of corporations reporting coherently on both the UNGC

and the GRI measures. It would also allow research into the UNGC/GRI performance in relation to external variables (e.g. local policy, regulation, and culture). Longitudinal studies would be preferable to cross-sectional studies, but it would increase the amount of data material to be processed. Hence, other research methods must be considered using more automated and sophisticated content analysis methodology like the CRA (Corman et al., 2002; Lee & James 2007) using Crawdad software. Such a scope and such approaches would effectively address the limitations bound to this study and validate the performance data. This would leverage new opportunities, like post-processing with a statistical analysis. Paradoxically, the performance data resulting from the current structure of the UNGC framework lends itself quite well to this kind of post-processing. However, an in-depth analysis using more qualitative research methods should also be encouraged. This is because many dynamics and relationships concerning the gap between sustainability reporting and performance remain to be explored further. In addition, it could potentially qualify the quantitative research.

## **Chapter 4: Current Deficiencies and Paths for Future Improvements**

# in Corporate Sustainability Reporting<sup>10</sup>

Thomas Kjaergaard <sup>1</sup>, Martin C. Schleper <sup>2\*</sup>, Christoph G. Schmidt <sup>2</sup>

<sup>1</sup> Aarhus University, Interdisciplinary Centre for Organisational Architecture (ICOA), Fuglsangs Allé 20, 8210 Aarhus V, Denmark

<sup>2</sup> EBS University for Business and Law, Institute for Supply Chain Management – Procurement and Logistics (ISCM), Burgstraße 5, 65375 Oestrich-Winkel, Germany

\* Corresponding Author: Martin.Schleper@ebs.edu; Phone No: +49 611 7102 2104

**Abstract:** Current International Accountability Standards for sustainability reporting, such as the United Nations Global Compact and the Global Reporting Initiative, are subject to criticism from researchers and practitioners. Through interviews with key persons from audit firms and a systematic literature review, we identify major deficiencies in current corporate sustainability reporting practices. Based on these findings, we derive five propositions that address the need for future improvements. More specifically, we propose that a dynamic standard for corporate sustainability reporting must capture a firm's longitudinal learning and the development of intra- and inter-organisational sustainability capabilities by integrating them as leading indicators. We conclude the article with an outlook on future paths for an improved sustainability reporting framework, focusing on intra- and inter-organisational capabilities and best practices, which are proposed to have an impact on sustainability performance along the entire supply chain.

**Keywords:** Sustainability reporting, Best practices, Sustainability capabilities, Supply chain, International accountability standards

## 4.1 Introduction

Corporate efforts in assuring sustainability activities have increased continuously over the last few decades. In 2013, over 90% of the top 250 organizations listed on the Fortune Global 500 ranking used a sustainability report to display their sustainability undertakings (KPMG, 2013). At the same

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time, the field of sustainability reporting has undergone a significant consolidation from which some major International Accountability Standards (IAS) has emerged. Among these reporting frameworks are the United Nations Global Compact (UNGC), the Global Reporting Initiative (GRI), the AccountAbility 1000 (AA1000), and the Social Accountability 8000 (SA8000). Nonetheless, the trend towards increasing reporting practices has not implicitly caused more excellence in every aspect. Despite the positive effect of firm's awareness of the need to strive for sustainability and the assurance of these activities by third parties, there is still a call for improvements in IAS from the scholarly research and practice. In particular, two major areas for improvement in IAS can be identified: (a) the supply chain focus and (b) the use of capability-based leading indicators.

First, a wider integration of activities and factors lying beyond the direct impact of the corporation is needed. In its 2013 annual review, the World Business Council for Sustainable Development (WBCSD) pointed to this improvement gap and called for organizations to provide evidence to demonstrate that they are engaging with suppliers and customers to address the material risks and opportunities identified along the supply chain (WBCSD, 2013). This is in line with the fourth generation of the GRI guidelines (GRI4) for sustainability reporting, which emphasize the requirement to focus on supply chain aspects. The GRI4 guidelines also present an extended set of indicators for supply chain reporting, as compared to previous GRI guidelines. Since the GRI4 has only recently been issued, corporation adoption is still very low. Even so, these new reporting structures are bound to influence corporate reporting practice and corporation management of their future sustainability practices.

Second, a move away from lagging indicators towards a more capability-based view referring to leading indicators was called for (Peloza, 2009). Although achieving corporate sustainability is often a time intensive learning process (Kaptein & Wempe, 1998) that requires organisational capabilities, this learning perspective is mostly neglected when it comes to sustainability performance and the reporting of its indicators. Consequently, corporations who are engaged in sustainability reporting primarily collect and disclose data for lagging indicators. The "work related injury rate" from the GRI framework, for example, shows only factual past performance. However, it does not inform corporate management and stakeholders on the actual capabilities in this regard. On the contrary, practices like a written company policy on labor, risk, and impact assessments in the area of labor from the UNGC framework can be perceived as leading indicators. These indicators potentially represent capabilities which are essential for corporate decision-making and the advancement of sustainability performance. Furthermore, focusing on leading indicators and

capabilities enhances transparency within the reporting processes. Also, stakeholders will get an improved understanding of the sources for sustainability performance.

In contrast to the less successful attempts to design IAS analogously with financial reporting (Etzion & Ferraro, 2010), relying mostly on lagging indicators, this article<sup>11</sup> follows the direction of proposing a learning and capability focused framework for sustainability reporting in building on best practices for sustainability performance. Consequently, by actively embracing an inter-organisational supply chain perspective within the context of sustainability reporting practices, we not only provide a remedy for the WBCSD gap mentioned previously, but also pave the way for a reporting framework that accounts for environmental and social performance along the entire supply chain. From this perspective, entangling supply chain management with sustainability reporting allows for a new interpretation of both. Sustainability reporting should be considered as a management instrument of the sustainable supply chain management and no longer as a mere reporting of past performance.

However, the rest of this paper is structured as follows. In the next section, we briefly describe the applied research process, followed by our findings, which result in the presentation of five propositions. Simultaneously, we focus on identifying the best practices for sustainability reporting. In addition, the final sections provide a future outlook on the application of this new framework, further research, and conclude on this research note.

## **4.2 Research Process**

In order to leverage the purposes described previously, a research process with two major steps was applied. The first part of our research focuses on interviews with key informants from auditing firms. The second part of our study provides a literature review of supply chain related best practices with a positive effect on sustainability performance.

In order to gain a broader insight into corporate practice regarding the identification of deficiencies in the current reporting practices, we chose to interview senior consultants who specialized in sustainability reporting from three of the “Big Four” auditing firms. Thus, this choice was particularly motivated by two reasons. First, senior consultants in the area of sustainability assurance and auditing are, by definition, well-informed on current developments in the area of sustainability reporting and they possess extensive expertise and experience in that area. Second, these key informants advise their clients in the IAS implementation processes. In addition, their

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audit firms are consulted on, or directly involved in, the development of both multi-stakeholder standards and industry-specific standards. The three semi-structured interviews followed the same standardized approach. An interview guide was developed with a series of standard questions based on relevant topics. The answers in one interview led to additional questions in the following interview. In addition, the interviewers had the freedom to pose ad hoc questions during the interviews. Therefore, the key findings framed our approach to focus on the best sustainability practices.

It also served as input to further the research process, which was undertaken as a literature review of scholarly articles published in the years of 2005 through 2015. The sampling process was based on a keyword search in the Science Direct and EBSCO databases, searching for articles that included combinations of keywords (e.g. “drivers”, “antecedents”, “practices”, or “factors” and variations and synonyms of “supply chain performance”). From the initial set of relevant articles, we removed those published in journals with a rating below 0.3, according to the “Handelsblatt Ranking BWL 2012.” Thus, we then screened the remaining papers and excluded articles that had titles that did not fit our research purposes. Subsequently, we eliminated articles with abstracts that did not match our goals. The final set consisted of 38 scientific articles, which were independently analysed by two researchers. Their goal was to identify the potential supply chain related best practices. The identified best practices were discussed, clustered, and aggregated.

### **4.3 Findings**

In this section, we describe the detailed results of our research process. We accomplished this by providing a summary and overview of the findings from the key informant interviews (Table 1). These new insights are then linked to current IAS and the reporting literature.

A set of five propositions addressed the identified deficiencies and paved the road for a revised and improved framework for corporate sustainability reporting, according to IAS, thereby integrating a broader supply chain context. As we particularly emphasize the capability-oriented logic as the most interesting and important characteristic of the proposed framework, which influences all other design issues, we extract the best practices for sustainability performance from the academic literature (Table 2) in the second part of our results section.

#### **4.3.1 Insights from Auditing Firms on IAS and Client Adoption**

In the following section, we outline the results of the interviews conducted with the key sustainability professionals of three German branches of the "Big Four" global auditing firms. Table 1 illustrates the interviewees' quotes for each of the topics raised during the interviews. In the

subsequent section, these different issues were analysed to provide a basis for developing the propositions towards a framework.

As a first perspective, we address the process of IAS adoption, which includes the view on how the interviewees and their clients perceive and use these standards. All sustainability audit professionals (SAPs) stated that most of their major clients use Version 3.0, 3.2 or 4 of the GRI guidelines, which they all assess to be the most adopted IAS among their clients. Two of the SAPs stated that the UNGC was widely followed among their clients, whereas SAP<sub>2</sub> indicated a lower adoption rate for the UNGC.

Although the IAS adoption rate already indicates the extent to which corporate sustainability reporting is present in practice throughout the different industries, a determination of the quality of the reporting practice requires supplementary information in regard to how corporations perceive, prioritize, and apply IAS. Consequently, SAP<sub>1</sub> stated that reporting, according to the UNGC, is a “side product” of GRI reporting. It disregards the UNGC Advanced Level as generally not being the key focus of reporting for organizations. Even more, SAP<sub>3</sub> suggested that the UNGC Advanced Level only suits a few publicly listed large companies, implying that most UNGC adopters report on the principle-based Active Level.

SAP<sub>2</sub> elaborated on the complexity and intangibility of the UNGC, as reasons for the lower adoption rate among their clients. In general, the SAPs consider the GRI as more tangible, but at the same time, as a very comprehensive, resource demanding, and not unproblematic tool in terms of comparability and interpretation. This is particularly true for the GRI A+ application level, which is the highest reporting level in the GRI guidelines. Furthermore, it is also the main target level of many major clients in SAP<sub>1</sub>'s audit firm. On the contrary, a smaller group of clients consider it to be less important to cover all of the indicators required to receive the A+ application level. Rather, they focus on indicators that are usually more material for stakeholders, according to SAP<sub>1</sub>. This trend towards materiality is also embedded in GRI 4, which incorporates a definition of materiality that is central to the framework for integrated reporting developed by the International Integrated Reporting Council (IIRC).

Additionally, SAP<sub>1</sub> recognised GRI 4 as a move away from the traditional ABC levels and suggested that an increased materiality focus might lead to more accurate and differentiated reporting which is based on the actual stakeholder interests. SAP<sub>1</sub> further predicted that supply chain sustainability would increasingly become a highly important topic that organisations will need to report on.

<b>Adoption of IAS</b>	<p>“I would say that most of the clients, maybe over 90%, follow the GRI. A huge number of clients also follow the UN Global Compact” (SAP<sub>3</sub>).</p> <p>“The UN Global Compact is not so much an issue of our clients” (SAP<sub>2</sub>).</p>
<b>Global Reporting Initiative</b>	<p>“So the GRI A+ is an ambition level for many clients, while I have a few clients where this A level ambition is not the focus and it is more about materiality” (SAP<sub>1</sub>).</p> <p>“If we look at the GRI as a multi-stakeholder standard, the most challenging part is that of the reporting boundaries; how to define what is the scope of reporting, what should be included” (SAP<sub>3</sub>).</p>
<b>UN Global Compact</b>	<p>“The UN Global Compact reporting ... is a side product of the overall GRI reporting process. It takes quite a lot of resources to collect all the information for GRI” (SAP<sub>1</sub>).</p> <p>“The UN Global Compact is not as tangible as the GRI. It’s more like a global framework ... it’s too complex for them and ... doesn’t offer them the benefit that they need, either for their internal sustainability management, or for the external position” (SAP<sub>2</sub>).</p>
<b>Supply Chain Focus</b>	<p>“Supply chain sustainability is increasingly a topic for sustainability reports with a more materiality focus, in GRI 4, for example, that will shift the focus to supply chains even more” (SAP<sub>1</sub>).</p> <p>“This is the key challenge, I would say, to get the information from the complete supply chain, and with this, it is difficult to say that the data and the information is accurate within the sustainability report” (SAP<sub>3</sub>).</p>
<b>Performance Measures &amp; Indicators</b>	<p>“The energy consumption is lower compared to the prior year, but it depends on different factors; so it is not always that clear whether the reporting standards help to identify the right things or is used to measure the progress in the right way” (SAP<sub>3</sub>).</p> <p>“Companies put a lot of effort into collecting data and publishing these to get the A+ label. I think this is a misallocation of resources...you could talk about a counterproductive or misleading role of reporting” (SAP<sub>1</sub>).</p>

**Table 1-** *Quotes from interviews with audit firm sustainability professionals*

During the interview with SAP<sub>1</sub>, the interviewee informed the interviewers that the GRI 4 aims to better address upstream supply chain tiers and that the GRI currently consider some preparatory steps towards the higher tiers. Although a supply chain perspective is not completely absent in previous GRI guidelines, and despite the fact that supply chain related indicators can also be found in the UNGC Advanced Level, the progress towards greater specificity for more upstream tiers in GRI 4 can be considered a significant advancement which can provide stakeholders with new informative insights. GRI addresses the information gap mentioned by SAP<sub>1</sub>.

According to SAP<sub>1</sub>, supply chain reporting can be framed as the reporting of company or product performance emerging between several business partners. The interviewee further indicates that this kind of reporting will rarely be conducted by using multi-stakeholder standards, such as the GRI or the UNGC. Rather, it is a matter of assessing suppliers’ sustainability performance based on a set of criteria defined by customers, according to SAP<sub>1</sub>.

However, reporting to company-specific criteria is highly challenging for suppliers that usually supply multiple focal companies. For this reason, SAP<sub>1</sub>’s audit firm works towards the more industry-wide applicability of reporting practices.

SAP<sub>2</sub>'s audit firm mainly represents clients in the mid-market that are often suppliers to focal companies. This individual stated that her clients generally adapt to the industry's specific standards, because stakeholders often require it. Consequently, identifying the standards relevant for clients and determining their importance for stakeholders remains a big challenge for SAP<sub>2</sub>'s firm. As a remedy, SAP<sub>2</sub> said that this problem could be addressed with a standard that is specific to a particular industry and, at the same time, compatible with the most relevant of the other industry-specific standards. However, such an initiative will still be challenged by the fact that most of the clients only acknowledge a need to address tier 1 of their supply chain. Thus, they do not recognise their responsibility for actions, including more distinct suppliers.

With regard to the potential benefits of integrating supply chain perspectives into reporting, SAP<sub>3</sub> commented that although the guidelines, codes of conduct, and other monitoring and governance mechanisms might reduce reputation and quality risks, these issues remain difficult to measure and value for organizations. More directly, SAP<sub>1</sub> questioned whether measuring supply chain indicators is relevant and feasible at all, adding that if this were the case, the measurement would need to encompass a longer time horizon to capture the long-term effects.

#### **4.3.2 Towards an Improved Framework for Sustainability Reporting**

The interviewees indicated that although IAS, the GRI, and the UNGC illustrate high adoption rates among the firms, the GRI is clearly the IAS priority in corporate reporting practices. That being said, the actual degree of the corporate implementation of IAS seems to vary significantly.

Despite the positive aspect of their diffusion, there is still a need for the integration of an extended supply chain perspective across IAS (e.g. the GRI and the UNGC). Consequently, scholars have stressed the need "to look outside an organization's boundaries" when it comes to sustainability performance (Meehan & Bryde, 2011, p. 95). Moreover, stakeholders have developed a distinctive awareness of these issues.

Today, firms such as Nike, Apple, and BP are often held liable for their supply chain partners when it comes to environmental and social incidents (Hartmann & Moeller, 2014). Consequently, companies like Microsoft have started to actively embrace external partners in their supply chains by requiring annual sustainability reports.

On this background, we suggest our first proposition for the future improvements of IAS frameworks:

P<sub>1</sub>: A dynamic standard for corporate sustainability reporting must require accounts for sustainability issues, both within the boundaries of the corporation, and in the corporate supply chain.

Moreover, an increasing trend towards defining materiality within sustainability reporting practices was identified in conformance with the debates in the academic literature. Materiality is a fundamental concept stemming from modern accounting (Messier Jr. et al., 2005). Due to the increased call from practice and scholars, materiality has diffused into the field of sustainability, where it gains relevance continuously. Nonetheless, many scholars point out a lack of materiality considerations within sustainability reporting and a high potential to develop the field further, in this regard (Kanzer, 2010).

Although the materiality concept is well-known and called for within IAS and the reporting literature, we adopt this critical aspect. Hence, we propose:

- P<sub>2</sub>: A dynamic standard for corporate sustainability reporting must integrate the concept of materiality, accounting for whether the reported information concerns core business activities within the supply chain that are material to the society, the corporation, or both, in an integrative manner.

Labeling the UNGC as complex and not tangible is reflected in the IAS-related literature, where some of the criticism focuses on the lack of precision (Bigge, 2004; Nolan, 2005) in the description of UNGC principles and their generality (Deva, 2006). However, these issues may make the UNGC difficult for organizations to understand and apply. The GRI is perceived as more tangible, but it is also more comprehensive and resource demanding. Despite the large number of quantitative indicators, sustainability reports following the GRI guidelines are considered to be incomparable to each other. This last point of critique is present in the scholarly literature (Dingwerth & Eichinger, 2010; Levy et al., 2010).

The overall lack of comparability weakens the UNGC and GRI as potential frameworks for measuring and reporting sustainability performance. This is especially problematic, as the concept of comparability is central for standards, in general, and for the IAS, in particular. Part of the problem (and the solution) dealt with during the interviews, questions the value of the quantitative indicators if information about the factors influencing the annual decrease or increase is not reported on in a comparable and uniform way. For instance, the increase or decrease of a company's energy consumption rate is influenced by external factors (e.g. weather or demand) and its sustainability activities. Hence, certain aspects within sustainability reporting and the measurement of sustainable performance require a differentiated view. These important issues are only scarcely discussed topics in the IAS literature, but they have been known and debated upon in the accounting literature for decades under the concepts of "leading and lagging indicators."

Epstein and Roy (2001) described the common understanding of leading indicators as inputs or process indicators that connect more closely to operations. Hence, to link the corporate activities with corporate strategic objectives, sustainability performance measures “must include leading indicators that give insight into the organization’s ability to improve its competitive position in the future and are predictors of future performance” (Epstein & Roy, 2001, p. 600). Therefore, this idea is in line with Pelozo (2009, p. 1522), who identifies leading and lagging indicators as mediating metrics which are “those that capture the ‘mediating variable’ that generates business value,” as opposed to intermediate or end state outcome metrics. Both leading and lagging indicators can be of a quantitative nature, but the important point is that considering a leading indicator as an *organisational ability* means that it is most often a composite of a number of complementary corporate practices: best practices for sustainability performance.

Paradoxically, in 2010, the UNGC introduced the *Differentiation Programme* with an Advanced Level for reporting. This reporting is, however, based on corporate adherence to 100+ best practices which allows for benchmarking and comparability on the implementation of the UNGC principles, both within the boundaries of the corporation, and to some extent in the corporate supply chain. However, the adoption rate of this Advanced Level is relatively low, as it comprises of a number of conceptual weaknesses. These weaknesses make the Advanced Level potentially subject to criticism, although its existence has been relatively undetected in the IAS literature, which perceives the UNGC still as a solely principle-based IAS.

Nevertheless, it is worth noticing that the best practices described in this framework do not differ much across the UNGC issues: Labor, Human Rights, Environment, and Anti-Corruption. This feature makes it interesting, per se, to take a closer look, particularly against the background of a need for a cross-industry standard, as identified in the interviews. In other words, while some lagging indicators for sustainability performance will be more material in some industries than others, the best practices, as leading indicators, will differ less across the industries and be less subject to individual firms’ or industries’ materiality concerns.

Taking buyer-supplier collaboration as a best practice to increase the sustainability performance along the supply chain, the following example is presented to illustrate the advantage of the capability approaches. Furthermore, the general characteristics of a focal company’s collaboration with its suppliers on a certain environmental issue like, for instance, the reduction of CO<sub>2</sub>-emissions, will not differ much from the general characteristics of another company’s collaboration with a focus on labor issues, such as working hours. However, the mere numbers of CO<sub>2</sub>-emissions and the amount of working hours of employees are, in this case, lagging indicators measured in very different ways. Traditional reporting practices publish the numbers and leave the stakeholders alone in interpreting it. This holds true in situations where companies from different

industries report on the same lagging indicators. It is self-evident that an IT provider will have lower numbers of CO<sub>2</sub>-emissions than a coal power station. But where is the line between the sustainable or unsustainable performance drawn?

Thus, this leads us to propose that a standard for supply chains should be based on the best practices as factors that describe organizations' capabilities for sustainability. Such a standard could overarch the various industries and supplement the industry standards, which use specific quantitative measures for the lagging indicators. Thus, we postulate the following two propositions:

P<sub>3</sub>: A dynamic standard for corporate sustainability reporting must allow for industry-specific indicators, as well as cross-industry applicability.

P<sub>4</sub>: A dynamic standard for corporate sustainability reporting must capture a firm's longitudinal learning and the development of intra- and inter-organisational sustainability capabilities by integrating them as leading indicators.

In the following, we focus on this last proposition as the capability approach, which are the most important aspect and the most promising as compared to the deficiencies of the current IAS.

### 4.3.3 Best Practices for Improving Sustainability Performance

Building on a systematic account of the scholarly literature in the area of sustainable supply chain management, we are able to identify and aggregate several practices driving the sustainability performance along the supply chain. Following the study of Beske et al. (2014), who found the best practices to resemble a firm's capabilities, we consider the extracted practices to provide a first step towards an improved sustainability reporting framework. Thus, this framework focuses on firms' intra- and inter-organisational capabilities in enabling sustainability performance.

Best Practices	Topic Examples
<b>Assessment and measurement of the sustainability impact in the corporate supply chain</b>	<ul style="list-style-type: none"> <li>▪ Carbon management across supply chain (Gopalakrishnan et al., 2012)</li> <li>▪ Remediation projects (Gavronski et al., 2012)</li> <li>▪ Internal performance evaluation system (Zhu et al., 2013)</li> </ul>
<b>Stakeholder consultations on sustainability issues</b>	<ul style="list-style-type: none"> <li>▪ Communicating proactively with stakeholders (Carter &amp; Easton, 2011)</li> <li>▪ Stakeholder communication (Beske et al., 2014)</li> <li>▪ Stakeholder management (Pagell &amp; Wu, 2009)</li> </ul>

<b>Analysis of sustainability risks and opportunities in the supply chain</b>	<ul style="list-style-type: none"> <li>▪ Risk management in sustainable supply chain management (Foerstl et al., 2010; Hofmann et al., 2013; Klassen &amp; Vereecke, 2012)</li> <li>▪ Monitoring (Koplin et al., 2007)</li> <li>▪ Pressure group management (Seuring &amp; Müller, 2008)</li> </ul>
<b>Internal coordination and communication concerning sustainability issues</b>	<ul style="list-style-type: none"> <li>▪ Department ensuring social, economic, and environmental considerations (Gopalakrishnan et al., 2012)</li> <li>▪ Being “part of the mission” (Pagell &amp; Wu, 2009)</li> <li>▪ Senior-/top-management involvement (Seuring &amp; Müller, 2008)</li> <li>▪ Sustainability rooted in organisational culture (Gopalakrishnan et al., 2012; Carter &amp; Easton, 2011; Beske &amp; Seuring, 2014)</li> <li>▪ Management support (Zhu et al., 2008; 2013)</li> <li>▪ Generate environmental reports for internal evaluation (Zhu et al., 2008; 2013)</li> <li>▪ Cross-functional cooperation for environmental improvements (Zhu et al., 2008; 2013)</li> <li>▪ Special training for work environmental issues (Zhu et al., 2008; 2013)</li> </ul>
<b>External communication and capacity building concerning sustainability issues to suppliers and other business partners</b>	<ul style="list-style-type: none"> <li>▪ Enhanced communication (Beske &amp; Seuring, 2014)</li> <li>▪ Supplier development (Seuring &amp; Müller, 2008)</li> <li>▪ Transparency (Seuring &amp; Müller, 2008)</li> <li>▪ Long-term and close relationships (Seuring &amp; Müller, 2008; Mollenkopf et al., 2010)</li> </ul>
<b>Development of policies and targets for sustainability in the supply chain</b>	<ul style="list-style-type: none"> <li>▪ Key performance indicators (KPIs) of sustainability initiatives (Gopalakrishnan et al., 2012)</li> <li>▪ Policy statement (Large &amp; Gimenez Thomsen, 2011)</li> <li>▪ (Supplier) code of conduct (Jiang, 2009; Schleper &amp; Busse, 2013)</li> </ul>
<b>Integration of the sustainability issues in processes for the selection and evaluation of suppliers and other business partners</b>	<ul style="list-style-type: none"> <li>▪ Supplier management and integration of supply chain (Gopalakrishnan et al., 2012)</li> <li>▪ Sustainability in supply chain partner selection (Gold et al., 2010; Beske &amp; Seuring, 2014; Pagell &amp; Wu, 2009)</li> <li>▪ Green purchasing (Zhu et al., 2008; 2013)</li> <li>▪ Supplier monitoring (Klassen &amp; Vereecke, 2012)</li> </ul>
<b>Engagement in sustainability-oriented collaboration with suppliers and other business partners</b>	<ul style="list-style-type: none"> <li>▪ Collaboration to enhance sustainability performance (Vachon &amp; Klassen, 2008; Sarkis et al., 2011)</li> <li>▪ Joint development (Beske &amp; Seuring, 2014)</li> <li>▪ Common IT interfaces and database structures (Srivastava, 2007)</li> <li>▪ Information sharing with supply chain partners and external stakeholders (Srivastava, 2007; Seuring &amp; Müller, 2008; Carter &amp; Easton, 2011)</li> <li>▪ Cooperation (Zhang &amp; Wang, 2014; Zhu et al., 2008; 2013)</li> </ul>
<b>Innovation of sustainable products, services and processes, which are technologically new or significantly technologically improved</b>	<ul style="list-style-type: none"> <li>▪ Sustainability-related innovation (Beske &amp; Seuring, 2014)</li> <li>▪ Adaptation of products and processes (Gavronski et al., 2012)</li> <li>▪ Eco-Design (Zhu et al., 2007 ; 2008; 2013)</li> <li>▪ Innovation (Klassen &amp; Vereecke, 2012)</li> </ul>

<b>Compliance through the adoption of, and adherence to, sustainability standards and certifications</b>	<ul style="list-style-type: none"> <li>▪ Certification (Gold et al., 2010)</li> <li>▪ Standards and certifications (Müller et al., 2009; Beske et al., 2014)</li> <li>▪ ISO 14000 certification (Zhu et al., 2008; 2013)</li> <li>▪ Eco-labeling of products (Zhu et al., 2008; 2013)</li> </ul>
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**Table 2** - *Best practices and examples of sustainability measures*

In order to improve their sustainability performance, organizations must be aware of their sustainability impact along the supply chain (Beske & Seuring, 2014). This can, for example, be done by measures such as integrated carbon management (Gopalakrishnan et al., 2012) or a general internal performance measurement system (Zhu et al., 2013). Furthermore, stakeholder management and regular consultations with external actors have been found to drive sustainability performance (Page II & Wu, 2009; Wu et al., 2014). Related to this, Beske et al. (2014) and Carter and Rogers (2008) emphasize that the focus should lie on the proactive communication about sustainability related issues. These communication practices are internal, as well as external, and are considered to be a key factor driving sustainability performance (Beske et al., 2014). Consequently, several authors have highlighted the ambivalence of both the risks and opportunities associated with social and environmental issues along the supply chain (Foerstl et al., 2010; Hofmann et al., 2014). Hence, companies should carefully monitor and manage these risks and look for opportunities that emerge together with new environmental developments (Klassen & Vereecke, 2012).

As organisational sustainability initially requires resources, and sometimes investments, and needs to be spread throughout the entire organization, successful practices should rely on top management involvement (Seuring & Müller, 2008; Zhu et al., 2008; Pagell & Wu, 2009), an adapted organisational culture (Carter & Rogers, 2008; Gopalakrishnan et al., 2012), and extensive internal environmental reporting (Zhu et al., 2013). Internally, trainings enhance worker sustainability competencies and raise awareness (Zhu et al., 2007; 2013). Externally, open communication, transparency, and supplier development with sustained long term relationships are considered to be essential (Seuring & Müller, 2008; Beske & Seuring, 2014).

Ensuring sustainability, not only intraorganisationally, but along the supply chain, rests on organizations' capabilities in buying goods and services that are already sustainable, as in practices like green purchasing (Zhu et al., 2007; 2013). As purchasing departments account for the entire input part of a company, improving the overall sustainability performance starts with carefully selecting, and consistently monitoring and evaluating the suppliers (Klassen & Vereecke, 2012). For these purposes, the sustainability criteria need to be clearly defined and included in the supplier selection processes (Gold et al., 2010; Gopalakrishnan et al., 2012; Beske et al., 2014).

Additionally, to manage these processes effectively, companies need to set clear goals and targets (Gopalakrishnan et al., 2012; Large & Gimenez Thomsen, 2011) and communicate with those across the supply chain (e.g. via policies and a (supplier) code of conduct) (Jiang, 2009; Schleper & Busse, 2013). Moreover, besides these governance and control-based processes, close collaboration and information sharing with customers and suppliers can foster the environmental and social initiatives, as well as the innovations (Seuring & Müller, 2008; Zhu et al., 2008; Klassen & Vereecke, 2012; Beske & Seuring, 2014).

In general, scholars stress the importance and opportunities of innovation (Klassen & Vereecke, 2012). Establishing a sustainable supply chain can lead to new product developments and other innovations (Beske & Seuring, 2014), and an increased adaption of products and processes (Gavronski et al., 2012), for instance, in the context of eco-design paradigms (Zhu et al., 2008; Hojmoose et al., 2012)

In conclusion, there are many practices that foster the establishment of a sustainable supply chain. The degree to which an organization internalizes and implements these practices hints towards their true sustainability capabilities and, hence, their potential in performing sustainably. Thus, in addition to P<sub>4</sub>, we add:

P<sub>5</sub>: A dynamic standard for corporate sustainability reporting must capture a firm's intra- and inter-organisational sustainability capabilities by incorporating a saturated set of best practices which have been empirically found to have a positive impact on the sustainability performance.

#### **4.4 A Path for Future Improvement: Towards a New Framework**

So far, we have presented five propositions as requirements for future corporate sustainability reporting. In this section, we briefly describe how these propositions might be included in a new framework. The identification of a set of intra- and inter-organisational best practices that have been empirically proven to be relevant in the enhancement of sustainability performance is an important first step. However, it yet needs to be linked to the theory. An adequate candidate for one such theory could be the notion of absorptive capacity (ACAP). Thus, this notion concerns a firm's ability to acquire, assimilate, transform, and apply external knowledge (Cohen & Levinthal, 1990; Zahra & George, 2002).

In times of dynamic markets and highly uncertain environments, knowledge is the dominant source of competitive advantage (Jansen et al., 2005), as learning mechanisms enable organizations to “create, extend, or modify its resource base” (Helfat et al., 2007, p. 4). This equips them with new

routines to prepare for future uncertainties. Hence, a high ACAP can strongly influence the overall performance of firms and their long term survival. Thus, it describes a firm's potential to analyse changes and turbulences in the markets in which they operate. It also enables them to also simultaneously process, internalize, and use the newly acquired knowledge (Cohen & Levinthal, 1990).

Yet, particularly in the context of sustainability, there is still a lack of ACAP considerations within the scholarly research. This is despite the fact that it is a very complex topic and is prone to a high uncertainty environment.

Applying the ACAP concept as a theoretical base offers a novel focus for exploring corporations' implementation of IAS. In particular, this framework provides several aspects, which are requested in the previously stated propositions. In the following, two of these aspects are characterized:

(1) Through its strong orientation towards the absorption of the external sources of knowledge, ACAP emphasizes the supply chain integration as a factor for potentially enabling sustainable competitive advantage. Raising this awareness within companies might also foster a closer collaboration between the supply chain partners. This could achieve certain specific goals, like boundary-spanning CO<sub>2</sub>-emission reductions (Ramanathan et al., 2014).

(2) Focusing on the ACAP allows reporting firms to invest in building internal capabilities in the area of sustainability. Highly dynamic and uncertain environments become more manageable for companies, when dealing with sustainability issues through the application of these capabilities. Lichtenthaler (2009) pointed out that learning processes linked to ACAP, helps in guiding organizations' innovative potentials. This is particularly if they align their internal combinative capabilities – systematization, coordination, and socialization of knowledge – with the absorbed new information.

To further utilize the ACAP concept, we suggest structuring the best practices along the four ACAP dimensions to include progressive organisational capabilities and a learning perspective. As extracted from the key informant interviews, the actual implementation of the best practices among the companies differs. Hence, an improved reporting guideline needs to allow for differentiation, in this regard, as this also enables the measurability of the sustainable performance and the comparability across industries. Implementation levels that account for different degrees of effort in best practices allow for the weighing of the actual performance of the organizations.

## 4.5 Conclusions

In conclusion, the emergence of various IAS which follows different approaches reflects the importance of sustainability reporting. However, current IAS suffers from several shortcomings, which prevent the communication of a firm's real and holistic value. It often leaves the reporting to be disconnected from an organization's actual operations. In this research note, we uncovered sustainability reporting deficiencies and provided five propositions that can pave the road for an innovative and dynamic framework for corporate sustainability reporting.

More specifically, a new standard should incorporate a firm's entire supply chain and ensure reporting outside the firm-boundaries, thereby meeting the many environmental and social requirements. In addition, we follow an ongoing debate about lagging and leading sustainability performance indicators by proposing an approach that focuses on an organization's intra- and inter-organisational capabilities. These capabilities can be best built and expressed by the best practices that improve an organization's sustainability performance along the entire supply chain.

Since the current standards lack an objective scale to value the degree of capability implementation achieved to make reports more accurate and enable comparability, we outline the need to develop mechanisms that allow the new reporting standard to weigh and differentiate organizations' efforts across industries. One theoretical basis for these features could be provided by utilizing the ACAP concept to structure the best practices we extracted from the scholarly literature. However, much remains to be done to reduce complexity in the field and to ensure effective and efficient reporting for all stakeholders along the supply chain.

# **Chapter 5: A Conceptual Framework for Corporate Sustainability Reporting in Value Chains: An Absorptive Capacity Perspective<sup>12</sup>**

## **5.1. Introduction**

Managing sustainability has become one of the biggest challenges for organizations across all industries (Sarkis, 2003). Particularly operations, production management, and logistics systems are affected by sustainable changes in a radical fashion (Linton, Klassen, & Jayaraman, 2007). In modern economies, where business processes are often dispersed around the globe, suppliers, focal companies, and customers are closely intertwined within networks of value creation, including transportation and logistics activities (Seuring & Müller, 2008). At the same time, sustainable business processes receive increased attention from various stakeholders, such as NGOs, media, governments, and new policies and international regulations pressure business to advanced levels of sustainability (Foerstl, Reuter, Hartmann, & Blome, 2010). Stakeholders are in general more interested in a firms overall value, which includes financial as well as environmental and social performance. Hence, protecting reputation and image as well as executing sustainability compliance across their value chains have become major concerns for managers across all industries (Vachon & Klassen, 2006). However, as misconduct has been repeatedly discovered in firms and within value chains, stakeholders are distrustful about how seriously corporate sustainability approaches are pursued. Accordingly, firms' efforts in assuring their internal sustainability activities as well as those across their supply chains have also increased continuously, from very basic approaches to a more holistic and integrative ones (Lozano & Huisinigh, 2011).

Consequently, for companies around the world, reporting on issues like sustainability and CSR has become highly important, resulting in an ascending number of regulations and reporting standards across all industries and sectors (Jamali, 2010). Sustainability reports are a firms' primary means of communicating this additional value to external parties; hence, it shows the importance of understanding the concept of reporting in order to convey their overall value to stakeholders and to

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<sup>12</sup> Chapter 5 is the first out of two parts of one article, with the following chapter 6 comprising the second part. Chapter 5 is a significantly revised and extended version of a second article originally authored with the colleagues, Martin C. Schleper and Christoph G. Schmidt, from the team working on the Sustainable Sourcing Excellence project in Germany. The article was first presented as a working paper at the 17th EMAN Conference "From Sustainability Reporting to Sustainability Management Control" at Erasmus School of Economics, Rotterdam, 2014. A later version of the article (comprising of approximately 75% of this chapter) was also submitted to a special issue of the Journal of Cleaner Production.

build up competitive advantage. Taking this into account, corporate sustainability reporting must include a strong value chain focus that reflects current reality in business. This ensures reports communicating the true value of a firm and emphasize the importance of boundary-spanning functions like supply chain management and logistics. The importance of capturing the value chain aspect of sustainability performance is stressed by the fact that in most industries, individual firms generate only a small part of the total value created throughout the entire value chain. Spatial, horizontal, and vertical complexity decrease a company's real net output ratio, resulting in an average spending of 50-75% total revenue for companies' procurements costs (Lindgreen, Vanhamme, Raaij, & Johnston, 2013). Hence, traditional competition among individual companies is increasingly superseded by a new paradigm of competition among value chains (Crook & Combs, 2007). Aside from these economical aspects, most sustainability impacts also transcend corporate boundaries. Moreover, stakeholders have developed a distinctive awareness for these issues; hence nowadays firms, such as Nike, Apple, or BP, are often held accountable for their value chain partners when it comes to environmental and social incidents (Amaeshi, Osuji, & Nnodim, 2007; Wolf, 2013). Consequently, scholars have stressed the need "to look outside an organization's boundaries" when it comes to sustainability performance (Meehan & Bryde, 2011, p. 95).

A similar view was voiced in a recent report from the World Business Council for Sustainable Development (WBCSD) in corporate reporting on sustainability. It emphasized that corporations should "*consider sustainability impacts outside of the company's direct operations that are material to the business and stakeholders*" and "*provide evidence to show they are engaging with suppliers and customers to address material risks and opportunities identified along the value chain*" (WBCSD 2013, p. 16). The WBCSD's notion of a value chain concerns the corporate engagement upstream and downstream of the value chain, hence to the suppliers and costumers/consumer tiers respectively.

The target audience for sustainability reporting is corporation's stakeholders and other external parties, whose perception and interpretation of the communicated corporate sustainability practice depends on the level of transparency and the legitimacy of the report (Kaptein & Van Tulder, 2003). A cascade of corporate approaches to sustainability reporting has challenged the transparency and legitimacy of the reports. However, consolidation in this field has brought about the emergence of International Accountability Standards (IAS). Despite the prima facie positive effects of corporations reporting on their sustainability activities according to these standards, there are many points of criticism concerning these IAS and the associated institutional practice.

In the perspective of the developments introduced above, two of the more notable scholarly and practitioner-oriented research criticisms are of particular interest to this study: (1) Inadequate

IAS focus on corporation sustainability performance in value chains, and (2) Lack of research on the corporate implementation of the UNGC standards and principles.

### **5.1.1 Inadequate IAS Focus on Corporate Sustainability Performance in Value Chains**

Despite the high number of voluntary reporting initiatives and standards, some even designed to be multi-stakeholder or supply-chain oriented, there is no specific standard for reporting sustainability performance along the value chain (Gilbert, Rasche, & Waddock, 2011). The major IAS has traditionally focused on sustainability within the boundaries of the firm. Only recently has the external view and value chain perspective been strengthened. The most significant IAS developments exemplifying this trend concerns the draft framework released by the International Integrated Reporting Council (IIRC) in 2013 and the almost simultaneously released fourth generation (G4) reporting guidelines from the GRI.

Subsequently, the IIRC aims to provide an overall framework for IAS', which consequently aids in corporations' effective reporting. The value chain notion is central in the framework. The GRI is a leading driver in the IIRC consortium. With the G4, the GRI now acts on the narrative and *"...requires companies to disclose significantly more information on supply chain impacts, including details of supply chain assessments, risks identified, the organization's performance in managing these risks, and the management processes put in place"* (KPMG 2013). The G4 is destined to impact all corporations reporting to the GRI, as they must follow the minimum G4 guidelines (Core) by 2016. Critical practitioners view the G4 guidelines as leading to even more complexity in reporting. It also requires additional resources, which corporations are reluctant to spend. Consequently, most corporations adopt less resource-demanding standards, like the UNGC, which requires the vast majority of signatories to report narratively on their implementation of the ten UNGC principles for sustainable business behaviour. Though, it is only the minority of signatories' reporting on the Advanced Level to the UNGC, who are required to report on the implementation of the principles in their value chain and only to a very limited extent (Kjaergaard, 2014). A recent UNGC brief (2013) on the IIRC framework, and the potential consequences for reporting to the UNGC does not address the value chain notion. As such, the UNGC's reporting framework so far seems unaffected by the IIRC developments. Thus, with the publication of the Sustainable Development Goals (SDG), it seems plausible that the framework is facing a major revision in the coming years.

The SDG's were introduced in 2015 and it replaced the Millinium Development Goals (MDG), which until 2015 had a limited role in complementing the ten UNGC principles in the guidance of business on sustainability. The SDG's are, however, much more comprehensive. Thus,

they have far-reaching goals which address the root causes for the sustainable development issues in the world. Hence, the value chain perspective is highly embedded in the SDG's, including the role of business in reaching them. The UNGC highlights "...a set of reporting standards and frameworks that guide companies in determining what and how to report as related to their economic, social, environmental, and governance performance and impact" as an important part of the Post-2015 Business Engagement Architecture (2014). Thus, this does not necessarily mean that corporate UNGC signatories currently does not engage with, or report on, their value chain, but that the architecture of the UNGC as an IAS only promote such engagement and reporting to a limited extend. Moreover, the literature on IAS adoption lacks research on the corporations' implementation of the UNGC principles and standard.

### **5.1.2 Lack of Research on the Corporate Implementation of the UNGC Principles**

Much empirical research on IAS is focused on the adoption of the specific standards and what influences their adoption (Delmas (2002) on ISO14001, Christman and Taylor (2006) on the ISO9000, and Ioannou and Serafeim (2011) on the consequence of mandatory reporting). However, it is not uncommon for research studies to find that corporations merely engage in a symbolic implementation of a particular IAS if it has weak accountability mechanisms. This facilitates the *green-washing* described in Painter-Morland (2006, p. 353).

Consequently, the UNGC is frequently a target for such criticism. It is exemplified by the popularized notion of *blue-washing* (Bruno & Karliner 2000), which refers to the use of the UNGC for reputational gains (Waddock, 2008; Williams, 2004). The criticism of the UNGC tends to be less grounded in empirical research. Consequently, Rasche (2009a, pp. 533) called for researchers to engage in empirical research on the implementation of the ten UNGC principles and to identify "*whether and how participating firms have changed existing routines (e.g. with regard to supplier relations),*" as a key question to be addressed. If considering the UNGC solely as a principle-based standard, critics could argue that such empirical studies are very difficult to conduct when corporations have great leeway on how they report on these principles. Furthermore, Kjaergaard (2014) demonstrates how the 2010 introduction of the UNGC's Advanced Level of reporting opened up new opportunities for empirical research on the implementation of the principles. Such endeavours should be conducted with careful attention to the limitations of this framework, which non-the-less, should be considered as an advancement of the UNGC as an IAS. Although it is considered an IAS in the literature, some scholars indicate that the UNGC should be evaluated differently than other IAS. Rasche (2009, pp. 526) argues that "*a variety of factors prevent the [UNGC] from being a tool for regulation, most of all its underlying idea of creating space for*

*learning and cooperation.*” Similar views, with a focus on learning, have been shared by Ruggie (2002) and Williams (2004). To our knowledge, a learning perspective has yet to be applied in empirical studies of the adoption of the UNGC standard and implementation of the ten principles. In addition, it is also largely neglected in other IAS studies.

Given that some sustainability issues can be considered as corporate externalities in constant change, the corporate learning process will continuously involve the acquisition of knowledge from external sources and from the corporate value chain, in particular. When corporate signatories report to the UNGC, their submission is labelled a *Communication of Progress (CoP)*; hence, progress implies that learning has occurred. Kjaergaard (2014) demonstrated that the performance framework in UNGC's Advanced Level of reporting provides stakeholders with the opportunity to more objectively observe corporate progress on implementing the UNGC principles. However, the framework does not leverage any significant insight into the learning process leading to progress or into the development of corporate capabilities for sustainability.

### **5.1.3 Positioning this Research**

In summary, the institutional development of IAS and the research on IAS outlined in Sections 5.1.1 and 5.1.2 point to a number of paradoxes concerning corporate reporting to IAS on the implementation of sustainability in their value chains. Despite having a larger base of corporate signatories, the UNGC seems to lag behind the GRI, when it comes to the specific integration of value chain orientations in the IAS reporting structure. Therefore, this is also true for the alignment with the IIRC framework's more general line of thinking on integrative reporting, exemplified with the complete absence of the materiality concept in the UNGC standard. The literature on IAS is equally paradoxical, when scholars criticizing the UNGC and its principle-based nature, completely ignores the more recent developments of the architecture of this IAS and are not engaged in empirical research relating to this standard. Conversely, other scholars defend the UNGC by arguing that it should not be evaluated with a focus on accountability. Thus, it should be evaluated with a focus on learning and cooperation, despite they recognise the UNGC as an IAS comparable to other IAS.

Such paradoxes make interesting research opportunities, but the complexity of undertaking contradicting, or just very different perspectives, in research, might be what leads most researchers to engage in mostly one-sided studies of IAS. This is exemplified by the sheer number of studies, which are retrospectively focused on the adoption of IAS. Many studies apply institutional theory towards the conclusions, which, to some extent, concerns the notion of *decoupling*. However, we will touch more on this concept later. The main point here is to state that our overall objective is to

engage in more prospectively focused research on IAS implementation, which emphasizes the institutional and managerial implications. Hence, it potentially informs the future development of the IAS with recommendations for a better alignment with the IIRC. It also informs corporate practice on strategies for stronger IAS adoption. We thereby intend to address a “research–practice gap” (Rousseau, 2006) within this field. In addition, our point of departure for such research is the propositions for addressing major deficiencies in current corporate sustainability reporting practices as derived by Kjaergaard et al. (2015). Therefore, their five propositions outline the key factors in the design of a dynamic standard for corporate sustainability reporting and the short versions of these can be listed as follows:

- a) Require accounts for both sustainability issues within the boundaries of the corporation and in the corporate value chain.
- b) Integrate the concept of materiality.
- c) Allow for industry-specific indicators, as well as cross-industry applicability.
- d) Capture a firm’s longitudinal learning and development of intra- and inter-organisational sustainability capabilities.
- e) Incorporate a saturated set of best practices which have been empirically found to have a positive impact on sustainability performance

Kjaergaard et al. (2015) also took the first step in the conceptualisation of a framework following these propositions, by developing a set of ten best practices for improving sustainability performance in the corporate supply chain. These best practices only address the propositions to a limited extent. Hence, this research aims to utilize them as a springboard to engage in a more complete conceptualisation of a framework addressing the propositions more fully. Also, we pursue the development of a more dynamic standard for corporate sustainability reporting, which will be demonstrated through empirical application and validation of the framework.

We thereby partly follow the suggestion of Gilbert et al. (2011), that the production of standards should be part of an agenda for future research on IAS, which is in alignment with Brunsson et al.'s (2012, p. 617) suggestion of directing research towards the development of standards. Thus, such research could concern the production or development of, for instance, the GRI's G4 standard or the UNGC's Advanced Level of reporting, which certainly would be studies that is worthwhile the effort and potential to contribute to the literature on IAS. However, the suggested agendas and directions for research, point towards retrospective studies. Here, we aim at a more prospective approach focused on how to design the IAS in order to address the major deficiencies already identified in the literature. Gilbert et al. (2011) suggest conducting longitudinal studies focused on changes in the underlying institutional design of IAS. Conversely, we

conceptualise a framework as the core of the institutional design of an IAS. Then, we apply and validate this framework through longitudinal studies focused on changes in the organisational design of the corporation. In this way, our research reflect an organisational perspective on the dynamics of standards as outlined by the study of Brunsson et al. (2012, p. 617,).

#### **5.1.4 Research Questions**

The summary in the previous section highlights two aspects of this research. The first is the conceptualisation of a framework, while the second is the application and validation of this framework. Subsequently, this two-fold focus leads to separate research questions as articulated below and substantiated in the following paragraphs:

- *Which range of best practices should constitute the core of a framework that effectively captures sustainability performance in corporate value chains and how should the framework be designed to differentiate implementation levels reflecting learning progress and value chain integration?*
- *To which extend does contextual factors influence corporations' sustainability performance in their value chains and how should the framework be designed to capture this influence?*

The first research question is a technological question, while the second research question is partly an evaluative and partly a technological question. Addressing the two question types required two research phases: a conceptualisation phase and a validation phase.

A technological research question focuses on what has to be done to achieve something. What has to be achieved here is the effective capture of a corporation's development of learning capabilities, not per se, but specifically for sustainability performance in the corporate value chain. This is challenging for corporations to improve upon and report on. It is also a challenge for stakeholders to perceive and interpret any progress and learning through the current reporting structures of the most commonly adopted IAS. We focus on the corporation's development of learning capabilities, which we argue can be viewed as leading indicators for sustainability performance in corporate value chains. These developments must be captured effectively, meaning that we must avoid the pitfall of developing either too vague or too specific measurement criteria. To do this, we focus specifically on learning capabilities, while we assume that these capabilities can be generically measured across industries. What has to be done to reach these achievements

concerns the institutional design of the reporting structure of an IAS towards this purpose. This is similar to the institutional design of the GRI with an embedded financial analogy (Etzion & Ferraro 2010). Hence, in the first phase of the study, we engage in the conceptualisation of a framework with measures for sustainability learning capabilities, which are largely comprised of a theoretical conceptualisation, although it is based on the set of best practices developed in prior work (Kjaergaard et al., 2015).

Subsequently, an evaluative research question focuses on the evaluation of a certain phenomenon using specific measures. Here, the phenomenon is the developed conceptual framework, which is evaluated by applying the measurement criteria in the framework to a concrete case company. Hence, in this second phase, we engage in a limited empirical validation of the conceptual framework, primarily through a longitudinal case study of sustainability reports from a large multinational corporation. Triangulation is achieved through an interview with the case corporation’s key sustainability professional and through document analysis of news articles. Data from the first source generated a dataset covering a five-year period (2010-2014), which allowed for the observation of the development of corporate sustainability learning capabilities over time. Data from the second and third source triangulated this dataset and was particularly useful in providing information on the contextual factors, potentially influencing the development of learning capabilities. Before elaborating further on the context and case chosen to address the research questions, it is appropriate to more elaborately introduce the main concepts applied in this research.

### **5.1.5 Main Concepts Applied in the Development of a Conceptual Framework**

Developing a novel and robust conceptual framework is no minor endeavour and is certainly not less with the questions we aim to address with this research, which requires the application of multiple concepts. In this section, each concept is introduced with the key literature and conceptualisations chosen. Thus, this is followed by a brief elaboration on the consequences for measurement. A more elaborate and more critical discussion of the concepts is placed in the following section 5.2 concerning the literature and theoretical framework. In this section, we present the eight concepts in Table 1 in an order, which reflects their role in the gradual fine-graining of the conceptual framework. Hence, this ranges from applying the concept of sustainability performance in the determination of the type of framework, to applying the materiality concept in the determination of the most granular implementation levels in the framework.

**Table 1** - *The concepts applied in the conceptualisation of the framework*

<b>Concept</b>	<b>Description</b>
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*Sustainability  
Performance*

Elkington, 1997;  
Epstein & Roy, 2001;  
Pelozo, 2009;  
Waddock & Graves,  
1997; Wood, 1991

Given that the concepts of *Sustainability* and *Performance*, in themselves, can be defined and interpreted in multiple ways, the combined concept of *Sustainability Performance* is subject to similar fragmentation in definitions. In this study, we first and foremost subscribe to the widely referenced Brundtland statement (World Commission on Environment and Development, 1987) on sustainable development: "... implies meeting the needs of the present without compromising the ability of future generations to meet their own needs." Hence, a sustained ability, which we secondly subscribe to being distinguished in an environmental, social and economic dimension, as it is embedded in accounting principles (e.g. *Triple-Bottom-Line*) (Elkington, 1997). The relevant streams of literature generally recognise an environmental and social dimension to sustainability performance (Epstein & Roy, 2001). It is also termed "corporate social performance" (Pelozo, 2009; Waddock & Graves, 1997; Wood, 1991), and connect it to financial performance as a separate dimension.

Although there is great fragmentation in the relevant streams of literature concerning how to measure sustainability performance and what to measure, there seems to be a consensus on a distinction between the leading and lagging indicators for sustainability performance. Epstein and Roy (2001) stated the difference as: "Leading indicators are generally thought of as input or process indicators that link more closely to operations, while lagging indicators relate more to outcomes achieved through the management of leading indicators." The conceptual framework developed through this research is not based on lagging indicators comparable to the numeric indicators in the GRI standard, but on leading indicators comparable to the best practices in the UNGC standard.

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*Best Practice*

Epstein & Roy, 2001;  
Cairncross, 1992; Hart,  
1995; Schmidheiny,  
1992; Shrivastava,  
1995b; Smart, 1992;  
Kjaergaard, 2014;  
Kjaergaard, 2015;  
Szulanski (1996, 28);  
Winther, 1995.

Epstein and Roy exemplified the leading indicators with *sustainability actions*, which corresponds to the practices described in the literature on environmental management. Scholars in this field also identify *Best Practices* and suggest that their implementation can lead to competitive advantages. Best practices can also simultaneously lead to a negative environmental impact (Cairncross, 1992; Hart, 1995; Schmidheiny, 1992; Shrivastava, 1995b; Smart, 1992).

The GRI and UNGC have both been recognised in the IAS literature as having a performance orientation (Jamali, 2010). The GRI and the UNGC both present their reporting structures as frameworks for sustainability performance. In the case of the UNGC, it is based on best practices (UNGC, 2011):

*The Differentiation Programme provides a framework for companies and stakeholders to benchmark sustainability performance against best practices and identify extra financial opportunities and risks.*

Hence, in the sustainability performance terminology, the UNGC best practices can be considered as leading indicators, and are as such, complementary with the majority of the GRI indicators, which can be considered as lagging indicators due to their quantitative nature. Kjaergaard (2014) acknowledged the UNGC's use of best practices for performance measurement as an advancement of the purely principle-based approach. Kjaergaard (2014) also pointed to validity issues

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concerning the simplistic use of universal best practices in the framework. Szulanski (1996, 28) elaborates on best practice, defining it as an organisation's "...replication of an internal practice that is performed in a superior way in some part of the organisation and is deemed superior to internal alternate practices and known alternatives outside the company." Furthermore, Szulanski views best practices as a transfer of knowledge within the firm, which goes through an "...unfolding process consisting of stages in which characteristic factors not only appear in greater or lesser degree, but also in a certain order of occurrence." Szulanski also follows Winter's view, in that the transfer of best practices can be conceived as replications of organisational routines, which are the building blocks of organisational capability (Winter, 1995).

Concerning the measurement of best practices, the view shared by Szulanski (1996) and Winter (1995) contrast the measurement of best practices applied in the UNGC framework, where a reporting corporation self-assesses compliance with a best practice in a more binary way, by answering yes or no. The main difference is that Szulanski (1996) and Winter (1995) apply a process view of best practices as a series of stages or building blocks. This view is more in alignment with the proposition by Kjaergaard et al. (2015) concerning a more elaborate learning focused approach and the integration of a capability view in an IAS. Moreover, Szulanski (1996) and Winter (1995) view the process as leading to the development of capabilities, but with the determination of what is the best practice being dependant on comparison with alternate practices internal and external to the organisation. Hence, in this research, we aim at developing a measurement of best practices, which is not binary, but we conversely recognise and acknowledge them to lead to the development of capabilities. The latter is later introduced as one of the eight concepts applied in this research, but before that, we now introduce value chains as a concept. The conceptualisation of a value chain elaborates on the view of best practices and knowledge as residing both internal and external to the organisation. Furthermore, the concept also informs the view on view on capabilities.

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## Value Chain

Porter (1985)(2011),  
Seuring & Goldbach  
(2002), Balkau &  
Sonnemann (2011),  
Lindgreen et al. (2013).

Porter (1985) is widely acknowledged for the introduction of the concept of the *Value Chain*, which he conceptualised as a generic value chain composed of primary and support activities within the business. A firm's value chain is embedded in a larger stream of activities that forms a value system, including supplier value chains, channel value chains, and buyer value chains (Porter, 1985). Porter positions the value chain as a source for competitive advantage, arising from activities in the business which adds to the buyer value of a product or service, thereby providing a competitive advantage and the opportunity to command a premium price. Porter recognises the influence of the value system on the firm's value chain and its competitive advantage, through the value generated upstream (suppliers) as well as downstream (buyers). Porter's value chain concept is referenced in multiple fields of business-related research, including supply chain management (SCM) (Balkau & Sonnemann, 2011). Research in SCM has generally used the term "supply chain" synonymously with "value chain", which both have been defined as comprising of all firms' upstream and downstream the value chain. The concept of sustainability has become a significant topic for research in the SCM field, to the extent that a stream of literature refers to sustainable supply chain management (SSCM) as a specific concept and discipline. Though, it is also argued that when including sustainability as significant factor in SCM, not only the firms positioned upstream and downstream must be considered, but other non-firm actors in the value chain as well. However, it has been suggested that this extended view on the sustainable value chain chains calls for sustainable value chain management (Balkau & Sonnemann, 2011) (Lindgreen et al., 2013).

This development is in line with the evolvement of Porter's understanding of where and how value is created, best exemplified in his introduction of the concept of *Shared Value* (Porter & Kramer, 2011). For a quarter of a decade since the original conceptualisation of the value chain, Porter now views value as shared and created through the efforts of business who reconceive the intersection between society and performance and who's purpose no longer solely should be defined as just profit per se. The economic value should be generated in a way that also creates value for society by addressing its needs and challenges. Nevertheless, Porter & Kramer refutes that shared value is social responsibility, philanthropy, or even sustainability. Agreeing fully to the latter and that shared value solely concerns a new way to achieve economic success (Porter & Kramer, 2011) is challenging in the view of this author, especially when these claims are not supported by a more robust reconceptualisation or remodeling of the original value chain concept (Porter, 1985). Porter (1985) recognises that to uphold competitive advantages, business must continuously be in a learning process on how to provide buyer value in the present and the future. Porter and Kramer (2011) extend on this view and argue that nowadays, business must learn how to create shared value in order to maintain their legitimacy and gain competitive advantages.

This research subscribes to an extended view of the value chain, which follows Porter & Kramer's (2011) concept of shared value and that has implications when aiming to measure the sustainability performance in corporate value chains. We basically view the value chain concept as composed of the value chain internal to the business and the connected value chains external to business,

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both upstream to suppliers and downstream to customers. In addition, we view the value chain to include the value created through the impact from and on other stakeholders. These stakeholders can include local communities, public authorities, NGO's etc. Also, the impact can, in some cases, be termed as shared value. An IAS standard like the GRI include some lagging indicators aimed at measuring such shared value, but the calculations of this value can be very challenging and the results often subject to many uncertainties. Hence, benchmarking the shared value generated by companies in an IAS seems less feasible. Conversely, benchmarking the corporation's capabilities for creating value internally and externally seems more feasible. Hence, such capabilities would serve as leading indicators sustainability performance. However, an implication of our extended view of the value chain is that the framework should not only capture best practices as an internal processes leading to the development of capabilities, but should also capture the extent to which each best practice integrates the extended view of the value chain and how the process of developing capabilities is influenced by contextual factors, which can be both internal and external to the company. In the perspective of shared value, the external factors are not only to be found in the upstream and downstream value chain, but also concern other stakeholders' which influences the internal process. Thus, we expect such external factors to differ significantly across corporations, which would challenge the framework's ability to measure the influence. However, the framework must at least be designed in a way that facilitates additional analysis of the influence of contextual factors on the sustainability performance captured by the framework.

The extended view of the value chain and the implications for the measurement of sustainability performance informs our view on capabilities and choice of conceptualisation. This is partly in alignment with propositions derived by Kjaergaard et al. (2015). Hence, the chosen conceptualisation of capability furthermore addresses the ability to capture a firm's longitudinal learning and the dynamic nature of these organisations' environments.

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#### *Dynamic Capability*

Winter & Szulanski, 1999; Eisenhardt & Martin, 2000;

Winter and Szulanski (1999) extend their view of best practices as organisational routines leading to the development of capability (Winter, 1995) (Szulanski, 1996), by describing dynamic capabilities, as "... partly routinized activities that are carried on to expand or change the capabilities that directly affect revenue." Eisenhardt and Martin (2000) recognise dynamic capabilities as "...idiosyncratic in their details and path dependent in their emergence." However, they stressed that effective dynamic capabilities have significant commonalities across firms, which can be referred to as a best practice. They further recognise the dynamic capabilities as consisting of identifiable and specific organisational routines, which can concern a firms gain, integration, reconfiguration, or release of resources to leverage a competitive advantage. Eisenhardt and Martin (2000) emphasize that dynamic capabilities concern knowledge-based resources. In addition, the evolution hereof is guided by learning mechanisms. This, thus, depends upon the market dynamism, and the order of implementation of dynamic capabilities is consequential.

This conceptualisation of capabilities as dynamic is particularly relevant for the design of a performance framework, when considering the proposition by Kjaergaard et al. (2015) that the IAS should allow for industry-specific indicators,

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as well as cross-industry applicability. This because the best practices as organisational routines leading to the development of capability as described by Winter (1995) and Szulanski (1996), tend to be idiosyncratic to the firm and to some extent to the industries that the company operates in. Hence, even when these best practices or organisational routines are conducted in the most sustainable manner, they remain idiosyncratic. Such practices or routines are therefore challenging to benchmark in IAS performance frameworks, which must be applicable across industries. Converseley, Winter and Szulanski (1999) consider dynamic capabilities that were aimed at expanding or changing the capabilities that directly affect revenue. Furthermore, Eisenhardt and Martin (2000) view them as having significant commonalities across firms. The conceptualisation of dynamic capabilities therefore indicates a potential for use in IAS performance frameworks, which are able to capture some variance beyond the lowest commonalities and at least acknowledge low and high performers concerning each best practice.

Thus, these conceptualisations of dynamic capabilities do not lend themselves well to measurement. Hence, in order to operationalize dynamic capabilities in our performance framework and integrate this view or line of thinking, we now introduce the concept of Absorptive Capacity (ACAP). The available conceptualisations of ACAP generally distinguish between three or four stages or dimensions of the process of developing capabilities. In our framework, ACAP becomes the foundation for learning-focused approach to measurement of sustainability performance in corporate value chains.

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#### *Absorptive Capacity*

Cohen & Levinthal, 1990; Bosch et al., 1999; Zahra & George, 2002; Lane et al., 2006; Flatten et al., 2010.

ACAP was originally conceptualised by Cohen and Levinthal (1990), whom phrased it as the "...ability of a firm to recognise the value of new and external information, assimilate it, and apply it to commercial ends." This phrasing highlights the three original dimensions of ACAP (identify, assimilate, and exploit), which was later extended to four dimensions by Zahra and George (2002, 186). Zahra & George reconceptualised ACAP as a dynamic capability, which is composed of a potential ACAP (Acquisition and Assimilation) and a realized ACAP (Transformation and Exploitation). Zahra & George (2002) suggested this extension to aid more comprehensive measures of ACAP, but the simpler version with four dimensions is recognised as the most empirically applied conceptualisation by Flatten et al. (2010).

Zahra and George's conceptualisation of ACAP with four dimensions is highly compatible with our view of the value chain concept. The four dimensions reflect stages in the process of integrating knowledge from external sources. This view is to some extent aligned with Porter's original view of the value chain concept as a value generating process internal to the firm. Moreover, Porters (1998) recognition of this process' external dependencies upstream and downstream corresponds to Zahra & George's (2002) focus on ACAP as a capability to derive value from knowledge and from external sources (e.g. suppliers). This can in turn result in innovations or other outcomes that leverages increased value downstream the value chain and a competitive advantage. Zahra & George explicitly view ACAP as a value creation process, which is influenced by factors in the upstream/downstream value chain and beyond. Zahra & George (2002) identify external activation triggers as factors potentially prompting the development of ACAP, as when customer needs change or new legislation is on

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the horizon. Legislation already in effect can be part of the regime of appropriability, which Zahra & George conceptualise as a factor that determines whether a firm's ACAP leads to a competitive advantage. Hence, Zahra & George's conceptualisation of ACAP is very well in alignment with the view of the value chain subscribed to in this research. Though, the conceptualisation does not fully address Porter and Cramer's (2011) concept of shared value, while it does not explicitly focus on the creation of value for society.

Most researchers of Absorptive Capacity attempt to measure it with proxies for R&D (e.g. Cohen & Levinthal, 1989), but such a simplistic approach might have contributed to the conflicting findings in research using the concept. Lane et al. (2006) notes that studies using proxies apply ACAP as a static resource, and therefore cannot capture the complexity of ACAP when considered as having multiple dimensions. Lane et al. (2006) suggests that ACAP should be empirically explored in non-R&D contexts using metrics that capture each dimension of absorptive capacity in a manner appropriate for that context. The latter is the intention of this research and is leveraged by the use of Zahra and George's conceptualisation of ACAP. This also follows Lane et al.'s suggestion to view ACAP as a capability that is dependant on its context. Moreover, this view is also in alignment with the dynamic capability view offered by Eisenhardt and Martin (2002) and others, which informs Zahra and George's reconceptualisation of ACAP as "...pertaining to knowledge creation and utilization that enhances a firm's ability to gain and sustain a competitive advantage." Zahra & George view the latter as more likely when ACAP is more realized. Thus, like most ACAP research, it suggests the exploitation of knowledge in innovation to be a main component of an effective dynamic capability.

The focus on value creation, innovation and competitive advantage highlights the benefit, that the integration of the ACAP concept in a performance framework can have, when compared to other IAS frameworks mostly focused on compliance. However, we suggest that both innovation and compliance can lead to a competitive advantage and that these best practices represent intertwining, rather than contradicting paths of the utilization of knowledge.

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Sustainability  
Compliance

Nidumolu et al., 2009;  
Walton et al., 1998;  
Jose & Lee, 2007

Nidumolu et al. (2009) focus on compliance as an opportunity and their review of business cases demonstrates how sustainability compliance and innovation should not be viewed as contradicting, but as complementary and mutually beneficial concepts. Firms can be forced to innovate to be compliant, and conversely, innovation might provide the opportunity for firms to set the bar for their compliance higher. We follow Nidumolu et al.'s (2009) view of sustainability compliance as corporations abiding by local and global regulation, general and specific voluntary codes, standards and other norms. This general view also reflects the more specific view in the IAS-related literature on compliance in corporate value chains, concerning suppliers compliance with the focal corporations' standards for sustainability through the adoption of a code-of-conduct, and increasingly, through voluntary standards (Walton et al., 1998). We position Nidumolu et al.'s (2009) view of compliance as a future-oriented third and most recent evolutionary stage of the corporate environmental movement. It follows the preceding competitive advantage-based stage and the compliance-

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based stage before that (Jose & Lee, 2007).

The evolutionary stages indicate the variance in corporations' implementation of compliance as a best practice. Also, it highlights the need to be able to measure low and high performers respectively. The literature on compliance suggest that factors like the type of IAS or certifications, the type sustainability issues addressed and to which depth, the range of stakeholders involved etc. are factors to be considered when defining measurement criteria. It is a very complex and therefore a challenging task to measure corporations' legislative compliance. For the sake of future operationalization of our framework, this aspect of compliance is omitted in the measurement of implementation. As noted, we view compliance and innovation as complementary best practices, but we measure them separately.

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Sustainability-oriented  
Innovation

*Oslo Manual, 2005;*  
*Adams et al., 2012;*

Concerning the concept of innovation, our starting point is the working description of a Technological Product and Process (TPP) innovation provided by the OECD in the Oslo Manual (2005). The manual describes technological product innovation as "the implementation/commercialization of a product with improved performance..." and extends the description to technological process innovations. The manual also provides guidance for what is to be considered as *other innovation* and *not an innovation* and the target audience for the manual is innovation researchers aiming to conduct research through surveys. The manual does not specifically address sustainability innovation and we therefore extend our understanding of the concept to include the processes of Sustainability-Oriented Innovation (SOI), as framed by Adams et al. (2012). Adams et al. (2012) describe the three stages of SOI: *Operational Optimization*, *Organisational Transformation*, and *Systems Building*.

In our view, the SOI stages and the Oslo Manual's description of TTP's indicate the variance in the corporation's implementation of sustainability innovation as a best practice. Therefore, the case of compliance highlights the need to be able to measure low and high performers, respectively. The literature related to sustainability innovation suggests that factors like the type, depth and number of sustainability issues addressed through the innovation of new products/services/ processes; the scope of the diffusion of the innovations; and the range of stakeholders gaining value from the innovations are factors to be considered when defining measurement criteria.

The potential variance in the best practice is obvious for both the compliance and innovation best practices, which can be implemented at different levels by corporations. The specifics of the factors determining the stage or level of implementation differs for these two best practices, as it does for all best practices identified. Though, the differentiation of each best practice must only draw on a limited number of factors, to secure the validity of the framework when applied in research. In the following, we therefore introduce the concept of materiality to facilitate this differentiation of the best practices and thereby achieve the variance needed for measuring value chain sustainability performance with an IAS.

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*Materiality*

Materiality is a fundamental concept in modern accounting (Messier et al., 2005).

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Messier et al., 2005;  
Eccles et al., 2012;  
Eccles & Krzus, 2010;  
Lydenberg et al., 2012;  
Zadek & Merme, 2003;  
Forstater et al., 2006;  
Murningham & Grant,  
2013; Bell & Morse,  
2008.

Following recent trends towards the integrated reporting of financial, environmental and social information, materiality has also gained attention in the sustainability-reporting field (Eccles et al., 2012). It seems that *"No clear consensus definition exists for what is 'material' financial information"* (Eccles & Krzus, 2010). According to Lydenberg et al. (2012), several robust definitions of materiality have emerged in the sustainability-reporting field. Concerning the IAS field, the GRI defines materiality in Version 3.1 of their guidelines, as information that *"Reflect[s] the organization's significant economic, environmental and social impacts, or that would substantially influence the assessments and decisions of stakeholders."* Lydenberg et al. (2012) operationalizes the many definitions and approaches to materiality into a set of three principles and a fact-based materiality test. We perceive this test and much of the pioneering literature on materiality (Zadek & Merme, 2003; Forstater et al., 2006; Murningham & Grant, 2013) as mostly directed towards an audience of corporate practitioners. This to inform the process of determining how materials with certain sustainability issues are to their corporation, which refelect the trend in the evolvement of IAS. Thus, that corporations should only report on issues material to them. This trend nonetheless raises the questions concerning who determines what is material and how this determination has taken place. Adressing these questions are, in our view, essential in the development of an IAS framework for value chain sustainability performance. Though, on the background above, we pose that the determination of materiality is not the role of the IAS, although the IAS could emphasize the sustainability issues that are more material in specific industries. Rather, we suggest a view on materiality as a concept, which can inform on the corporations' level of implementation of best practices. Hence, the extent to which a corporation can determine whether a sustainability issue is material to their business, depend on how they acquire and assimilate knowledge of this issue and how they transform and exploit this knowledge.

Lydenberg et al. (2012) compares his principles to the questions posed by Bell and Morse (2008) for the evaluation of the sustainability of a system. In order to operationalize this view of the role of materiality in an IAS framework for measurement of value chain sustainability performance, we derive a number of sustainability factors from the principles and questions proposed by Lydenberg et al. and Bell and Morse, respectively. Thus, these factors overlap the more specific factors for the implementation of each best practice found in the literature. However, they are more generic and can inform the differentiation of the implementation of all the best practices. Hence, stakeholder range exemplify such a factor, which, for instance, only concerns a number of suppliers if applied to a best practice with a level of limited materiality, whereas it concerns a full range of stakeholders if applied with a level of extended materiality. The full conceptualisation of the materiality concept for this research is initiated in section 5.2.4.1 in this chapter.

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**Table 1** - *The concepts applied in the conceptualisation of the framework*

The introduction of the eight concepts in Table 1 with key literature, conceptualisations, and the elaboration on the concepts for measurement in particular, indicates how each concept can strengthen the robustness of the measurements with the framework and/or add layers to the level of detail in the measurements. However, these are merely concepts for now, but the full conceptualisation of the framework will unfold in the remaining part of this chapter. Also, it will partly address the two research questions stated in section 5.3.1. The focus on best practices as leading indicators for sustainability performance in corporate value chains, the extended view on value chains as leading to dynamic capabilities, and the role of materiality in the differentiation for implementation levels are all key elements in addressing how the framework should be designed to effectively capture sustainability performance in the corporate value chain. It is also used to differentiate implementation levels reflecting learning progress and value chain integration. When the framework is fully conceptualised, we engage in a limited empirical validation of it. In addition, we will now introduce the main elements in the validation of the conceptual framework, prior to outlining the structure of the remaining part of the article.

#### **5.1.6 Context for the Limited Validation of the Conceptual Framework**

The framework developed in this research is relevant to all IAS with performance frameworks based on adherence to best practices, or simply to all IAS that benefit from integrating such an approach or to IAS engaged in forms of collaborative governance with IAS based on best practice. Thus, this research does extend on the prior work of Kjaergaard (2014) and Kjaergaard et al. (2015) conducted in relation to the UNGC standard. The general applicability of the framework is ensured, while all data sources used and methods applied in the conceptualisation of the framework are completely independent from the UNGC or any other particular IAS. However, because the validation of the framework also reflects the applicability in practice, we must choose a particular IAS to apply the framework towards. We chose the UNGC because we perceive this IAS as having a reporting structure that most obviously could benefit from the implementation of the proposed conceptual framework.

The first step of the validation process is the application of the conceptual framework towards the sustainability reports submitted by a large multinational corporation and signatory to the UNGC over a five-year period (2010-2014). The second step is then to compare the generated data with the elaboration on this "reality" by a key sustainability professional in the corporation. This is with the two-fold purpose of triangulating the reporting data as well as addressing how effective the framework captures the development of learning capabilities. In the third step, the data generated, the interview data, and news articles concerning the case corporation are utilized to identify contextual factors and assess how they influence the development of learning capabilities.

The two first steps partly address the study's first research question, whereas the third and last step of the validation addresses the second research question. Since we solely apply the framework to a single case corporation, we term this as “limited validation.”

The UNGC as an IAS and its reporting structure is thoroughly introduced by Kjaergaard (2014). This context for the validation of the framework will therefore not be elaborated further here. Rather, we will introduce the structure of this article and outline how we will approach the conceptualisation and validation, respectively.

### **5.1.7 Structure of the Article**

Having introduced the context for this study and the main concepts to be applied, the rest of the article is structured as follows. After presenting a brief overview of the previous literature on sustainability reporting, performance, and indicators, we will introduce ACAP as a dynamic capability and the primary theoretical perspective applied in this article. We then first describe the research procedure for the development of the conceptual framework and secondly for the validation of the framework through a case study. Therefore, the conceptual framework is developed in two steps. The first step is the assignment of best practices to the four dimensions of ACAP through careful theoretical argumentation, linking the identified best practices with relevant literature streams and the chosen conceptualisation of ACAP. In the second step, we apply materiality principles to define the implementation levels for each best practice, which finalizes the conceptualisation of the framework: then follows an analysis with the objective to validate the conceptual framework through the application towards five years of sustainability reporting by a multinational corporation. The case study leverages a dataset for the corporate sustainability learning capabilities, which is analysed to obtain the primary insights on the development of the capabilities over time. The analysis is then extended with the identification of contextual factors and an assessment of their influence on the development of capabilities over time. Focus is on the development of a framework with an embedded learning analogy. The implications for practice are stated for the corporations, their stakeholders, and the institutions governing sustainability reporting. We then conclude and highlight the contributions, prior to stating the limitations of this study, and propose three directions for further research.

### **5.2 Literature and Theoretical Framework**

As indicated in the introduction, this study primarily aims to contribute to the literature concerning IAS. However, this investigation is also interdisciplinary. Hence, it draws on other domains and streams of the literature in the conceptualisation of the proposed framework. In this section, we

bridge the IAS literature, with the concepts applied in this study, to prepare a coherent theoretical basis for the conceptualisation that follows. We begin by outlining the IAS literature, which we connect to the concepts of sustainability performance and ACAP as a Dynamic Capability. We conclude the section by elaborating and extending on the materiality concept.

### **5.2.1 International Accountability Standards (IAS) and Reporting**

The literature on IAS is just as fragmented as the “market” of standards (Rasche, 2010), from which the corporations have to choose the standards they adhere to. In an attempt to create an overview, Gilbert et al. (2011) distinguished between four IAS categories: (1) principle-based standards, (2) certification standards, (3) reporting standards, and (4) process standards. The categorization is exemplified with standards like the GRI being a reporting standard, the UNGC being a principle-based standard, and the SA8000 being a certification standard. Gilbert et al. (2011) identified a variety of problems across the different IAS and categorizations, which limits their potential to advance corporate social responsibility and sustainability. They refer to studies by Behnam and Maclean (2011) and Aravind and Christmann (2011), drawing on institutional theory and identifying *decoupling* as a major problem concerning corporations’ implementation of IAS. Meyer and Rowan (1991: 58) describe decoupling as enabling “...*organizations to maintain standardized, legitimating formal structures while their activities vary in response to practical considerations*”. In their study encompassing principle-based, certification-based and reporting standards, Benham and Maclean (2011) found that the more clearly defined the IAS is, with a high cost of adoption and efficient compliance mechanisms, the less likely it is to lead to decoupling. Aravind and Christmann (2011) extended this view and provided evidence of decoupling taking place. Thus, this was despite the third party auditing of certification standards. The notion of decoupling infers that corporations engage in a symbolic implementation of IAS, similar to the *green-washing* described by Painter-Morland (2006, 353), or to *blue-washing* (Bruno and Karlner 2000), when referring specifically to the implementation of the UNGC principles.

Most principle-based standards, like the UNGC, are criticized for their weak accountability mechanisms, as they commonly lead to decoupling (Gilbert et al., 2011). The UNGC's requirement of annual progress reports has been criticized in particular “...*for not providing sufficiently detailed and standardized information about firms’ adoption behavior*” (Arevalo and Fallon 2008; Deva 2006). The UNGC standard is based on global declarations and conventions, but when the coupling to local implementation is weak, it can lead to adverse selection (Williams 2004). Thus, it can potentially lead corporations engaged in substantial implementations to abandon the UNGC standard, if it does not facilitate the communication of their higher performance credibly through the current reporting framework.

Research on the production of standards is part of the research agenda proposed by Gilbert et al. (2011), who suggested a focus on: (1) the inclusivity and micro-political dynamics in multi-stakeholder development processes of IAS, (2) actor motivations, and the factors influencing these, and (3) longitudinal studies focused on changing their underlying institutional design. Our research connects to the latter, but rather than applying a retrospective focus on the consequences of introducing the advanced level of reporting to the UNGC standard, we apply a prospective focus with a framework design for measuring sustainability performance (in the shape of the implementation of UNGC principles) in corporate value chains.

Therefore, this investigation attempts to answer the mentioned call for research on the implementation by Rasche (2009). It also recognises the UNGC premise and context by integrating a learning perspective in the framework. This study also differs from the current research in the literature on IAS by being informed by literature streams on sustainability performance and the differentiation between lagging and leading indicators. Furthermore, we briefly review the literature on sustainability performance and connect it to the best practices for *Value Chain* Implementation in the UNGC standard.

### **5.2.2. Leading and Lagging Indicators for Sustainability Performance**

In a recent systematic literature review, Peloza (2009) highlights the sustainability performance framework of Epstein and Roy (2001) as a useful model that “provides guidance for measuring both the leading and lagging indicators in the relationship between sustainability and financial performance.” Epstein and Roy (2001) describe the common understanding of leading indicators as input or process indicators that are more closely link to operations and view leading indicators as essential in providing “...insight into organisation’s ability to improve its competitive position in the future.” Epstein and Roy (2001) describe lagging indicators as relating more to outcomes achieved through the management of leading indicators, which measures current and past performance, but does not adequately predict future performance. As concepts, leading and lagging indicators are not present at any great extent in the terminology used in the literature on IAS and sustainability reporting. This reflects the apparent absence of these concepts in the terminology applied by the institutions governing the IAS. However, the differentiation between leading and lagging indicators is highly relevant in the IAS context and in the perspective of collaborative governance (Utting, 2002; Zadek, 2008) in particular. Rasche (2010) states that, in the context of corporate responsibility, collaborative governance solutions tend to manifest as multi-stakeholder standards (akin to IAS). Rasche also notes that not all collaborative governance arrangements in this context represent standards. Rasche (2010) advocates Collaborative Governance 2.0, which implies a move

from mere collaboration between the actors governing the multi-stakeholder standards to collective action among the standards.

Collaborative governance is exemplified by the strategic partnership formed between the UNGC and the GRI in 2006, which aims to encourage corporations to utilize the synergy between the platforms. With regards to reporting, one of the most visible aspects of this partnership is the collaboration on the "Making the Connection" publications. Thus, this collaboration relies on the premise that a corporation that is already reporting to the GRI can easily report to the UNGC. This premise is also embedded in the UNGC guidelines for the GC Advanced Level, which directly refers to specific GRI indicators as fulfilling the requirement to report on specific UNGC best practices. Furthermore, this approach eases the workload for corporations reporting to both standards.

However, in our view, this partnership has potential for greater synergies, when viewed in the perspective of Collaborative Governance 2.0 and the distinction between the leading and lagging indicators for sustainability performance. More specifically, some of the best practices used as criteria in the GC Advanced Level can be viewed as leading indicators, whereas some of the quantitative indicators in the GRI reporting structure can be viewed as lagging indicators. Table 1 displays an excerpt of the value chain related measures, which currently are not conceptualised for compatibility as leading and lagging indicators.

<b>UNGC Best Practices</b>	<b>Measure</b>
Analysis of sustainability risk, opportunity and the impact in the value chain, both upstream and downstream	<i>Yes</i>
Policy on the value chain, including a policy for suppliers and subcontractors	<i>No</i>
Communication of policies and expectations to suppliers and other business partners	<i>Yes</i>
Monitoring and assurance mechanisms (e.g. audits/ screenings) for compliance in the value chain	<i>Yes</i>
Awareness-raising, training and other types of capacity building skills with suppliers and other business partners	<i>No</i>
<b>GRI Indicators</b>	
Percentage of new suppliers that were screened using environmental criteria (G4-EN32)	80%
Report the number of suppliers subject to environmental impact assessments (G4-EN33)	60%
Report the number of suppliers identified as having significant actual and potentially negative environmental impacts (G4-EN33)	50%

**Table 1** - *Excerpt of the UNGC and GRI measures for value chain implementation with exemplifying values*

We argue that a great potential for synergy lies in the increased compatibility between these two types of measures, which together could provide hindsight into the past through lagging indicators and foresight into future performance through the leading indicators. The additional value to the

reporting corporation, and especially its stakeholders, is even greater when the best practices are weighed and differentiated. This thereby informs on whether or not more advanced and extensive sustainability learning capabilities lead to improvements in measurements for the lagging indicators. Viewing leading indicators in a learning capability perspective also has the potential to further inform other metrics, and possibly, even the relationship between the non-financial (environment and social) performance and financial performance. Examining the latter is not within the scope of this study, but these metric structures represent an important context for the positioning of the proposed framework. Consequently, we briefly elaborate on these as in the following.

In Peloza (2009)'s review of the research, examining the business case for Corporate Social Performance (CSP), he identifies leading and lagging indicators as mediating metrics, which are "...those that capture the 'mediating variable' that generates business value", as opposed to intermediate or end state outcome metrics. Peloza (2009) illustrates the relationship with an example: "decreased energy consumption (the mediating variable) reduces operating costs (the intermediate outcome), which increases the firm's share price (the end state financial result)." Peloza also includes "other important metrics that appear earlier in the causal chain of value creation." Thus, Peloza extends the scope, as compared to the prior highly referenced review by Margolis and Walsh (2003) and formal meta-analysis by Orlitzky, Schmidt, and Rynes (2003), which both focus on end state outcome metrics. These reviews point to a positive relationship between the social, environmental, and financial performance. According to Peloza (2009), the relationship is relatively weak and the business case is somewhat unclear. He concludes that "understanding the impact of CSP on end state financial metrics, such as share price, depends on capturing the full costs and benefits of each initiative through the mediation process" and notes that the field of inquiry in research therefore shifts to examining the structures and processes that firms use. Peloza does not extend on the latter or connect these processes to learning capabilities in any way. Epstein, on the other hand, has continuously evolved an understanding of the role of learning and capabilities in relation to sustainability performance.

Epstein and Roy (1997) examined how organisational learning and environmental management can be improved through the use of the ISO 14000 series of standards. Also, they concluded that the organizations implementation hereof holds significant potential for learning, which can increase their sustainable competitive advantage. Epstein and Roy (2001) introduce a generic framework for the *drivers of sustainability and financial performance* and recognise that various feedback mechanisms must be in place to promote knowledge sharing and enhance the capabilities for improved sustainability performance. In the model of this framework, the potential role for learning is only briefly mentioned and indirectly included as secondary mechanisms for

feedback. This is also the case in the adapted version of this framework later introduced as a *Corporate Sustainability Model* (Epstein, 2008; 2014). Here, Epstein elaborates extensively and specifically on the learning dimension and identifies organisational learning to be the new battleground "*...as the ability of an organization to "learn" faster than its competitors hold the promise of sustainable competitive advantage.*"

Epstein (2008) specifically describes a company's ability to learn as its ACAP, which he identifies as an important determinant of a company's ability to exploit new outside knowledge. Epstein furthermore terms ACAP as a "capability" and differentiates between single-loop and double-loop learning (Argyris & Schön, 1978). Hence, the former pertains to a company's core capabilities, while the latter corresponds to what we recognise as dynamic capabilities in this study. Epstein (2008) notes that several industry and voluntary standards cover capability-building activities and that many of their requirements contribute to learning activities and then list a number of the voluntary standards' typical features as providing valuable learning mechanisms. However, this view based on standards and the understanding of learning and capabilities. With its origins in Epstein and Roy's (1997) study on ISO14001 implementations, the current list of features does not address the importance of the design of these standards: "*Environmental programs that are designed only from a compliance perspective and that are reactive rather than proactive will not provide adequate productive learning and capability building possibilities.*" Thus, this was a central conclusion in Epstein and Roy's (1997) study. It is also a foundational argument for the design of the conceptual framework suggested in this study.

This study is thereby positioned as an extension of Epstein's work. It aims to contribute to this organisational learning "battle" in corporate practice by integrating a learning and capability view directly in the design of standards. In alignment with Epstein's work, we propose the ACAP to be a core element in the design of this framework, when viewing this concept as a dynamic capability.

### **5.2.3 Absorptive Capacity (ACAP) as a Dynamic Capability**

In section 5.1.5, we introduced ACAP as a concept, which in the reconceptualisation with four dimensions could inform the weighing of the twelve best practices for sustainable value chains identified. We furthermore introduced ACAP as a Dynamic Capability, which when effective, has significant commonalities across firms and can lead to a competitive advantage through compliance, innovation or both.

In the following section 5.2.3.1, we go beyond the introductions and elaborate more on the dynamic capabilities and the theoretical ties to the resource based view of the firm. This then leads to a more extensive elaboration of the ACAP concept, which, in our adaptation, is positioned as an alternate analytical perspective to that of institutional theory. This perspective, however, dominates the literature and discourse on IAS.

### **5.2.3.1 Dynamic Capabilities, the Resource-Based View of the Firm and Opposing Views**

With the purpose of conceptualising an IAS framework for sustainability performance in corporate value chains, which is based on and are more aligned with state-of-the-art research, attention must be based on the theoretical anchoring of the framework. By introducing the ACAP as a Dynamic Capability, we also subscribe to the view of organisational theory, which informs this concept. Eisenhardt and Martin (2000) explicate the nature of dynamic capabilities as a contribution to the literature on the resource-based view of the firm (RBV). Thus, this extends the traditional view of RBV to one that recognises that dynamic capabilities have greater equifinality, homogeneity, and substitutability across firms.

RBV is a theoretical framework that aims to explain how firms achieve a competitive advantage and how this advantage can be sustained over time (Barney, 1991) (Nelson, 1991). RBV's focus on the internal organization of firms complements the traditional perspective of strategy, which emphasizes the industry structure and strategic positioning within that structure as determinants of competitive advantage (Henderson & Cockburn 1994; Porter, 1979). When viewing firms as being comprised of bundles of resources, RBV assumes the heterogeneous distribution across firms of these resources and expects that differences in these will persist over time (Amit & Schoemaker, 1993; Mahoney & Pandian, 1992). In this study, we pose that corporations develop learning capabilities from interacting with their value chain under different market conditions. The traditional RBV view on the internal organization of firms under stable market conditions does not comprise a sufficient theoretical anchoring.

The learning capability focus implies our concern for the manipulation of knowledge resources (Eisenhardt & Martin 2000), which are considered to be especially critical in more dynamic market conditions (Grant, 1996; Kogut, 1996). Scholars have extended the view of RBV to dynamic markets, where the competitive landscape is shifting and "the dynamic capabilities by which firm managers 'integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (Teece et al., 1997: 516) become the source of competitive advantage (Eisenhardt & Martin, 2000). Eisenhardt and Martin (2000) state that dynamic capabilities are often characterized as "...unique and idiosyncratic processes that emerge from path-dependent histories of individual firms" (Teece et al. 1997), but although they confirm the

idiosyncrasy in the details. Consequently, they argue that "...specific dynamic capabilities also exhibit common features that are associated with effective processes across firms" (Eisenhardt & Martin, 2000). This extension of RBV, with a view of dynamic capabilities, is comprised of a theoretical grounding which is more relevant in this study, when reverting back to the previously described approach of using best practices as leading indicators for value chain related sustainability performance in IAS.

The twelve best practices identified for this study reflect particular dynamic capabilities, which are applicable across firms in different industries. Also, they are operating in less or more dynamic environments. These best practices need to be differentiated to assess corporations' implementation levels, which is in alignment with Eisenhardt and Martin's (2000) view of dynamic capability commonalities that arise from the "...more or less effective ways of dealing with the specific, organisational, interpersonal, and technical challenges that must be addressed by a given capability." That being said, other theoretical views must also be considered. To further qualify our choice of this particular dynamic capability perspective as the theoretical anchoring for this study, we must consider the competing theoretical perspectives.

One of the most seemingly contradictory perspectives would be that of institutional theory, which, similarly to the RBV perspective, has been extensively used in the environmental management literature (Bansal, 2005; Delmas, 2002), typically to address whether intuitional pressure leads to changes in corporate behaviour. Both here and in the IAS-related literature, institutional theory has been extensively used to explain the notion of decoupling (Arawin & Christmann, 2011) (Benham & MacLean, 2011). Decoupling "...enables organizations to maintain standardized, legitimating formal structures while their activities vary in response to practical considerations" (Meyer & Rowan, 1991: 58). This classical form of decoupling between corporate policy and practice is recognised as one of the biggest problems with IAS (Gilbert et al., 2011).

Bromley and Powell (2012) point to this "policy-practice decoupling" as only one form of decoupling. Also, they introduce 'means-ends decoupling', which refers to thoroughly implemented policies with a weak relationship to the core tasks of an organization. Wijen (2014) extends this conceptualisation of decoupling to voluntary sustainability standards governing socio-environmental issues, which he posits can lead the adopting corporations to learn the 'wrong' practices and not contribute to the achievement of standard issuing organizations goals. This usually occurs if the standard is not designed systematically, with due consideration to causal complexity and practice multiplicity. Haack and Schoeneborn (2014) criticize the approach by Wijen (2014) and Bromley and Powell (2012) for fundamentally "...overlooking that the two types of decoupling rest on distinct theoretical paradigms whose assumptions are incompatible" and encourage

researchers to "...apply an explicit social-constructionist perspective to the analysis of policy–practice decoupling."

Looking beyond decoupling, the attempt to achieve richer explanations by integrating institutional theory with more contrary theories resting on very different assumptions is nothing new. Most relevant here is the prominent work by Oliver (1997), who attempts to utilize institutional theory and the resource-based view. Thus, he first captures their general basic differences as follows:

"The basic premise of institutional theory then is that firms' tendencies toward conformity with predominant norms, traditions, and social influences in their internal and external environments lead to homogeneity among firms in their structures and activities, and that successful firms are those that gain support and legitimacy by conforming to social pressures. In contrast, the basic argument of the resource-based view is that rare, specialized, inimitable resources and resource market imperfections cause firm heterogeneity, and that successful firms are those that acquire and maintain valuable idiosyncratic resources for sustainable competitive advantage" (Oliver, 1997),

Despite the obvious differences, Oliver (1997) integrates institutional theory and RBV in a process model of sustainable competitive advantage and addresses Rao's (1994) call for more convergence between the institutional theory and the resource-based view. However, this is not the objective of this study. The highlighted basic differences between these views illuminate that by grounding this study in the dynamic capabilities view, our contribution to the IAS-literature is novel.

Subsequently, we complement the many studies based on institutional theory and with an analytical focus on the UNGC, particularly those who identify weak IAS structures and enforcement mechanisms as major sources for decoupling among corporate adopters. We only indirectly focus on the 'means-ends decoupling' introduced by Bromley and Powell (2012). However, we do extend on the contingency view applied by Wijen (2014) to the 'policy-practice decoupling', which resembles the classic understanding of decoupling found in the IAS-related literature. Such a further extension would potentially be subject to no less criticism from Haack and Schoeneborn (2014), but the contingency view integrates well with the reconceptualised dynamic capabilities literature (Eisenhardt & Martin, 2000). Thus, this was described in Aragón-Correra and Sharma's (2003) conceptualisation concerning a proactive environmental strategy.

Winter and Szulanski (1999) view dynamic capabilities, as "*...partly routinized activities that are carried on to expand or change the capabilities that directly affect revenue.*" This

description indicates why the Dynamic Capabilities view is particularly applicable in this study. Here, we focus on capabilities developed through the implementation of best practices for sustainability in the corporate value chain. More specifically, the activities or best practices related to the corporate value chain and sustainability does not comprise most corporations' core organisational routines. In addition, the heuristics of sustainability-related knowledge tend to differ significantly from the knowledge idiosyncratic to the corporation. Eisenhardt and Martin (2000) recognise the dynamic capabilities as "...*idiosyncratic in their details and path dependent in their emergence,*" but stress that effective dynamic capabilities have significant commonalities across firms, which can be referred to as a *Best Practice*. They further recognise dynamic capabilities as consisting of identifiable and specific organisational routines, which can concern a firms gain, integration, and reconfiguration or release of resources to leverage a competitive advantage. Eisenhardt and Martin (2000) emphasize that dynamic capabilities concern knowledge-based resources and that the evolution is guided by learning mechanisms, depends on market dynamism, and that the order of the implementation of dynamic capabilities is consequential. Hence, we argue that, with the basic characteristics of this reconceptualisation of dynamic capabilities, this view comprises of a suitable theoretical anchoring for the conceptual framework developed to fulfil the purpose of this study. More specifically, we introduce ACAP as a more operationalisable dynamic capability concept and integrate the four ACAP dimensions directly in our conceptual framework, as will be described in detail later in this article.

Reverting back to the notion of decoupling, we posit ACAP to have a significant potential of illuminating decoupling from a different perspective, which views a corporation's response to sustainability issues as a learning process.

### **5.2.3.2 Absorptive Capacity (ACAP)**

In times of dynamic markets and high uncertainty, knowledge is the dominant source for competitive advantage (Jansen, Van Den Bosch, & Volberda, 2005). Due to the often complex nature of sustainability issues, they are prone to such a high uncertainty environment (Hirsch Hadorn et al., 2006). Thus, addressing them most often requires knowledge from external sources. This is in line with the point made earlier concerning the different heuristics of sustainability-related knowledge. Hence, an internal approach to knowledge management is not sufficient in dealing with the rapidly changing environments, technologies, regulations, and markets (Camisón & Forés, 2010).

The ACAP concept entails an external approach, while being positioned as a dynamic capability for managing the acquisition and integration of knowledge from external sources, with the aim to stimulate the firm's innovation and competitiveness (Camisón & Forés, 2010; Flatten et

al., 2011; Matusik & Heeley, 2005). Even Cohen and Levinthal's (1989) original conceptualisation of ACAP as the ability to identify, assimilate, and exploit knowledge acquired from external sources, holds potential for explaining this process when it concerns sustainability issues. Therefore, the concept has evolved while the management literature has dealt extensively with the ACAP concept and introduced its numerous conceptual and empirical studies in a variety of research fields and on a variety of topics. These fields include industrial organization, organisational learning, strategic management, and innovation management (Camisón & Forés, 2010; Zahra & George, 2002). Specific studies have demonstrated that absorptive capacity influences innovation (Tsai, 2001), intraorganisational transfer of knowledge (Szulanski, 1996), and interorganisational learning (Lane & Lubatkin, 1998; Lane et al., 2001). Thus, the evolution of the concept primarily concerns the ACAP dimensions, measurement and conceptualisations, which we first introduce briefly and then address specifically for each seminal contribution to the evolution of the concept.

The original conceptualisation of ACAP by Cohen & Levinthal, is comprised by three dimensions (identify, assimilate, and exploit). Zahra and George (2002) extended the conceptualisation of ACAP to entail four dimensions (acquire, assimilate, transform, and exploit), which they furthermore distinguished into potential (acquire, assimilate) and realized (transform, and exploit) ACAP. ACAP with four dimensions was contested (Lane et al., 2006), but recent studies have found this conceptualisation to be the most applied in studies of ACAP (Flatten et al., 2010).

Zahra and George's (2002) extension of ACAP to comprise four dimensions, was motivated in part by their recognition of the need to conceptualise ACAP in ways that allowed for improved measurement of this concept. While recognizing that most studies follow the original approach by Cohen & Levinthal to measure ACAP with proxies for R&D, Lane et al. (2006) suggests that this concept should be explored in non-R&D contexts through empirical studies. Such studies should be conducted using methods that capture the complexity of each ACAP dimension, which cannot be done in studies using R&D as a proxy (Lane et al., 2006). Latter, such one-sided measures tend to consider ACAP as a static resource and not as a process or capability (Lane et al., 2006). The latter view is relevant when we consider sustainability-related knowledge as primarily residing in sources external to the firm, which therefore must engage in processes to acquire the knowledge and develop capabilities aimed at sustainability compliance and/or sustainability innovation. Zahra and George's (2002) view of ACAP as a dynamic capability is particularly relevant when we consider the four ACAP dimensions as stages in a process, which can be influenced by both internal and external factors that eventually determine whether ACAP leads to competitive advantage. Also, Zahra and George (2002) recognise the role of prior related knowledge, having in mind the

complexity of sustainability-related knowledge, the fragmentation of external sources, and therefore the difficulty in accessing it. Subsequently, this aspect of ACAP should be further explored in our conceptualisation of a framework for sustainability performance in value chains. Hence, we choose Zahra and George's four-dimensional ACAP as our point of departure. Also, we will elaborate further on this conceptualisation later. Before that, we briefly introduce Cohen & Levinthal's original conceptualisation on ACAP, while an understanding of their work informs our view on Zahra & George's extension hereof.

In their 1989 article, Cohen and Levinthal introduced ACAP with an economic perspective, but later (1990) expanded their conceptualisation of this concept to a perspective including the cognitive characteristics of learning. The 1990 article gained significant attention in both organization and innovation studies, which aimed to understand how organizations used external knowledge. This attention was particularly driven by Cohen and Levinthal's linking of the dynamics of individual learning into organisational learning. Thus, this is a combination that builds upon two inter-related learning views. The literature supporting the first view, argue that: (a) organisational learning is more than the sum of the learning by the members of the organization (Fiol & Lyles, 1985) and (b) the features of these member's cognition is less enduring than those of the organisational cognition (Hedberg, 1981). The literature supporting the second view, argue that prior related knowledge or problem-solving experience within a domain makes individuals receptive to new knowledge in this particular domain (Bower & Hilgard, 1981). In Cohen & Levinthal's (1990) conceptualisation, associative learning is occurring when events are recorded into memory by establishing linkages with pre-existing concepts; hence, prior knowledge enhances learning. Cohen & Levinthal (1990) combines these views by arguing that organisational absorptive capacity follows the same logic as individuals' absorptive capacity. Most of the numerous researchers subscribing to Cohen & Levinthal's conceptualisation of ACAP (1990), conduct their studies on the organisational level, whereas studies on the individual level are more seldom. The conceptualisation by Zahra & George (2002) is focused on the organisational level, but they also argue that ACAP potentially is a multidimensional construct (Zahra & George, 2002). In this research, we focus on the organisational level when conceptualising an IAS performance framework.

A seminal contribution to the literature on ACAP was Zahra and George (2002)'s reconceptualisation of the construct as a dynamic capability and the four dimensions of their model has been confirmed in recent studies (Flatten et al., 2011). Zahra and George (2002) combine ACAP with key organisational and strategic aspects (e.g. competitive advantage in the form of

strategic flexibility, innovation, and performance). Furthermore, they extend Cohen and Levinthal (1990)'s original three dimensional model. By adding a transformation phase, the refined model defines four dimensions: acquire, assimilate, transform, and exploit knowledge. The four dimensions are presented in Table 2 (adapted from Flatten et al., 2010), which highlights the key activities typically associated with each dimension and the supporting ACAP-related literature. In addition, the four dimensions supplement and build upon each other to create a dynamic organisational capability (Teece, Pisano, & Shuen, 1997).

<b>Dimension</b>	<b>Object</b>	<b>Activities</b>	<b>Sources</b>
<b>Acquisition</b>	Externally generated knowledge	Identify Acquire Evaluate (potential) usefulness in the context of an organization's operations Communicate with shared language	Zahra and George (2002); Cohen and Levinthal (1990); Weick and Roberts (1993); Ayuso et al. (2006); Albino et al. (2012); Seuring and Müller (2008); Srivastava (2007); Cassiman and Veugelers (2002); Camisón and Forés (2010)
<b>Assimilation</b>	Obtained knowledge	Analyse Process Understand Interpret with a shared understanding Disseminate	Zahra and George (2002); Cohen and Levinthal (1990); DiBella and Nevis (1998); Kohli et al. (1993); Jansen et al. (2005); Denison et al. (1996); Szulanski (1996)
<b>Transformation</b>	Assimilated knowledge	Expand upon Recombine Converse	Zahra and George (2002); Cohen and Levinthal (1990); Liu (2006); Kohli et al. (1993); Koestler, (1966); Verbos et al. (2007); Camisón and Forés (2010); Zhu and Sarkis (2004); Vachon and Klassen (2006)
<b>Exploitation</b>	Transformed knowledge	Incorporate into organisational processes Leverage organisational competencies Utilize / Use / Apply	Zahra and George (2002); Cohen and Levinthal (1990); Liu (2006); Kohli et al. (1993); Fosfuri and Tribo (2008); Bosch et al. (2003)

**Table 2** - ACAP dimensions, including key activities (adapted from Flatten et al. 2010)

In addition to a fourth dimension, Zahra and George's (2002) reconceptualisation of the ACAP contributed significantly by disaggregating the construct into Potential ACAP (PACAP) and Realized ACAP (RACAP). The differentiation of ACAP with the *Acquire* and *Assimilate* dimensions comprising PACAP and the *Transform* and *Exploit* dimensions comprising RACAP is with reference to enterprises not necessarily having the capability to exploit the knowledge that it values and acquires. Hence, a reference to capability, and not necessarily a resistance to implement a policy into practice, as would be the interpretation of decoupling in the view of institutional theory. This exemplifies the role of the PACAP/RACAP distinction. Particularly in each of the dimensions, it weighs the best practices and provides an alternate view on decoupling. Zahra and George's model does recognise the external influence on ACAP and emphasizes the contextual factors as antecedents and moderators of ACAP. Furthermore, the contextual factors eventually influence the Competitive Advantage as an ACAP outcome which is observable as the *Strategic Flexibility, Innovation* and/or *Performance*.

Zahra and George (2002) propose *external sources and knowledge complementarity* and *experience* as antecedents to ACAP and that this relation is moderated by *Activation* triggers, which can have internal as well as external sources. Zahra and George (2002) furthermore propose that *Social Integration Mechanisms* can reduce the gap between potential and realized ACAP, hence lowering "...the barriers to information sharing while increasing the efficiency of assimilation and transformation capabilities." They also identify *Regimes of appropriability* as a contextual factor, which, at the end, influences whether even higher levels of ACAP will lead to a competitive advantage. An adapted version of Zahra and George's model is presented in Figure 1, with some modifications explained in the following.

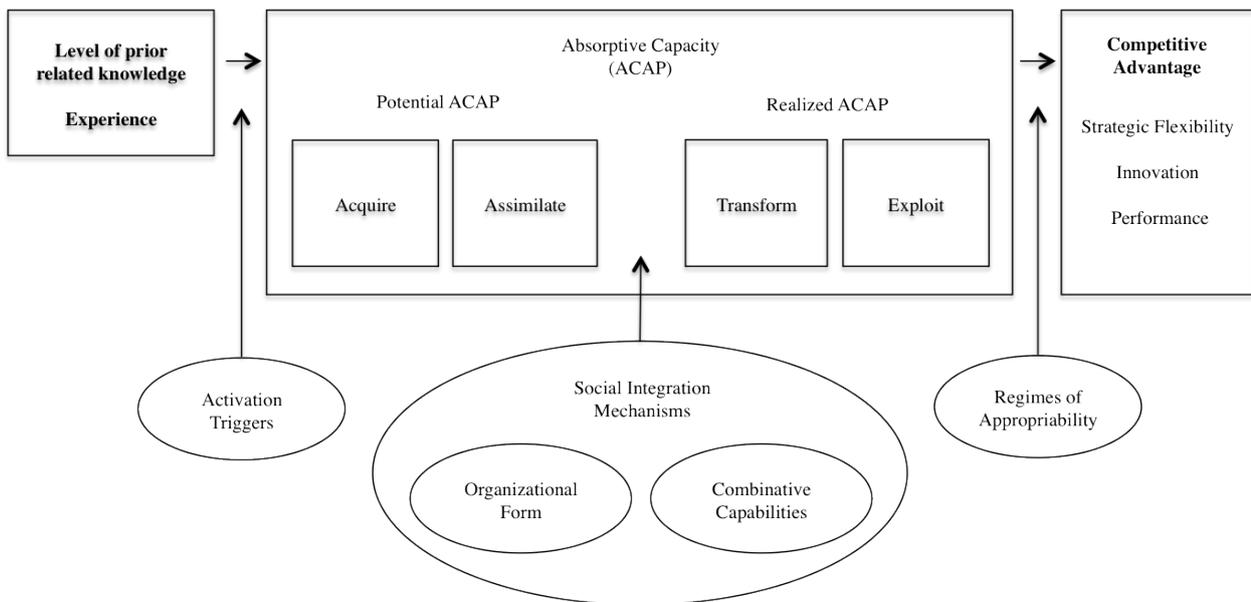


Figure 1 - Adaptation of Zahra and George's (2002) model for ACAP with Bosch et al.'s (1999) organisational determinants

The adaptations in the model of ACAP presented in Figure 1 primarily concerns the social integration mechanisms, which Zahra and George (2002) conceptualise as partly concerning organisational structures. It must be considered highly relevant to include a focus on such a moderator in this particular study, when reverting back to the statement from Pelozo (2009). He calls for research on the influence of organisational structures on leading indicators for sustainability performance. Zahra and George (2002) point to the two-sidedness of organisational structures, which, in certain forms, can increase employee interaction, and promote problem solving and creative action (Sheremata, 2000). On the other hand, other organisational structures can be barriers which stifle knowledge sharing and integration (Garvin, 1993). Therefore, this part of Zahra and George's (2002) model is less developed.

Bosch et al. (1999) provides a more elaborate view on the role of the *Organisational Form*, which they conceptualise as one of two organisational determinants of ACAP. The other determinant is termed *Combinative Capabilities*, which they conceptualise as being comprised of *Systems, Coordination, and Socialization*. Bosch et al. (1999) view the two organisational forms as complementary, while "...the knowledge absorption potential offered by a certain organization form can be utilized by temporary task forces, standing committees, project teams, or various other liaison devices that overlay the basic organization structure (Galbraith, 1973; Mintzberg, 1979)." This research subscribes to the ACAP model with a PACAP/RACP differentiation provided by Zahra and George (2002). However, we propose an adaptation where Bosch et al.'s (1999) organisational determinants serve as a more nuanced elaboration of the social integration mechanisms, depicted in Figure 1. Subsequently, this combined model finds support in a more

recent paper, where Jansen, Bosch and Volberda (2005) recognise the PACAP/RACP differentiation and propose organisational forms and combinative capabilities as affecting the PACAP/RACP gap. Bosch et al. (1999) refer to Obel and Burton (1995) and Volberda (1998) for a thorough analysis of various basic organisation forms, but limit their study to three organisational forms: the functional, divisional, and matrix forms. Departing in the further elaboration on these well-known organisational forms by Volberda (1998), Bosch et al. (1999) pose assumptions concerning the impact of organisational forms on ACAP. They assume that functional forms have a negative impact, divisional forms have a moderate impact, and the matrix form has a positive impact on ACAP.

We propose that by combining Bosch et al.'s (1999) combinative capabilities, organisational forms and assumptions with Zahra and George's model for ACAP, we establish a robust theoretical foundation for our conceptualisation of the IAS performance framework for sustainability in value chains. However, although ACAP is a promising and much studied concept, it has also been the subject of criticism, which we now elaborate on and relate to our approach.

As mentioned earlier, Lane et al. (2006) objected to the one-sided focus on R&D in studies of ACAP and to the use of R&D as a proxy for ACAP. These objections partly comprise one of five limiting assumptions that Lane et al. (2006) found to fundamentally drive the research on ACAP and which they conclude have led to the reification of the ACAP construct. They describe the reification (McKinley, Zhao, & Rust, 2000; Thomason, 1988) of a construct as "...the outcome of the process by which we forget the authorship of ideas and theories, objectify them (turn them into things), and then forget that we have done so" (Lane et al., 2006). Such reification is problematic while it threatens the validity of studies that use the construct (Cronbach & Meehl, 1955). This is because researchers increasingly fail to specify the assumptions that underlie their use of it (Lane et al., 2006). In order to address the problems created by reification, Lane et al. (2006) analysed 289 absorptive capacity papers from 14 top management journals. Thus, their assessment led to the following five limiting assumptions: (1) Absorptive capacity is relevant only to R&D-related contexts, (2) Firms develop absorptive capacity in response to the existence of valuable external knowledge, (3) Relevant prior knowledge equals absorptive capacity, (4) A firm's competitive advantage is based on Ricardian rents rather than efficiency rents, and (5) Absorptive capacity resides in the firm alone. It is highly relevant to consider these limiting assumptions in relation to this research. In the following, we argue that by choosing Zahra and George's conceptualisation of ACAP as the theoretical foundation, we address these assumptions to a great extent.

Regarding (1), this research partly focuses on ACAP in relation to sustainability-oriented innovation, but nevertheless do not apply R&D as a context or proxy. We focus on the corporate

organization more broadly and measure ACAP through the implementation levels set for each best practice across all four dimensions of our ACAP-model. Regarding (2), this research assumes that multiple factors influence whether corporations develop their ACAP, rather than solely in response to the mere existence of sustainability-related knowledge potentially valuable to the corporation. This is reflected in our choice to primarily subscribe to Zahra and George's (2002) model, which includes internal/external activation triggers for the initiation of the development of ACAP, and social integrations mechanisms influence whether potential ACAP is realized or not. Regarding (3), this research assumes that the development of ACAP relies more on the process of acquiring and integrating the knowledge, rather than ACAP being equal to relevant prior knowledge. This can be exemplified with a company with pre-existing knowledge of their internal sustainability practice. Thus, through LCA analysis, they implement the best practice for measurement and gain significant new knowledge on, for instance, the company's impact on society. Regarding (4), this research assumes that the process of assimilating and integrating newly acquired knowledge plays a greater role for firm performance, than simply the amount of knowledge and scarce resources acquired. We follow this assumption by choosing Zahra and George's capability-oriented model as a theoretical foundation for the continuum of best practices and their respective implementation levels, thereby assuming that a firm's competitive advantage is based on efficiency rents, rather than Ricardian rents. Regarding (5), this research assumes that ACAP resides in the full corporate value chain, which we define as comprising the value chain internal to the firm, the upstream and downstream value chains, and also the value chains connecting the firm with stakeholders like communities, public authorities, NGO's etc. In this research, we recognise ACAP as a multilevel construct and thereby that ACAP also resides on the individual level of the firm. However, we do not conceptualise the IAS performance framework to account for the ACAP for specific individuals, but for the structures and processes of the organisational subunits to which they belong. The latter is achieved through the establishment of implementation levels for the best practices in the framework, where functional differentiation will play a role in defining the thresholds for these levels.

Zahra and George's 2002 paper is of course one of those analysed by Lane et al. (2006), whom raise specific points of criticism towards their conceptualisation, regarding their definition of ACAP as having four dimensions and with a distinction between potential and realized ACAP. In Lane et al.'s (2006) critical view, the latter distinction represents an output/input ratio biased thinking toward the short term, which ignores ACAP's role in preparing a firm for the future. We find that such bias would be minor and can be addressed through longitudinal studies, which can follow the development of potential ACAP in one year, whereas it might not be realized in the following, but some years later. Conversely, we appreciate the distinction between potential and realised ACAP, while it corresponds very well to the policy/practice distinction mentioned earlier

and allows us to view the occurrence of decoupling in the perspective of learning. Secondly, Lane et al.'s (2006) argue that Zahra and George (2002) does not fully integrate prior definitions of ACAP into their own definition. We only follow this argument to a limited extent, because Zahra and George more or less integrate prior definitions of the acquired, assimilate, exploit dimensions, and extract the transform dimension from these as well. Conversely, we find Lane et al.'s approach to redefining ACAP more problematic and potentially subject to further reification. This while their definition group the acquisition and understanding of knowledge in a single dimension, as well as group the assimilation and transformation of knowledge. Furthermore, the later review of ACAP studies by Flatten et al. (2010), support ACAP with four dimensions as the most applied conceptualisation. On the other hand, it does not support Lane et al.'s redefinition of ACAP with three dimensions specifically.

Hence, we confidently uphold our choice of Zahra and George's conceptualisation as the theoretical foundation of our IAS performance framework, although the limiting assumptions provided by Lane et al. (2006) will be carefully considered during the conceptualisation of the framework. In order to partly address limiting assumption (5) as described earlier in this section, we suggest the use of the materiality concept, which we now elaborate in the following section.

#### **5.2.4 The Concept of Materiality**

The best practices identified in this research are very different. As such, they are addressed in separate literature streams, where the lower and higher levels of implementation are determined by specific typologies. Hence, when defining the implementation levels in the conceptualisation, we must strive for coherence across all twelve best practices. Therefore, we now elaborate on the concept of materiality, which we extend on to establish a single frame of reference and overcome the differences in the typologies associated with each best practice.

The role of materiality in the conceptual framework is to inform the development of implementation levels for each of the previously identified best practices for value chain sustainability performance. The ACAP construct facilitates the categorization of the best practices by assigning each of them to an ACAP dimension, thereby differentiating on the type of practice according to a learning trajectory. In addition, we also need to differentiate on the implementation level for each best practice in order to capture the development of capabilities over time. The most empirical studies comprising the literature could be used to solely inform these implementation levels, but would then constitute a validity issue. This while the differentiation would then draw on different concepts from a variety of literature streams. The framework must be considered more reliable when such differentiation levels are based on a single, or a few, coherent concepts. We

suggest the concept of materiality to serve such a role in the conceptual framework, while each of the best practices can then be differentiated according to how material the implementation is to the corporation and society. In addition, we assume that the more material the implementation of a best practice, the steeper the learning curve, and hence, the more resource-demanding it is.

The IAS-related academic literature on materiality is rare and is scattered across different streams of literature. The most conceptually clarifying articles are often found in the practitioner-oriented literature. It seems that no scholar has pushed the agenda on materiality in sustainability reporting more than Simon Zadek, though his efforts on this topic has primarily been published through reports published by AccountAbility (Zadek & Merme, 2003; Forstater et al., 2006; Murningham & Grant, 2013), an organization whom he headed as a CEO from 2002-09. The reports generally have a strong practitioner-focus, as exemplified in the 2006 report, which introduces a materiality framework with design principles for the corporate materiality determination process. The strong practitioner-focus is of great value to reporting corporations, but the reports do not address other institutional initiatives on materiality and/or connect to the academic literature on the topic to any significant extent. Hence, although we are inspired by and refer to AccountAbility's work, other sources must also be consulted to identify strong concepts, which can inform the differentiation of the implementation levels.

Positioned somewhere between the academic and practitioner-oriented literature, more recent publications from the *Initiative for Responsible Investment* (2010, 2012) are notable contributions, which advance the role of the materiality in non-financial reporting. Lydenberg et al. (2010) proposes a method for identifying key performance indicators on the sustainability impacts of US corporations in specific industries. In 2012, they elaborate on this in an extended report and specify a five-part, fact-based materiality test, which draws on three core sustainability principles to help prioritize relevant materiality considerations. Lydenberg et al. builds on the GRI reporting framework. The context for the Lydenberg et al. (2010) work is specifically investment-oriented, but the sustainability principles underlying their method have potential for application to the conceptual framework proposed here. This potential will be unveiled during the conceptualisation later in this article. Here, we briefly exemplify with the principle *Potential for Systemic Impact and Disruption*. In the framework proposed in this article, this principle would not concern the assessment of the potential impact for a specific sustainability issue. Rather, it would concern the assessment of a corporation's capabilities to assess or measure the impact, moreover analyse the associated risk and opportunity for the corporation.

Furthermore, we pose that whether corporations possess such capabilities is not only a question of either-or, but more so concerns the extent of the capability and how material it is. Assessing the level of materiality depends on the definition of materiality. Lydenberg et al. (2012)

accounts for various definitions of materiality from acknowledged sources (e.g. the GRI, AccountAbility and the Financial Services Institute of Australia (FINSA)). They do not favour a specific definition or synthesize them into a single overarching definition. Instead, they offer an integration of these definitions with the principles they propose:

*"Disclosure of material sustainability data is necessary to assess corporations' ability to disrupt—either positively or negatively—the economic, environmental, and social systems within which they operate under conditions of substantial complexity and uncertainty. The greater the potential for corporate practices to impact these systems, the longer the term of these potential impacts; and the greater the uncertainties involved, the greater the need for disclosure"* (Lydenberg et al., 2012).

Contrary to many definitions of materiality, the above statement emphasizes the corporation's impact on systems within which they operate, not only the systems impact on the corporation. The latter reflecting a perspective of risk for the corporation, whereas the statement also emphasizes the corporation's potential for a positive impact, an opportunity perspective. Just as the impact of corporate practices can vary, so can the capabilities to acquire and utilize the knowledge about these impacts. Hence, the above statement supports the view that materiality can be differentiated. In section 5.2.4.1, we will therefore argue for materiality-based implementation levels.

#### **5.2.4.1 Materiality-Based Implementation Levels**

The need to differentiate between the implementation levels of sustainability practices has only been addressed in very general terms in the IAS-related literature. It has been exemplified with the differentiation between symbolic and substantial acts in sustainability (Christmann & Taylor, 2006; Short & Toffel, 2007; Stevens et al., 2005) or between low and high sustainability companies (Eccles et al., 2011). Such narrow binary oppositions are not adequate when attempting to assess a corporation's development of capabilities. Therefore, we propose a differentiation into five implementation levels (Table 3), which describe the primary guidance by the materiality concept, but also relate each level to the relevant literature related to other ways of differentiation.

<b>Level</b>	<b>Definition</b>	<b>Related descriptions and literature</b>
<b>None</b>	Concerns the <i>lack of</i> reporting on the implementation of best practices for acquiring, assimilating, transforming and exploiting sustainability-related knowledge.	Corresponds to the lowest grade of materiality introduced by Accountability (2006): <i>not material to business or stakeholders: not reported on.</i>
<b>Intention</b>	Concerns the reporting of the <i>intended</i> implementation of the best practices for acquiring, assimilating, transforming, and exploiting sustainability-related knowledge, which supports a capability to address the corporations' impact on the economic, environmental, and social systems within which they operate.	<p>Intention is a mere expression of future activities, but recognizing and documenting intentions is an essential aspect of capturing the development of capabilities over time.</p> <p>Some corporations just engage in rhetorical framing (Campbell 2007) and pretend to take actions that they never really pursue. Such practices have been termed green or blue washing (Jamali, 2010, Perego&amp; Kolk, 2012). If these firms do not leverage their intentions and report activities, they can, ex ante, be proven guilty of 'greenwashing.'</p>
<b>Limited materiality</b>	Concerns the reporting of the implementation of best practices for acquiring, assimilating, transforming, and exploiting sustainability-related knowledge, which supports a <i>limited material capability</i> to address the corporations' impact on the economic, environmental, and social systems within which they operate.	<p>Corresponds, to some extent, to the medium grade of materiality introduced by Accountability (2006): <i>Relevant but not material: of interest to some stakeholders - information included in online report, regional reports or other communication, and considered for greater focus in the future.</i></p> <p>To some extent, the limited materiality implementation level corresponds to the symbolic category in earlier studies (Ioannou &amp; Serafeim, 2011). In contrast to substantial actions, symbolic actions can represent compliance, where there is not much implementation done (Zott &amp; Huy, 2007). While substantial actions are fully implemented within an organization, symbolic ones are not (Christmann &amp; Taylor, 2006). Painter-Morland (2006, 353) highlighted that symbolic actions "pull the wool over the eyes of investors and activist groups, knowing well that their actual compliance with codes cannot be monitored or enforced."</p>
<b>Corporate materiality</b>	Concerns the reporting of the implementation of best practices for acquiring, assimilating, transforming, and exploiting sustainability-related knowledge, which supports a <i>material capability</i> to address the corporations' impact on the economic, environmental, and social systems within which they operate.	<p>Corresponds, to some extent, with the highest grade of materiality introduced by Accountability (2006): <i>Strategically material issues: information emphasized in the printed report.</i></p> <p>To some extent, the corporate materiality implementation level corresponds to what is commonly known as "materiality" in the sustainability reporting discourse (Manetti, 2011; Manetti &amp; Becatti, 2008). In sustainability reports, the information provided must be relevant and material to the corporation and its core</p>

business (Eccles, Cheng, & Saltzman, 2010). Hence, most firms focus on issues related to their own profit and sustainability performance. Sustainability that is understood in this way emphasizes the economic dimension of the triple bottom line as the main bottom line. One paradigm management approach that follows this logic is eco-efficiency (Schaltegger & Figge, 2000).

**Extended materiality**

Concerns the reporting of the implementation of best practices for acquiring, assimilating, transforming, and exploiting sustainability-related knowledge, which supports an *extended material capability* to address the corporations' impact on the economic, environmental, and social systems within which they operate.

Corresponds, to some extent, with the highest grade of materiality introduced by Accountability (2006), but also goes beyond by extending the time horizon and scope for strategically material issues.

The extended materiality implementation level considers corporate materiality as a prerequisite and also requires societal materiality. The concept of "societal materiality" is very scarcely addressed in the literature. According to Young-Ferris and Roberts (2015), it is a view of materiality aligned with the moral stakeholder view. With a focus on the impact on society and individuals, it contrasts the financial materiality, which focuses on costs and money (Young-Ferris & Roberts, 2015). Implementing best practices on this level demonstrates the corporate commitment for substantial long-term oriented sustainability performance, which is directed towards society.

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**Table 3 - Definitions of materiality-based implementation levels**

In addition to the differentiation between the potential and realized ACAP, these five implementation levels for each best practice further strengthens the conceptual framework ability to capture the development of learning capability development and provide an alternate view on decoupling. The overall definitions of implementation levels complete the theoretical framework, which will underpin and guide the conceptualisation of the capability framework later in this article. Thus, the theoretical framework presented in this section is limited to the elaboration on the concepts and their relationship. Hence, it does not include the argumentation for the assignment of best practices to ACAP dimensions and the definition of thresholds for implementation levels. In addition, we consider the latter to be a methodological approach and part of the conceptualisation. In the following, we will elaborate on our research approach and the methods we have applied in the conceptualisation phase and the validation phase.

### **5.3 Research Approach and Methods**

As mentioned earlier, this research builds upon the work by Kjaergaard et al. (2015), who identifies major deficiencies in current corporate sustainability reporting practices and develops a set of propositions which address the need for future improvements. Subsequently, they also took the first step towards the conceptualisation of framework that follows these propositions. This they did by identifying a set of ten best practices for supply chain sustainability. Kjaergaard et al. (2015) applied key informant interviews and a subsequent literature review of the sustainable supply chain literature in their research approach.

As an initial part of the conceptualisation following in this research, we extend the work by Kjaergaard et al. (2015) from merely an upstream value chain focus to a full value chain focus which is in accordance with the concept introduced in section 5.1.5. Consequently, we also identify two additional best practices and thereby extend the set of best practices to twelve. The latter was achieved by following Kjaergaard et al.'s (2015) approach to literature review, but we refer to their article for further elaboration on their research approach and methods. In this section, we focus our attention on the research approach and methods that we apply, in order to take the set of twelve best practices and conceptualise them into a full performance framework. The research process is divided into two overall phases for the conceptualisation and the validation of the framework respectively. The two phases are described in sections 5.3.2 and 5.3.3, in which we elaborate on the sub-processes and methods applied in the conceptualisation phase and in the validation phase. Before that, we took a closer look at the modes of inference applied in each phase and briefly discuss how they influence our ability to reach conclusions based on this research approach.

#### **5.3.1 Modes of Inference**

Danermark (2002) distinguished between deduction, induction, abduction, and retroduction as four different modes of inference. Thus, each represents a different thought operation. Recalling the research questions stated in section 5.1.4, the first question was of a technological nature and is focused on how the framework should be designed. The second question was of a more evaluative nature and focus on how contextual factors that influences sustainability performance in value chains. Given the nature and focus of these two questions, we position this research as first and foremost, applying an abductive mode of reference; and secondly, a deductive mode of reference. In the following sections 5.3.1.1 and 5.3.1.2, we briefly describe each mode of reference and relate it to this research context. Towards the end of this section 5.3.1, we view the abductive mode of inference in a more critical perspective and discuss the implications that its application has on our ability to conclude in this research.

### **5.3.1.1 Abductive Mode of Inference**

Danermark et al. (2002) describes the fundamental structure or thought operations concerning the abductive mode of inference as follows: "To interpret and recontextualise individual phenomena within a conceptual framework or a set of ideas; to be able to understand something in a new way by observing and interpreting this something in a new conceptual framework." In this terminology, we perceive each of the best practices identified as individual phenomena, which we recontextualise into a new conceptual framework comprised theoretically of the ACAP construct and materiality concept.

Abduction differs significantly from deduction and induction, which are better known modes of inference. The latter two are both concepts in formal logic, which implies that they follow the logical form of inference, not the substantive content (Danermark et al., 2002). Hence, to seek new knowledge of structures and mechanisms, deduction and induction must be complemented by abduction as a more comprehensive way of reasoning, arguing, and relating the individual to the universal/general (Danermark et al., 2002). Although not a logically valid mode of inference in the sense of induction, abduction can be perceived both as a formalised inference, and as a recontextualisation and reinterpretation (Peirce, 1932) of something as something else. Therefore, this understanding of the phenomena within the frame of a totally different context may take the form of a conceptual framework or theory (Danermark et al., 2002). Hence, we understand each of the best practices as something specific within the literature streams from which they originate, but not necessarily as directly connected to each other. By placing them on a continuum of twelve best practices and applying the view of learning capabilities and materiality, we reinterpret the best practices and relate them to each other, across literature streams and existing interpretations. Hence, the IAS framework for sustainability performance in value chains is the outcome of a recontextualisation, which allows us to reach a conclusion that is just one of many possible conclusions. To draw more logically valid conclusions, we turn to the deductive mode of inference.

### **5.3.1.2 Deductive Mode of Inference**

Danermark et al. (2002) describe the fundamental structure or thought operations concerning the deductive mode of inference, as follows: "To derive logically valid conclusions from given premises; to derive knowledge of individual phenomena from universal laws." Like induction, deduction is a concept in formal logic, which implies that it follows the logical form of inference, not the substantive contents (Danermark et al., 2002). The one big difference between these two forms of inference is that in an inductive inference, the conclusion does not necessarily follow from

the premise. Instead, it entails new knowledge beyond what is in the premise. Conversely, in a deductive inference, a great deal of specific knowledge follows logically from the premise, but does not tell us anything new about the reality beyond what is already in the premises. In this study, we are not absolute concerning the latter. Although the finalized conceptual framework constitutes the premise for the case study, the validation phase will add to what we know about reality, by informing on the applicability of the framework and on the contextual factors influencing the development of learning capabilities. However, the purpose of the case study is not merely to demonstrate how events particular to this sustainability context can be interpreted and redescribed with the help of yet another variation of the ACAP concept. It is also to inform on what the events say about theory represented in the full IAS performance framework. We therefore view the validation phase following a deductive mode of inference as an essential supplement to the conceptualisation phase following an abductive mode of inference. A necessary question to address then concerns what the implications are for based on our ability to conclude, when combining these two very different modes of inference.

Danermark et al. (2002) notes that abductive conclusions in social science are seldom of the nature that we can ultimately decide whether they are true or false. He elaborates further that "One and the same phenomenon can always be recontextualised in different ways without it being possible to say that one of these is more true than the other." In the context of this research, the IAS performance framework could have been conceptualised differently, using another continuum of best practices, framing them with another process or capability oriented concept and using a different concept than materiality to define the implementation levels for each best practice. However, we can examine the validity of our IAS performance framework as a particular recontextualisation and studies of particular cases are essential, if we are to develop theories about social relationships, structures, and mechanisms (Danermark et al., 2002). The latter are not directly observable, but through abduction, we can acquire knowledge of how various phenomena can be part of and explained in relation to structures, internal relations and contexts. The latter are all contained within the theoretical foundation of our IAS performance framework, but are not directly observable; hence, such structures cannot be derived inductively or deductively (Danermark et al., 2002). Also, deductive and also inductive reasoning differs in an essential way from abductive reasoning, while all abduction builds on creativity and imagination (Danermark, 1990). Hence, the latter represent abilities that are required on the part of the researcher, which differs significantly from the power of strictly logical reasoning demanded in deduction and the mastery of specific statistical analysis required in induction. Such abilities for abductive reasoning were therefore essential for conducting this research, which benefitted from the availability of researchers with a diverse

research background, allowing us to address the very different best practices sufficiently.

When considering these abilities, it is important to stress that "abductive logic, applied in social science, very seldom (if ever) lead to definite truths - not even in combination with deduction and induction" (Danermark, 1990). However, we view the application of abductive logic as essential in creating a recontextualisation, which later can be used in studies utilizing a deductive or inductive logic. Thus, this thereby gets closer to "definitive truths"; although we in our view do not recognise absolute or definitive truths. We now turn to the process and methods applied in each of the two research phases, relying on an abductive and inductive mode of reference respectively.

### **5.3.2 Process and Methods for First Phase - Conceptualisation**

The objective of the first phase in this research is to conceptualise the IAS performance framework and the process and methods involved are elaborated on in the following subsections. The framework will be based on the identified set of best practices and also on the theoretical framework specified previously in section 5.2. The first step is elaborated on in section 5.3.2.1 and concerns the extension of the set with two additional best practices and assignment of the twelve best practices to each of the four dimensions of the ACAP construct. This is done through careful theoretical argumentation, which links the best practices and the supporting literature to the ACAP literature. The second step is elaborated on in section 5.3.2.2 and is concerned with the determination of the implementation levels for best practices using the materiality concept and sustainability factors and, which will be described briefly in the following, before elaborating on each of the processes and methods applied in this conceptualisation phase.

#### **5.3.2.1 Assigning Best Practices to the ACAP Dimensions**

As previously referenced in the section on the theoretical framework, Flatten et al. (2010) provides strong empirical support for the ACAP, as a construct with four dimensions. It further develops and validates a multidimensional measure of ACAP with 14 items. Flatten et al.'s approach to scale development is inspirational to this study, although we are not applying the 14 items directly, and our choice of methodology differs due to the particular interest of this study. Here, the interest lies not in the ACAP construct per se, but in the integration of this construct in a framework conceptualised for use in an IAS standard.

Similar to the approach by Flatten et al. (2010), we classify the total of twelve best practices (items) according to each of the four dimensions of the ACAP construct. Some best practices had more obvious ties to a specific dimension, but the classification of all best practices required a careful analysis of the relationship to one or more of the dimensions. The literature previously reviewed for the identification of best practices (Kjaergaard et al., 2015) and previous studies using

the ACAP construct were utilized in an analysis conducted as an iterative process. The point of departure for this process was the overview of the ACAP dimensions and key activities for each dimension (adapted from Flatten et al., 2010) listed in table 2, which was displayed earlier in section 5.2.3.2. Furthermore, Flatten et al. (2010) highlights such a matching of related research streams to a particular ACAP dimension as an important preliminary step in the development of an initial item pool. In this research, the research streams were less related to ACAP and in addition to the matching, potential implementation levels for each best practice was also to be identified. The process was initiated with distribution of the set of ten best practices among three researchers from different research fields. The researchers individually engaged in an analysis of the specific best practices and the identification of potential implementation levels. They presented their findings to the other researchers and the classification was discussed in plenum, in order to eliminate overlap across best practices and implementation levels. Each researcher then applied the feedback in a continued analysis. The process was repeated until the classification was achieved for all best ten practices and agreed upon among the researchers.

Subsequently, the identification of the ten best practices was conducted as part of the Sustainable Sourcing Excellence (SSE) research project and the final classification was presented to, and confirmed by, a group of project stakeholders, including corporations, an auditing consultancy and public entities. The two additional best practices were not conceived as part of the SSE project, but as part of an independent project, which nonetheless extended on the review and identification process applied in the SSE project. The process of assigning the twelve items to the ACAP dimensions underscored the need to develop the implementation levels for each best practice. The process and methods for this second step of the conceptualisation process is elaborated on in the following.

### **5.3.2.2 Differentiation of Implementation Levels using the Materiality Concept**

The second step of the conceptualisation process concerns the application of the materiality concept in the differentiation of the implementation levels for each of the identified best practices. Contrary to the ACAP construct, the materiality concept is not supported by a vast amount of sustainability-related research. Hence, the application of materiality in this conceptualisation is based on the five implementation levels: *None*, *Intention*, *Limited Materiality*, *Corporate Materiality*, and *Extended Materiality*, as they are defined in the section on the theoretical framework.

The generic implementation levels are overall informed by the referenced statement on materiality by Lydenberg et al. (2012). The sustainability concepts underpinning it were based on Bell and Morse (2008). The sustainability principles were not directly applicable to the best practices and were therefore operationalized into five sustainability factors instead. The relevance

of each factor would differ depending on the best practice. The decision on which factor to apply, and in which order, was therefore guided by a careful analysis of the literature reviewed for the identification of best practices.

The processes and methods applied in this first phase were directed towards addressing the aspect of the primary research question concerning how to design a framework with differentiated implementation levels reflecting learning progress and value chain integration. The conceptualisation of the framework is limited by being primarily theory-driven and only indirectly based on the empirical evidence, through the reviewed literature supporting the identification of the best practices in a prior study (Kjaergaard et al., 2015). Hence, we need to know of the frameworks applicability to corporate sustainability reports and how the data assessed with the framework corresponds to the reality of the corporation's sustainability practice. In other words, as the more evaluative aspect of our secondary question inquires, we need to validate how effectively this framework captures the development of these capabilities and how contextual factors influence this development.

The processes and methods applied in the first phase are limited to the core conceptual framework and do not address the contextual factors influencing ACAP and the development of the learning capabilities. However, we nonetheless consider these contextual factors to be essential when validating the effectiveness of the framework. Hence, although the validation of the best practices at the core of this conceptual framework is the primary focus, the identification and consideration of the contextual factors are also part of the second phase of this study.

### **5.3.3 Process and Methods for the Second Phase - Validation**

The objective of the second phase in this research is to apply and validate the conceptual framework by applying it in a case study of a multinational corporation reporting to the UNGC. First, the complete conceptual framework is applied in a content analysis of the sustainability reports submitted by the case corporations to the UNGC throughout a four-year period from 2010-2013. The twelve best practices and their implementation levels comprising the structure of the framework were applied as a coding scheme for the analysis. Next, the key sustainability professionals in the reporting corporations were interviewed for elaboration on and triangulation of the data derived from the sustainability reports. The interviews were conducted using the coding scheme applied in the content analysis, but taking the assessed learning capabilities into consideration. In the final step, news articles were subjected to a document analysis, as part of the identification of contextual factors influencing the learning capabilities. Although much of the data gathered concerns both the environmental and social dimension of sustainability, the case study

solely validates the framework towards the environmental dimension of sustainability. The research process can best be described to be primarily following a deductive mode of inference, which will be described briefly in the following. This is, however, before elaborating on each of the processes and methods applied in this validation phase.

### **5.3.3.1 Sampling**

The case sampled for the validation of the framework is a large multinational corporation, which became a signatory to the UNGC in 2008 and has submitted sustainability reports to this IAS every year. In addition to these basic sample criteria concerning size and IAS adherence, this corporation was purposefully sampled with respect to a number of additional criteria, which would leverage a substantial demonstration and limited validation of the conceptualised framework: (a) extensive value chain interaction, (b) recognised for both sustainability innovation and compliance, (c) primary industry should be subject to significant interest from stakeholders and public authorities, not recognised as an UNGC top performer in the early part of the five year period, and (e) based in a Scandinavian country. In addition to leveraging the purpose of the validation, the latter two criteria also relate this study earlier work by Kjaergaard (2014), which benchmarked the UNGC performance Scandinavian corporations. By sampling a corporation with a low performance according to the UNGC framework, the odds for observing some development of capabilities throughout the five-year period would be more favourable. The case corporation sampled is a large food producer. Thus, a more specific characterization of this corporation can be found in the case study analysis.

Ideally, at least four corporations should be sampled for the case study and thereby correspond to the minimum number of cases preferable in a qualitative study (Eisenhardt, 1989). However, given the comprehensive nature of the developed conceptual framework and the likewise comprehensive application of it, we decided to first engage in a single case study. In obtaining only a limited validation, it is very beneficial to conduct a comprehensive single case study before engaging with a larger number of cases. A wider application and more exhaustive study is our ambition and more case corporations and data is available to the researchers for future studies. Thus, this is outlined in section 6.4 in chapter 6 of this dissertation.

### **5.3.3.2 A Longitudinal Case Study Approach**

The case study approach was chosen to capture the evolvement of the corporation's sustainability learning capability over time, which required a longitudinal approach covering multiple years. The primary focus in the case study is therefore to apply the developed conceptual framework based on

the ACAP concept to a corporation reporting to the UNGC. Consequently, we examine the influence of the contextual factors on ACAP, like the activation triggers, social integration mechanisms, and regimes of appropriability described in Zahra and George (2002), including the organisational form and combinative capabilities, described by Bosch et al. (2003). The need for a longitudinal approach, including a focus on the contextual factors, can be exemplified with a government's proposal of new regulation. The latter this might serve as an activation trigger for the development of relevant Acquire and Assimilate capabilities in one reporting year. The relevant Transform and Exploitation capabilities might not be fully developed until the regulation is closer to being introduced, which then might increase the risk of the corporation not being able to sustain a competitive advantage. Case studies allow for the so-called thick descriptions (Danermark et al., 2002), which capture as many variables as possible and the interaction between them over a long period of time. The five-year time frame we apply here cannot be considered a long time, but sufficient in this study. In addition, we argue that the development of the sustainability learning capabilities follows a trajectory where changes can be observed from year to year.

### **5.3.3.3 Qualitative Methods**

Given the IAS focus, the sampled corporations' sustainability reports submitted to the UN Global Compact was the more obvious choice for a primary data source for this case study. However, we chose to complement the reports with an interview with a key sustainability practitioner in the sampled corporation. The sampled corporation had adopted the UNGC standard for their sustainability reports, which were available on an annual basis from 2010-2014. While the sustainability reports are comprised of information retrieved widespread in the corporate organization, the published sustainability report is often an edited output from a communications or public affairs department. Thus, they made choices on what the CEO can put his or her signature on and present to stakeholders. It was expected that the overall development of learning capabilities could solely be tracked from the sustainability reports, but the reports were not expected to have the level of detail needed to completely illuminate the connections between the different best practices and the moderating contextual factors. Conversely, it was expected that interviewing sustainability practitioners, with a key role in leveraging the reported information, would, in fact, be able to 'connect-the-dots' and provide more unedited insight into the contextual factors influencing the sustainability learning capability. Given the limited availability of the key corporate sustainability professional, it was especially important to coordinate the methods to collect, analyse, and maximize the quality of the data.

### 5.3.3.3.1 Content Analysis of Sustainability Reports

A content analysis can be applied in multiple ways. Overall, we can distinguish between a method for a quantitative text analysis and a quantitative method for qualitative data, by counting and measuring the appearance of a certain issue or phenomenon in the written material (Boréus & Bergström, 2005). Hsieh and Shannon (2005) solely view a content analysis as a qualitative research technique. Hence, they describe three different content analysis approaches: conventional, directed, and summative.

For this study, we applied the directed approach, which follows a highly structured analytical process. This process begins by defining categories based on the relevant theory (Hsieh & Shannon, 2005). In addition, when applying the directed approach, the objective is to confirm, reject, or extend a theoretical framework. The process and objective of the directive process corresponds well with this study. In the first phase of this study, we developed a conceptual framework based on the ACAP construct. In the second phase, we sought validation of the framework and the identification of contextual factors influencing ACAP. Since the latter involves coding and categorizing as the analysis proceeds, our approach must also be described to include an element of conventional content analysis (Hsieh & Shannon, 2005). Our process for applying these approaches takes on several steps.

In the first step, the sustainability reports from each year in the five-year period were subjected to a content analysis using the codes available from the finalized conceptual framework, as the primary coding scheme. Furthermore, we also identified and developed new codes to capture the contextual factors influencing the sustainability learning capability. Therefore, the primary coding scheme was comprised of the conceptual frameworks twelve best practices, which constituted the primary coding categories (the coding scheme is available in Appendix A). In addition, each of the best practices can be implemented at the four different levels, which constitute secondary coding categories. The best practices and their implementation levels are applicable for both environmental and social sustainability, but the coding scheme was only applied towards environmental sustainability.

The content analysis process involved one researcher reading through one sampled corporation's sustainability report, one year at a time, starting with 2010. The researcher would copy relevant information corresponding to the primary coding categories into a single document, containing all relevant information for the four years of the reporting. The information gathered for each best practice was further categorised in the document, while the variety of the information would differ significantly even for the single sampled corporation within a single primary industry of their operation.

The second step in the process was to assess the implementation level for each of the best practices concerning environmental sustainability. The information selection process in the first step and the assessment in the second step of the directed content analysis approach were followed by a set of guidelines used by the researcher. The guidelines contain both overall descriptions of the best practices and more specific definitions of the implementation levels, stating thresholds informed by sustainability principles. Furthermore, the gathered information for a best practice would typically concern both more advanced and less advanced approaches reported. The assessing researcher would decide on an overall level of implementation, based on the extent to which each of the three sustainability factors were implemented. This extent would typically be different for each factor. This is exemplified by the stakeholder range being implemented at extended levels of materiality for a best practice. Thus, because the implementation only concerns a few issues, the qualities of presence would be implemented at limited levels of materiality. The final dataset derived from the directed content analysis would inform on the implementation levels for all twelve best practices for environmental sustainability.

A content analysis is a method that has limitations, which are even more important to address when using edited sustainability reports as the primary data source. Content analysis is based on simple assessment procedures. Here, the procedures solely focused on written text. As such, there is a risk that the researcher will not capture important underlying unstated issues or disregard the larger context. Also, we will argue that choosing a directed approach over the conventional and summative approach to content analysis significantly reduces this risk. Nevertheless, we recognise the need to triangulate the data derived from this research method. Hence, we applied interviews as a secondary method, and document analysis as a tertiary qualitative method.

#### **5.3.3.3.2 Interview with a Key Corporate Sustainability Professional**

An extensive dataset was available from the content analysis conducted prior to the interview and the ambition was to elaborate on this data. Hence, the need for prior instrumentation (Miles et al. 2014) was neither little, nor a lot, when applying the interviews as a secondary triangulating method for the data collection process. Miles et al. (2014) presents a number of key decision factors for prior instrumentation, concerning the need for context description, the use of concepts, and intentions, which led us to apply some instrumentation to achieve more complete datasets.

Based on the conceptual framework and the prior content analysis, a generic interview guide was developed with open-ended questions aimed at addressing the implementation levels for each best practice. However, we applied more prior instrumentation by adapting the generic interview guide for the interview through eliminating, reformulating, and adding questions based on the

dataset available for the corporation. Further instrumentation was applied by sending a description of the study's purpose, the accumulated dataset, and the adapted interview-guide by e-mail to the corporate interviewee well in advance. This was done in order for the interviewee to prepare for the interviews and gather information from colleagues, if necessary. The e-mail was followed by a short telephone call, in which the interviewer explained the background for the study and explained the interview guide. In other words, the interviewee was aware of the interviewer's frame of reference and current level of knowledge about the corporation's sustainability practice. In addition, the interview was conducted face-to-face with the case corporation's key sustainability professional in their corporate headquarters.

The decision to interview a key sustainability practitioner was based on the need for a triangulation of the information from the sustainability report. It is an edited communication product signed off by the CEO and most often put together by a communication, public affairs or similar corporate function. The interviewee was identified via list of representatives to the UNGC Nordic Network. The sampled corporations are so big in size and complex in their operations that no single sustainability practitioner can exhaustively answer all of the interview questions. Hence, more sustainability practitioners in different organisational functions could ideally have been interviewed; however, their availability was limited. Instead, the interviewees agreed to act as information brokers and therefore received the assessed data and interview guide in advance. This is with the aim of contacting relevant individuals in their organization.

The methods and research processes applied in this study led to the development and validation of a conceptual framework. This framework aims at capturing the development of corporate learning capabilities for environmental sustainability over time. Although the development and validation are two connected and sequential processes, we view them as distinct, and hence, separate them into two sections. First, we engage with the conceptualisation of the framework, in which we first extend on the best practices derived from the prior research. Second, we extend on the set of best practices and assign them to the four dimensions of the ACAP construct and define their implementation levels based on the materiality concept.

#### **5.4. Conceptualising the Framework**

In this section, we engage with the actual conceptualisation of a framework with the purpose of achieving a design, which can capture the development of corporate learning capabilities for sustainable value chains. We accomplish this by presenting the list of best practices derived in prior studies and extend this to fully accommodate the view of this study. Thus, this includes a focus on both the compliance and innovation in a value chain perspective. Then, we weigh in on each of the

best practices by assigning them to the most fitting of the four ACAP dimensions and discuss the potential implementation levels for each best practice. The implementation levels are finalized through the application of sustainability factors, which inform the definition of the thresholds for each level.

#### **5.4.1 Best Practices for Value Chain Sustainability**

Measuring corporate sustainability through adherence with best practices represents the use of a leading indicator for sustainability performance. The distinction from lagging indicators is also appropriate when it concerns sustainability in corporate value chains. It is notoriously difficult for focal corporations to retrieve quantitative information on lagging indicators (e.g. CO<sub>2</sub>-emissions from suppliers whereas adherence to certain practices is more common in a supplier code of conduct and other requirements made by the focal corporations). Some practices have a higher impact on performance. Hence, we confer with the existence of best practices, as described by Szulanski (1996, pp. 28), who refer to an organization's "*...replication of an internal practice that is performed in a superior way in some part of the organization and is deemed superior to internal alternate practices and known alternatives outside the company.*"

In prior research (Kjaergaard et al., 2015), we engaged in a literature review from which we derived ten best practices for corporate supply chain sustainability. In this research, we extend the view to the full value chain both upstream and downstream. Thus, this adds a focus on the customers and/or consumers and engagement with external actors on research. Consequently, we expand the set to twelve best practices, which more fully address the value chain perspective. Some of the best practices are now titled using the term "value chain" as displayed in Table 4, which list all the twelve best practices together with examples of the literature supporting the choice of each particular best practice. The two best practices of *Engagement in external research activities related to sustainability issues* and *Integration of value chain related sustainability issues in corporate marketing communications* were added to the original set.

<b>Best Practices</b>	<b>Topic Examples</b>
<b>Assessment and measurement of sustainability impact in the corporate value chain</b>	<ul style="list-style-type: none"> <li>▪ Carbon management across supply chain (Gopalakrishnan et al., 2012)</li> <li>▪ Remediation projects (Gavronski et al., 2012)</li> <li>▪ Internal performance evaluation system (Zhu et al., 2013)</li> </ul>
<b>Engagement in external research activities related to sustainability issues</b>	<ul style="list-style-type: none"> <li>▪ R &amp; D cooperation and spillovers (Cassiman &amp; Veugelers, 2002)</li> <li>▪ Social Capital, Networks, and Knowledge Transfer (Inkpen &amp; Tsang, 2005).</li> <li>▪ Implications of transdisciplinarity for sustainability research (Hadorn et al., 2006)</li> </ul>
<b>Stakeholder consultations on sustainability issues</b>	<ul style="list-style-type: none"> <li>▪ Communicating proactively with stakeholders (Carter &amp; Easton, 2011)</li> <li>▪ Stakeholder communication (Beske et al., 2014)</li> <li>▪ Stakeholder management (Pagell &amp; Wu, 2009)</li> </ul>
<b>Analysis of sustainability risks and opportunities in the value chain</b>	<ul style="list-style-type: none"> <li>▪ Risk management in sustainable supply chain management (Foerstl et al., 2010; Hofmann et al., 2014; Klassen &amp; Vereecke, 2012)</li> <li>▪ Monitoring (Koplin et al., 2007)</li> <li>▪ Pressure group management (Seuring &amp; Müller, 2008)</li> <li>▪ Opportunity in sustainability-oriented innovation process (Adams et al., 2012)</li> </ul>
<b>Internal coordination and communication concerning sustainability issues in the corporate value chain</b>	<ul style="list-style-type: none"> <li>▪ Department ensuring social, economic and environmental considerations (Gopalakrishnan et al., 2012)</li> <li>▪ Being “part of the mission” (Pagell &amp; Wu, 2009)</li> <li>▪ Senior-/top-management involvement (Seuring &amp; Müller, 2008)</li> <li>▪ Sustainability rooted in organisational culture (Gopalakrishnan et al., 2012; Carter &amp; Easton, 2011; Beske &amp; Seuring, 2014)</li> <li>▪ Management support (Zhu et al., 2008; 2013)</li> <li>▪ Generate environmental reports for internal evaluation (Zhu et al., 2008; 2013)</li> <li>▪ Cross-functional cooperation for environmental improvements (Zhu et al., 2008; 2013)</li> <li>▪ Special training for work environmental issues (Zhu et al., 2008; 2013)</li> </ul>
<b>Development of policies and targets for sustainability in the corporate value chain</b>	<ul style="list-style-type: none"> <li>▪ Key performance indicators (KPIs) of sustainability initiatives (Gopalakrishnan et al., 2012)</li> <li>▪ Policy statement (Large &amp; Gimenez Thomsen, 2011)</li> <li>▪ (Supplier) code of conduct (Jiang, 2009; Schleper &amp; Busse, 2013)</li> </ul>
<b>External communication and capacity building concerning sustainability issues to suppliers and other business partners in the corporate value chain</b>	<ul style="list-style-type: none"> <li>▪ Enhanced communication (Beske &amp; Seuring, 2014)</li> <li>▪ Supplier development (Seuring &amp; Müller, 2008)</li> <li>▪ Transparency (Seuring &amp; Müller, 2008)</li> <li>▪ Long-term and close relationships (Seuring &amp; Müller, 2008; Mollenkopf et al., 2010)</li> </ul>
<b>Integration of sustainability issues in processes for the selection and evaluation of suppliers and other business partners in the corporate value chain</b>	<ul style="list-style-type: none"> <li>▪ Supplier management and integration of supply chain (Gopalakrishnan et al., 2012)</li> <li>▪ Sustainability in supply chain partner selection (Gold et al., 2010; Beske &amp; Seuring, 2014; Pagell &amp; Wu, 2009)</li> <li>▪ Green purchasing (Zhu et al., 2008; 2013)</li> <li>▪ Monitoring (Klassen &amp; Vereecke, 2012)</li> </ul>
<b>Engagement in sustainability-oriented collaboration with suppliers and other business partners in the corporate value chain</b>	<ul style="list-style-type: none"> <li>▪ Collaboration to enhance sustainability performance (Vachon &amp; Klassen, 2008; Sarkis et al., 2011)</li> <li>▪ Joint development (Beske &amp; Seuring, 2014)</li> <li>▪ Common IT interfaces and database structure (Srivastava, 2007)</li> <li>▪ Information sharing with supply chain partners and external stakeholders (Srivastava, 2007; Seuring &amp; Müller, 2008; Carter &amp; Easton, 2011)</li> <li>▪ Cooperation (Zhang &amp; Wang, 2014; Zhu et al., 2008; 2013)</li> </ul>

<b>Innovation of sustainable products, services and processes which are technologically new or significantly technologically improved</b>	<ul style="list-style-type: none"> <li>▪ Sustainability-related innovation (Beske &amp; Seuring, 2014)</li> <li>▪ Adaptation of products and processes (Gavronski et al., 2012)</li> <li>▪ Eco-design (Zhu et al., 2007 ; 2008; 2013)</li> <li>▪ Innovation (Klassen &amp; Vereecke, 2012)</li> </ul>
<b>Compliance through the adoption of, and adherence to, sustainability standards and certifications</b>	<ul style="list-style-type: none"> <li>▪ Certification (Gold et al., 2010)</li> <li>▪ Standards and certifications (Müller et al., 2009; Beske et al., 2014)</li> <li>▪ ISO 14000 certification (Zhu et al., 2008; 2013)</li> <li>▪ Eco-labelling of products (Zhu et al., 2008; 2013)</li> </ul>
<b>Integration of value chain related sustainability issues in corporate marketing communications</b>	<ul style="list-style-type: none"> <li>▪ Demand and supply integration (Kirchoff et al. (2011))</li> <li>▪ Enviropreneurial marketing strategies (Menon &amp; Menon, 1997)</li> </ul>

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**Table 4** - *Set of twelve best practices for value chain sustainability (adapted from Kjaergaard et al., 2015)*

The list of best practices holds an implicit chronological order, as exemplified by the best practices for research and assessment/measurement at one end of the continuum, while the best practices for compliance and innovation are positioned at the other end. The continuum also indicates that the former precedes the latter best practices, which tends to be more complex and advanced. As was previously argued, more advanced and resource-intensive best practices should be more acknowledged by an IAS. Hence, we propose the first step to be the weighing of best practices, as demonstrated in section 5.4.3 later in this article.

#### **5.4.2 Applying Sustainability Science Principles to Define Implementation Levels**

In the theoretical framework described in section 5.2, we outlined the materiality concept and how it can inform a differentiation of the best practices into the overall implementation levels: *None*, *Intention*, *Limited Materiality*, *Corporate Materiality*, and *Extended Materiality*. The differentiation should be specific for each best practice. As such, we proposed the application of sustainability principles to inform the thresholds for each implementation level. Furthermore, Lydenberg et al. (2012) identified three sustainability principles:

- *Potential for Systemic Impact and Disruption*
- *Degree of Uncertainty Related to These Impacts*
- *Long-Term Potential of These Impacts*

These principles are useful in prioritizing the materiality of sustainability key performance indicators. Lydenberg (2012) compares the principles with questions posed by Bell and Morse (2008), in the evaluations of the sustainability of a system:

- *What is the scope of the system being considered? Is it local and bounded?*
- *What is the timeframe over which sustainability is being considered?*
- *What qualities of the system are given precedence?*

Lydenberg consider Bell and Morse's questions as factors, which makes it possible to distinguish between more all-encompassing (“stronger”) sustainability assessments setting broader physical boundaries to the system and those that are more limited (“weaker”) (Bell & Morse, 2008).

As pointed out by Freyman (2012), Bell and Morse continuously refer to the involvement of "...as many stakeholders as possible in creating sustainability indicators, especially when evaluating specific projects." Therefore, we consider the range of stakeholders a factor. The principle-based differentiation, the system-approach, and the stakeholder orientation align well with our value chain focus and objective to define thresholds for the best practices. In order to utilize these principles and factors for this purpose, we must first operationalize them into a coherent form that is applicable to the best practices. In addition, we consider the factor-form used by Bell and Morse to be most applicable and hence, we adapt the Lydenberg's principles into three factors. Together with Bell and Morse's three factors, we thereby present the six particular factors displayed in Table 5. The table lists the sustainability factors in the left column. Thus, this is alongside a descriptive text and it exemplifies the application of the factor towards a specific best practice in the second column. The remaining three columns display how each factor can be applied towards the generic implementation levels.

<b>Sustainability Factor</b>	<b>Explanation and exemplification</b>	<b>Limited Materiality</b>	<b>Corporate Materiality</b>	<b>Extended Materiality</b>
Length of time <i>Concerns whether a best practice is implemented with a short, medium or long-term perspective.</i>	Exemplifying this factor is whether the best practice implemented for impact measurement is only considering impacts in the short-term or in longer terms.	Implementation has a short term orientation.	Implementation with a short to medium term orientation.	Implementation has a long term orientation.
Potential for disruption <i>Concerns the extent of disruption generated by the implementation of a particular best practice</i>	Exemplifying this factor is whether the best practice implemented for innovation only leverages incremental sustainability improvements in products, services or changes in the 'rules of the game' in the system, in which the corporation operates.	Implementation concerns an issue with limited potential for disruption for the corporation and society.	Implementation concerns an issue with significant potential for disruption for the corporation.	Implementation concerns an issue with significant potential for disruption for society and potentially also the corporation.
Range of stakeholders <i>Concerns the extent of the range of stakeholders considered in the implementation of a particular best practice.</i>	This would concern the best practice for stakeholder consultation, but is better exemplified with the best practice for engagement in a sustainability-oriented collaboration with suppliers and other business partners. Hence, it involves whether corporations only cooperate with a few suppliers or collaborate with a multitude of stakeholders in a consortium, possibly including competitors.	Implementation concerns a limited number of primary stakeholders within Tier 1 of the upstream and downstream value chain.	Implementation concerns a significant number of primary stakeholders within Tier 1 and a limited number of stakeholders recognised as secondary, or in Tier 2, and more in the upstream and downstream value chain.	Implementation concerns a significant number of primary stakeholders within the tiers of the upstream and downstream value chain and a limited number of secondary stakeholders beyond the value chain.
Degree of uncertainty <i>Concerns the degree of uncertainty associated with the implementation of a particular best practice.</i>	This factor concerns best practices assigned to the <i>Acquire</i> and <i>Assimilation</i> dimensions of ACAP, exemplified with the best practice for risk and opportunity analysis and whether the implementation hereof only addresses a scope with less uncertainty (e.g.	Implementation concerns a low degree of uncertainty.	Implementation concerns a low to medium degree of uncertainty.	Implementation concerns a high degree of uncertainty.

known markets or unknown markets with a high degree of uncertainty).

Qualities given presence	Exemplifying this factor is the implementation of the best practice <i>Integration of sustainability issues in processes for the selection and evaluation of suppliers and other business partners</i> and whether the sustainability issues only play a minor role in selection and evaluation, or a dominant role with misconduct, likely leading to a close of business with a particular supplier.	The best practice is implemented for indirect economic reasons (e.g. reputational).	The best practice is implemented for direct economic reasons.	The best practice is implemented for social or environmental, as well as economic reasons.
<i>Concerns the priority of economic, environmental and social aspects when implementing a best practice.</i>				
Scope	Exemplifying this factor is the implementation of the best practice <i>Development of policies and targets for sustainability in the corporate value chain</i> . Here, scope can be exemplified as concerning whether the policies are global or cover specific markets or regions.	The best practice is implemented for a single or a few markets.	The best practice is implemented for all core markets.	The best practice is implemented with global coverage for all markets
<i>Concerns the scope of the implementation of a particular best practice</i>				

**Table 5 - Sustainability factors, brief exemplifications and definitions for implementation levels**

Although we present 6 factors in table 5, they are not all equally applicable to all best practices, which will be demonstrated in the following section 5.4.3. In addition, table 5 does not list the factors in any prioritized order and the listing of factors for each best practice in section 5.4.3 is not prioritized either. The literature could inform such prioritization and it is relevant, but it is not within the scope of this study. The sections on the limitations of this study and further research will address prioritization in more detail. The factors listed for each best practice later inform the determination of thresholds for the implementation levels. Consequently, the latter process should also be informed by the particular best practice' position on the continuum of the twelve best practices in the conceptual framework as well as the assignment of each best practices to an ACAP dimension. Thus, we engage in this process in the following section 5.4.3.

### **5.4.3 Assigning the Best Practices to the ACAP Dimensions and Prioritizing the Factors**

When determining how to apply a weighing to the identified best practices, we must first recall the ambition to introduce a learning analogy as an alternate IAS logic, as compared to the financial logic embraced by the Global Reporting Initiative (Etzion & Ferraro, 2010). Rather than viewing the best practices as independent practices, we propose that each of them represent a step in a learning process where knowledge from the external value chain, is absorbed into the corporate organisation. To operationalize the use of such an analogy, we choose a learning related theoretical construct, Absorptive Capacity (ACAP), which can inform the categorisation and weighing of the best practices. The reasoning for choosing this construct was elaborated in the theoretical framework presented in section 5.2. Zahra and George (2002) conceptualise the construct with four dimensions: Acquire; Assimilate; Transform; and Exploit. However, these dimensions respectively represent a stage in the learning process and also constitute the categories we assign the best practices to, in order to facilitate the weighing process.

The following categorization of the best practice in the sections 5.4.3.1-4 will elaborate on why we consider each best practice to reflect the particular dimension of ACAP. Overall, we briefly compare our twelve best practices to the fourteen items identified by Flatten et al. (2010). Flatten et al. (2010) aims to develop reflective measures of ACAP and refer to a distinction by Jarvis et al. (2003), when they provide a description of reflective constructs: "...characterized by a causality which runs from the construct to the items, an interchangeability of items, an expected high correlation between items, and items that share a similar nomological net." Flatten et al.'s fourteen items express these characteristics and the view of ACAP as a reflective construct. Conversely, the twelve best practices in our framework are not expected to correlate to any great extent, but each of them are expected to influence ACAP overall. Hence, our view of ACAP is more as a formative construct, which requires formative measures. Furthermore, we do expect some correlations between the best practices across the four dimensions of ACAP. Thus, this was as exemplified with the exploitative best practice for innovation. This best practice is likely to benefit from external knowledge acquired, assimilated and transformed, but can also occur independently of the implementation of best practices assigned to these dimensions. ACAP researchers rarely go through the trouble of specifying whether they view ACAP as a reflective or formative construct, or a combination (Becker, Klein & Wetzels, 2012). However, Mennens et al. (2016) and Marzec (2013) explicitly argue for ACAP as a more formative construct. Thus, in this perspective, we view our twelve best practices as indicators for ACAP.

This sections 5.4.3.1-4 concerns the process of categorizing the twelve best practices, which happen to be distributed evenly with three best practices for each of the four dimensions. Not by

intent, but such an even distribution has the benefit of providing a more balanced framework, which can lead to a more robust analysis and improved validation. The following subsections are divided into one for each of the four ACAP dimensions. Each subsection will introduce the dimension, according to the ACAP literature, and relate it to sustainability as a concept. An argumentation for assigning each of the best practices to the particular ACAP dimension and the elaboration of the implementation of this best practice according to the literature will follow. The latter will then be juxtaposed to the range of identified sustainability factors, which later will inform the formalization of the implementation levels and thresholds for each best practice. When assigning the best practices, we argue on an abstract level to ensure the applicability of the framework across organizations in various industries, value chain positions, and environmental issues.

### **5.4.3.1 Acquisition**

External knowledge sources are very important for companies to develop dynamic capabilities to deal with dynamic markets and environments (Cohen & Levinthal, 1990). The complexity of environmental issues and related uncertainty requires a firm to engage with external parties, including a variety of stakeholders to gain access to environmental knowledge and competencies outside the firm's scope (Albino et al., 2012; Seuring & Müller, 2008; Srivastava, 2007). Knowledge acquisition is the first dimension of ACAP to deal with complex and uncertain environments. Zahra and George (2002) define acquisition as “a firm's capability to identify and acquire externally generated knowledge that is critical to its operations.” The identification of potentially useful knowledge sources and acquiring externally generated knowledge are key activities for this ACAP dimension. Thus, the following subsections present arguments for assigning three particular best practices to the acquisition dimension.

#### **5.4.3.1.1 Acquisition-Oriented Best Practices and Relevant Sustainability Factors**

##### *Assessment and Measurement of the Sustainability Impact in the Corporate Value Chain*

Consequently, we argue that the best practice of measuring the sustainability impact in the corporate value chain must concern the acquisition dimension of ACAP. This, thus, “refers to a firm's capability to identify and acquire externally generated knowledge that is critical to its operations” (Zahra & George, 2002). In practice, the impact measurement is connected to the analysis of sustainability risk and opportunity, but the latter best practices are viewed here as concerning the transformation dimension of ACAP.

The extent, type, and specificity of the impact measurement are the differentiating factors when defining the implementation levels, which, for this best practice, relate to the distinction

between measurement-based and valuation-based methods and the tools to capture the sustainability impact. Kaval (2011) reviewed the literature and identified four measurement-based (i.e. balanced scorecard approach, carbon footprint, ecological footprint, and life cycle analysis) and three valuation-based (i.e. ecosystem service valuation, sustainable value added and triple bottom line reporting) tools and methods to be the most popular. Life Cycle Analysis (LCA) was, by far, the most popular tool and can be applied to analyse individual products and services, as well as an entire organization.

#### *Engagement in External Research Activities Related to Sustainability Issues*

External research engagement is understood as a primary source of external knowledge (Cassiman & Veugelers, 2002). Other than engagement with academic research, it can also be more practitioner-oriented and tends to take place in external networks (Inkpen & Tsang, 2005). The challenge of handling the complexity of sustainability issues and their fuzzy nature calls for interdisciplinary research and close cooperation among researchers and other actors in the real world (Hirsch Hadorn et al., 2006). Thus, we recognise that some firms follow different approaches to external research engagement. While some exclusively engage in research and networks concerning issues closely related to their business, others engage in research where the relationship to business is more uncertain, but potentially benefits society.

Following Zahra and George (2002) and their ACAP model, this best practice must be assigned to the acquisition dimension. This is because it is concerned with externally generated knowledge, possibly of great value for the focal company's operations. Flatten et al. (2011), in their attempt to develop a measurement scale for the ACAP dimensions, devotes a separate item specifically to the "engagement in joint research projects with companies and research institutes beyond the industry." Moreover, Cohen and Levinthal (1990) emphasized that a firm's ACAP capabilities have their roots in prior investment in research and development.

#### *Stakeholder Consultations on Sustainability Issues*

Stakeholder consultation is considered a necessity for companies to pursue a proactive sustainable strategy (Sharma & Vredenburg, 1998). Corporations have different approaches to stakeholder consultation, which some corporations conduct on a regular basis (e.g. in the form of supplier days or other region- or product-based consortia), while others only conduct project-related consultations. Stakeholder consultation is closely linked to a company's social and environmental responsibility reporting (Greenwood, 2007). Having regular consultations with diverse stakeholders enables a firm to access potentially useful and practical knowledge (Ayuso et al., 2006). Wu and Eweje (2008) also highlight the stakeholder as a valuable source of knowledge in an organisational learning context. Following Zahra and George (2002), we suggest stakeholder consultations to be

assigned to the acquisition phase, because it is concerned with accessing external knowledge and enhancing the organizations knowledge base. Hannan and Freeman (1984) propose different levels for stakeholder management: rational, process, and transactional. The rational level is closely connected with the knowledge dimension (Plaza-Úbeda et al., 2009), again emphasizing the importance of stakeholders as a source of external knowledge.

#### 5.4.3.1.2 Sustainability Factors Relevant to Acquisition-Oriented Best Practices

The previous elaborations on the three best practices assigned to acquire dimension of ACAP, all, more or less, indicate some trajectory ranging from the weaker to the stronger implementation of each best practice. Subsequently, the elaborations also show that best practices are rooted in different domains and streams of the literature, which is why we now identify the sustainability factors in Table 6. However, these factors are relevant to the best practices and to inform the implementation levels for the acquisition-oriented best practices.

ACAP dimension	Best Practice	Relevant Sustainability Factors
Acquire	Assessment and measurement of the sustainability impact in the corporate value chain.	Stakeholder range, qualities given presence, length of time, potential for disruption, scope.
	Engagement in external research activities related to sustainability issues in the value chain.	Degree of uncertainty, length of time, stakeholder range, potential for disruption, qualities given presence, scope.
	Stakeholder consultations on sustainability issues in the value chain.	Stakeholder range, qualities given presence, length of time, potential for disruption, scope.

**Table 6** - *Acquisition-oriented best practices and relevant sustainability factors*

#### 5.4.3.2 Assimilation

The analysis of risk is most often tied to a compliance view of the sustainability, whereas the analysis of opportunity is most often tied together with an innovation view of sustainability. Hence, the separation into two different best practices would not be uncommon. Here, we propose to combine them into a single best practice and let the differentiation be reflected in the implementation levels instead. Both types of analysis analyses must be assigned to the *Assimilation* dimension, while they concern the processing of acquired knowledge. This is also the case for a second best practice concerning internal coordination and communication and a third concerning

the development of policies and targets for sustainability in the value chain. In the following, arguments are made for how and why each of these three best practices should be mapped towards the assimilation dimension.

#### **5.4.3.2.1 Assimilation-Oriented Best Practices and Relevant Sustainability Factors**

##### *Analysis of Sustainability Risks and Opportunities in the Value Chain*

The analysis of the sustainability risk in the value chain often relies on the acquisition of knowledge through some assessment or measurement of a corporation's environmental or social impact. Thus, it can also rely on acquisition from other knowledge sources. A risk analysis is an assimilation-oriented best practice, while “Assimilation refers to a firm’s ability to develop processes and routines useful in analyzing, interpreting, and understanding externally acquired knowledge” (Szulanski, 1996). Such a view is supported by Foerstl et al. (2010), who investigated the applicability of the supply chain risk management process to supplier sustainability risks. The first two consecutive stages of this process are: 1) supplier sustainability risk identification and 2) the assessment of supplier sustainability risk. These stages adhere to assimilation, while the latter process stages adhere to other ACAP dimensions. Similar to the analysis of risk, the analysis of opportunity relies on the acquisition of knowledge. Thus, it is an assimilation-oriented practice, while it expresses an ability to develop processes and routines. The analysis of the sustainability opportunity can be considered as one of the first stages in a Sustainability-Oriented Innovation (SOI) process, as described by Adams et al. (2012) in a recent review of the SOI literature.

##### *Internal Coordination and Communication Concerning Sustainability Issues*

Both internal communication, as well as internal coordination, can be considered an assimilation-oriented best practice, while the processes and routines involved foster the processing of information, the interpretation of new insights, and the building of new internal knowledge to collect heterogeneous knowledge and to develop comprehensive solutions (Jansen et al., 2005; Daft & Lengel, 1986; Egelhoff, 1991). Internal communication practices guarantee that relevant stakeholders (employees, managers) are involved in the particular sustainability issues, such that they can contribute to the discourse (Mueller et al., 2009). Therefore, the discussion results in the higher degrees of legitimacy and transparency, which is important for the commitment of employees and managers (Gilbert & Rasche, 2007).

Without internal discussions and coordination, organisational guidelines and policies regarding sustainability are unlikely to diffuse within the corporations, as coordination routines, such as participatory decision-making mechanisms and cross-functional teams, foster the diffusion of information between different disciplines and across hierarchical boundaries (Denison et al.,

1996; Jansen et al., 2005). Thus, this is particularly important as sustainability is, per se, an interdisciplinary and highly complex concept that is dependent on different areas of knowledge (Schaltegger et al., 2013).

Daily and Huang (2001) found that greening the organization with regard to supplied materials requires the involvement of manufacturers, supply managers, planners, and communication and coordination from many departments across an organization, which can only be reached through teamwork. Moreover, institutionalized forms of coordination (e.g. by organisational boards or units) allow for the ascription of responsibilities, guaranteeing regular meetings and informational exchanges, and thereby increasing the legitimacy and awareness of sustainability topics within the organization (Schleper & Busse, 2013).

#### *Development of Policies and Targets for Sustainability in the Value Chain*

The development of internal policies and targets reflects a high degree of assimilation of the newly acquired sustainability knowledge within an organization. Organisationally generated policies and defined targets present a tangible outcome of the processing of sustainability knowledge. Nevertheless, it does not represent realized ACAP, and does not also reflect the transformation dimension. Conversely, best practices supporting the implementation of policies and targets are transformative and described in section 5.4.3.3.

Johnson and Smith (1999) stated that a corporate policy is “the most common and important way in which ethics is institutionalized”, which supports assigning this best practice to the assimilation dimension of ACAP. Although policies and targets might be established in various forms within organizations, the most popular developed instrument in terms of corporate social responsibility and sustainability is usually the development of a code of conduct (Kaptein, 2004). The code of conduct consists of principles guiding the good behaviour of employees, managers, and other stakeholders (Schwartz, 2002) as “formalised public statements of corporate principles and rules of conduct that govern interorganisational and intraorganisational practices and relations” (Stohl et al., 2009). By issuing these policies and clear targets, firms make themselves vulnerable, from a responsibility perspective, if they fail to achieve their targets or violate their own policies. This can also be the case, with regard to suppliers and other business partners in the value chain, whom firms have begun to also apply policies and codes towards. Therefore, these external-oriented codes are particularly interesting, as they are ascribed a multiplier effect with regard to sustainability along the value chain, especially if other stakeholders are involved in the development of these policies (Albuquerque et al., 2007).

### 5.4.3.2.2 Sustainability Factors Relevant to Assimilation-Oriented Best Practices

The previous elaborations on the three best practices assigned to the assimilation dimension of ACAP, all, more or less, indicate some trajectory ranging from the weaker to the stronger implementation of each best practice. Subsequently, the elaborations also show that best practices are rooted in different domains and streams of the literature, which is why we now identify the sustainability factors in Table 7. However, these factors are relevant to the best practices and to inform the implementation levels for the assimilation-oriented best practices.

ACAP Dimension	Best Practice	Relevant Sustainability Factors
Assimilation	Analysis of sustainability risks and opportunities in the value chain.	Stakeholder range, degree of uncertainty, length of time, potential for disruption, qualities given presence, scope.
	Internal coordination and communication concerning sustainability issues in the value chain.	Stakeholder range, length of time, qualities given presence, scope.
	Development of policies and targets for sustainability in the value chain.	Qualities given presence, stakeholder range, level of uncertainty, length of time, scope.

**Table 7** - *Assimilation-oriented best practices and relevant sustainability factors*

### 5.4.3.3 Transformation

Transformation denotes “a firm's capability to develop and refine the routines that facilitate combining existing knowledge and the newly acquired and assimilated knowledge” (Zahra & George, 2002). Hence, in this phase of the ACAP, the newly acquired and assimilated information is actively processed, which is why the transformation is the first stage of the realized ACAP. What marks this level of ACAP is best described by the terms “interpretation,” “bisociation” (Koestler, 1966: 35), and “creativity.”

#### 5.4.3.3.1 Transformation-Oriented Best Practices and Relevant Best Practices

Firms that are located in transformation contexts can generally be characterized as managing to take unrelated frames of reference and connect them in new ways (Ko & Butler, 2007). Therefore, their prior organisational resources and knowledge are linked to new insights gained from external sources. Hence, those of our twelve best practices, which can be assigned to the *Transformation*

dimension, concerns communication and capacity building, integration in processes for selection, and evaluation and engagement in collaboration.

#### *External Communication and Capacity Building Concerning Sustainability Issues to Suppliers and Other Business Partners in the Value Chain*

External communication and capacity building regarding suppliers and other business partners is considered to be a best practice in the transformation level of ACAP. In this phase, focal firms apply the new knowledge and link it to external organizations. Sustainable behaviour is a continuous learning and application process (Kaptein & Wempe, 1998). Yet, there are significant doubts about the direct effects of policies on inhibiting unsustainable or unethical behaviour (Bondy et al., 2008). The previous research states that there needs to be a culture in which a policy may flourish and encourage sustainable behaviour. To ensure such a culture, multiplicative interactions of internal authentic leadership, aligned processes, and ethical culture are required (Verbos et al., 2007). In this regard, external communication and capacity building are important aspects of the transformation level of ACAP. Furthermore, to establish a sustainable culture within organizations and across boundaries, according to ACAP, it is essential to build capacities, instead of solely applying individual methods, processes, and tools. Trainings and external communications are particularly helpful, as they are considered "...an institutionalization of sustainability in organizations" (Singh, 2011). Thus, this means that these mechanisms offer managers and employees abstract guidance in difficult situations in which they have to make decisions with regard to code of conduct topics.

Consequently, both training and communication of the established policies ensure that the newly created contents and knowledge are kept in mind. Nevertheless, they are also constantly refined and extended by providing realized capabilities. Furthermore, by building external capabilities, these new policies transcend the initial organisational boundaries and transform stakeholders' knowledge, thereby intensifying the value chain multiplier effect which was previously mentioned (Albuquerque et al., 2007). Rao and Holt (2005) particularly highlight the need for organizations to develop suppliers and to build external capacities within the supply chain. Furthermore, as a side effect of external communication and capacity building (e.g., e.g. through supplier information days, workshops with stakeholders), trust and goal congruence are achieved between all relevant policy parties. Thus, this makes the policies more effective by increasing commitment and building closer relationships (Jiang, 2009).

#### *Integration of Sustainability Issues in Processes for the Selection and Evaluation of Suppliers and Other Business Partners*

The evaluation of suppliers and other business partners and the assessment of their sustainable performance are important activities, both in the initial supplier selection process and in an on-going monitoring and assurance process. Inclusion of sustainability issues in the supplier selection process is crucial for long term success (Seuring & Müller, 2008). In the context of supplier sustainability risk management (Foerstl et al., 2010), the integration of sustainability issues into supplier selection and continuous supplier evaluation is considered crucial for a company (Koplin et al., 2007; Micheli et al., 2009). Corporations use supplier self-assessments and different forms of audits, varying in frequency, extensiveness and third party involvement, to make sure that suppliers follow firm policies. Supplier certification is another means of assurance, which is often connected with social issues, such as child labour laws and unsafe working conditions (Pagell & Wu, 2009). The process of assessing and auditing (potential) suppliers requires a lot of newly combined knowledge. However, based on the context of risk management, supplier sustainability risks need to be identified, categorised, and assessed. The acquired and assimilated knowledge is processed into procedures for selection and evaluation, which possibly include indicators or measures for performance (Foerstl et al., 2010). Zahra and George (2002) characterize this kind of recombination of acquired knowledge and its application in an organization's processes as the transformation capability.

*Engagement in Sustainability-Oriented Collaboration with Suppliers and Other Business Partners*

Collaboration, in terms of sustainability, is a key aspect in the transformation phase of ACAP. This is because it shows an organisation's capacity to apply its assimilated knowledge and to transfer and combine information (Camisón & Forés, 2010). In collaborative contexts, business partners have to consider other perspectives, which is hardly manageable without transformative capacities. Previous studies emphasize that inter-organisational collaboration and partnerships foster the exchange of knowledge to build capabilities and improve performance (Flynn et al., 2010). Due to its complexity, sustainability issues require wide ranges of expertise and knowledge (Schaltegger et al., 2013). As a result, collaborative exchanges with suppliers and business partners can significantly foster an organization's sustainability performance (Albino et al., 2012). Thus, scholars highlight the role of collaboration in sustainability as a best practice, particularly for purchasing and supply chain management (Pagell & Wu, 2009; Meehan & Bryde, 2011), throughout the entire supply chain with external partners (Zhu and Sarkis 2004). Although the occurrence of collaboration might differ in terms of scope and frequency, Vachon and Klassen (2006) remark that sustainability can no longer be achieved by single corporations alone. Hence, there are many examples from corporate practice in which firms have taken on collaborative actions to achieve certain specific goals (e.g., e.g. CO<sub>2</sub>-emissions reductions) (Ramanathan et al., 2014).

### 5.4.3.3.2 Sustainability Factors Relevant to Transformation-Oriented Best Practices

The previous elaborations on the three best practices assigned to the transformation dimension of ACAP, all, more or less, indicate some trajectory ranging from the weaker to the stronger implementation of each best practice. Subsequently, the elaborations also show that best practices are rooted in different domains and streams of the literature, which is why we now identify the sustainability factors in Table 8. However, these factors are relevant to the best practices and to inform the implementation levels for the transformation-oriented best practices.

ACAP dimension	Best Practice	Relevant Sustainability Factors
Transformation	External communication and capacity building concerning sustainability issues to suppliers and other business partners in the value chain.	Stakeholder range, qualities given presence, length of time, scope.
	Integration of sustainability issues in processes for the selection and evaluation of suppliers and other business partners.	Stakeholder range, potential for disruption, qualities given presence, length of time, scope.
	Engagement in sustainability-oriented collaboration with suppliers and other business partners.	Qualities given presence, stakeholder range, level of uncertainty, length of time, potential for disruption, scope.

**Table 8** - Transformation-oriented best practices and relevant best practices

### 5.4.3.4 Exploitation

Zahra and George (2002) refer to Spender (1996) when describing the “outcomes of systematic exploitation routines are the persistent creation of new goods, systems, processes, knowledge, or new organizational forms”. Flatten et al. (2011) focus more on the commercial exploitation of new knowledge through prototyping (Nambisan et al., 1999) or the launch of innovative products and services (Liao, 2006). In this light, we propose that three of the best practices are mapped towards the *Exploitation* dimension of ACAP. Two of the best practices concern compliance and innovation, respectively, thereby reflecting two different ways to exploit sustainability-related knowledge. Therefore, the third best practice concerns the integration of sustainability issues in corporate marketing communications, which can reflect sustainability issues concerning both compliance and innovations.

#### 5.4.3.4.1 Exploitation-Oriented Best Practices and Relevant Sustainability Factors

##### *Compliance with Stakeholder Pressure, Sustainability Standards and Legislation*

Some best practices, identified previously in section 5.4.3.3, concerns the capability to ensure suppliers compliance with the reporting corporations standards for sustainability, through the adoption of a code-of-conducts and, increasingly, also through voluntary standards (Walton et al., 1998). These best practices were assigned to the *Transformation* dimension of the ACAP construct, while they expressed a transformation of acquired and assimilated knowledge into the development of policies, targets, communications, capacity building, or other actions. In our view, these actions are all directed towards the exploitation of processed knowledge. Consequently, we consider compliance to represent such an exploitation oriented best practice.

To our knowledge, the literature on ACAP does not include studies, which has a direct focus on compliance, nor position compliance as an exploitation of knowledge. Nevertheless, we conceptualise compliance as concerning the reporting corporation's compliance with stakeholder pressure, sustainability standards, and legislation focused on sustainability in the corporate value chain. Compliance is often connected to a corporation's license-to-operate. Jose and Lee (2007) identified a compliance-based paradigm as a driving force in the first two distinct evolutionary stages of the corporate environmental movement. In this compliance-based paradigm, legal and regulatory considerations were the primary driving forces behind corporate environmental responses (Li, 2001; Rosen, 2001). Jose and Lee (2007) further identifies a competitive advantage-based view as the driver of a second stage, in which economics and ecology are viewed as compatible and superior environmental performance is recognised as potentially leading to above-average industry profits (Rosen, 2001; Russo & Fouts, 1997).

Nidumolu et al. (2009) recognises these two evolutionary stages indirectly, but their view on compliance indicates a third evolutionary stage. Here, corporations engage in research and innovation in anticipation of future stakeholder pressure, standards, and regulations. However, it cannot be inferred, from the three stages in this evolutionary path, that the responses by the majority of corporations today can be characterized as beyond compliance. As a result, many are still merely engaged in symbolic practices.

Given the three evolutionary stages identified, we assume that this best practice will be implemented at different levels in the corporations. Dechant and Altman (1994) exemplify this by going through cases of corporations with differing characteristics from the perspective of environmental leadership. Thus, they describe how the increase in environment related legislation, and requirements to corporations, have increased the cost associated with compliance significantly. This is especially the case if the corporations rely on what Dechant and Altman (1994) characterize

as "firefighting and a reliance on band-aid solution", which they, for a particular case, describe as the organization's environmental activities being predicted on the regulation in existence at the time, but also without assurance of being in full compliance at any one time. In response to this situation, this particular corporation decided on a more strategic approach to environmental management where they "...design out environmental problems associated with a product line when it was first created."

While Dechant and Altman (1994) posit that sound environmental practices can be profitable, Nidumolu et al. (2009), on the other hand, made a stronger argument when stating that being compliant "...with the least stringent standards, enterprises must manage component sourcing, production, and logistics separately for each market, because rules differ by country." And conversely, "...companies that enforce a single norm at all their manufacturing facilities worldwide benefit from economies of scale and can optimize supply chain operations." Nidumolu et al. (2009) furthermore highlights that more proactive companies who work with regulators to shape environmental legislation can gain a competitive advantage over competitors. Thus, they can buy time to, for instance, transfer knowledge to a vendor before the new regulation is in place.

Based on these views on compliance, we pose that the definition of implementations levels for these best practices should be informed by: (a) which standards the corporations apply and how stringent they are; (b) to which extent the standards are applied, locally versus globally; and (c) the corporations response time to the new sustainability-related regulation. Thus, the finalization of the conceptualisation will specify the implementation levels and thresholds, more specifically, by drawing on the sustainability factors identified.

#### *Innovation of Sustainable Products, Services, Production or Delivery Processes which are Technologically New or Significantly Technologically Improved*

Innovation is considered as a way of exploiting knowledge in numerous studies of the ACAP construct. This study ranges from the original conceptualisation by Coven and Levinthal (1990), over the reconceptualisation by Zahra and George (2002), to the review and validation of ACAP with four dimensions by Flatten et al. (2010). Hence, assigning a best practice concerning innovation to this ACAP dimension is rather straightforward, even when conceptualised broadly. This is because sustainable products, services, and production or delivery processes, can all be considered to be an exploitation of knowledge. Consequently, corporations report on many improvements. To determine what qualifies as an innovation, we turn to some of the clear and concise distinctions found in the Oslo Manual (OECD, 2005). This is, thus, concerning the measurement of scientific and technological activities. Additionally, the Oslo Manual's provides the following working description for the technological product or process (TPP) innovation:

"A technological product innovation is the implementation/commercialisation of a product with improved performance characteristics such as to deliver objectively new or improved services to the consumer. A technological process innovation is the implementation/adoption of new or significantly improved production or delivery methods. It may involve changes in equipment, human resources, working methods or a combination of these." OECD (2005)

The Oslo Manual provides guidance for determining how innovative the new, or significantly improved, products, services, or processes are. Therefore, this can range between a maximum and a minimum, primarily depending on an assessment of whether the innovation is new to the world or just new to the firm. The manual also provides guidance on what is to be considered an Other Innovation and Not Innovation, with the former concerning new or improved, but purely organisational innovations. What is not to be considered an innovation, concerns new or significantly technologically products, services or processes already in the firm or those with no significant change, change without novelty or other creative improvements. In this study, we do not apply all these differentiations directly for this best practice, but use the guidance to determine whether what any of the corporations reporting reflects TTP innovations, which is what we want to capture here. As for the other best practices, we do want to capture implementation levels framed by a perspective on sustainability and value chains. However, these concepts are not directly covered by the guidance in the Oslo Manual. Hence, in order to inform the desired differentiation, we turn to the literature specifically connecting perspectives on sustainability, innovation, and value chains.

The literature connecting perspectives on sustainability, innovation, and value chains is dispersed across disciplines. The body of literature concerning Sustainability-Oriented Innovation (SOI) is growing rapidly and is highly relevant, while addressing all three perspectives. Adams et al. (2012) describes the process of SOI and identifies three stages of an SOI, namely: (1) Operational Optimization, (2) Organisational Transformation, and (3) Systems Building. Furthermore, Adams et al. (2012) describes the innovation of processes as primarily residing at the operational optimization level and, to some extent, on the organisational transformation stage of sustainability-oriented innovation. Exemplifying operational optimization, Adams et al. mentions a redesign of the existing processes "through incremental innovation: e.g., use tools to support SOI by addressing single issues such as pollution control; modify and redesign processes to address resource use, waste and pollution". Concerning the organisational transformation, Adams et al. mentioned the adoption of "new process platforms such as closed-loop manufacturing and cradle-to-cradle innovation." Adams et al. are less specific concerning the Systems Building stage, which they characterize as an aspirational context for corporations whom: (1) Derive new value propositions from entire socio-technical and ecosystem value network to make a positive impact

with an inclusive business; (2) Engage in institutional dialogues to “change the rules of the game; (3) Reframe the purpose of the firm: suffuse and infuse all dimensions of TBL into the organization; (4) Initiate, mobilize, lead, and inspire systems change and (5) apply equal weight to all aspects of the TBL in organisational thinking and decision-making. TBL refers to the Triple Bottom Line of business sustainability, which is comprised of the factors: people, planet, and profit (Elkington, 1997). Hence, a differentiation of implementation levels for this best practice should at least consider factors like scope and time when determining thresholds.

#### *Integration of Value Chain Related Sustainability Issues in Corporate Marketing Communications*

Corporate marketing communications is an integral part of managing sustainable value chains, when viewing it through the perspective of *Demand and Supply Integration (DSI)*, as applied by Kirchoff et al. (2011). They conceptualise that DSI stresses the importance of linking customer needs and wants with SCM and production processes. Thus, with stronger integration, they can overcome discrepancies between stakeholder perceptions of green marketing and the actual green SCM practice. By adding marketing to the other identified best practices, including those SCM related, our complete set of best practices corresponds well with the DSI frameworks. Following the proposed learning capability perspective, we then assign the marketing best practice to the exploitation dimension of the ACAP construct, which aligns with the generic ACAP scale developed by Flatten et al. (2010). Consequently, we perceive marketing as the exploitation of acquired knowledge, but also recognise that the implementation levels for best practices can vary, and hence, the degree of exploitation can also vary.

Menon and Menon (1997) conceptualise this differentiation with their typology for enviropreneurial marketing (EM) strategies, which they perceive as tactical, quasi-strategic, or strategic. They propose that leveraging each of these EM strategies depends on a number of infrastructural arrangements (e.g. coordination mechanisms), which could range from being primarily intrafunctional on the tactical level, to the integration across organisational units within a corporation and across multiple stakeholders at the strategic level. Also, we will not apply this typology directly in this study, but Menon and Menons’ use of time and scope corresponds well to and supports our use of sustainability science factors in the differentiation of implementation levels based on the materiality concept.

#### **5.4.3.4.2 Sustainability Factors Relevant to Exploitation-Oriented Best Practices**

The previous elaborations on the three best practices assigned to the exploitation dimension of ACAP, all, more or less, indicate some trajectory ranging from the weaker to the stronger implementation of each best practice. Subsequently, the elaborations also show that best practices

are rooted in different domains and streams of the literature, which is why we now identify the sustainability factors in Table 9. However, these factors are relevant to the best practices and to inform the implementation levels for the exploitation-oriented best practices.

<b>ACAP Dimension</b>	<b>Best Practice</b>	<b>Relevant Sustainability Factors</b>
Exploitation	Compliance with stakeholder pressure, sustainability standards, and legislation.	Stakeholder range, qualities given presence, potential for disruption, level of uncertainty, length of time, scope.
	Innovation of sustainable products, services, production or delivery processes, which are technologically new or significantly technologically improved.	Potential for disruption, qualities given presence, stakeholder range, level of uncertainty, length of time, scope.
	Integration of value chain related sustainability issues in corporate marketing communications	Qualities given presence, length of time, potential for disruption, level of uncertainty, stakeholder range

**Table 9** - *Exploitation-oriented best practices and relevant sustainability factors*

With the weighing of the best practice by assigning them to ACAP dimensions and the application of sustainability factors to each best practice, the conceptual framework is now preliminary concluded. Hence, the next step is the empirical validation of the conceptual framework through a case study analysis with a single case corporation. Before engaging in this second major phase of the study, we exemplify the application of the framework and reach preliminary conclusions in the following section 5.4.4.

#### **5.4.4 The Finalized Conceptual Framework**

Having assigned the best practices to the ACAP dimensions and identified the relevant sustainability factors for each best practice, we can now exemplify the application of the finalized framework. Thus, this is as illustrated in table 10 below. The table lists the twelve best practices, as they are assigned to the ACAP dimensions and exemplify an assessment with a point score for each relevant implementation level. However, the best practices represent dynamic capabilities that a common across corporations, the best practices can be applied to a multitude of sustainability issues. Hence, the corporations' implementation of a best practice is not only conducted at single level, but multiple implementation levels for different sustainability issues is also supported by the literature.

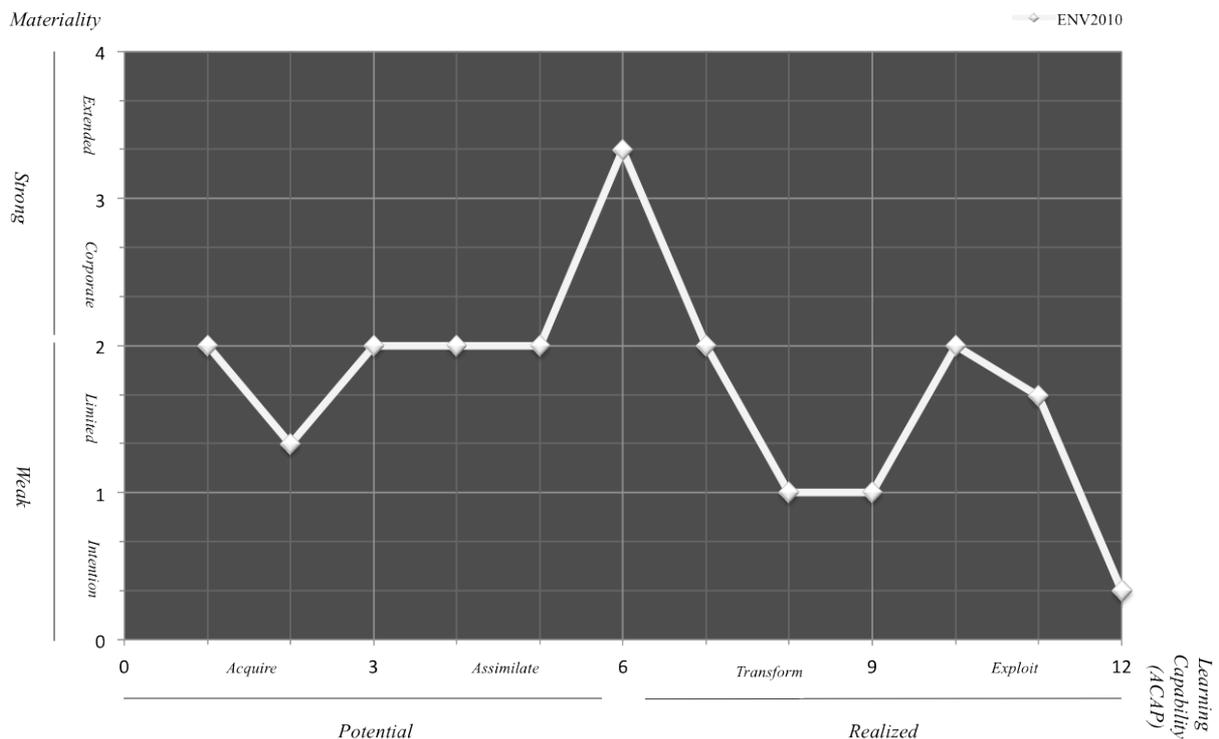
The four implementation levels listed in table 10 are each assigned as a default value ranging from 1-4, with EXT (Extended Materiality) holding the highest value. The values listed for each of the best practices in the table is an average of the assessed implementation level concerning each of the three sustainability factors: *range of stakeholders*, *qualities given presence*, and *scope*. Hence, the value of 1,33 for the best practice concerning the assessment and measurement of the sustainability impact (2), is resulting from the average of the following assessed implementation levels for the sustainability factors: range of stakeholders = 1, qualities given presence = 2, and scope = 1. Since the average value of 1,33 is just within the range (1,33-2) for the implementation level of limited materiality, the latter thereby constitute the final implementation level.

		Implementation Level			
		Ranges	0,33-1	1,33-2	2,33-3
Best practice		INT	LIM	COR	EXT
Acquire	1. Stakeholder consultations on sustainability issues in the value chain		2,0		
	2. Assessment and measurement of the sustainability impact in the corporate value chain chain		1,33		
	3. Engagement in external research activities related to sustainability issues in the value		2,0		
Assimilate	4. Analysis of sustainability risks and opportunities in the value chain		2,0		
	5. Internal coordination and communication concerning sustainability issues in the value chain		2,0		
	6. Development of policies and targets for sustainability in the value chain				3,33
Transform	7. External communication and capacity building on sustainability issues to suppliers and other value chain partners		2,0		
	8. Integration of sustainability issues in the selection and evaluation of suppliers and other value chain partners	1,0			
	9. Engagement in sustainability-oriented collaboration with suppliers and other partners in the value chain	1,0			
Exploit	10. Innovation of sustainable products, services or processes, which are technologically new or significantly improved		2,0		
	11. Compliance with stakeholder pressure, sustainability standards and legislation		1,66		
	12. Integration of value chain related sustainability issues in corporate marketing communications	0,33			

**Table 10** - Exemplification of the application of implementation levels for each best practice, based on the materiality concept. INT: Intention, LIM: Limited Materiality, COR: Corporate Materiality and EXT: Extended Materiality.

Because of the analysis, we intend to conduct a case study which aims at covering the development of capabilities over a five-year period. The strictly numeric representation depicted in table 10

would not be able to effectively convey the information. A more graphic representation would be appropriate. Therefore, given the integration of the materiality concept in the framework, the graphic representation of a materiality matrix advocated by Accountability (2006) serves as an inspiration here. Figure 1 displays the values from table 10 and states the implementation level for each of the twelve best practices applied. For a demonstrative purpose, Figure 1 only show the assessed capabilities for a single year, but the graphic representation will be used throughout the analysis in the case study, where it will display the gradual development of capabilities over a five-year period (2010-2014). The graphic representation is positioned on a grid, comprised by a y- and an x-axis, and it displays the level of materiality and the learning capability respectively.



**Fi**

**Figure 1** - Development of environmental learning capabilities in 2010

Twelve points comprise the x-axis display and each of these points represents one of the twelve best practices, which forms the learning capability. The best practices are numbered from 1-12 in correspondence with the listing Table 10. The 3rd, 6th, 9th, and 12th are displayed with numbers, while the rest of the best practices are displayed with tick marks only. The x-axis also displays a label for each of the four dimensions of ACAP and each of the numbers mark the last of three best practices assigned to a particular dimension of ACAP (1-2-3 to Acquire; 4-5-6 to Assimilate etc.). Thus, these dimensions are furthermore labeled as *Potential* or *Realized*, with reference to the differentiation of ACAP introduced by Zahra & George (2002).

Twelve points also comprise the y-axis and here each point represent a granular level of implementation, in the form of the materiality of each best practice. Four of the implementation

levels are numbered from 1-4, whereas the 5th implementation level (*None*) equals the 0 on y-axis, where no implementation has taken place. The granular levels of implementation are displayed with tick marks only. The y-axis also displays a label for each level of materiality and each of the numbers marks the strongest implementation of a particular level of materiality (0,33-0,66-1 to Intention; 1,33-1,66-2 to Limited etc.). The materiality levels are furthermore labeled as *Weak* or *Strong*, with reference to the differentiation of sustainability by Bell and Morse (2008).

Given the values of the x- and y-axis, the line displayed in figure 1 is therefore a graphical representation of the implementation of best practices in a particular year (2010). As displayed in the upper right corner of figure 1, each year is associated with a particular graphic icon. Thus, this marks the implementation level for each of the best practices on the line for that year

With the finalization of the conceptual framework in place, we can preliminarily conclude on the primary research questions for this study. When an IAS performance framework is based on best practices, rather than quantitative indicators, it is essential that the best practices can be weighed according to their expected influence on the overall performance or other outcomes leading to a competitive advantage. So far, we have demonstrated the potential in viewing the best practices in the perspective of *Dynamic Capabilities* and in the specific application of the four dimensions of the *Absorptive Capacity* (ACAP) concept to a set of twelve best practices for sustainability in corporate value chains. The literature recognises ACAP as a driver for competitive advantage. Subsequently, we achieve valuable differentiation of the best practices by weighing them using this concept, although the reviewed literature also suggests the need for further differentiation into implementation levels.

Furthermore, we recognised the methodological caution to be placed when defining the thresholds for these implementation levels and we introduced *Materiality* as an essential IAS-related concept. It can inform this differentiation in a coherent approach across the best practices and their origin in highly different domains. Also, we extended on the view of materiality related to sustainability in the scarcely available literature and defined four overall implementation levels, which also adds nuances to the more typical binary (weak/strong) view of sustainability in the IAS-related literature.

Finally, we indicated the conceptual framework's potential through an exemplification of the application, which demonstrated the logic embedded in the procedure for assessing the performance. All in all, we can preliminarily conclude that a performance framework, designed with this approach, has a significant potential for application in theory. However, the following validation of the framework will demonstrate whether this potential can be realized in application to a concrete corporate case.

## Chapter 6: - Validation of the Conceptual Framework through Case Study Analysis<sup>13</sup>

In this analysis, the framework conceptualised in chapter 5 of this dissertation, will be applied to a single case corporation. Thus, this has been sampled as described in section 5.3.2.2. The case corporation will remain anonymous throughout the analysis, but is described to extend possible in the beginning of the case analysis in section 6.1. The case analysis will be conducted as follows.

The assessment of the corporate learning capabilities is primarily based on the information in the corporation's sustainability reports in the years 2010-2014, which is analysed first to capture the development over time. The assessment concerns environmental sustainability solely. The assessed capabilities are then juxtaposed to data from an interview with a key sustainability professional from the sampled corporation, in order to elaborate on and determine the accuracy of the assessments, and potentially gain further insights beyond what is reported. The accumulated assessment of capabilities for the corporation is displayed graphically for each of the four ACAP dimensions. Each graphic is placed at the beginning of the corresponding section, which elaborates on the implementation of the associated best practices over the five-year period. This approach serves as a basis for an elaboration on the development from potential to realized learning capabilities. The contextual factors mediating this development were then analysed, and this was followed by a discussion of how these can be categorised for applicability in an IAS perspective. Consequently, the analysis of the development of learning capabilities and the influence of contextual factors provide the basis for addressing the evaluative aspects of the two research questions listed in section 5.1.3.

### 6.1 Case Analysis - Food Producer

The sampled case corporation can overall be characterized with the parameters observable in table 1 and more specific characteristics is elaborated below.

Industry	Region	Employees	Ownership	UNGC Level	Signatory Year	Local Network
Food Producer	Scandinavia	15-30.000	Privately Held	GC Active	2008	Yes

**Table 1** - Characteristics of the case corporation

<sup>13</sup> Chapter 6 is the second of two parts comprising of one article. It was first presented in 2014 as a working paper at the 1st International EurOMA Sustainable Operations and Supply Chains Forum, University of Groningen.

The case corporation is a major global food producer, which is based in a Scandinavian country and employs in the range of 15-30.000 people globally, but most are located in Europe. By the end of 2014, the products produced by the corporation were sold in more than a 100 countries globally. Also, the number of core markets had increased to six. The development in the number of core markets has significance when determining the scope of the food producer's sustainability practice and thereby one of the three materiality factors: *stakeholder range*, *qualities given presence*, and *scope*. These factors determine the implementation level of each of the 12 best practices in the framework conceptualised in chapter 5 of this dissertation. Hence, given the importance of scope, the development in the number of the food producer's core markets is displayed in table 1a below.

Year	2010	2011	2012	2013	2014
Core Market A	51%	44%	27%	25%	23%
Core Market B	49%	48%	30%	27%	25%
Core Market C		8%	24%	20%	21%
Core Market D			13%	22%	21%
Core Market E			4%	4%	7%
Core Market F			2%	2%	2%
Core Market G					0,4%

**Table 1a**<sup>14</sup> – The development in case corporation's core markets – percentage of total number of owner suppliers

Furthermore, the corporation became a signatory to the UN Global Compact (UNGC) in 2008 and has participated actively in the UNGC Nordic Network since then. The corporation has reported on the UNGC Active Level throughout the reporting years 2010-2014 and the CEO state a strong support of the UNGC principles in case corporation's sustainability reports. Part of the reasoning for purposefully sampling of this particular corporation, is coming from the paradox between the corporation's appearance and its performance. Thus, this corporation explicitly claims a strong narrative of sustainable value chains in their communication and marketing, yet they were among the lowest performing corporations in Scandinavia on environmental sustainability performance in

<sup>14</sup> The core markets in table 1a are listed according to their share of the food producer's total number of owner suppliers and not according to their net market share. This choice was made because the owner suppliers by far constitute the majority of the food producer's upstream value chain. The latter carries a significantly higher environmental impact for the food producer than the downstream value chain, including the consumers, which are the basis for the net market share.

2011 (Kjaergaard, 2014). The corporation has a strong orientation towards the environment, due to the engagement in food production and hence the dependency on a steady supply of raw ingredients from numerous sources. The corporation's value chain is very extensive and the corporation's position in the value chain is significant both upstream as well as downstream, being both very close to the suppliers at one end and the consumers at the other end. Food safety is a top priority for this corporation, which continuously builds on their high level capabilities and is externally recognised as market leading in the industry on this environmental sustainability issue. Other environmental sustainability issues are also relevant to the corporation and require the development of additional capabilities, as will be elaborated in the following section 6.1.1.

### **6.1.1. Development of Environmental Learning Capabilities**

The overall information conveyed by the line in figure 1 in chapter 5 indicates that the food producer's development of potential environmental learning capabilities peak with the implementation of the 6th best practice (development of policies and targets) at a lower level of extended materiality. Though, the line also indicates that realization of this potential is challenged, the transformative best practices plunges to implementation at higher levels of intended materiality. The lack of transformation makes it challenging for the food producer to exploit the knowledge absorbed, which is reflected in the implementation of the best practices for compliance (10) and innovation (11) at limited levels of materiality. In 2010, the food producer does not even exploit these limited capabilities. This occurs while the last best practice is merely implemented at a lower level of intended materiality and no marketing and communication (12) of the achieved compliance and innovation was implemented. There is of course more to it and the analysis of all five years now follow.

### **6.1.2 Potential Environmental Learning Capability**

We previously observed the overall difference between the peak in the potential environmental learning capabilities and the dip in the realization hereof. This potential/realized differentiation reflects the policy/practice differentiation presented in the theoretical framework in section 5.2.2.1 in Chapter 5. In this perspective, the more obvious interpretation would be that this significant difference in implementation is clearly a case of decoupling, where the food producer's sustainability practice is not fully integrated into the core of the corporations' operations. Subsequently, one of the ambitions with the application of the framework conceptualised in chapter 5 is to enable a more detailed view of the process of coupling and thereby more nuanced interpretations. Hence, it is also observable in figure 1, that the peak on the best practice *Development of strategies, policies and targets for sustainability in the value chain* (6) at an

extended level of materiality, is preceded by the five other best practices implemented at limited levels of materiality or lower. This significant difference in implementation might indicate that the extent to which potential environmental learning capabilities can be realized, not only depends on the level of implementation of transformative best practices, but also on preceding assimilation and acquisition practices. In addition, the implementations of best practices assigned to the latter ACAP dimensions are therefore analysed in depth in the following sections 6.1.2.1 and 6.1.2.2. The analysis is conducted for a five-year (2010-2014) period to capture the development of capabilities.

#### **6.1.2.1 The Food Producer's Capability to Acquire Environmental-Related Knowledge**

Figure 2 displays the food producer's capability to acquire environmental-related knowledge over a five year period (2010-2014), which thereby extends on years covered and reduce the focus to acquisition only, when compared to figure 1 in section 6.1.1. Each year in figure 2 is displayed with a separate line, on which implementation levels are marked with the particular graphic icon. This is, however, listed next to the year in the upper right corner of the figure. In this section, the implementation of the three best practices assigned to the acquire dimension of ACAP and dependencies between them or across years, will be analysed in detail.

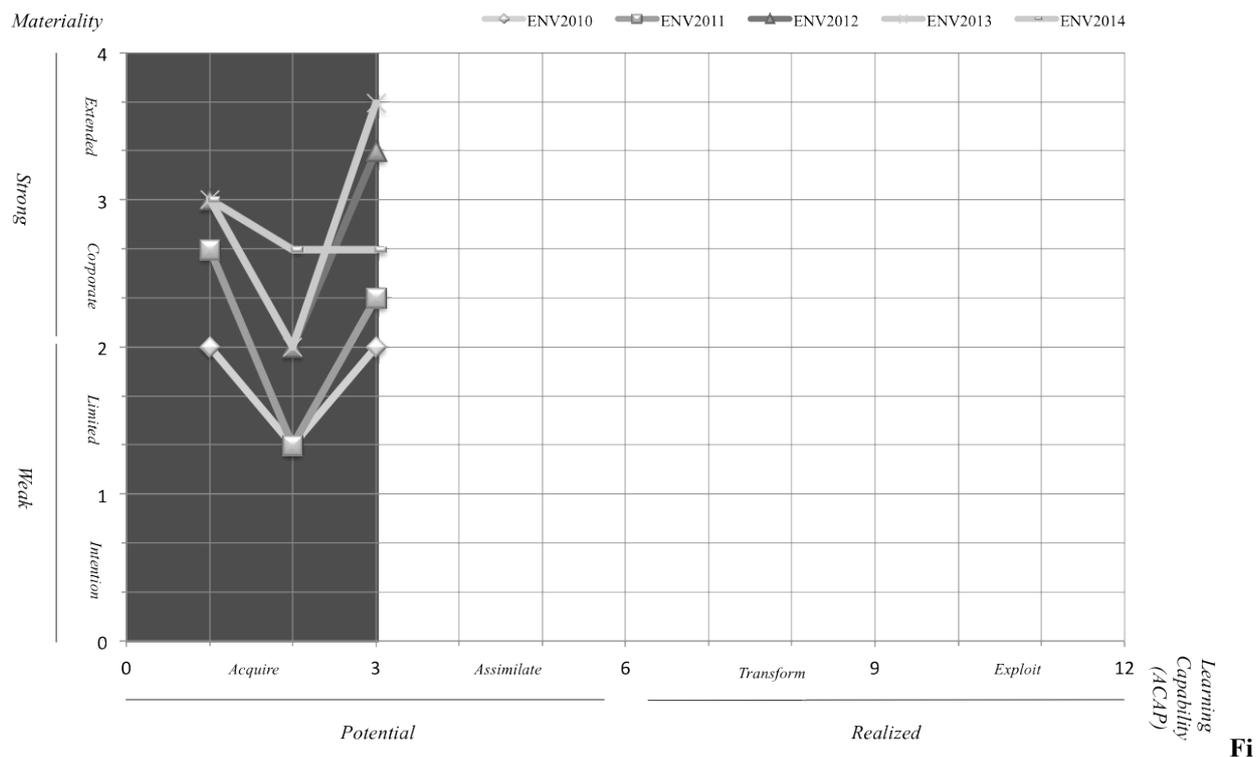


Figure 2 - Development of learning capabilities for acquisition of environmental-related knowledge (2010-2014)

### 6.1.2.1.1 Best Practice (1): Stakeholder Consultations on Sustainability Issues

In 2011, the food producer reports that the development of the environmental strategy 2020 was informed by a broad range of stakeholders, while a number of interest organizations, NGOs, and universities were invited to a roundtable discussion earlier that year. Thus, this was in a view to obtain their thoughts on the food producer’s strategic initiatives. The discussions were reported as highly beneficial and resulting in a holistic approach to the environmental strategy, which later that year was presented a number of interested groups and politicians. The knowledge acquired from these discussions adds to the food producer’s implementation of *Stakeholder consultations on sustainability issues (1)* in 2010. Consequently, the inclusion of a wider range of stakeholders, the increase of the *qualities given presence*, and the *scope* of this best practice increases the implementation from a level of limited to corporate materiality in 2011.

Environmental issues are increasingly also a topic in the food producer’s general stakeholder consultation of owner suppliers, customers, and are especially developed towards end consumers. Consumers are surveyed annually and they inquire by telephone, e-mail and letter, but are also serviced through an interactive online platform and through the use of social media. Over the five-year period (2010-2014), the scope of the consumer consultation increases and especially social media seem to gather an exponential ratio of the consumer inquiries. This was reported as amounting to 250.000 in 2013. The increase in consumer consultation drives some of the development in this best practice, but the consultation of other stakeholders is not nearly as

extensive and hence the influence is moderate. The environmental qualities given preference in the consumer interest in and expectations to the food producer also evolves this period, from merely concerning food safety and health issues in 2010, to also expressing a strong awareness of other sustainability and environmental issues in line with those addressed with the environmental strategy from 2011. Food safety and health has been at the core of the food producer's environmental practice for years and they also report further involvement and ambitions on this issue. This seems to be driven by continuously increasing customer and consumer expectations in the full value change range. Thus, from the safe storage and transport of the primary raw material extracted by the owner suppliers, over safe processing methods at the food producers production sites to safe storage at distributors, resellers, and eventually the safe consumption by consumers. Similarly, the related issue of health receives increasing attention from consumers and hence, the food producer focuses more on health throughout the five-year period, especially after scaling up the practices needed to acquire knowledge. In 2013, the food producer reported more extensive research into the stakeholder's general expectations. Among other things, this highlighted the expectation to the food producer to "...promote health and food safety by leading the debate, sharing our knowledge and being able to demonstrate how we deliver in these areas." This ad hoc research leveraged a more in-depth understanding of the stakeholder expectations and reflects an increase in scope, in the environmental qualities given presence and in the range of stakeholders consulted, which drives an increase in the implementation of stakeholder consultation (1) to a level of corporate materiality in 2013. This research also informed and initiated the food producer's work on a specific health strategy, which was reported on and launched in 2014. However, the more uniform approach to stakeholder consultation conducted ad hoc, does not seem to manifest as a permanent approach, as it is noted in the interview:

*"...our first attempt to make a bit more of a professional analysis...but it is still you know, group by group...its more of a stakeholder by stakeholder [approach] I would say, but when developing new strategies, if it is not cross stakeholder wise, it is at least a different way for different stakeholders"*

- Food producer's key sustainability practitioner (2014)

#### **6.1.2.1.2 Best Practice (2): Engagement in External Research Activities Related to Sustainability Issues**

Throughout the five-year period (2010-2014), the food producer has increasingly been engaged with universities and academic researchers in multiple research projects that have some orientation towards environmental sustainability. In the years 2010-11, the food producer's reporting on their *Engagement in external research activities related to sustainability issues*.(2) is limited to the

environmental issues of food safety, health, and CO<sub>2</sub>-emissions. The food producer reports on three health-related projects which include; (1) the support to and later the results of a cooperative research project between two universities on communication of nutritional and health-related information, (2) a research project with a university investigating the health implications of enriched food products, and (3) research project on the health impact of saturated fat in food products. In 2011, two research projects on food safety methods were reported; (1) concluded with the approval of authorities in core market B and (2) initiated, as a long-term collaboration with a competitor and supplier. The stakeholder range is limited, but the qualities of presence and the scope of these research projects partly drive the implementation of this best practice to a lower level of corporate materiality in 2011. Consequently, this capability is developed significantly in the years following. The long-term collaboration on a food safety method is progressing successfully and extended with an additional competitor in a partnership. This, therefore, result in the establishment of a joint food safety research center in a key market (but not core market). The food producer also extends on existing and initiate new research projects focused on making their products healthier. This was done by reducing elements with a potentially negative health impact and/or enriching products with vitamins and other nutritional elements with a potentially positive health impact. Also, the food producer invests in research on other alterations of the products. For example, the report of a study in 2014 where a biological rather than a chemical additive was used to prolong the shelf life of a particular product for export to certain new growth markets. As an extension of the latter, the food producer further expanded into research with international universities and organizations on how food products could be altered for application as emergency aid, which eventually could cultivate a new although very different market for the food producer. Overall, the significant development on food safety and health issues is likely to have been positively impacted by the food producer's establishment of a scientific advisory committee with global external specialists in 2012. The extension of the stakeholder range and especially the scope of the research of food safety and health issues are major drivers for the peak in food producer's implementation of this best practice at levels of extended materiality in 2013. Thus, the implementation drop in 2014 can be explained by the closure of projects and/or that the knowledge acquired in earlier years, had been further assimilated, transformed, or eventually exploited when applied towards compliance and innovation respectively as described later in this analysis.

Another stream of research was initiated in 2010, when the food producer reports the employment of a PhD student who analysed the greenhouse gas emissions from the raw material production systems. Thus, this research focus on the full value chain perspective from owner supplier extraction to the end consumer and this perspective eventually informed the new environmental strategy to a great extent. The research identified a number of factors, which impact

the CO<sub>2</sub>-emissions at all other stages in the value chain, and ways to reduce the CO<sub>2</sub>-emissions by owner suppliers in particular. As an extension of the PhD research, the food producer engaged in research partnerships with a university and a technology provider. The stakeholder range and scope of these two research projects contributed to the implementation of this best practice at a level of corporate materiality by 2011. Eventually, the projects also informed the approach and targets for CO<sub>2</sub>-emissions described in the environmental strategy. Furthermore, it also leveraged a method for assessing the CO<sub>2</sub>-emissions for each owner supplier. From 2012 and forward, a single climate impact related research project is reported for core market A and otherwise, the research engagement is seemingly scaled up with the participation in several international climate initiatives, where the food producer is active in working groups. The wider stakeholder range increased qualities given presence and scope of this scaling up which would apparently be a major driver for the implementation of this best practice. Thus, it is unclear how the food producer utilizes this participation. Hence, the contribution is considered to be limited. This also goes for the continuous reporting of support for research on the responsible use of soy in the production process and the briefly reported research collaborations on the relationship between food waste and the role of packaging in 2013. Despite the extended engagement, it seems that by 2014, the core research is still conducted in core market A. This was reflected in the interview concerning activities in this particular market:

*"... there is a number of areas we are quite engaged in...in projects, but also shows in universities, or shows and clusters, the food cluster is one of these clusters for example. This applies also to product development or product related, design related or environment related also, like [raw material] and production sites also, this differs, we also have a number of PhDs, that is not easy to compare with other countries I would say, so that kind of direct contact with research"*

- Food producer's key sustainability practitioner (2014)

Therefore, the food producer acquires knowledge through the significant engagement in research, but the further application of this knowledge might require the food producer to conduct more widespread assessments and measurements of the environmental sustainability impact in the corporate value chain.

### **6.1.2.1.3 Best practice (3): Assessment and Measurement of the Sustainability Impact in the Corporate Value Chain**

Measuring the carbon footprint is nothing new to the food producer, whom, in 2010, reported both the energy consumption and carbon footprint for every year since 2006 and the latter for both the

food producer's operations, transport, and packaging. Hence, some value chain perspective is already reported, but the research related to CO<sub>2</sub>-emission conducted in the years 2010-11 leverages the *Assessment and measurement of the sustainability impact in the corporate value chain* (3), all the way from the owner suppliers to the end consumer. The research also leverages the fact that 85% of the food producer's climate impact comes from their external value chain. Nevertheless, no climate impact assessments are reported for owner suppliers until 2013. Furthermore, only the number of assessments is reported, and not the actual accumulated carbon footprint for owner suppliers or other stages in the value chain, besides transport and packaging. In 2010, the food producer reports the carbon footprint calculations to be based on the Greenhouse Gas (GHG) Protocol International standard. This standard should have been applied with a GHG Scope 3 level in order to capture the CO<sub>2</sub>-emmission upstream and downstream in the full corporate value chain. Hence, the limited environmental qualities given presence and the merely intentional stakeholder range and scope, does not drive the implementation of this best practice to more than a level of limited materiality before 2013. However, it increases by 2014, where a total of 2143 assessments across core market A, B, C, and D are reported. It does not comprise a large ratio given the accumulation over years and a total number of owner suppliers above 12000. Furthermore, the assessment or measurement of CO<sub>2</sub>-emmission from the rest of the external value chain is limited, as it is for other environmental issues like energy, waste, water etc. Hence, the stakeholder range and scope remains limited in 2013-14, whereas the qualities given presence increases. The latter is due to some energy assessments conducted for owner suppliers in core market B in the years 2013-2014 and some measurements of the water quality outside production sites in core market D in 2014. All in all, this best practice is implemented at a lower level of corporate materiality by 2014. Thus, a part of the reason behind this lack of development and the similar outlook beyond 2014 is reflected in the interview:

*"... the possibility for every [producer] to make a carbon footprint, a kind of assessment for him or for her, but [producers] are owners and suppliers, so they are not forced to do so, it is an opportunity for them to do it with their tools on our costs to drive the development ...but you have to see the difference if we only buy [raw material] we can put demands in one way, now we have suppliers that are also our owners and that has to be done in another way...it makes us very strong because we have a full value chain, but it is also some kind of demands that a listed company would say: do this or will not buy your [raw material], we cant of course do that....that makes us very successful in some area and it can give us some hurdles in some other areas". "...yes, we started the process here, I think it started in [core market C], it was the pilot and test model but yes, if you look at it like this, it seems to be very many years before anything happens..."*

- Food producer's key sustainability practitioner (2014)

During the five-year period (2010-2014), the increased implementation of the three best practices analysed in this section, strengthened the food producer’s capability to acquire environmental related knowledge. Though, in order for the food producer to establish any competitive advantage from the acquired knowledge, they must engage in best practices which assimilate the knowledge into their organization. In addition, the implementations of such practices build the foundation for a realization of the environmental related knowledge, which eventually can lead to a stronger competitive advantage.

### 6.1.2.2 The Food Producer's Capability to Assimilate Environmental-Related Knowledge

Overall, the environmental related knowledge acquired from stakeholder consultations, research and assessments/measurements is only relevant to the food producer, when confronted with the existing knowledge structures as the first step of assimilation into the organization. Hence, we pose that the typical assimilation flow would begin with an analysis of the acquired knowledge to determine risks and opportunities. This would typically be followed by internal communication and coordination in order to process the analysis of the acquired knowledge. Eventually, it would lead to the development of strategies, policies, and target for environmental sustainability in the corporate value chain. However, these steps reflect the three best practices assigned to the assimilation dimension of ACAP over the five-year period (2010-2014) as shown in figure 3 below.

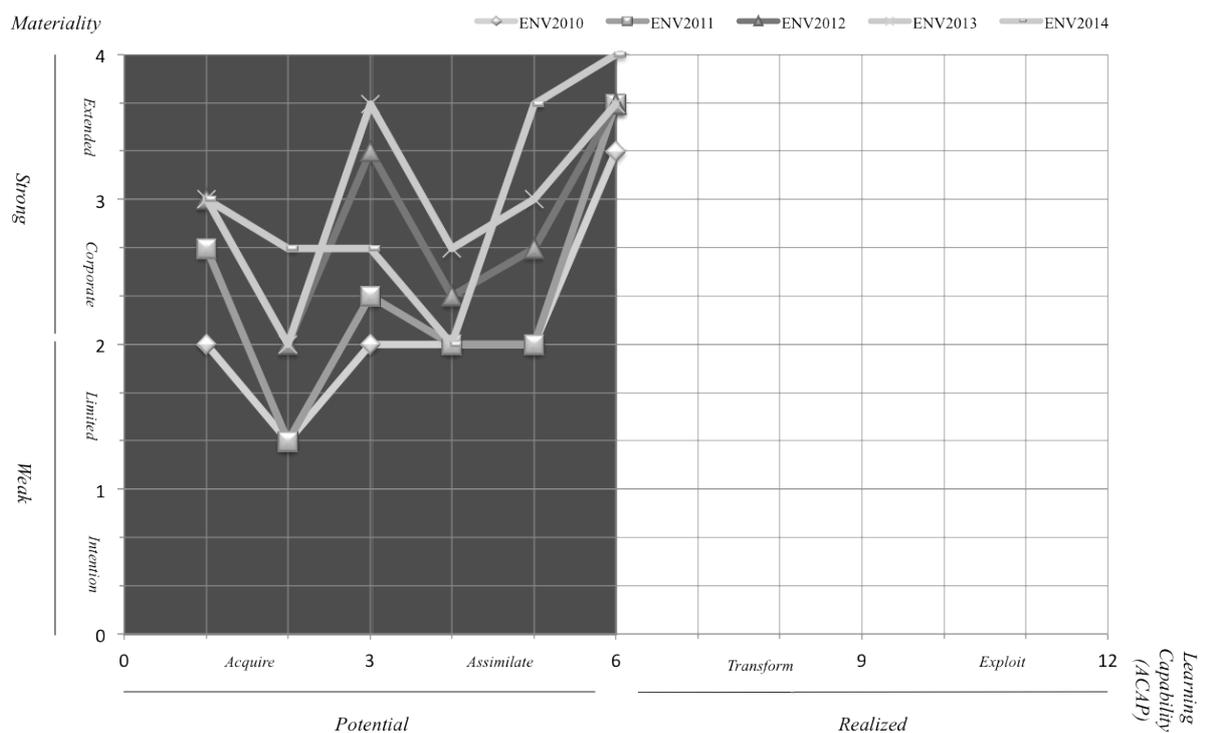


Figure 3

re 3 - Development of learning capabilities for assimilation of environmental-related knowledge (2010-2014)

#### **6.1.2.2.1 Best Practice (4): Analysis of the Sustainability Risks and Opportunities in the Value Chain**

The best practice *Analysis of the sustainability risks and opportunities in the value chain* (4) play an important role in weighing in on the acquired knowledge. As depicted in figure 3, over the years, this best practice follows an upward trend towards implementation at higher levels of materiality. Though, it drops back only to the 2010 base level of limited materiality in 2014. Rather than a real change in the corporate practice, we view this drop as reflecting a change in the reporting style applied by the food producer. Thus, this best practice materializes in 2010 with the food producer reporting that all ingredient suppliers in core market C has been subject to risk assessment and that a special emphasis has been placed on risk assessment when developing new products in core markets A and B. The implementation generally expresses the reported intention to include a broader scope for the assessment of risk, hence a higher level of intention. The scope of the implementation increases in the following years, primarily through the risk assessment of first high risk (2011) and then medium risk (2012) ingredient and packaging suppliers across all core markets. More qualities are also given presence within the realm of food safety, but it is unclear to which extend other environmental issues are assessed. Therefore, it seems implicit in the reports for 2010-11, but in 2012, the food producer more explicitly reports on opportunity: "By listening to our consumers and acting on their feedback, we have an excellent opportunity to adapt and develop products that suit their needs." The stakeholder range is still limited, but with an extended scope of the risk assessments and more qualities present by 2012, the implementation of this best practice reaches higher levels of limited materiality. The scope of the implementation is extended even further in 2013, with a) new processes for the foresight of risk in product development, b) the establishment of a global ingredient specification framework, c) the use of external and internal experts, and d) the introduction of "processes and tools to capture emerging risks in a proactive way." This increase in scope drives the overall implementation to a level of corporate materiality for this best practice. Though, in 2014, it drops back to a level of limited materiality. This negative development is despite the initiation of a review of other sourcing categories with regards to risk exposure and environmental accountability, including other issues like waste, transport etc. Additionally, this drop in 2014 might just reflect a change in the reporting style applied by the food producer. However, the interview rather indicated that some of the food producer's centralized processes could be potential causes:

*"I would say this [analysis of the sustainability risks and opportunities] is covered in the issue management and in the business planning process...we do always make a SWOT analysis, and this answers the risks and opportunities of course, summing the current situation in a nutshell. But to be honest, it's probably more*

*more functional and business first focused than responsibility focused. And I don't think we have that really structured approach seen from a CSR perspective...". "...it is systematic in this issue management process, but to be honest that has been put on ice for a year and just restarted again."*

- Food producer's key sustainability practitioner (2014)

It is important to note, that although the analysis of risk and opportunities here is chronologically placed as the first of the three consecutive best practices, this particular practice typically occurs to some extent throughout the continuum of best practices from the acquisition to the exploitation of knowledge. However, we consider the risk and opportunity analysis an assimilative practice and more formalised approach, which clearly relies on the practices for acquiring knowledge.

#### **6.1.2.2.2 Best Practice (5): Internal Coordination and Communication Concerning Sustainability Issues**

What this analysis already indicate, is that the assimilation of the knowledge acquired by implementing best practices at increasingly higher levels of materiality throughout the five years, requires more *Internal coordination and communication concerning sustainability issues (5)*. Hence, this best practice is implemented with an average increase throughout the five-year period, starting at a high level of limited materiality in 2010-11. Then, it jumps to higher levels of corporate materiality in 2012-2013 and peaks in 2014 at a higher level of extended materiality. In the early years, no significant centralized internal communication and coordination on the environmental sustainability issues was reported. However, in 2010 the food producer reports on the establishment of working groups within their board of representatives, which prepare on environmental issues concerning, for instance, organic food production ahead of board-level decisions. Also, some improved communication between the food producer's departments concerning food safety, leveraging faster product development, was reported in 2011.

Consequently, a more significant development is clearly the establishment of a more permanent centralized coordination mechanism in 2012, a committee chaired by the food producer's CEO and with significant decision-making power. With representatives from the senior management team and different internal functional areas, the stakeholder range applied in this committee is initially a driver for the implementation towards higher levels of corporate materiality. That is, together with the initial primary focus in 2012 on the revision and implementation food producer's code of conduct, including a broad range of qualities given presence which is further extended in 2013 with the committee's discussions of the food producer's responsibility when entering new partnerships and emerging markets. The scope of this best practice is further increased

in 2012-2013 by a number of other communication and coordination mechanisms for specific environmental issues. In 2012, it included the more permanent internal food safety network across the organization and more ad hoc mechanisms like the internal collaboration between product developers, researchers, and marketing to create products with communicable health claims. In 2013, this includes a task force on energy, specialist groups on food safety and cross-functional teamwork on the food producer's total cost of ownership (TCO) approach, which is reported to include sustainability considerations. An increase in the scope of the committees work and the qualities given presence, herein, is the primary driver for the implementation peak in 2014. This is also influenced by the increased cross-functional teamwork on an extended number of specific qualities given the presence within application of the TCO approach. An extended level of materiality is reached for this best practice in 2014 and could increase further, if the compliance committee introduced in 2013, also were to consider environmental issues. Thus, the interview highlights the composition of the committee and how it works:

*"... yes, it is top management cross functional. The CEO, the CHRO, the corporate communication, it is me, it is one person from [consumer focused department], who is professionalized in the commercial side, and it is one person from legal...so we are six. [on the meeting frequency and form]"...the idea is quarterly, but I am happy if we meet three times a year. And then I usually try to initiate some discussion in our top management team, and that is then what we call the EMG executive management team, and that is the head of all these functions. Not the board, but CEO, Vice-CEO, CFO, CHRO and the head of the business groups. I am there once a year but its normally...you know we have a report, we have decided our judgment of our process or our judgments of the results, and the key areas we want to focus on. So this is a kind of presentation and they are not interested as much in presentations, they want to take decisions and discuss, so its better to put something on the table for them to grab on to, but I see the CSR committee as the steering committee, and I see EMG as a really important to start off implementation, linewise...so within the executive management team. And the CSR committee is the only subgroup, or subcommittee that is headed by our CEO, so it is high status."*

- Food producer's key sustainability practitioner (2014)

Most of this communication and coordination leads to more tangible outcomes, such as the strategies, policies, and targets for environmental sustainability, which we elaborate on in the following section, representing the last step in the assimilation of the acquired knowledge.

### **6.1.2.2.3 Best Practice (6): Development of Strategies, Policies and Targets for Sustainability in the Value Chain**

As initially stated in this analysis, the implementation of the best practice *Development of strategies, policies and targets for sustainability in the value chain (6)* at extended levels of materiality throughout most of the five-year period, represents a peak in the development of the potential environmental learning capabilities. A major driver in the first years of this development is the food producer's new environmental strategy, which the food producer specifically emphasizes as taking the full value chain into account. Even in 2010, a year before the launch of the new environmental strategy, the food producer reported ambitious targets for environmental issues concerning the value chain. Among these issues were the supplier's code-of-conduct, indirect CO<sub>2</sub>-emissions, ingredients like palm oil and cocoa, which lead to implementation at a lower level of corporate materiality. The new environmental strategy included and expanded on these targets by stating strategic approaches to and more ambitious fixed targets for multiple environmental issues of relevance to the food producer. In a value chain perspective, the most ambitious targets were the fixed targets upstream for the indirect CO<sub>2</sub>-emissions by e.g. owner suppliers with 25% by 2020, the fixed targets for certification of ingredients like palm oil, soy, cocoa etc. by 2015, and the more ultimate target to use 100 percent recyclable packaging material by 2020. Also, an ambitious fixed target for the downstream value chain was reported, with the reduction of consumer's food waste by 50 percent by 2020. Hence, the strategy was indeed value chain focused. With the large number of environmental issues addressed, the qualities of presence were broadened. With a wide range of stakeholders and to some extent, an extensive scope, it led to an implementation of this best practice at a level of extended materiality already in 2011. The implementation stays at this level until 2014, where new strategies for antibiotics, consumer health, sustainable owner supplier production, and strengthened targets for ingredients and packaging lead to a higher level of extended materiality. Hence, by 2014, the food producer reports ambitious strategies and targets covering a large part of their value chain. However, the supplier code of conduct is the only item reported that relates to corporate policies on these environmental issues. Corporate policies generally instruct the organization on how to follow the strategy and work towards the targets. Hence, the absence could influence the realization of the potential environmental learning capabilities. Furthermore, although the food producer's targets for the value chain are ambitious, this does not translate directly into ambitious target for each supplier, as reflected in the interview:

*"... no, no, we have not targets in that way for suppliers, if I now talk about suppliers in general, the target is to sign 100 percent the code of conduct for suppliers, that is one target and I don't think there are targets how they should operate their business, I don't think so."*

All in all, by 2014, the food producer seems to possess a capability to acquire environmental sustainability-related knowledge from a great range of stakeholders, research projects, and assessment/measurement methods. This thereby provided a solid basis for a strong assimilation of this knowledge. Though, these best practices solely concern the best practices with the potential to influence corporate performance, it remains to be seen whether the food producer has the capability to realize this potential through other best practices of a transformative and exploitative nature. In the theoretical framework in section 5.2 in Chapter 5, it is posed that the realization of this potential is mediated by contextual factors like the organisational structure, combinative capabilities, and other factors which trigger ACAP and moderates the influence of this capability on performance. In addition, we will analyse these contextual factors after the following analysis of the realization of the food producer's potential.

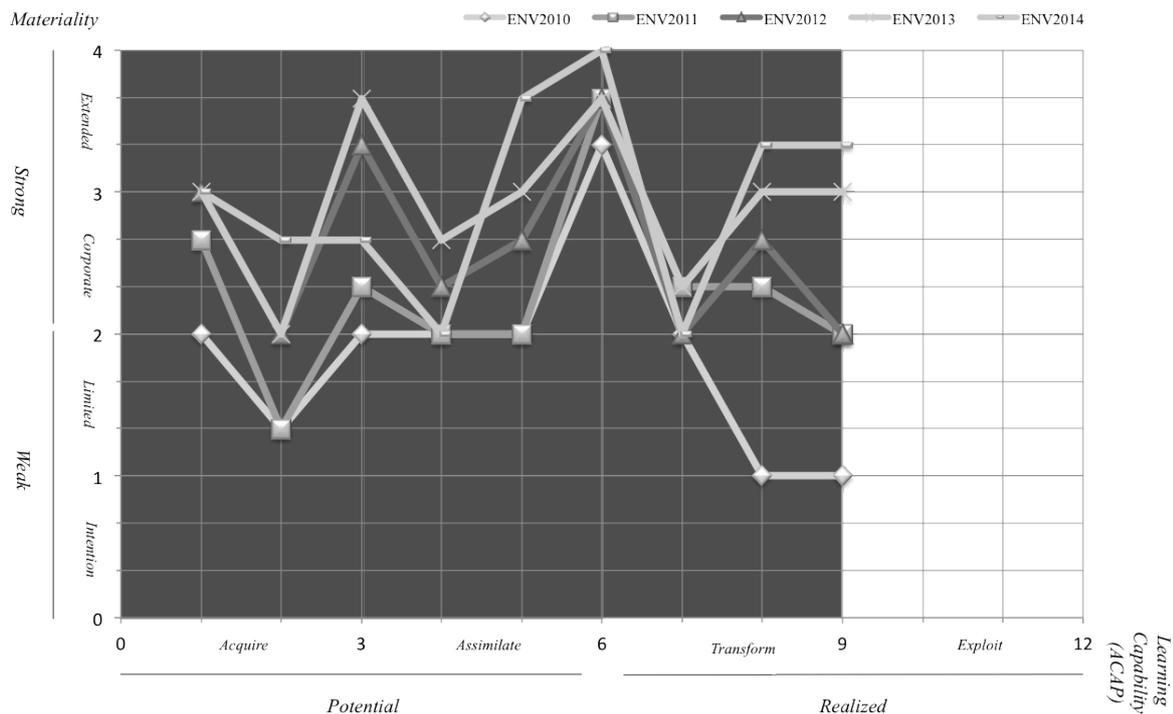
### **6.1.3 Realized Environmental Learning Capability**

With the analysis in section 6.1.2 in mind, the analysis of the realized environmental learning capabilities not only concerns the transformative and exploitative best practices per se. Thus, the analysis also concerns the influence coming from the implementation of best practices for potential capabilities at lower or higher levels of materiality. The starting point is the analysis of the implementation of the best practices assigned to the transformation and exploitation dimension of ACAP over the five-year period (2010-14). Figure 1 displayed a dip in the implementation of the transformative best practices for 2010, which plunged further to levels of limited and even intended materiality for the exploitative best practices. The question is whether there is some dependency between the best practices assigned to the two ACAP dimensions and whether the learning capabilities are increased or reduced. The implementation of best practices over the five-year (2010-2014) period is therefore analysed in depth in the following sections 6.1.3.1 and 6.1.3.2.

#### **6.1.3.1 The Food Producer's Capability to Transform Environmental-Related Knowledge**

The environmental-related knowledge acquired from external sources was assimilated into the food producer's organization, through risk and opportunity analysis, internal communication and coordination, which eventually led to the development of strategies, policies, and targets. The latter in particular, but all of these best practices form potential environmental learning capabilities, which can lead to competitive advantages in themselves. However, the more this potential is realized, the stronger the competitive advantage becomes. The transformation of the assimilated

knowledge throughout the corporate value chain is an important first step. We pose that the typical transformation flow would begin with the utilization of the assimilated knowledge in external communication and capacity building concerning sustainability issues in the value chain. This would typically be followed by the integration of sustainability issues in the selection and monitoring practices for suppliers and other business partners. Engagement in sustainability-oriented collaboration in the value chain can rise from the preceding transformative practices or the potential environmental learning capabilities. Therefore, these steps reflect the three best practices assigned to the transformation dimension of ACAP and their implementation levels over the five year period (2010-2014) are shown in figure 4 below.



**Figure 4 - Development of learning capabilities for transformation of environmental-related knowledge (2010-2014)**

### 6.1.3.1.1 Best Practice (7): External Communication and Capacity Building Concerning Sustainability Issues in the Value Chain

The strong contrast between the peak in assimilation at a level of extended materiality and the first best practice assigned to transformation, concerning *External communication and capacity building concerning sustainability issues in the value chain (7)*, remain throughout the five-year period (2010-14). This contrast most explicitly illustrates the change from an upward trend on potential to a general downward trend on the realization of capabilities. This first best practice averages at lower levels of corporate materiality throughout the five years; thus, this is a placement primarily driven by the food producers approach to suppliers. In the reports, the food producer continuously highlight the seminars held with the owner suppliers, which by 2014 constitute some 13414 owners

suppliers, whom supply the primary raw material to the food producer's production. With 717 owner suppliers participating in the seminars in 2014, the ratio for this year is merely a little more than 5% of all owners and around 8% for 2013. In 2012, no seminars were held "... due to cost reduction initiatives and reorganization activities. Concerning the level of materiality, the implementation of this best practice towards owner suppliers, limits the scope and the qualities given presence. Although food safety is continuously reported to be on the agenda for the owner seminars, the extent to which the broader range of environmental sustainability issues are addressed is more uncertain. The stakeholder range in this implementation is also limited, while the food producer generally does not report (with a few exceptions) any capacity building of any other suppliers, including ingredient suppliers, packaging suppliers, and the around 1050 preferred suppliers. For some issues though, capacity building is replaced with incentive schemes as a mean to drive development. This is most explicit with the food producer's decision in 2014 to purchase certificates to ensure that all soy used by the owner suppliers across all core markets, is responsibly produced. Also, the interview highlights the food producer's challenge with suppliers who are also owners. In addition, it illuminates the alternate approach to communication in the value chain on this issue:

*"...we have said that [the food producer] want all the soy to be responsibly produced, but we can't force them to buy...so what we can do, is to make sure we have a dialogue with the feed companies but, also that we kind of shortcut and say that we buy the certificates to get the process started. And also to drive the development of soy...so we are the biggest buyer of responsibility soy certificates in the world right now"*

- Food producer's key sustainability practitioner (2014)

In addition, the food producer do report a significant engagement in dairy education and in educational activities for school children. However, none of these initiatives drive the implementation above a level of limited materiality.

#### **6.1.3.1.2 Best Practice (8): Integration of Sustainability Issues in the Selection and Monitoring Practices for Suppliers and Other Business Partners**

In 2010 and to some extent also 2011-12, the downward trend in the realized capabilities continues over the two other transformative best practices being the *Integration of sustainability issues in the selection and monitoring practices for suppliers and other business partners* (8) and the *Engagement in sustainability-oriented collaboration in the value chain* (9). Though, in 2013-14, the trend breaks upward to levels of extended materiality, which compared to the implementation at a mere intention level in 2010, represent a quite remarkable development of capabilities over the five

year period. Although capabilities are developed across the different kinds of suppliers, the food producer's approach and the extent of the capabilities vary significantly, starting with how the code of conduct applies to suppliers.

The food producer's code of conduct constitutes a core base for the governance of the best practice *Integration of sustainability issues in the selection and monitoring practices for suppliers and other business partners* (8). In the original form, the code of conduct not only applies to the cooperative itself, but also to all owner suppliers of the primary raw material. Thus, they as owners are considered to be part of the cooperative. Other suppliers are covered by a specific supplier code of conduct, which is a downsized version of the original. Though, at the generally very low level of implementation in 2010, the raw material suppliers/owners do not seem to be held accountable towards the code of conduct, but only towards a quality programme. Furthermore, the scope of the environmental sustainability issues and the qualities of the given presence within this quality programme are unclear, but the food producer itself carries out some inspection of the suppliers/owners in 2010. Adding to the stakeholder range, the other sourcing category termed "approved suppliers" was asked to sign the supplier code of conduct. In 2010, the entire formal supplier evaluations in the procurement unit that were responsible were put on hold. The food producer reports the reason for this to be the prioritization of the development of a new supplier evaluation system. Hence, in 2010, the scope seems more intentional with the implementation solely comprised by the 63% of all approved suppliers having signed the code of conduct for suppliers and some 40 audits conducted based on risk assessments. Though, when the level of intention only surpass a minimum level of actual implementation for the ingredient category of suppliers, the average implementation of the best practice for selection and monitoring (8) cannot surpass an *intention* level of materiality in 2010.

The implementation of this best practice increased significantly to levels of corporate materiality in the following years from 2011-12. However, this development of capabilities was primarily driven by the gradual implementation of a new supplier evaluation system. In 2011, this system resulted in the assessment of high-risk categorised ingredients and packaging material suppliers, according to a new programme for sustainable sourcing. Key processes in the new system include a performance review based on the accumulated supplier information from the assessment questionnaire and information sources internal to the cooperative. Thus, this leads to a performance judgment distributed as written feedback to the supplier and the determination of the frequency of future evaluations of the supplier. In case of non-conformance, a follow-up assessment or an audit was performed, but it is unclear whether continued non-conformance would lead to the termination of the contract with the supplier. In 2012, the scope of the assessment was broadened and it was applied to medium risk categorised and prior (2011) to non-compliant ingredients and packaging

material suppliers. In addition to the scope, the stakeholder range was also increased in 2012 while the supplier evaluation system was expanded to the category of "preferred suppliers" in the food producer's core markets A, B, C and G. Thus, the overall extent of the application among these suppliers is unclear. At this time, the food producer also reports that the assessments have led to the phasing out of existing suppliers and exclusion of potential suppliers, as a consequence of continued non-compliance with the requirements. Though this is in contrast with the food producer reporting, that they did not experience any breach of the code of conduct for suppliers in 2012. In 2012, 85% of the suppliers had signed the supplier code-of-conduct, which corresponds to a 2% improvement compared to the 83% in 2011. The auditing of preferred (termed "approved" in 2010) suppliers were constant in 2011-12 with around 60 audits in both years. Hence, the scope of this part of the implementation remains constant.

The higher implementation levels in 2011-12 were also driven by a development in the qualities given presence, as concerning the ratio of certified key ingredients, which went from being nothing more than intention in 2010, to be implemented at very high levels in the following years. All palm oil purchased and almost all cocoa purchased in 2011 and 2012 was certified, whereas the development on soy seems to have been significantly slower. This was despite the ambitious targets, stakeholder dialogues, and the support from related research.

Concerning the food producers' selection and monitoring of owner suppliers, this relationship is primarily governed by quality programmes. Also, a third-party programme was applied in a single core market and the food producers own programme applied in two core markets in 2010. This limited scope remains constant in 2011-2012, but increased in 2013 when the food producer's quality programme was introduced in three additional core markets, although the actual implementation is reported to have taken place in 2014. Not much information is generally provided on the content of the quality programmes and none on how they tie into the food producer's code of conduct, which the owner supplier must adhere to. In 2011, the food producer reports on the most frequent deviations from their own quality programme and how a single owner supplier was expelled on these grounds by the food producers board of representatives. From 2010-2012, the food producer does not report any auditing, but only that they in core markets A and B support targeted visits to owner suppliers who have self-reported food safety issues. In 2013, the first audits in core market D was reported, whereas more than 1,600 owner suppliers (40 percent) core markets D, E, and F was reported and audited by independent inspectors in 2014.

The food producer also reports specifically on their monitoring of their suppliers in what they term "third world countries." The food producer's evaluation system is seemingly not applied to these suppliers, although they are audited twice a year, with the assistance of local business partners. The establishment of partnerships with local partners around the globe is part of the food

producer's growth strategy. In 2013, they report on the development of a partnership selection model. It includes CSR criteria for an initial screening process, which is followed by a due diligence process and a more detailed analysis. The partnership screenings add to the stakeholder range of the implementation in 2013 and the due diligence process to the scope. But although business partners are expected to comply with the food producer's code of conduct, no monitoring with assessments and audits is conducted continuously. However, this was also reflected in the interview:

*"If you then talk about suppliers of services, like joint ventures, we try to promote this, and we say this is [the food producer's] values, and we know our CEO uses this when we talk to other companies for future market etc., but we can't force a joint venture to use this. We can only force [the food producer's] people involved to promote it and this is what we are working for. Various kind of discrepancy. I think, I would say they should commit to it, but that is not really how it is...but it is part of it of course, but if we are strict formal"*

- Food producer's key sustainability practitioner (2014)

However, overall, the strong developments in the best practice for selection and monitoring (8) in 2013-14, result in a strong implementation at a level of extended materiality in these two years, with 2014 as the peak. As depicted in figure 4, the developments over the years 2010-2014 follow a similar line for the last transformative best practice. This, thus, concerns the sustainability-oriented collaboration with suppliers and other value chain partners (9).

### **6.1.3.1.3 Best Practice (9): Engagement in Sustainability-Oriented Collaboration in the Value Chain**

The best practice *Engagement in sustainability-oriented collaboration in the value chain* (9) is implemented at a very low level in 2010, but with high intention. In 2010, the food producer enters a collaboration on food safety and establishes an innovation unit to enable a closer cooperation with customers. The food producer, a major competitor, and a supplier collaborate on the development of a specific method and procedure, which will increase the food safety concerning the primary raw material supplied by the owner suppliers. The collaboration persists throughout the period 2010-2014 and the food producer continuously reports on the progress from initial prototype tests, over pilot tests, the last phases of development, and the commercial testing of the method in 2014. The scope and stakeholder range for this best practice start to materialize in 2011. This is with the reporting of an additional specific method-oriented collaboration on food safety with a national branch organization and the less specific reporting of collaboration with customers on developing and improving analysis methods and risk assessments for food safety. The collaboration on food

safety maintains the implementation for this best practice at a level of limited materiality in 2012. In addition, it also contributes to the significant development in 2013-14. The stakeholder range and the scope are increased through e.g. industry collaboration on development and accreditation of a national food safety qualification for manufacturing and in identifying ways to phase out the use of BPA. In these two years, further collaboration with customers take place on the health issue, exemplified with the food producer testing a product in collaboration with two hospital kitchens. Hence, in 2012, the qualities of presence also start to increase beyond food safety, which is particularly obvious with the reported collaborations focusing on CO<sub>2</sub>-emissions. Such collaborations were merely intentions in the first two years, but they become the primary driver of the implementation of this best practice at levels of extended materiality in 2013-14.

In 2011, the food producer announce an increased collaboration with the owner suppliers concerning the development of a new standard for sustainable dairy production, in which reducing greenhouse gas emissions is a key objective. That year, the scope of the collaboration was limited to core market C where a series of workshops was held with owner suppliers, of which 30% had participated by 2012. Thus, this percentage continued to increase significantly in 2013-14. The workshops spread to core markets A and B in 2013, but apparently came to a complete halt in 2014 with no workshops held at all. A similar tendency occurs for the climate impact assessments conducted for owner suppliers which, in 2014, drop to around half of those conducted in 2013 in market A, B, and C. Hence, these workshops increase the scope of the implementation of this best practice, but the food producer does not report on reduced CO-emission or any other tangible result from this collaboration over the five-year period. The ambitious target of a 25-30% reduction in these emissions by 2020 reported throughout the five-year period, therefore, seems challenging to reach.

In 2012, the food producer does report results from another collaboration with suppliers and external experts on innovative packaging, which is partly made of recycled materials and indirectly reduces CO<sub>2</sub>-emissions. The new packaging for the food producer's primary consumer product, made with 15% recyclable resources, was introduced into a core market in 2013. Though, given that no further improvements of this result is reported throughout the five-year period, the target of using a 100% recyclable materials for packaging by 2020 as stated in 2011 report, seems challenging to reach. Also, the food producer already acknowledged this challenge in the 2012 reporting.

From 2012-2014, the food producer also engages in multiple collaborations on reducing and recycling waste both upstream and downstream in their value chain, which increases the stakeholder range and qualities given presence in the implementation of this best practice. Downstream, they report a specific cooperation with a non-profit core market A on reducing

consumer's food waste and an engagement in similar partnerships on most of the core markets in 2012. In 2014, the food producer increase and strengthen the number of collaborations both in specific core markets and on a pan-continent scale, which increases both the stakeholder range and the scope, and contributes to the implementation at a high level of extended materiality. Upstream the value chain, they reported extensive collaboration with owner suppliers and public entities in core market C in 2013, in order to reduce the waste through the establishment of a more circular economy between the different stakeholders. First in 2011 and again in 2014, the food producer report another target from the environmental strategy, aiming at a 50% reduction in the food waste from both the food producer's production units and from consumer's use of the final food products by 2020. Thus, the food producer does not report on the progress towards this target throughout the five-year period. This is somewhat paradoxical, when considering the overall influence that the consumer perspective has on the food producer. Hence, it is reflected in the interview:

*"We are not measuring our suppliers, but we are of course working with them, so packaging for example is also one big source and an important source from the consumer perspective and they do not see the environment as packaging, transport and waste. So this is the consumer facing so to speak, and of course we are working together with suppliers on big packaging development projects and cardboard as we use mainly in [core markets A and B], is a sustainable source and it is certified as wood, like FSC forest-tree stewardship council of certification, for the plastic bottles, that is the main packaging for [raw material] in the [core market C]...they have been working really hard with both, lowering the weight but also to use recycled plastic materials in the bottles"*

- Food producer's key sustainability practitioner (2014)

Many of the sustainability-oriented collaborations result in improved processes, products or services during the five-year period, of which some can be considered as innovations and others ensure compliance with standards and other norms. Both innovations and compliance can be marketed and we consider all three as best practices, which exploit the sustainability-related knowledge acquired. Thus, we will elaborate on this in the following.

### **6.1.3.2 The Food Producer's Capability to Exploit Environmental-Related Knowledge**

The previous analysis of the transformative environmental learning capabilities demonstrated major developments from 2010 to 2014 concerning the more compliance-oriented best practice for selection and monitoring (8) and the more innovation-oriented best practice for sustainability-oriented collaboration (9). Hence, this would logically feed the expectation of the development to follow a similar pattern when concerning the exploitative best practices for innovation (10) and compliance (11) respectively. However, figure 5 displays a more modest development concerning

innovation, which is implemented at higher levels of limited materiality in 2010 and reach a level of corporate materiality in 2014. A similar development from limited to corporate materiality is observable for compliance, which, but in 2014 this development collapses with a plunge to a level of intended materiality. For the first three years, intended materiality is also the base level for the best practice for marketing and communication (12), which follow a no less odd pattern and is not implemented above a level of limited materiality in the five-year period (2010-14). Therefore, the development for each of the best practices is analysed in the following.

#### **6.1.3.2.1 Best Practice (10): Innovation of Sustainable Products, Services, Production or Delivery Processes which are Technologically New or Significantly Technologically Improved**

The best practice *Innovation of sustainable products, services, production or delivery processes which are technologically new or significantly technologically improved* (10) is implemented at the highest level of limited materiality in 2010-11, which primarily is due to the food producer's innovation of significantly technologically improved services and production process related to food safety in the value chain. In 2010, the food producer reports improvements in their advisory service, which primarily targets owner suppliers in core markets A and B. The improvements increased food safety significantly by reducing unwanted elements in the raw material output. It is unclear whether any technological innovations were facilitating the improvements, but the advisory service can be characterized as significantly technologically improved services. Many smaller improvements to food safety are reported in the five-year period, but the food producer's long-term collaboration with a major competitor and a supplier on the development of a specific method for increasing food safety, eventually has a greater impact on the implementation of this best practice. It has positively impacted the development of environmental learning capabilities throughout the five-year period. However, in 2014, the collaboration was advanced to a state where the method was commercially tested in three markets. Therefore, it could be considered a technologically new process innovation which contributes to the implementation of this best practice at a higher level of corporate materiality in 2014, through increased stakeholder range and scope. Such innovations in food safety generally impacts competitiveness indirectly. However, in 2014, the food producers also report a significant improvement of the shelf life of a particular product, which makes the food producer more competitive in growth markets. Shelf life is typically improved through the use of chemical additives, but the novelty in this case lies in the use of biological additive. Hence, this can be considered a technologically new production process, which leads to a significantly technologically improved product. It adds to the stakeholder range, the scope, and the qualities given presence, and hence contributes to the higher level of corporate materiality in 2014. These advancements in food safety contribute to the innovations concerning the related health issue. Thus,

this seems to be a major driver for this development, which also impacts the food producer's competitiveness directly, because health is of increasing importance to the consumers buying the products.

When considering the health issue, the food producer demonstrates a significant capability to both innovate technologically improved production processes and products. Already in 2010, the food producer reports that they revised the recipes for several of their products in core markets A and B, in order to eliminate or replace additives with more natural alternatives. However, this seems in direct response to their consumer's expectations, as indicated in the consumer surveys that year and thereby links stakeholder consultation with product innovation. Multiple health related initiatives are initiated throughout the five-year period, as e.g. the replacement of sugar with the natural sweetener Stevia in one product in 2011 and multiple products in 2012. This trend peaks in 2014 with the food producer reporting on multiple new products with e.g. reduced salt, sugar, energy and fat in the content. The food producer also follows another trend. Here, they add to the products or rather enrich them with vitamins, calcium, fibre etc. to make the products healthier. The food producer reported that these enriched products were first launched as a sub-brand in core market B in 2012. In 2014, they reported the availability of enriched products in several markets, including core market A and G. Though, neither the products with reduced or replaced additives and/or ingredients, nor those enriched can be categorised as technologically new products in the terminology applied here. Nonetheless, they can be categorised as technologically improved production processes and products. They increase the qualities given presence and especially the scope of the implementation of this best practice from 2012 and on, at a higher level of corporate materiality. As reported in 2013-14, the food producer also demonstrates the capability for innovating products, which are not only healthier, but also aim at aiding recovery and rehabilitation from illness. These are not merely technological improvements of existing products, but technologically new products representing new categories of products. Let alone, innovation on food safety and health issues could have been evaluated as implemented at the highest levels of materiality. However, we must also consider the practice of other environmental issues relevant to the food producer, like CO<sub>2</sub>-emissions, that is not subject to a similar capability for innovation in the value chain.

The food producer has reported a clear acknowledgment of a responsibility for the climate impact it induces on the environment, not only from their operation sites, but especially from their external value chain accounting for 85% of their impact. The food producer does report significant advances on reducing CO<sub>2</sub>-emissions from some of its operation sites and to some extent also from their transportation. The latter is part of the 85% impact from the external value chain, but the transportation was conducted with trucks owned by the cooperative. Hence, this is within the realm

of their direct control and therefore outside the scope of this study. Here, we have particular interest in the external value chain and on other issues that the food producer does report improvements, which are the result of collaboration with suppliers and other value chain partners. The innovative packaging introduced in core market C and reported in 2012 is the result of such collaboration. However in the five-year period, this has merely resulted in that 15% of the packaging applied at a single site in core market C is from recycled material. It seems that the food producer has the capability to technologically improve several processes like reducing water usage, recycling waste, and use renewable energy at their operations sites, but do not report any material capability to transfer this knowledge to their value chain. The knowledge does not seem to transfer to the owner suppliers in particular whom, despite workshops and climate assessments, is not reported to have achieved any significant technological sustainability improvements in their operation. Hence, it seems that the food producer's capability for innovating sustainable products, services etc. is greatest, when the consumers drive the process and there is a significant commercial potential. This is also indicated in the interview:

*"...so of course there is a business intent to something that was 20 years ago sold for nothing to farmers, as a feed for pigs..to [now] be top notch foods ingredients with very good functional capabilities...and if that could be used to produce good products for people who need it, it is great input and great information...here backed by the product development and the information you get is of course really useful, so it is making good in a way that is also learning about a mechanism....so why is it making good, why is it working well and of course the reason to commercialize it in other products to be used for different reasons"*

- Food producer's key sustainability practitioner (2014)

Some of the innovations can be linked to and meet stakeholder expectations or norms, which the food producer is now compliant with. More on compliance follows.

#### **6.1.3.2.2 Best Practice (11): External Recognition and Compliance through the Adoption of and Adherence to Sustainability Standards and Certifications**

The best practice *External recognition and compliance through the adoption of and adherence to sustainability standards and certifications* is implemented at levels of limited materiality in 2010-2011. This implementation level is primarily a result of the certification of a limited number of joint-venture production sites to food safety standards, the limited certification of ingredients, and the supplier's limited adherence to the food producer's code of conduct.

However, we have already established that food safety is a highly material and prioritized environmental sustainability issue to the food producer, which is also reflected when concerning the

food producer's compliance with standards and certifications. In 2010, the food producer reports that 51 out of their 65 sites are certified in accordance with the ISO22000 food safety standard, including joint venture companies. The number of sites and certifications increase throughout the five-year period, but only the joint-venture companies are of interest in our value chain perspective and the ratio of those is not listed in any reports. Hence, with a limited stakeholder range, qualities of presence and scope, these certifications do not contribute with more than limited materiality to the implementation of this best practice through the five-year period. Food safety is naturally also a key focus in the food producer's quality programme. By 2014, all owner suppliers are required to comply with it. The food producer does not report on the owner supplier's compliance with their quality programme, any other environmental sustainability standards, or even the food producer's own code of conduct in the five-year period. Beyond food safety, the food producer only report that owner suppliers must comply with the requirement, to only purchase and use responsibly sourced soy in the production process. The food producer aims for a 100% use of responsible soy in all core markets by 2015, but only the owner suppliers in core market G comply with this target in 2014. This market represents less than 0,5% of the owner suppliers. The food producer aids this compliance by purchasing the certificates for sustainable soy on behalf of the owner suppliers, but it is unclear whether the food producer has the ability to verify that the owner suppliers are indeed compliant with this requirement. In other words, the range of stakeholders and qualities given presence has increased, but the scope is very limited and is not perceived to contribute more than to a level of limited materiality in 2014

Conversely, the food producer's approach to compliance of ingredients suppliers has been significantly developed throughout the five-year period. By 2014, all categories of major ingredient suppliers are required to be compliant with third-party certified standards. For certain categories like palm oil, the process towards compliance with the more advanced type of palm oil certification, Certified Segregated Palm Oil (CSPO), is reported as initiated and with the target that in 2015, all purchase of palm oil should be CSPO. Furthermore, in 2012, the food producer reports the initiation of a transition towards FSC-certified cardboard packaging in core markets A, B, and G. In 2014, the food producer reports that this transition is almost complete. At this point, the food producer states that they strive for FSC certification or PEFC (Programme for the Endorsement of Forest Certification). The latter seems less ambitious while PEFC is not nearly recognised to the same extent as FSC. All in all, the reported compliance by ingredient and packaging suppliers increases the stakeholder range, the qualities given presence and the scope in the implementation of this best practice.

Furthermore, all other suppliers are required to sign the food producer's supplier code of conduct, which 85% of them are reported to have by 2012, and the ratio stays around this level for

the following years. The signing of a code of conduct does not equal compliance with the contents of it, which is likely to be part of the reason for the food producer to introduce a new assessment system with the purpose of verifying the supplier's compliance. Though, the food producer's evaluation practice does not seem to ensure this compliance while there is no systematic monitoring of all suppliers with this system. Assessing these suppliers increases stakeholder range, but not the qualities given presence and the scope in the implementation of this best practice.

In 2012, the food producer reports that in core market G have been certified according to a national standard for CSR performance, which recognises other standards like the ISO26000, Global Reporting Initiative (GRI) etc. This certification has interest in our value chain perspective while it emphasizes stakeholder dialogue and confirms that the food producer's operation in this particular core market, systematically address stakeholders' expectations. Though, the food producer does not report plans to adopt a similar or some of the recognised standards until 2014. Here, the food producer reports an intention to be compliant with the GRI on a global scale. In 2014, the food producer conducted a materiality analysis prior to the reporting, with reference to this as a preparatory step for future reporting to the GRI G4 guidelines. In the G4 version of the GRI guidelines, the requirements for reporting on the external value chain has been significantly strengthened and compliance would therefore require the food producer to develop a capability to retrieve and disclose much more value chain related information than today. The GRI is to be considered as a multi-stakeholder standard or international accountability standard (IAS), but currently the food producer solely reports adherence to the UN Global Compact. This reporting is conducted on the Active Level in the UNGC Differentiation Programme, where verifying compliance for implementation of the ten UNGC principles in the value chain is not feasible. This option does exist to some extent on the Advanced Level. However, in the interview, the food producer does not demonstrate any ambitions in this regard:

*"... we have decided...not to go on the top level of global compact and that is really because....it would be take lots of efforts to follow up KPIs of use for us and that could be easily done but it would take time. If we should continue global compact,, for the 2015 report there is increased demands and if you follow these, you have to take care of those demands."*

- Food producer's key sustainability practitioner (2014)

All in all, based on these stakeholder-oriented standards, only the certification to a national standard in core market G contributes to the implementation of this best practice. This is with a limited stakeholder range, qualities of presence and scope, which is why the compliance with IAS is merely at a level of intended materiality in 2014.

The corporation's compliance with certification and other standards is most often communicated in a sustainability report. This report can provide the stakeholder with comprehensive information about the corporate environmental practice. In addition, a number of stakeholders and especially consumers tend not to read a comprehensive report as the basis for their buying decision. Hence, in order to reach all stakeholders, the corporation must communicate and market their environmental practice through other channels. This best practice is an important part of the capability to exploit the environmental-related knowledge acquired. Thus, it has a high potential for influencing corporate performance.

#### **6.1.3.2.3 Best Practice (12): Integration Sustainability Issues in the Corporate Communication, Advertising and Marketing Directed Towards Customers**

The implementation of the best practice *Integration sustainability issues in the corporate communication, advertising and marketing directed towards customers* (12) is reported at a limited level of materiality in 2010-11. However, in 2010, the food producer was airing television advertisements in a core market, in which they extend on their slogan/tagline that directly connects to environmental sustainability in value chain perspective. It had an extended scope, but only for a limited range of stakeholders in core market A and limited qualities was given presence. No television advertisements are reported, but in the following years the food producer continue to report on the communication of the branding of slogan/tagline. By 2014, this tagline/slogan is changed into a less tangible formulation, which although more indirectly still strongly signal a positive and sustainability-oriented proposition to the consumer and other stakeholders. By 2014, it seems formulated in line with the trend towards phasing out the additives and striving for more natural products. An interesting development, but not contributing to a level above, limited materiality for this best practice.

Despite that food safety is a very material environmental sustainability issue to the food producer, the reporting throughout the five year period does not hold any information on the direct integration of food safety in the corporate communication, advertising, and marketing directed towards consumers (12). When concerning the related health issue, the food producer reports that they inform consumers about the ingredients in all their products and have big ambitions for improving this communication concerning the health value of their products. Also, the use of a specific label on the product packaging used in core market A and B, constitute a primary way for the food producer to communicate the health value of its products. Around 60 of the food producer's products carry the label in the two different core markets in 2011, which is a slight increase from 2010. The food producer also reports barriers for leveraging the communication of enriched products, concerning specific health claims that the food producer cannot get approved by

the legislative authorities. Hence, this is also an implementation at a limited level of materiality, which is not increased by the food producer's regular communication of environmental sustainability issues on the packaging for certain products.

From 2012 and onwards, the health issue seems more integrated and the food producer starts to more directly communicate the health benefits of their product range. It is reported that these communications have been underway for some time and that the whole product development have been coordinated between product developers, marketing and research, in order to be able to communicate health claims. This particularly concerns the enriched products that are part of the food producers sub brand, which was launched in core market B in 2012. This is also the year where the food producer steps up the communication of the basic nutritional benefits of the primary non-enhanced food product, in core markets A, B and C. Here, the communications have been associated with the food product's nutritional benefits with physical activity. The food producer also reports intensified marketing efforts for their basic range of organic products in 2012. Thus, these multiple communication and marketing initiatives in 2012 contributes to an implementation of this best practice, serving a broad range of stakeholders with many core qualities given presence and the gaining of scope across the markets. The environmental issues beyond health are not given much focus in the communications. All in all, this best practice is therefore not implemented at a level above limited materiality throughout the five-year period (2010-14). The food producer also views the sustainability reports as part of the communication, but more internally, as reflected in the interview:

*"...this report is written to be understandable by all, we have an internal voice that we want to be what we call young adult, so everybody is able to read it, and its not for the nerds, the specialists or experts...they should find information as well but its more for the general public and with that said, the people that read it or use it, not maybe read it but use it, as kind of a dictionary of the company or source of information, it is colleagues, employees, it is owners as our former owners and it is probably not 5... I am not very slicked into it but I think it is mainly our internal people and therefore it is also very important to make sure that this is a great learning situation and the report is not there to make an annual follow up, it is also to train, to make a follow up and to make the people know about all the good things, to make the peo-ple more aware of the things and beyond the document, it should be the truth in a balanced way..."*

Through sections 6.1.2 and 6.1.3, the case corporation's development of environmental learning capabilities has been analysed into significant detail using the conceptualised framework. It has also been demonstrated how the framework accumulates these details to determine the level of implementation for the best practices, through the application of sustainability factors in order to determine materiality levels. The analysis has been conducted chronologically, from one end to the other on the continuum of twelve best practices, across issues and years of reporting for each best

practice. However, the framework provides further value when observing the development of capabilities by cutting across this chronological flow. Major trends are now identified following this approach and it also provides a needed focus for upcoming analysis of the influence of the contextual factors.

#### **6.1.4 Major Trends in the Development of Environmental Learning Capabilities**

After the extensive analysis of the food producer's implementation of all the twelve best practices across four dimensions of ACAP, some of the key development patterns observable in figure 5 are now identified and further analysed. On the most overall level, figure 5 displays the average level of implementation across environmental sustainability issues of relevance to the food producer, whereas the specific development for each issue is more implicit and can take place in different tempi. Thus, a significant research engagement (2) in a particular year seldom leads to innovation (10) hereof in the same year. The research can span multiple years and can take a number of years to materialize in other ACAP dimensions. Thus, a number of such cross-connections are indicated in figure 5. For a single year, we can observe the capabilities on each of the the four ACAP dimensions. In some cases, we can observe path dependency for the development of a best practice within a potential ACAP dimension to another best practice in a realized ACAP dimension within a 1-2 year time frame.

##### **6.1.4.1 Health Focused Product Development**

The food producer's stakeholder consultations (1) of consumers in 2010-11 repeat an increasing clear interest in products with as few additives as possible and in their nutritional value. The reporting on this actually exemplifies fast development when consultations lead to engagement in research projects (2) in the same span of years 2010-11 on the communication of nutritional and health-related information, and another on project on health implications of food products with saturated fat or enriched products. In 2010, the food producer report their ongoing revision of product recipes, in order to eliminate or replace additives with more natural alternatives, which then takes place concurrently with the research project from which the results are already reported in 2011. However, 2011 is also the year where the communication and coordination (5) between the food producer's departments leverage a faster development of products (10). A rapidly increasing number of these are marketed in 2011 with a publicly authorized label, which communicates (12) the health value to consumers in core markets A and B, also in 2011. Hence, this is seemingly a very fast development process where potential and realized learning capabilities are implemented within a very short time span. Hence, not only with path dependency between best practices within

the same year, but also with different best practices overlapping each other in time.

The development of environmental learning capabilities for the other aspect of the health issue, concerning the enriched food products and communicable health claims, seems a less fast paced process spanning more years. Nonetheless, the implementation is even stronger on this issue, especially when it concerns the exploitation-oriented best practices for innovation and communication/marketing. Also, the cross-connections between best practice in different dimensions and years are more distinct. In 2010, the food producer reports this intention: "Through our product range, we can inspire consumers to lead a healthier lifestyle that in turn increases their well-being." Thus, stakeholder consultations (1) in 2010 do not indicate a consumer demand for e.g. enriched products. Nevertheless, the food producer engage in a research project (2) on enriched food and establishes an innovation unit to enable a closer cooperation with customers this year. In 2012, the product development is strengthened by internal communication and coordination (5) between product developers, marketing and researchers, nutrition and food legislation specialists working towards products with communicable health claims. The first cycle of innovation (10) of these enriched food products concludes in 2012, where they are marketed with communicable health claims as a separate sub brand in a single core market. Some of the most novel innovations are bit longer underway, such as the food products claiming to aid recovery and rehabilitation from illness, which are tested in collaboration (9) with two hospital kitchens in 2013. The innovation cycle for these highly innovative products (10) and also the second innovation cycle for the enriched products were concluded in 2014, where they also were marketed (12). Hence, for this aspect of the health issue, the development process was less fast and with the potential learning capabilities being implemented in the first 2-3 years of the five-year period. On the other hand, the realized learning capabilities were implemented in three cycles over the last 2-3 years. For this aspect of the health issue, the path dependence between best practices and across capability dimensions, were spanning multiple years.

Although the environmental learning capabilities were implemented in different tempi for the two aspects of the health issue, the potential was realized and exploited through innovation and marketing. That consumer health is a prioritized and material issue to the food producer is emphasized by their development of a health strategy in 2014, which had a strong focus on both of the analysed aspects of the health issue. The development trend of the other environmental issues concerning the food producer's pursuit of a sustainable production process has not yet been touched upon. However, it will be so in the following with one last exemplification.

#### **6.1.4.2 Sustainable Production Processes in the Value Chain**

The development of the learning capabilities for the environmental issues concerning a sustainable production process follows a completely different path and tempi, than those for food safety and health. This difference is best exemplified with the issue of CO<sub>2</sub>-emissions stemming from the owners suppliers production of the raw material, which is the primary input to the food producer's production. In 2010, the food producer reports an increasing number of inquires concerning the carbon footprint of products from stakeholder consultations (1) of consumers in a single core market. In the same year, the food producer reports on the engagement in research (2) with the employment of a PhD student who analysed the greenhouse gasses from the raw material production systems, identified a number of factors which impact the CO<sub>2</sub>-emission, and determine the ways to reduce the emissions from the owner suppliers in particular. This research was extended through a research partnership, which leveraged a method to calculate and assess the owner suppliers CO<sub>2</sub>-emissions in 2010. It also informed the reported intention to offer all the owner suppliers the opportunity to have a voluntary carbon and energy assessment conducted. Despite the acquisition of this knowledge, there is no reporting of conducted assessments or measurements (3) of the owner suppliers CO<sub>2</sub>-emissions until 2013, although the reporting points to the conduction of some assessments in a single core market in 2012. Nonetheless, the research leveraged in 2010 is subject to extensive stakeholder consultations (1) on a broader range of environmental issues in 2011, which informs the development of a new environmental strategy (6) in the same year. The strategy has a strong value chain focus and ambitious targets for e.g. the owner suppliers CO<sub>2</sub>-emissions, which must be reduced by 25% before year 2020. However, there is no reporting of prior analysis of risk and opportunity (4) and no internal coordination and communication (5) concerning CO<sub>2</sub>-emissions or other environmental issues related to owner supplier's sustainable production process. In addition, the apparent lack of implementation of the latter best practices could prove to be challenge in the realization of environmental learning capabilities, and particularly, the communication to and capacity building (7) of the owner suppliers concerning this topic. From 2013, the food producer arranges workshops for this purpose and a lot of these were conducted in core market C, which first adopted the CO<sub>2</sub>-assessments. The development in two other core markets was very slow and reversed in 2013 with no workshops held at all. There is no reporting of the assessments of CO<sub>2</sub> being included in the selection and monitoring (8) of the owner suppliers, just as there is no reported examples of an actual collaboration between the food producer and the owners supplier. Nonetheless, the importance of the latter is a cornerstone in a strategy for sustainable production processes, launched in 2014 as a supplement to the environmental strategy from 2011. Hence, given the almost complete lack of

implementation of transformative best practices, it is no surprise that the knowledge acquired and to some extent assimilated, is not exploited directly through innovation (10), compliance (11), or communication/marketing (12) on this issue. In other words, there was no reporting of e.g. significantly improved production processes due to the owner suppliers CO<sub>2</sub>-reduction, no reporting of compliance with e.g. the Greenhouse Gas (GHG) Protocol scope 3 for value chains, and no communication and marketing of such exploitations with e.g. a CO<sub>2</sub>-neutral label on the product packaging.

Furthermore, the exemplifications in sections 6.1.4.1 and 6.1.4.2 display a very different path and tempi for the implementation of the best practices concerning the issue of CO<sub>2</sub>-emissions, when compared with the path and tempi for the different aspects of the health issue. The potential learning capabilities were weakened by the delayed assessments (3) and the complete absence of the analysis of risk/opportunity (4) and internal communication/coordination (5) on this issue. Therefore, this partly explains why the food producer is so challenged in realizing the environmental learning capabilities and ambitious targets (6) for this issue. The delays and lack of implementation of certain best practices does not fully explain the implicit causality and path dependence in this development or lack of it. Hence, we pose that a full understanding hereof, requires insight to the contextual factors mediating this development. Also, we consider these contextual factors necessary supplements to this conceptual framework in an IAS perspective.

### **6.1.5 Contextual Factors Influencing the Development of Environmental Learning Capabilities**

The previous analysis demonstrates the explanatory power of the conceptual framework based on the ACAP dimensions, which, to some extent, can address the question of how a particular capability has developed. In the current design, the conceptual framework is however also limited in addressing the question of why particular capabilities emerged and why with the tempi is observed. As described previously, the conceptual framework derives from the ACAP construct as Zahra and George (2002) conceptualised. They identified a number of contextual factors influencing ACAP and, in our framework, the development of environmental learning capabilities. In the following, we extend the analysis by identifying the contextual factors influencing a food producer's development of capabilities. We begin by identifying *activation triggers* and analyse their impact on ACAP.

### 6.1.5.1 Activation Triggers

Zahra and George (2002) proposed that activation triggers can influence the relationship between the source of knowledge and experience and PACAP, with the latter here corresponding to potential environmental learning capabilities. They furthermore recognised activation triggers as “events that encourage or compel a firm to respond to specific internal or external stimuli.” Hence, they distinguish between internal and external triggers. The food producer is subject to multiple potential activation triggers, but we will focus the following analysis on those tied to the major trends and issues identified.

In the case of the food producer, the influence of activation triggers, especially external triggers, is most observable in health issues concerning the removal of potentially unhealthy substances from food products and the communication of their nutritional contents. The food producer's reporting in 2010-11 demonstrates the cooperative's response to a publicly authorized health label. The label had existed in core market A for two decades, but authorities only introduced the label in core market B in 2009. The label's role as an external trigger was obvious in 2010, when the food producer reported adherence to this health label in the two core markets until the new EC standard came into practice. However, the reporting also shows that while the level of labeled products remained relatively constant in core market A, the food producer took a year to reach the same level in core market B. Therefore, we propose that this health label and the coming EC standard serve as key triggers for the fast-paced development of environmental learning capabilities from acquisition to exploitation on this issue. We pointed towards this in the analysis in sections 6.1.2 and 6.1.3. The label is quite popular with consumers and affects their buying decisions, which has led the number of products carrying this label in core market B to increase rapidly from none in 2009 to around 2000 by 2012 (Søndergaard, 2012). Hence, even though the food producer possesses the experience and accumulated knowledge from adherence with this label in core market A, this knowledge and experience does not appear to transfer easily. In fact, despite having received a dispensation for 25 products in one food category to remain unlabeled in 2011, the food producer did not manage to reduce the salt in a certain category in time. This lack of compliance resulted in none of the 25 products' being labeled from early 2012 onward. Moreover, despite the food producer's reported intention to comply with core market B's maximum thresholds by 2013, it did not announce its compliance unambiguously in the 2013 report. While the food producer's prior research focused on the fat in this particular type of product, a new research project reported in 2012, focus on innovative strategies for reducing salt. The project was initiated with competitors and universities for a four-year period (2012-15). Although the food producer identified the reduction of salt and other substances as a priority, it did not report on the progress of this research

or on its compliance with the health label from 2012 to 2014. Still, in 2014, it asserted that it had complied with the new EU labeling regulation, by having made changes according to the new regulation for all its products.

The new EU labeling regulation also covers health claims and other information concerning enriched food products and, together with other EU and national legislation and policy, also serves as an external trigger for the development of the food producer's environmental learning capabilities for this other aspect of health. However, such legislation triggered the food producer to respond well before 2010. This year, they reported the introduction of new EC regulations for how to make health claims and that authorities had approved very few of its health claims for its enhanced food products. It stated that this situation had led to the media's questioning of its scientific documentation for its applications. Though, rather than addressing this questioning, the food producer presented a critical stance toward the EC regulations' initial lack of clarity and the time-consuming approval process. Still, it also recognised that the authorities had clarified the regulations and expressed confidence that the European Food Safety Authority would approve future applications. Nevertheless, in 2010, it announced an upcoming research project aimed at investigating the health implications of enriching milk and bread with vitamin D, asserting that it expected to present the research findings in 2011. Additionally, it reported ongoing support for basic research on the link between food product components and obesity and product-related research on health products for children, products with vitamin D, and the health effects of probiotics. Despite the hefty amount of research, no information is reported on health claims and enriched products in 2011, whereas reports for 2012 took this topic as a focus. The food producer did not directly report the results of the research on enriched products in 2012, but nevertheless offered positive statements on the link between health and not only the many vitamins and minerals already present in the primary food product, but also enrichment with vitamin D. The food producer's enrichment with vitamin D is already applied to the majority of the primary food products sold in the core markets A and C and that the EC regulation in question focuses only on the marketing of health claims. In 2012, the food producer reported further strengthening of the regulation with a new list of approved health claims that the EU published in May 2012, which restricts health communication on packaging and in advertising. The food producer further reports that no health claims related to enriched products, had been approved in the new legislation. This must be considered somewhat surprising given the positive outlook and pending research reported by the food producer on this topic in 2010. Consequently, the new regulation seems to have triggered the food producer to apply a new approach, strictly following the guidelines for clinical studies that the EU publishes. In addition, the food producer focuses the studies on attaining an approved health claim for food products containing a particular bacterium that it developed. This

apparent setback has not stopped it from expanding the range of enriched products into specific sub-brands that it launched in core market A in 2012 and neither in making health claims in relation to bone health, digestion, and the immune system. However, a consumer organization questioned the marketing communication accompanying these nutrition and health claims, although the food producer argued that it based the communication on the new EU regulation. In 2013, the questioning became more formalised when an environmental and health board in core markets A reached the decision that the labeling of the sub-branded products represented a lack of compliance with the regulations governing nutrition and health claims and that the food producer should make some changes. The food producer reported its disagreement with this decision and their appeal of it in 2013, but, in 2014, no further appeal is reported on this process, the approval of health claims, or the food producer's marketing of these. Whether the consumers in this particular case indirectly triggered any change in the food producer's marketing of health claims is uncertain, but, generally, consumers serve as an external trigger of new product development, which is a connection the food producer has continuously confirmed in its reporting. Hence, concerning health issues, the food producer's reporting clearly identifies regulation and public policy as external triggers for the development of environmental learning capabilities, whereas the reporting more modestly identifies consumers as an external trigger. Health is a sustainability issue highly material to the food producer, who might respond differently to activation triggers when it concerns other less material environmental issues. However, this point is now demonstrated in the following concerning the issue of CO<sub>2</sub>-emissions.

The food producer reported its consumers' interest in other environmental issues as quite fragmented in the early years, with stakeholder consultations, with consumers generally demonstrating a strong interest in food safety and health. The consumer interest in other environmental issues, such as products' carbon footprint, initially appeared in a single core market (i.e., core market C in 2010). Although consumer interest in issues has seemingly become more coherent across markets, this expressed interest in products' carbon footprint remains the most specific concerning this issue over the five years of reporting. Hence, the reporting does not convincingly support the view that the food producer's consumers serve as an external trigger for the development of environmental learning capabilities. The same goes for any other of the food producer's stakeholders, which are not reported to have directly expressed interest in carbon footprints or greenhouse gas emissions. NGOs and other stakeholders likely addressed carbon footprints in their consultations on the food producer's environmental priorities in 2011 and thereby triggered the development of potential learning capabilities at the highest levels of materiality. This concerned the new environmental strategy launched in the same year. Nevertheless, greenhouse gas

emissions are in general less material to the food producer and its stakeholders, as visualized in the materiality matrix reported in 2014, which placed food safety and health as of higher importance to both internal and external stakeholders and the issue of greenhouse gas emissions as of more moderate importance.

The reduction of the owner suppliers' greenhouse gas emissions is however continuously mentioned as a central element in the sub-strategy for sustainable food production, which the food producer launched in 2013 as a supplement to the new environmental strategy. Hence, some contextual factors continuously trigger the development of potential learning capabilities, whereas some others seem to hinder realization of these capabilities. To explore this further, the focus of the analysis is now turned towards social integration mechanisms, which are proposed to moderate realization through transformative and exploitative best practices.

### **6.1.5.2 Organisational Determinants as Social Integration Mechanisms**

As previously described in the conceptual framework, we follow Zahra and George in proposing social integration mechanisms as contextual factors, which facilitates the sharing and eventually the exploitation of knowledge, thereby reducing the gap between potential and realized ACAP.

Although not elaborating on social integration mechanisms to any great extent, we follow Zahra and George so far that they are comprised of structural, cognitive, and relational dimensions that can aid or stifle knowledge sharing and integration. However, to better operationalize these dimensions for application in this study, we view social integration mechanisms as corresponding to Bosch et al.'s (1998) organisational determinants of ACAP and their differentiation of these determinants into combinative capabilities and organisational form. According to Bosch et al. (1998), combinative capabilities include system, coordination, and socialization capabilities, whereas they limited organisational forms to functional, divisional, and matrix forms. With sustainability reports as the primary data source and limited access to interviewing key sustainability professionals, we do not expect to be able to provide a complete account of the role of organisational determinants.

Nevertheless, the data gathered not only support the assessment of the development of environmental learning capabilities, but also indicate which organisational determinants are influencing this development. Hence, in the following, we will first identify the food producer's organisational form and examine any indications of that form's influence on the development of environmental learning capabilities. Paraphrasing the analogy Bosch et al. (1998) provided, we then move from examining the "bones" of the organizations to the "flesh" and "blood," in the shape of the complementing combinative capabilities indicated in the food producer's reporting.

### 6.1.5.2.1 Organisational Form

The food producer’s reporting has included an organisational chart and an elaborating description every year from 2010 to 2014, in which it extended its basic organization through mergers, but remained a combination of the functional and divisional form. Functional, in the form of a number of global corporate functions, which report to an executive board and concern areas like corporate affairs, HR, supply chain management, finance, and IT. These functions support a number of divisions, of which some focus on core markets and others on further aspects of the business. Furthermore, an external board also governs the organization. Given the food producer’s status as a cooperative, this external governance structure is comprehensive. Furthermore, the thousands of owner suppliers are members of the cooperative and a board of representatives is elected with around 150 representatives. Thus, the food producer reports these representatives as its top decision-making body. The members are organized in regions, which, together with the board of representatives, elect a board of directors. While the core of the functional structure remained the same throughout the five-year period (2010-14), the number of divisions and the external governance structure grew and evolved in alignment with the food producer’s mergers with other cooperatives, bringing in more members and core markets. With an increase in members from around 7000 in 2010 to around 13,500 in 2014, the pace of growth was fast and it led to changes in the internal and external organization. Thus, we must consider these changes when we examine the influence of organisational form on the development of environmental learning capabilities in the following.

Bosch et al. (1998) recognised multiple organisational forms, but limited their view to the functional, divisional, and matrix forms. These forms were, however, compared in terms of their potential for the efficiency, scope, and flexibility of knowledge absorption, as depicted in Table 1.

Dimensions of Knowledge Absorption	Organization Forms		
	Functional Form	Divisional Form	Matrix Form
Efficiency of Absorption	H	L	L
Scope of Absorption	L	L	H
Flexibility of Absorption	L	H	H
Impact on Absorptive Capacity <sup>a</sup>	Negative	Moderate	Positive

H: high; L: low

<sup>a</sup>Assumption: Both scope and flexibility of knowledge absorption have a positive influence on the level of absorptive capacity, while efficiency has a negative impact.

**Table 1** - Three Basic Organization Forms, Dimensions of Knowledge Absorption, and Absorptive Capacity (Bosch et al., 1998)

Table 1 lists each of these potentials as low (L) or high (H), which, when taken together, can offer a simple assessment of the impact on absorptive capacity. Overall, Bosch et al.'s (1998) comparison is followed. Thus, in this analysis, it is also considered that the food producer combines the functional/divisional forms. However, it was not considered a feasible approach to engage in some averaging of the ratings in Table 1, in order to address this combined form. In addition, the food producer is not a typical corporate organization, as it possesses a comprehensive external governance structure. Hence, the choice was to first engage in an analysis of those observations concerning the food producer's development of environmental learning capabilities, which indicate a relation to the organisational form. Therefore, the analysis will furthermore utilize the data from the food producer's key sustainability professional, which not only juxtapose the reported information, but also provide additional insights into the contextual factors that influences the learning capability. On this basis, we assess the impact of the combined organisational form's dimension of knowledge absorption on the food producer's absorptive capacity.

Although we cannot analyse all best practices' relation to the organisational form in detail for all environmental issues, we do provide exemplifications, which represent the major trends in the development of environmental learning capabilities across the four dimensions from acquisition to exploitation. Hence, what the reporting indicates and the interview data confirm is that the organisational form manifests in the food producer's formalised consultations with stakeholders throughout the five-year period (2010-14). Thus, each of the annual surveys targets a specific type of stakeholder, for example, consumers or owner suppliers. The corresponding relevant function or division in the organization conducts each of the surveys, and the different functions or divisions do not seem to have any particular incentive to share the retrieved knowledge throughout the organization. The annual surveys of owner suppliers demonstrate this. According to the key sustainability professional, the food producer's corporate supply chain management function conducts these surveys. Thus, this survey only partially distributes the knowledge retrieved beyond this function through the annual cross-organisational business planning cycle. Bosch et al. (1999) described component knowledge as specialized for the functional areas, which have the advantage of the efficiency attained from economies of scale, overheads, and skills. On the other hand, the scope and flexibility of the knowledge absorption of the functional form is limited. In other words, the food producer's corporate supply chain management function is efficient in retrieving knowledge from the owner suppliers, but the scope of applied methods, such as surveys, is potentially limited by the particular perspective from this function. Hence, it might not be flexible enough to accommodate other perspectives from, for example, the consumers, who have displayed an increasing interest in other environmental issues over the years. Consequently, other formalised stakeholder consultations are anchored in individual divisions, which, according to Bosch et al.

(1998), face a similar challenge of a low potential for scope. Conversely, the divisions have a high potential for flexibility and a low potential for efficiency of knowledge absorption. A stakeholder consultation exemplifying this is the food producer's annual survey of consumers, which only slowly expanded to more core markets in 2013-14. This thereby leads to the incorporating of more divisions. The food producer did not conduct formalised consumer surveys beyond the core markets. As such, the scope for knowledge absorption only covers a fraction of the full range of the end consumers of the food producer's products in more than 100 countries. The divisions generally have a high potential for flexibility due to the autonomy of divisions concerning operational decisions (Bosch et al., 1998) and each division's direct contact with consumers. Furthermore, the potential for efficiency is generally lower, since the divisions face disadvantages in not having economies of scale, overheads, or skills as in the functional form. However, the influence of the organisational form cannot be assessed based on one aspect of a single best practice. As a result, the analysis is now focused on an example of the influence of the divisional form across multiple practices and capability dimensions.

The analysis of the development of environmental learning capabilities in sections 6.1.2 and 6.1.3 offers multiple examples of core market C's taking the lead on multiple environmental sustainability issues. Also, it provides a significant contribution to the implementation at higher levels of materiality across all stages from the acquisition to the exploitation of knowledge. This can be observed from the extended engagement in research projects with multiple value chain partners, comprehensive risk and opportunity analysis, and extensive value chain collaborations, leading to compliance, innovation, and marketing. Hence, the division governing core market C must have found ways to overcome the inherent limitations on scope and efficiency when implementing these best practices. This is potentially through the application of supplementary combinative capabilities. However, the prior analysis also indicates that the divisional form structuring the core markets seems to suppress the "integration and common utilization of knowledge between multiple divisions" (Bosch et al., 1998). On the other hand, the highly material implementation of best practices in core market C did not seem to transfer substantively to other core markets during the five-year period (2010-14). This transfer of best practice poses a challenge across not only the divisions for the food producer's core markets, but also the division to the functional part of the organization form and vice versa.

The food producer's innovation on health issues is primarily driven by the innovation unit placed in a division not servicing a specific market, but with global innovation, quality, and the environment as its primary responsibilities. Placement within the divisional form provides the innovation unit with flexibility due to its relatively autonomous decision-making process and some direct contact with the environment. This takes place primarily when consumers participate directly

in innovation processes. However, the divisional form also limits the potential for scope and efficiency. This seems particularly true for the food producer, when the innovation unit and corresponding division engages in processes with some dependence on the functional areas in the organisation. Subsequently, the innovation unit did not move quickly enough in the innovation and development of products toward compliance with a new labeling scheme in 2011. Such a compliance requirement could potentially have been detected earlier through a stakeholder consultation with relevant authorities. This is conducted by, for instance, the food producer's corporate affairs function. A similar situation occurred when this division displayed significant potential learning capabilities by developing a new environmental strategy with a strong value chain dimension embedded as, for example, ambitious targets for CO<sub>2</sub>-reduction, but relied on the supply chain function to develop the learning capabilities needed to achieve the targets.

Overall, the food producer's organisation, with its combined functional and divisional form, seems to have had a moderately positive impact on learning capability concerning environmental sustainability issues, such as health, which are more material to the corporation. In contrast, the impact of the combined organisational form on learning capabilities with less material issues, such as owner suppliers' CO<sub>2</sub>-emissions, seems to have been negative. Thus, this negative impact also seems to have been influenced by the food producer's comprehensive external governance structure. This structure comprises of thousands of owner suppliers who are likely to perceive more tangible financial benefits coming from an investment in the health issue rather than CO<sub>2</sub>-emissions. The food producer's implementation of supplementary combinative capabilities on a corporate level has not seemed to address these particular diffusions of knowledge sufficiently. The second part of this analysis of organisational determinants as social integration mechanisms will address the combinative capabilities in more detail.

#### **6.1.5.2.2 Combinative Capabilities**

We have previously identified Bosch et al.'s (1998) organisational determinants of ACAP as a stronger conceptualisation of social integration mechanisms, which Zahra and George (2002) proposed as reducing the gap between potential and realized absorptive capacity and influencing a corporation's knowledge absorption in general. Bosch et al. (1998) viewed organisational form as one determinant and the other as combinative capabilities, which is a concept they borrowed from Kogut and Zander (1992). Bosch et al. (1998) further developed this concept by distinguishing between *systems*, *coordination*, and *socialization* capabilities as three types of combinative capabilities. Consequently, Bosch et al. (1998) asserted that a firm can use these three capabilities "to absorb component knowledge located within the firm, within its own industry environment, or within other, related industry environments," but that the impact of these combinative capabilities

on absorptive capacity differs. As with the organisational forms, Bosch et al. (1998) compared combinative capabilities in terms of their potential for the efficiency, scope, and flexibility of knowledge absorption, as depicted in Table 2.

Dimensions of Knowledge Absorption	Combinative Capabilities		
	Systems Capabilities	Coordination Capabilities	Socialization Capabilities
Efficiency of Absorption	H	L	H
Scope of Absorption	L	H	L
Flexibility of Absorption	L	H	L
Impact on Absorptive Capacity <sup>a</sup>	Negative	Positive	Negative

H: high; L: low

<sup>a</sup>Assumption: Both scope and flexibility of knowledge absorption have a positive influence on the level of absorptive capacity, while efficiency has a negative impact.

**Table 2** - *Basic Combinative Capabilities, Dimensions of Knowledge Absorption, and Absorptive Capacity (Bosch et al., 1998)*

Hence, Table 2 lists each of these potentials as a low (L) or high (H), which when accumulated can offer a simple assessment of the impact on absorptive capacity. In addition, we follow Bosch et al.'s (1998) comparison overall, but adapt our application in this analysis: The combinative capabilities seem to overlap with some of the 12 best practices earlier identified as the core of our conceptual framework. Nevertheless, we apply Bosch et al.'s (1998) view on the three combinative capabilities in the following section of the analysis, but introduce each capability with an adaptation to fit our conceptual framework.

### ***Systems Capabilities***

Bosch et al. (1998) described systems capabilities as “direction, policies, procedures, and manuals . . . often used to integrate explicit knowledge” and as reflecting “the degree to which rules, procedures, instructions, and communications are laid down in written documents or formal systems.” Furthermore, this view of systems capabilities would seem to overlap with the assimilative best practice for the development of strategies, policies, and targets for sustainability in the value chain (6) and to some extent also with the transformative best practice for the integration of sustainability issues in the selection and monitoring practices for suppliers and other business partners (8). However, in alignment with Bosch et al.'s (1998) view that systems capabilities are not routines, here we focus on systems and hence limit our view of this combinative capability to management and IT systems, which are likely to influence the food producer's ACAP. In 2011, the food producer reported the existence of an internal database, which, at that point, had accumulated more than 600 activities related to the environment-focused corporate identity campaign. The exemplification in the report covers both activities focused on the internal value chain, for example,

specific energy-saving measures, such as installing heat pumps to recover heat from wastewater and cooling. It also entails activities focused on the external value chain, for example, the requirements suppliers of particular ingredients must meet before the food producer will consider buying them. Still, to what extent the food producer utilizes information in this database across and beyond its organization is unclear, and their report only briefly mentioned the system in 2012, but not in 2013 or 2014. Nor did the report explicitly mention any other IT system supporting environmental sustainability in the value chain, although the 2012 report did indicate that limited access to common IT platforms was an obstacle for implementing supplier assessments in more core markets. Therefore, the assessments form part of the food producer's revised supply chain management systems, and the reported challenges exemplify how important IT systems are to the implementation of management systems.

Although Bosch et al.'s (1998) view does not explicitly address management systems, their exemplification of systems capabilities through a case study indicated that management systems align with their perception of behaviors programmed in advance of their execution and higher degrees of formalization as systems capabilities. However, management systems with a value chain orientation come in multiple variants from those indirectly to those directly addressing sustainability, with quality management systems (QMSs) exemplifying the former and environmental management systems the latter (EMSs). With such exemplifications in mind, these systems capabilities seemingly overlap with the 12 best practices identified in ways similar to IT systems and with the best practice concerning compliance (11), while the implementation of, for example, both QMSs and EMSs represents an exploitation of knowledge acquired toward compliance. Implementation of the certifiable ISO standards ISO9000 (QMS) and ISO14001 (EMS) count toward implementation of this best practice at higher levels of materiality in our conceptual framework. Although these types of management systems, especially certifiable ISO standards, can be specific in their requirements, they must also be applicable across very different corporations and therefore seldom describe specific routines, which most often are idiosyncratic to the corporations. Hence, we do not consider the management systems embedded in third-party standards as systems capabilities. However, Bosch et al. (1998) described these as "a memory for handling routine situations," which "eliminates the need for further communication and coordination among subunits and positions." Nonetheless, we do view management systems including this level of specificity as systems capabilities, and these tend either to have an origin internal to the organization or be generic management systems significantly adapted to the corporation's idiosyncratic routines. However, the food producer in this case did not report much on such management systems. Instead, its key sustainability professional announced the existence of an internal issue management system. This management system involves communication and media

risks, which the food producer views as reputational risks in their CSR perspective. Consequently, this professional also asserted that this system was “put on ice for the period 2013-2014” and indicated that the food producer had not smoothly integrated issue management and responsibility with its central business planning cycle. It is not known whether the issue management system has a level of specificity with rules, procedures, instructions, and communications and not either to which degree it is described in written documents or formal systems, which reflect systems capabilities according to Bosch et al. (1998). However, the interview statements and the lack of reporting here indicate the limited impact of this issue management system on ACAP.

Bosch et al.’s (1998) comparison of capabilities, which Table 2 displays, lists systems capabilities to generally possess the potential for a highly efficient absorption of knowledge. However, the potential for the scope and flexibility of absorption is low, which leads to a negative impact on absorptive capacity. The prior analysis does not suggest that the food producer implementing IT or management systems supporting sustainability in the external value chain are implemented to the extent, which could leverage the highly efficient absorption of knowledge. However, a default consequence of this lack of specification and formalization does not appear to be a higher scope or flexibility, either. Nonetheless, we suggest that in the case of the food producer, the impact of systems capabilities on ACAP is moderate.

### ***Coordination Capabilities***

Bosch et al. (1999) described coordination capabilities as opposed to systems capabilities, while “coordination capabilities enhance knowledge absorption through relations between members of a group. They refer to lateral ways of coordination.” They further recognised coordination capabilities as path dependent and accumulating in the firm as a result of three factors: (1) training and job rotation, (2) natural liaison devices, and (3) participation. Thus, these obviously overlap with some of the best practices in our conceptual framework and *internal coordination and communication concerning sustainability issues* (5) in particular. As demonstrated in the analysis of learning capabilities, we determine the level of implementation of coordination as a best practice using the materiality factors *stakeholder range*, *qualities given presence*, and *scope*. We thereby address the *who*, *what*, and *where*, but do not fully address *how* best practice implementation occurred. Therefore, this is also precedes the addressing of *how much*. Also, we perceive the combinative capability of coordination as partly addressing the *how*. In the following extension of the analysis, we now focus on how the three accumulating factors which Bosch et al. (1999) identified and apply them to the case of the food producer.

Bosch et al. (1999) recognised training as a part of coordination capabilities, which control, coordinate, and help to absorb knowledge and thereby indirectly achieve what rules and procedures

do directly as a part of systems capabilities. The food producer implemented the transformative best practice *External communication and capacity building concerning sustainability issues in the value chain (7)* at a lower level of corporate materiality throughout the five-year period. However, overall, this does not seem to support the realization of the high potential demonstrated by the ambitious strategies and targets leading to implementation of the associated best practice (6) at extended levels of materiality. Exemplifying this is the capacity building of owner suppliers through seminars and workshops. Hence, this does not seem to translate into the intended collaborations, exploitation through innovations, or merely improvements of the production process so as to consume less energy and emit less CO<sub>2</sub>. Even the number of completed assessments of energy use and CO<sub>2</sub>-emission drops at the end of the five-year period (2010-14). Consequently, the food producer did not have the capability or the incentive to seek compliance with more demanding standards like scope 3 of the GHG standard.

Bosch et al. (1999) also viewed *natural liaison devices* as a part of coordination capabilities, which “regulate mutual adjustments between individuals or units” and “result in lateral forms of communications and joint decision-making processes that cut across functions and lines of authority.” In the core of our conceptual framework, coordination is part of the best practice for *Internal coordination and communication concerning sustainability issues in the value chain (5)*, which covers coordination both as hierarchical communication from the top down or bottom up within a unit and as lateral communication across units. The core of the conceptual framework concerns the level of implementation of the best practice, but not the form and hence not implementation strategy. We view liaison devices as concerning the form of coordination, with the potential to “facilitate knowledge absorption without creating self-contained units.” The effect is that “the capacity to process information and to coordinate knowledge is increased” (Bosch et al., 1999). In the case of the food producer, it demonstrated the use of liaison devices on a number of occasions throughout the five-year period. Nevertheless, the most impactful took place in 2012 with the establishment of a CSR committee, where heads or at least senior representatives from all functions meet with the CEO quarterly to make decisions on sustainability issues. Thus, this liaison device was initially focused on the code of conduct, but the capacity increased over the years and the committee eventually processed all major sustainability issues. However, the food producer’s value chain seems less in focus and the decision-making hereon more decentralized.

A third part of the coordination capabilities concerns subordinates’ *participation* in superiors’ decision making, which, according to Bosch et al. (1999), “can bring about the knowledge integration and absorption to offset the differentiation that delegation causes.” Participation relates to the best practice for coordination (5) mentioned above, but reported information on participation does not count toward the assessment of implementation levels in our

conceptual framework. In the case of the food producer, it did not report on its subordinates' participation in superiors' decision-making processes for sustainability issues throughout the five years. The key sustainability professional did not address this issue. This is not to say participation is either absent or low, but it certainly is not something that the food producer considered relevant enough to report.

Bosch et al.'s (1999) comparison of capabilities, which Table 2 displays, lists coordination capabilities as generally possessing a low potential for efficiency in the absorption of knowledge. Thus, the potential for the scope and flexibility of absorption is high, which leads to a positive impact on absorptive capacity. In the case of the food producer, the prior analysis does not suggest that it has developed training, liaison devices, or participation as part of coordination capabilities in ways in which they could leverage the efficiency of the absorption of knowledge to more than the low potential which Bosch et al. (1999) assumed. Conversely, the prior analysis does suggest that the food producer's use of both ad hoc and permanent liaison devices increased the potential for both the scope and flexibility of the absorption of knowledge, especially from 2012 to 2014. However, the food producer's use of liaison devices seems to primarily support the development of potential ACAP, whereas the realization hereof does not seem to be significantly supported by training as part of coordination capabilities. All in all, we propose that the food producer's coordination capabilities only had a moderate impact on the development of combinative capabilities. Thus, this is despite the positive impact from the combinative capabilities which Bosch et al. (1999) assumed.

### ***Socialization Capabilities***

The third of the three types of combinative capabilities is termed *socialization capabilities*, which, according to Bosch et al. (1999), describe the "ability of the firm to produce a shared ideology that offers members an attractive identity as well as collective interpretations of reality" and "result from the firm's culture in terms of a system of ideas, or 'inferred ideational codes lying behind the realm of observable events.'" As such, socialization capabilities are per se difficult to study and the methods applied in this study are limited towards addressing such a purpose. However, none of the best practices identified in our conceptual framework address the issue of socialization directly, but both the assimilative best practice for coordination (5) and the exploitative for marketing (12) relate to this combinative capability more indirectly. Even so, socialization capabilities might still influence the implementation of best practices, and in our case, the food producer nonetheless reported a string of events over the years, which indicate a major effort to develop socialization capabilities. As noted in the analysis of the development of environmental learning capabilities, the food producer's reporting from 2010 to 2013 described the evolution in the use of a specific

corporate slogan and tagline, which is strongly related to the sustainability narrative from a value chain perspective. However, not only did the food producer integrate the slogan/tagline in its global corporate communication and marketing practice (12) and measure the penetration hereof among consumers (2), but it also targeted the development of this corporate identity toward employees as internal stakeholders. Until 2012, the food producer used this corporate identity to drive forward numerous environmental activities across the organization. Therefore, this was as reflected with the internal database for environmental activities mentioned in the prior analysis of systems capabilities. Therefore, the food producer very likely integrated this corporate identity initiative in some of the more hierarchical coordination and communication (5), although it did not report this directly. In contrast to previous years, the food producer only briefly mentioned the corporate identity initiative in 2013 and in 2014. Instead, the food producer reported the pursuit of a new corporate identity using a new slogan/tagline with a stronger connection to the health issue and thereby aligned with the launch of a new health strategy that year. The new slogan/tagline does not exclude environmental sustainability, but does signal a significant change in corporate identity. This change is, thus, likely to affect the food producer's socialization capabilities and also have consequences for the absorption of knowledge.

According to Bosch et al. (1999), "the infusion of beliefs and values into an organization takes place over time and produces a distinct identity for its participants" and "socialization capabilities are found in firms with a strong identity." Bosch et al. (1999) therefore assumed that socialization capabilities do not only have a high potential for efficiency, but also a low potential for both the scope and flexibility of knowledge absorption. Also, a strong identity can render absorbing "outside sources of knowledge in ways that contradict shared beliefs" challenging. From this perspective, the food producer seems to have developed socialization capabilities through a strong identity with close ties to environmental sustainability. These socialization capabilities are likely to offer increased efficiency when concerning the absorption of knowledge is directed towards environmental sustainability initiatives within the organization. However, concerning initiatives in the value chain and the owner suppliers' reduction of CO<sub>2</sub>-emissions and energy use in particular, the analysis in sections 6.1.2 and 6.1.3 points to knowledge absorption as being less efficient. This is perhaps due to these stakeholders' holding a different view of the corporate identity. Our prior analysis also demonstrates that the food producer seems somewhat reactive rather than proactive toward sustainability issues in its value chain. Hence, this could be due to the strong identity preventing the food producer from sufficiently recognizing and valuing knowledge from external sources like NGOs and public authorities. While the transformation toward the new corporate identity is likely to increase the efficiency of knowledge absorption concerning the health issue, it might also pose a threat to the efficiency of other existing and future sustainability

initiatives within the organization. Thus, such a transformation from one strong corporate identity to another takes time. Also, a development period with a weaker corporate identity could conversely hold an opportunity to increase the potential for scope and flexibility, including the value chain. Nevertheless, it is proposed here that the food producer's socialization capabilities currently lead to a low potential for knowledge absorption across all three factors, and, hence, the impact on ACAP is inevitably negative. Having analysed the case of a food producer from the perspective of the organisational determinants which Bosch et al. (1999) identified, this analysis now returns to the focus in overall model primarily informed by Zahra and George (2002). The analysis now focuses on the potential impact of *regimes of appropriability*, which concerns whether the food producer operate under market conditions or other conditions that influence its capabilities to, for example, achieve its ambitious targets for sustainability in its value chain.

### **6.1.5.3 Regimes of Appropriability and Competitive Advantage**

Both Bosch et al. (1999) and Zahra and George (2002) proposed that higher levels of ACAP can lead to and sustain a corporation's competitive advantage. However, Zahra and George (2002) also proposed that the relationship between realized ACAP and a corporation's sustainable competitive advantage is moderated by the regime of appropriability, which refers to "the institutional and industry dynamics that affect the firm's ability to protect the advantages of (and benefit from) new products or processes." In short, they further propose that when appropriability is strong, the higher costs associated with imitation ensure a significant and positive relationship between RACAP and the sustainable competitive advantage. In contrast, when appropriability is weak, a relationship of this nature will only occur when firms protect their knowledge assets and capabilities through isolating mechanisms (Zahra & George, 2002). Although the best practices in the core of our conceptual framework do not directly capture the distinct role of the regimes of appropriability, the level of implementation of these best practices does indicate whether some institutional or industry dynamics could be in play. This is exemplified in the case of the food producer who reported information that only indirectly related to these regimes of appropriability, but was applicable toward determining whether they were weak or strong, when combined with the key sustainability professional's elaboration.

In the prior analysis of environmental learning capabilities, we established that when it comes to the realization of potential ACAP, the food producer's capability to exploit the knowledge absorbed was stronger for environmental sustainability issues, which were financially more material to the food producer. Hence, the food producer innovated more, was more compliant, and marketed these achievements more, when concerning, for example, health-related issues vs. less material issues like CO<sub>2</sub>-emissions. Nonetheless, based on the prior analysis, we suggest that regimes of

appropriability affected the food producer's development of both capabilities and that these were subject to both strong and weak appropriability, depending on the aspects of its product line. Consequently, the food producer's most basic or core product is derived from the raw materials it acquires from thousands of owner suppliers, which it only lightly processes before it distributes it to customers who sell them to end consumers. The core product is sold in a limited number of variations, with the most distinct from a sustainability perspective being the choice of an organically or conventionally produced product. Thus, we assess the appropriability in the market for this core product to be weak, while the production process is relatively simple and therefore more easily imitated by rivals. The knowledge spillover is substantial, and the food producer is increasingly driving this development through the participation and leadership of industry collaboration and networking, as demonstrated through its implementation of the best practice for research (2). The food producer is the world's biggest producer of the organic core product, which nonetheless does not average to more than 8% of the food producer's total production. This is despite the continued increase in volume over the five-year period (2010-14). Although organic production is more sustainable per se, the food producer's reporting of high ambitions for more sustainable production concerns both organic and conventional production. However, as Zahra and George (2002) proposed, the realization of these ambitions or this potential is more challenging when appropriability is weak, while "investments in ACAP are likely to be low" and "these investments might be unwise, because imitation by rivals might be widespread." While the food producer does invest some resources in developing the potential capabilities for these products, it does not invest substantially in realizing the capabilities and "[does] not protect [its] knowledge assets and capabilities through isolating mechanisms" (Zahra & George, 2002). Such an isolating mechanism could include the patenting of products and processes, but although the food producer did have a steady stream of 5-10 patent applications a year in the five-year period (2010-14), none of them seemed to concern more sustainable production processes at the sites of the owner suppliers. When considering the competitive advantage, this forms a problem that came to light in 2015. Here, institutional intervention changed the market for this particular raw material completely.

In 2015, the regional public authorities removed the quota for the production of the raw materials, an essential mechanism for governing the market supply of raw materials, and restricted some suppliers from entering the market. With the quota gone, many suppliers have increased their production of raw materials and new suppliers have entered the market, thereby causing a significant over supply, which drives the price for the raw materials down significantly. However, this over supply and price drop is only for conventional production, whereas organic production cannot adequately cover the market demand and sees prices rising. Hence, since the vast majority of

owner suppliers produce the food raw materials conventionally, they predominantly compete on price. This is a very difficult competitive situation for all owner suppliers, but especially for those in the original core markets with high cost structures. Many of them face bankruptcy for this reason. These owner suppliers are also organized beyond the external governance structures of the food producer's cooperative, and with their one voice, they have addressed the over supply with the cooperative and asked the food producer to generally reduce production across all core markets. In addition, the food producer's response to this unified call for action has been paradoxical. It expressed the intention to increase not only conventional production of food raw materials but also the ratio of this production that is processed into a more diversified portfolio of food products, like those branded with specific health claims. This is all in expectation of "better times," but the larger demand for these products is not there yet. Processed products rely much more on the innovation capabilities of the food producer, who invests heavily in research and production facilities for this type of product. Most of the patents filed are connected to these capabilities, and the food producer also engages with other isolating mechanisms to protect its assets here. Knowledge spillover is low, and we assess the appropriability in the market for these highly processed products to be strong. As a result, this increases the pay-off from realized ACAP and the significant and positive relationship with a sustainable competitive advantage as proposed by Zahra and George (2002). In their view, "sustainable" concerns the durability of the competitive advantage and is not to be mistaken for the environmental, social, and economic dimension this study addresses. However, given the food producer's paradoxical situation of being subject to both weak and strong appropriability, we can identify two major sustainability concerns, which question how sustainable this competitive advantage is. First, the increasingly lower market price for the raw materials can lead to more bankruptcies and in some cases less sustainable production, as some owner suppliers cut corners in attempts to reduce their costs. Bankruptcies reduce the supply of raw materials, and reduced sustainability can have similar consequences, if the owner suppliers are breaking the law and third parties stop their production. Secondly, the food producer's new strategy is health focused and product lines are marketed to consumers with claims of improving health. This is not problematic per se, but consumer demand for organic products is soaring, and a primary driver for this development is consumers' increased awareness of the link between organic food and health. Thus, although some of the food producer's processed products are already available in organic versions, rivals could potentially threaten that competitive advantage by marketing all organic products with similar health claims.

Therefore, this case study's elaboration of how the regimes of appropriability moderate the relationship between realized ACAP and sustainable competitive advantage concludes this analysis. A discussion follows primarily of the case study and the interplay between the development of

environmental learning capabilities and the influencing contextual factors and then of the applicability of the conceptual framework to the information reported by the food producers and the information obtained from other sources.

## 6.2 Discussion

When understood as a concept comprising an environmental, social, and economic dimension, sustainability represents knowledge with heuristics that almost per se is very different from the knowledge typically acquired by firms. Hence, absorbing such knowledge poses a greater challenge and might require extraordinary measures and effort by the firm, although these do not guarantee success. International Accountability Standards (IAS) are governance mechanisms that set standards for the absorption of such knowledge, but the literature on IAS seldom addresses such challenges. Rather, the literature tends to focus on the concept of decoupling and thereby how firms fail to integrate sustainability with their core operation. However, what decoupling is and what leads to decoupling is not well understood in the IAS literature, which also tends to be based on the assumption that corporations want to avoid any substantial engagement with sustainability per se. We do not follow the absoluteness embedded in this assumption. Hence, we aim to complement the existing literature with this study, in which we develop and apply a new conceptual framework. The study introduces a learning analogy by integrating the absorptive capacity construct at the core of the framework, which combined with an extension of the materiality concept, adds multiple nuances to the notion of decoupling. Also, we demonstrate that engagement with sustainability not only depends on corporate willingness, but also represents a learning process which is moderated by a number of internal and external factors influencing whether decoupling takes place or not.

The core of our framework is a set of 12 best practices, derived from a literature review of previous studies and comprising a chronological, although not completely path-dependent, learning process leading toward a sustainable competitive advantage. However, some of the best practices, such as compliance and/or innovation, placed at the exploitative end of the continuum of best practices, are more likely to lead to competitive advantage. To distinguish and weigh them, each of them were assigned to one of the four dimensions of the absorptive capacity construct as Zahra and George (2002) conceptualised. They furthermore grouped these dimensions into potential and realized ACAP and this distinction is here utilized to differentiate between sustainability being decoupled from or coupled to the core corporate operations. Zahra and George (2002) viewed ACAP as a dynamic capability and built on the work of Eisenhardt and Martin (2000), who reconceptualised dynamic capabilities from the traditional view as idiosyncratic for each firm to a view as “commonalities (i.e., best practice) with some idiosyncratic details.” This is a view not only compatible with our set of 12 best practices but also calling for more differentiation to capture the

level of implementation of each best practice. Many studies included in the literature review contain typologies developed specifically for innovation or marketing, but applying different typologies rooted in very different streams of literature and domains would reduce the reliability of the conceptual framework significantly. Hence, while recognizing the need to draw on a single or few concepts to define the implementation levels for all 12 best practices, we identify the concept of materiality and more specifically the sustainability factors *stakeholder range*, *qualities*, and *scope* as our differentiators. The concept of materiality is gaining recognition in the institutional practice of IAS, but is not studied to any great extent and the academic literature is very sparse. Hence, relying extensively on previous studies or theory to complete this dimension of the conceptual framework was not a feasible option. Instead, we chose a case study approach to identify the thresholds for the materiality concept and simultaneously demonstrate the applicability of the conceptual framework.

Consequently, we chose a food producer as the subject for the case study and purposefully sampled based on the paradox of being a low performer in a prior study of sustainability performance by signatories to the UN Global Compact and then being publicly recognised as a sustainable corporation. Thus, this is a fact that is also at the core of its corporate branding. We then applied the conceptual framework to five consecutive years of sustainability reporting from 2010 to 2014. The data from an interview with a key sustainability professional in the case corporation complemented the data we gathered from the reports. Overall, the application of the framework shows that the food producer developed significant potential environmental learning capabilities over the five-year period, but that it is not nearly as efficient in realizing this potential. At least when concerning environmental sustainability issues with a weaker coupling to financial performance, which thereby is less material to the food producer. The importance of a particular environmental sustainability issue is idiosyncratic to each firm, which is why the conceptual framework values the different issues equally and accumulates a total score for the implementation of each best practice as a level of materiality. Hence, when the food producer's implementation of, for example, the best practice for strategy and policy (6) at a corporate level of materiality increases further throughout the period, this is not only because of a new health strategy that adds to the sustainability factors *scope* and *stakeholder range* in the implementation. It is also because the health issue adds to the implementation of other environmental issues and thereby increases the *qualities given presence*. The conceptual framework captures the accumulated development of environmental learning capabilities across the four dimensions of the ACAP construct, which suggests that the implementation of certain best practices for potential learning capabilities at lower levels of materiality reduces the likelihood of other best practices for realized learning capabilities being implemented at higher levels of materiality. By providing the opportunity to identify such

causal dependencies, the conceptual framework's process-oriented best practices and implementation levels for each of these, holds significant explanatory power over the current use of leading and lagging indicators in IAS. Nevertheless, the development of environmental learning capabilities for specific environmental sustainability issues should also be considered as of interest to stakeholders, while they vary in their potential impact on the corporation and on the societies hosting the corporations. Hence, the corporation is likely to prioritize according to the impact, which is exemplified in the case study of the food producer. This is observable, when isolating the development of environmental learning capabilities for the health issue targeted at the end consumer from the development for the issue of CO<sub>2</sub>-emission targeted at the owner suppliers. When comparing the former to the latter, the implementation on the health issue is more coherently at a higher level of materiality for the best practices for potential learning capabilities, but the major difference is in the realization of these through the exploitation of the knowledge absorbed. The food producer innovate (10), comply (11), and market (12) to a much greater extent on the health issue, compared to the issue of CO<sub>2</sub>-emissions. However, these vast differences in implementation on environmental issues cannot be adequately explained by causal connections between best practices or ACAP dimensions. It is therefore suggested that the development of environmental learning capabilities is influenced by contextual factors. However, these factors are not included in the core of the conceptual framework, but addressed in the second part of the case study.

Furthermore, when recognizing the influence of contextual factors on environmental learning capabilities, the approach applied is aligned with Zahra and George's (2002) view on ACAP as influenced by *activation triggers*, *social integration mechanisms*, and *regimes of appropriability*. However, while Zahra and George (2002) generally provided a comprehensive and robust model to explain the influence of these contextual factors, the choice here was to adapt it by replacing their less explained social integration mechanisms with the elaborately explained organisational determinants of ACAP that Bosch et al. (1999) proposed. In the case study of the food producer, the analysis of the influence of these contextual factors initially suggests that regulation and public policy should be considered significant external triggers for the development of environmental learning capabilities. This is especially when considering the health issue and less so when considering CO<sub>2</sub>-emissions. The influence on health is direct. While the food producer reported that this issue faced increasing regulation throughout the five-year period, this was not reported to be the case for CO<sub>2</sub>-emissions. The reporting indicates that the food producer's consumers modestly trigger the latter, at least in the first years of the reporting period, whereas they seem to focus more on health in the last years. However, the reduction of the owner supplier's CO<sub>2</sub>-emissions continues to be a strategic priority for the food producer. It was central, for example, in the 2013 launch of the supplement to the environmental strategy. What triggers the activation of the

continual development of potential learning capabilities for this issue is rather unclear, whereas what organisationally determines the realization hereof seems more tangible.

Organisational form and combinative capabilities constitute the organisational determinants of ACAP, according to Bosch et al. (1999), who also provide a seemingly more tangible logic to how much these determinants impact ACAP. In terms of organisational form, the food producer's combination of both a functional and a divisional form generally seems to provide some challenges for the organization's absorption of knowledge. The challenges have been exemplified with specific best practices like stakeholder consultation being implemented independently in both functions and divisions. Also, strings of best practices, across all dimensions of ACAP, have been implemented at high levels of materiality in particular core markets, but do not spread to other core markets. The most significant challenges seem to concern specific environmental sustainability issues, which require some interaction between the food producer's functions and divisions, especially when concerning the realization of potential learning capabilities. The food producer's specific unit for innovation and the general development of learning capabilities for the health issue benefit significantly from placement within a division with a close connection to consumers and other stakeholders. However, the analysis also illustrates that when the innovation process has some dependence on the functional areas of the organization, the potential for scope and efficiency is particularly limited. In such a combined organisational form, this dependence between functions and divisions is an even greater challenge for less material sustainability issues, exemplified with the same division's authoring a new environmental strategy. This is with ambitious targets for reducing the owner suppliers' CO<sub>2</sub>-emissions. However, it relies on the supply chain function to develop and execute this part of the strategy by developing the realized learning capabilities for this issue. Hence, it is assessed that the food producer's combined organisational form has a moderate to negative impact on the development of environmental learning capabilities, trending toward the negative if a particular environmental issue is less financially material to the food producer in the short term. However, according to Bosch et al. (1999), the impact of the organisational form on ACAP also depends on the complementing combinative capabilities.

The impact of combinative capabilities on ACAP is assumed by Bosch et al. (1999) to be negative for systems capabilities, positive for coordination capabilities, and negative for socialization capabilities. Although we do not apply Bosch et al.'s (1999) conceptualisation of combinative capabilities to the letter and do not fully follow their assumptions concerning the potential for each of the three dimensions of knowledge absorption, our analysis allows us to confidently suggest that the food producer's environmental learning capabilities or ACAP ranges from being moderately to negatively impacted by the combinative capabilities. Some relevant systems capabilities were developed, but neither the type nor the extent seems to leverage the

assumed negative impact. Hence, we propose that the food producer's systems capabilities have a moderate impact on ACAP. Likewise, the impact of the food producer's coordination capabilities is moderate, but here not leveraging the positive impact assumed by Bosch et al. (1999). The food producer's socialization capabilities are more aligned with the assumed negative impact on ACAP by Bosch et al. (1999). In fact, it is more absolute negative. Hence, when reverting to the analysis concerning organisational form, our analysis of the combinative capabilities also suggests that combinative capabilities do not seem to address or outweigh the impact on ACAP stemming from the combined functional and divisional form of organizing. However, even a significant realization of ACAP does not automatically lead to a competitive advantage, while this relationship is moderated by regimes of appropriability (Zahra & George, 2002).

In this case, we perceive regimes of appropriability as the market conditions or other conditions that the food producer operates under and which influence capabilities to, for example, achieve ambitious targets for sustainability in the value chain. We suggest that regimes of appropriability seem to impact the food producer's development of learning capabilities for both material and less material issues and that these are subject to both strong and weak appropriability, depending on the aspect of food producer's product line considered. The basic product line derives from the primary raw materials in slightly processed variants, and we assess the appropriability in the market for this product line to be weak, while the production process is relatively simple, imitable and the knowledge spillover substantial. In the more advanced product line, the products are based on highly processed raw materials, and we assess the appropriability in this market to be strong, which increases the pay-off from realized ACAP and the significant and positive relationship with a sustainable competitive advantage (Zahra & George, 2002). However, given the food producer's paradoxical situation as being subject to both weak and strong appropriability, we identify the increasingly lower market price for the raw materials and the increasing consumer awareness of the link between health and sustainability. Thus, these are two major concerns that can influence how financially sustainable this competitive advantage is.

The prior discussion of the conceptual framework and the application in the case study highlights the explanatory power of the framework, which contributes to both the literature on ACAP and on the development of corporate CSR/sustainability practices. However, the primary aim of this study is to contribute to the IAS literature and in particular the emerging focus on the institutional design of the IAS. As noted earlier in the section on the literature and the theoretical framework for this study, many other studies of IAS have suggested that those designed with weak performance structures and enforcement mechanisms are major sources of decoupling. Conversely, Beham and Maclean (2011) found that the more clearly defined an IAS with a high cost of adoption and efficient compliance mechanisms is, the less likely it is to lead to decoupling. Hence, the ability

to detect and avoid decoupling must be major objectives for the design of IAS frameworks and exactly what this study attempts to address and contribute to. Hence, this has to do with the development and application of a novel conceptual framework. Decoupling refers to the situation where corporate policy is not coupled with corporate practice, also named “policy-practice decoupling” by Wijen (2014), who refers to it as the classical form of decoupling. The distinction between policy and practice is central in our conceptual framework, expressed with the two categories of potential and realized learning capabilities (ACAP), which each hold six best practices. In total, they represent a continuum of twelve best practices. Although the first six are in fact “practices,” they all represent either knowledge acquisition or assimilation leading toward the best practice for strategy and policy (6) as the peak of potential learning capabilities. Hence, we ascribe them all to the policy part of decoupling, whereas the other six best practices represent transformation or exploitation leading toward, for example, innovation (10) or compliance (11) as peaks of the realization learning capabilities, so we ascribe them to the practice part of decoupling. We consider the establishment of a 12-point scale addressing decoupling a contribution to the IAS literature in itself, but its significance is emphasized with the further differentiation into five implementation levels for each best practice. The application in the case study demonstrates that the granularity of the framework provides a unique opportunity to capture corporations’ development of potential and realized learning capabilities over time. From the perspective of decoupling, the analysis clearly suggests that the less financially material an environmental sustainability issue is to the food producer in the short term, the less likely the corporation is to develop the capability to bring the issue from policy to practice and eventually to harvest a competitive advantage thereof. However, it also demonstrated that the current conceptualisation of the framework does not sufficiently address why and how this decoupling takes place and hence must incorporate contextual factors.

### **6.3 Limitations and Conclusion**

From the highly interdisciplinary nature of this study follows a number of clear limitations, which curtail the interpretations we can make based on the analysis and thus the absoluteness of our conclusion. Theoretically, an obvious limitation concerns the basic idea of complementing the existing literature on IAS and the notion of decoupling in particular by introducing a new conceptual framework based on the ACAP concept, which is novel in this domain of the literature and is rooted in a contingency view of organization theory which is viewed as rivaling the institutional view traditionally applied in studies addressing decoupling. Hence, none of these domains have been reviewed exhaustively for this study, but nonetheless to an extent permitting a substantial theoretical bridging of these opposites in an extensive literature and theoretical

framework. This theoretical bridging then served as the foundation for the conceptualisation of a framework, which, although being based on the ACAP concept, required a substantive literature review as the first step to identify and qualify a continuum of best practices. Therefore, the literature review was limited by three factors: It (a) was conducted in two consecutive steps due to research project engagement, (b) was not systematic per se, but followed a protocol nonetheless, and (c) was not exhaustive due to the best practices being derived from numerous research streams addressing value chain sustainability. Although the literature selected did contain typologies applicable to the differentiation of implementation levels for best practices, the typologies all referred to different concepts with very little overlap or coherence. Hence, to increase the reliability of the framework, it was decided upon to anchor the differentiation in a single or a cluster of concepts. The concept of materiality was chosen for this purpose. However, this decision represents a limitation, as the concept of materiality is not well developed in the literature and not sufficiently enough to be applied across the variety of best practices and typologies identified. Instead, a number of sustainability materiality factors were identified and the determination of implementation levels for a best practice would then depend on the extent that this factor had been fulfilled. In this regard, the use of a single case corporation becomes a limitation. This is because we cannot adequately determine the most granular implementation levels from a single case for a generalization of them to be universally applicable across all types of corporations. Hence, the single case study can only demonstrate and confirm the applicability of the conceptual framework, whereas the validation hereof would require a higher number of corporate cases. The methodological approach with the use of content analysis of sustainability reports, a semi-structured interview with a single source, and other documentation like news articles and websites suffices for the demonstrative and confirmative purpose in this study. More interviews with the sampled corporation and other key employees and stakeholders should occur to retrieve more of their internal documentation, when attempting to validate the framework with multiple cases.

Although taking the above listed limitations into consideration, we can still firmly conclude that the applicability of the conceptual framework to sustainability reporting was confirmed. Not only were the best practices as the least granular element of the framework applicable, but so was the grading with factors within each level of implementation (e.g., 2.0, 2.33, 2.66) as the most granular element. Therefore, with this framework, we can in fact capture the development of learning capabilities for value chain sustainability over time and to a level of detail allowing for a much more accurate assessment of whether decoupling takes place and to what extent for particular sustainability issues. The case study analysis furthermore leads us to a number of suggestions: First, the implementation of best practices for potential environmental learning capabilities at higher levels of materiality does seem to leverage a competitive advantage in the form of strategic

flexibility, here as a prioritization of a less and more advanced product line. Secondly, the implementation of exploitative best practices at higher levels of materiality does seem to leverage a competitive advantage in the form of improved performance, which here is expressed as an increase in the innovation of new products. Lastly, failing to develop learning capabilities for environmental sustainability issues, which seem to have a weaker impact on the corporation's financial performance in the short run, can lead to a reduced competitive advantage and a strong impact on financial performance in the long run.

#### **6.4 Implications and Future Research**

Subsequently, there are both potential theoretical and practical implications from this study's findings, which nonetheless need to be empirically validated through further research to leverage their full impact. Theoretically, the conceptualisation demonstrates that it is possible to develop a framework that first and foremost provides a more nuanced view of the concept of decoupling and the contextual factors influencing whether policy transfers to practice. Furthermore, the conceptualisation also demonstrates that research on IAS should depart from solely resting on the assumption that corporations by default want to limit their sustainability practice to a minimum, but rest on more nuanced assumptions as our learning process showed.

We conceptualise the latter by introducing a novel framework based on the ACAP construct in the IAS literature and thereby pave the way for future research, which can utilize the rapidly growing literature on this construct and potentially elaborate on or extend our conceptual framework. Given the novelty, such research can take multiple paths, but here we identify three interdependent research paths with a potential for significant contributions. As the first path, we encourage scholars to conduct further research on the 12 best practices constituting the core of the framework to more exhaustively identify relevant typologies. Thus, this can strengthen the basis for both the identification of implementation levels using the materiality concept and of additional causal connections between the best practices in the different ACAP dimensions. In this extension, we encourage scholars to engage in a second path of research that applies the conceptual framework in a multiple case study of corporations in a broad spectrum of industries. Then more generic thresholds for the most granular implementation levels (e.g., 2.33/2.66) could be identified and could support the validation of the complete framework when applied to the cases. As a third research path, we encourage scholars to apply more quantitative methods on larger sample sizes, hypothesizing on how learning capabilities influence the adoption of a variety of IAS and vice versa, across industries and countries with a variety of influencing contextual factors as triggers and moderators.

However, this study and further research has implications for both corporate and institutional practice concerning IAS, which require better alignment to maximize mutual benefit. This necessitates integration of the conceptual framework in the design of corporations' sustainability performance frameworks and of the IAS reporting structures. In addition, developing metrics for contextual factors would add further value.

## Chapter 7: Conclusions

*After the development of the conceptual framework in chapter 5, the applicability of the framework to corporate sustainability reporting was demonstrated in chapter 6. Now chapter 7 synthesizes the conclusions reached in previous chapters, focusing particularly on the developed conceptual framework in relation to the existing design and governance structure of the UN Global Compact as an IAS. Chapter 7 also presents the overall findings of the research project, establishing its contributions to the state of knowledge in this area and suggesting directions for further research.*

### 7.1. The Problem Addressed

This dissertation addresses the problem of lack of knowledge on how to design International Accountability Standards (IAS) that effectively captures corporate sustainability performance, particularly as related to the corporate value chain. Thus, the research in this dissertation aims to fill this research gap and generate knowledge that can support the future development of IAS, especially concerning the collaborative governance between IAS in strategic partnerships as exemplified by the UN Global Compact (UNGC) and the Global Reporting Initiative (GRI). As part of addressing this research problem, a primary research question was identified for exploration:

*How can an IAS framework be designed to effectively capture corporate sustainability performance measured by compliance to best practices, with differentiated implementation levels reflecting learning progress and value chain integration?*

To address this question, this research relied on a number of research projects to answer the following secondary questions:

*How do corporations perform on sustainability when measured as the level of implementation of the ten UNGC principles, by adherence to the criteria and associated best practices in the Advanced Level of reporting in the UNGC standard?*

*Which range of best practices should constitute the core of a framework that effectively captures sustainability performance in corporate value chains and how should the framework be designed to differentiate implementation levels reflecting learning progress and value chain integration?*

*To which extent does contextual factors influence corporations' sustainability performance in their value chains and how should the framework be designed to capture it?*

## **7.2. Learning and Main Findings**

The main findings of this dissertation are derived from individual research projects that are tied together by an overall research agenda comprising of three consecutive phases. The findings of the initial research project commissioned by the UNGC Nordic Network, addressed in chapter 3, are presented first. This was followed by findings from the Sustainable Sourcing Excellence (SSE) research project in Germany, addressed in chapter 4 and, in part, in chapter 5. In chapter 6, the two research projects converge into a final independent project that represents the last phase and its associated findings.

### **7.2.1. UNGC Nordic Network project: Sustainability Performance in Scandinavia**

This project was commissioned by the UNGC Nordic Network to benchmark the sustainability performance of Scandinavian corporations that are signatory to the UNGC and to the members of the local Nordic Network. While recognizing that the concept of sustainability performance is applied in many variations, this benchmark requires strong ties to the UNGC as well as to potentially, the GRI, consider the strategic partnership of these two IASs. Hence, this benchmark uses the criteria and indicators for sustainability performance prescribed in the reporting structures of the UNGC and the GRI. However, a trial assessment of 7 out of the 67 sampled corporations' sustainability reports found that only few UNGC signatories reported to the GRI and that they did so in very different ways—making benchmarking virtually meaningless. Accordingly, this research focuses solely on generating sustainability performance data by applying the framework embedded in the Advanced Level of reporting to the UNGC.

Analysis of performance data led to the overall conclusion that in 2011, the sampled Scandinavian corporations were, on average, not high-performing in their implementation of the four core sustainability issues promoted by the UN Global Compact: human rights, labor, environment, and anti-corruption. Furthermore, the minority of corporations that already reported to the UNGC on the Advanced Level demonstrated significantly higher levels of sustainability performance across all core sustainability issues than did the majority of corporations that reported on the Active Level. The study also found a general gap in performance across all issues, from strategy and policy to implementation in the form of management systems and monitoring and evaluation mechanisms. Furthermore, performance differences were also evident across the Scandinavian countries where the sampled corporations are headquartered. All in all, these findings

demonstrate the explanatory power of the UNGC framework and constitute a significant contribution to the literature in contrast to studies that recognise only the UNGC as a principle-based standard and that thus face difficulties when assessing sustainability performance, taken as level of implementation of the principles.

However, this study also leveraged learning about the weaknesses of the UNGC framework, including very limited compliance requirements, the absence of differentiated weighing of performance criteria, limited transparency about the source of criteria, and assumed universal applicability of criteria. This researcher dedicated significant resources to examining how quantitative methods could be applied to the data set generated for sustainability performance and extended to a larger sample of corporations also reporting to the GRI. Thus, such a sample would ideally lead to more meaningful statistical analysis and more accurate results, but could not so long as the weaknesses of the UNGC framework persisted, jeopardizing the validity of the generated data. Learning this, the author dedicated the remaining part of his PhD studies to focusing on how to institutionally design an IAS framework for sustainability performance. This is aimed at addressing the shortcomings discovered when applying the UNGC framework. This further research limited its focus to the weakest part of the UNGC framework: the performance structure for value chain implementation. In addition to completing the research project commissioned by the UNGC Nordic Network, the author gained the opportunity to partly pursue the revised research agenda in the Sustainable Sourcing Excellence (SSE) project.

### **7.2.2. SSE Project: A Conceptual Framework for Value Chain Sustainability Performance**

In the SSE research project, this author was specifically responsible for a working package with the objective of developing a standard, and complementary guidelines, for sustainability in corporate supply chains. The standard was required to be compatible with the result of another working package, a governance code providing 10 principles for sustainability in corporate supply chains, extensively inspired by the UNGC principles. The objective and its requirements aligned with this author's revised research agenda. Being given autonomy over the approach, this author chose to align it even further, pursuing a standard based on best practices as criteria, thereby cohering with the UNGC standard and offering the possibility of compatibility with the GRI. The task soon proved a very comprehensive one, overlapping with working packages in the SSE project. Accordingly, a team formed to collaborate on the research needed to establish the knowledge base for developing the standard and accompanying guidelines. This author directed the research conducted by the team, which also served as a writing collaboration that submitted articles for publication. Reviewer feedback and the learning gained during this process led to a change in the research approach, increasing the quality of the research and the validity of the findings, as

elaborated on in the following.

Consequently, much as with the UNGC Nordic Network project, the research approach for the SSE project working package initially used sustainability reports provided by major corporations as a data source. It focused on best practices for sustainability performance in supply chains as well as on applying related criteria and indicators from the UNGC and GRI frameworks as coding schemes, aiming through content analysis to identify new coding categories while developing a new coding scheme. However, despite other validity-enhancing steps in the research process, the research team learned from journal reviewer feedback that the framework was not sufficiently robust owing to the choice of sustainability reports as a primary source for best practices. This and other learning prompted a reduction in the role of sustainability reports, which were thereafter used only initially to identify items, guiding an extensive literature review to identify best practices and related typologies for their implementation. This also formed a better basis for revisiting the assignment of best practices to the ACAP dimensions but was not further pursued in the SSE project.

This research project identified a set of 10 best practices that represented a continuum from the acquisition to the exploitation of sustainability knowledge, serving as leading indicators for sustainability performance. This research outcome formed the basis for a reporting standard and guidelines that were submitted as the working package deliverables to the SSE project. The reporting standard was conceived as having two reporting levels that corresponded to the structure of the Active and Advanced Levels in the UNGC framework. The basic level of the reporting standard comprised the 10 best practices and the basic requirement that reporting corporations narratively describe their implementation of best practices. Therefore, the advanced level featured the same basic structure of best practices but also included four implementation levels for each as well as the requirement that reporting corporations self-assess their level of implementation based on the description of each level.

Together, the set of best practices and the reporting standard with accompanying guidelines represent a step toward fulfilling five propositions for a dynamic standard that were derived from the research process in the SSE project and that represent important findings in themselves. Fulfillment of the propositions would require the framework to integrate the concept of materiality, to be applicable on an industry-specific basis, to be able to capture the development of capabilities over time, and to be empirically validated. With the conclusion of the SSE project, in hopes of taking further steps toward a dynamic standard, this author decided to address these steps and more by engaging in an independent research project.

### **7.2.3. Independent Project: Framework Applicability and Contextual Factors**

The independent project allowed this author to pursue an extension of the framework with additional best practices and a value chain focus both upstream and downstream. Furthermore, this project aimed to go beyond the preliminary conceptual framework by examining the role of contextual factors influencing the development of learning capabilities.

After an additional round of literature review, sufficient support was established for two additional best practices. These practices, however, helps in expanding the set developed in the SSE project into a coherent continuum of twelve best practices. Further review also substantiated support for most of the other best practices and thereby provided a robust basis for their juxtaposition with the literature on ACAP. However, this resulted in the assignment of three best practices to each of the four ACAP dimensions, weighing them according to their assumed effect on performance. This was an essential first step in enhancing the framework's ability to capture the development of capabilities over time, with the extent of the corporations' implementation of best practices along the weighted continuum indicating their progress. However, in alignment with the thinking on dynamic capabilities in the theory and literature section of chapter 5, some variation in implementation of best practices should be expected, although they are not idiosyncratic to the corporations. Implementation levels were defined for the Advanced Level of the standard developed in the SSE project, but these levels followed different typologies for each best practice and thereby reduced the validity of the framework.

During the SSE project, this researcher had aired the idea of applying the materiality concept across the full continuum of best practices and letting it guide the thresholds for implementation, but not until the independent project could this be pursued further. The original theoretical framework was thus complemented with a section on materiality, and this concept was extended beyond the limited application in the sparse literature on materiality into five generic levels of implementation. Through this process, the author learned that the materiality concept must be applied at an even more granular level to significantly improve on the typology-based definitions of the implementation levels in the SSE project while increasing the validity of the framework. Thus the author decided to derive a number of factors from sustainability science principles and then determine the implementation level of a particular best practice based on the extent to which such factors were implemented. This conceptualisation of materiality is a main finding of this project, making this concept applicable to sustainability performance frameworks as demonstrated in the case study in chapter 6. The case study also served as the first step in finalizing the conceptual framework, and application of the sustainability factors over a five-year period generated the desired granular scaling within each implementation level (e.g. 2.33, 2.66).

However, having learned that not all six of the sustainability factors were equally applicable across all best practices, the author decided to apply only three factors, thus also increasing the feasibility of applying the framework in practice. The granular scaling in this case should be further mitigated by application of the sustainability factors and the complete framework to other case studies. A case study featuring multiple cases across industries could leverage the development of generic granular scaling for all 12 best practices, thereby finalizing the conceptual framework and increasing its validity significantly. Granular scaling also leveraged the framework's ability to capture the value chain implementation of the best practices but at this point did not provide any insight into whether contextual factors influence such an implementation and thereby development of sustainability learning capabilities.

As outlined in the theoretical framework in chapter 5, the selected seminal literature on ACAP suggests that contextual factors can significantly affect ACAP and may lead to a competitive advantage. Hence although this study primarily focused on developing a core conceptual framework of weighted best practices with implementation levels, the contextual factors had to be examined to determine the explanatory power of the framework and to inform its applicability for institutional sustainability reporting practice to an IAS. The second part of the case study in chapter 6 was dedicated to identifying these contextual factors and analyzing their effect on the case corporation's development of sustainability learning capabilities. The case study concludes that the three different types of contextual factors: activation triggers, organisational determinants, and regimes of appropriability; all affect the case corporation's development of sustainability learning capabilities. Thus the conceptual framework alone can only partly shed light on this development and should ideally be complemented by criteria and indicators for the contextual factors when applied in an institutional practice for sustainability reporting to an IAS. However, while conducting this analysis, this researcher learned that in contrast to the comprehensive and very explicit framework developed, the ACAP literature on the contextual factors is generally less so—although Bosch et al. (1999), in outlining the assumed effect of organisational determinant, is an exception. It is therefore suggested not only that future research focus on these contextual factors but also that such research align with a recent call in the ACAP literature for research on how organisational design affects ACAP (Volberda et al., 2010). Comprehensive models for organisational design encompass all the mentioned contextual factors for ACAP; Burton and Obel's model (2011), for example, is conceptualised with a level of granularity that seems to lend itself to adaptation into the design of sustainability performance frameworks in IAS.

### **7.3. Conclusions**

In conclusion, the previous section elaborated on how three interconnected research projects

addressed this study's secondary research questions. Now, we synthesize the learning and main findings of the projects to reach a conclusion about the primary research question.

### **7.3.1. Conclusions About the Primary Research Question**

By using the framework embedded in the Advanced Level of reporting in the UNGC standard, this author assessed and measured 67 major Scandinavian corporations' sustainability performance, taken as their level of implementation of four core sustainability issues: human rights, labor, environment, and anti-corruption. The study recognises the availability of quantitative and benchmarkable performance data from the framework as a significant advancement compared to the qualitative information available when corporations merely report on the UNGC principles. Although the study claims the distinction of being the first published use of this framework, it nevertheless describes its structure as problematic and does recommend that conclusions based on assumptions that the UNGC framework is valid be reviewed with a critical eye. Hence when considering the primary research question, we can conclude that design of this framework does not yet capture sustainability performance effectively, nor does it shed sufficient light on the development of learning capabilities. However, the more strategically oriented framework is a step in the right direction, and further enhancement should complement, rather than contradict, this platform.

Building on the learning and findings provided by the first research project, this author set out to design a more effective IAS framework featuring leading indicators for sustainability performance. To be effective, the framework must be dynamic and therefore have six essential features; being best practice-based, value chain-focused, research-based, learning capability-centered, materiality-weighted, and both industry-specific and cross-industry applicable.

This dissertation thus first identifies the best practices in the UNGC framework as potential leading indicators for sustainability performance and later confirms that being *best practice-based* is a core feature in an effective IAS framework. Best practices add to the basic dynamics of the framework when the design arranges them in a continuum reflecting one or more processes. The proposed set of 12 best practices represents such a continuum of processes, which can reflect a corporation's capacity for, among other things, sustainability compliance or an orientation toward innovation. Best practices are dynamic capabilities that exhibit commonalities across effective firms, serving as "the antecedent organisational and strategic routines by which managers alter their resource base—acquire and shed resources, integrate them together, and recombine them—to generate new value-creating strategies (Grant, 1996; Pisano, 1994)" (Eisenhardt & Martin, 2000). A value chain perspective is implicit in the dynamic capability view and should thus frame the continuum of best practices. Thus value chain focused best practices must be integrated in the locus

for an IAS framework, which considers sustainability performance to be a potential competitive advantage and aims to benchmark it effectively.

Essentially, the use of best practices as leading indicators aligns with the literature on sustainability performance, but an effective IAS framework must be *research-based* and thereby increase the dynamics further. That a standard should be research-based was the premise for the SSE project already described, but its initial findings and learning resulted in a new approach for the project, changing its emphasis from primarily research conducted within the realm of the project to state-of-the-art research conducted by leading scholars in a variety of fields in which best practices are rooted. Thus, the latter adds credibility and legitimacy to the framework, but for these to endure, best practices must continuously be updated through the reviews of research. One source of the UNGC framework's ineffectiveness is its lack of guidance for interpretations of performance data; nor, indeed, does it have any obvious theoretical grounding. An effective IAS framework must be informed by a theoretical framework and thus extend the notion of being *research-based* as a required design feature. Therefore, the proposed framework is informed by the literature and theory on dynamic capabilities—especially the concept of Absorptive Capacity (ACAP), elaborated on hereafter.

Best practices' effect in their role as dynamic performance and competitive advantage capabilities depends on their placement along the value chain continuum. As a result, an effective IAS framework should thus give more weight to more effective best practices. Zahra and George's (2002) use of the reconceptualised ACAP facilitates such weighing, the use of this construct allowing not only for categorization of the best practices as potential or realized, but also for assignment of each best practice to one of the four dimensions *Acquire, Assimilate, Transform, and Exploit*. Thus, these dimensions form a continuum for the described alteration of the corporation's resource base; in light of ACAP's focus on the absorption of knowledge, it is well aligned with the view that dynamic capabilities and their evolution are guided by well-known learning mechanisms (Eisenhardt & Martin, 2000).

Although such *learning capability–weighing* of more effective best practices can increase the validity of an IAS framework, it does not leverage variance in the implementation of best practices. Although best practices as dynamic capabilities exhibit commonalities across effective firms, their very description also implies the existence of worse practices, indicating, “there are more and less effective ways to execute particular dynamic capabilities” (Eisenhardt & Martin, 2000). Hence to enable and to capture such differentiation, an effective IAS framework must be designed with implementation levels for each best practice. Such an extension of the framework increases complexity vastly and must be accompanied by a corresponding simplification of the framework, allowing it to remain dynamic and applicable in an IAS context. Accordingly, rather

than rely directly on varying and non-exhaustive typologies for each best practice, the definitions of implementation levels must be guided by a single concept or a cluster of coherent concepts.

Although less developed in the literature, the extension of *Materiality* conceptualised in this study demonstrates potential applicability for this purpose in an IAS context. However, the single case study further demonstrated that not all of the six different sustainability factors for materiality were equally applicable in defining implementation levels for each best practice. Hence through application in a case study, three of the six factors were identified as essential for the framework to be *materiality-factored* and thereby both effective and dynamic in an IAS context.

The five features already mentioned provide the potential for leveraging a sixth feature whereby the framework is both *industry-specific* and *cross-industry applicable* in an IAS context. Although this is strongly indicated in the single case study, further research involving more case corporations is needed to verify the degree of applicability. For the framework to be applied effectively to specific industries in an IAS context, the definition of the most granular levels of materiality (e.g. 2.33, 2.66) must be based on multiple case corporations within that industry. Hence an extension of this study might sample more food-producing corporations and study their development of environmental learning capabilities over a five-year period, determining maximal levels of granularity based on this exhaustive elaboration. Doing so would allow for adjustment of the framework and the more granular levels to the food industry, for which some sustainability issues are more pertinent than others, as highlighted in the analysis of this case. Conversely, to apply the framework effectively in an IAS context across industries, the definition of the most granular levels of materiality (e.g. 2.33, 2.66) must be based on multiple case corporations in a variety of different industries. Further extension of this study might thus sample corporations in a food producer's value chain, following a research approach generally similar to that applied for industry-specific applicability—but with the distinct difference that the framework and most granular levels of implementation should be balanced to accommodate pertinent sustainability issues across industries.

A framework incorporating the six features identified has the potential to effectively capture the development of learning capabilities as leading indicators for sustainability performance while remaining dynamic. This potential is not limited to application in an IAS context, for the framework could be integrated into a corporation's framework for sustainability performance or could be applied for analytic modeling in IAS-related research. The applicability of the framework in these and other settings contexts is described in the following section.

## 7.4. Applicability

A primary objective of this study has been the development of a conceptual framework applicable in the institutional practice of IAS, with the particular aim of complementing the UNGC standard. However, because this study also aimed to reduce the gap separating IAS from corporate and academic practice, the applicability of the framework in these contexts will also be considered. In addition, this study did not have the opportunity to implement and test the developed framework in a real and live context of sustainability reporting to an IAS, but the preliminary application of the framework in the SSE project, and later the single case study, did shed light on its potential applicability.

Preliminary application demonstrated the use of best practices in a standard for value chain sustainability, divided in a basic level with only the best practices and an advanced level with four implementation levels for each best practice. The standard was not implemented in an institutional practice but was considered implementable by the SSE project stakeholders and accordingly accepted as a deliverable. However, the process of clearly defining the implementation levels for the best practices was challenging, when considering the absence of a more granular level of the framework at the time. Hence during application in institutional practice, a reporting corporation's self-assessments would rely solely on definitions of the implementation levels, which might be interpreted differently by the reporting corporation than as intended, and stated, in the supporting guidelines.

Consequently, a more coherent and robust framework was developed in preparation for the single case study, demonstrating the applicability of the framework by applying it to five years of sustainability reporting on the part of a global corporation. After the framework demonstrated its ability to accurately capture the assessment of the corporation's environmental learning capabilities, a supplementing interview with the corporation's key sustainability professional did not provide information that could lead to changes in overall assessment of the implementation level of best practices within the core framework. However, the single case study also demonstrated that different contextual factors influence the development of environmental learning capabilities, suggesting that a better understanding of this influence would benefit corporate stakeholders. Also, the criteria and indicators for these contextual factors should thus be developed for potential implementation in an IAS context.

Applied in the institutional practice of an IAS, the framework can leverage data about corporations' development of sustainability learning capabilities—data that is considered more valid, and thereby more directly useful, in academic research. However, the validity of the data

depends not only on the framework, but also on how corporations report the data to the IAS. Dominant current IAS practice has corporations self-report on specific performance criteria or indicators. However, such an approach can understandably be a source of error by relying entirely on the corporation's ability to produce an accurate and objective self-assessment. This problem was seen in the first project described in this dissertation, which noted that although most of the corporations reporting at the UNGC Advanced Level were more or less aligned with the researchers' assessment of their performance, in quite a few notable exceptions, corporations overstated their performance. Yet researchers' assessment of corporations' performance is also a potential source of error, for some misinterpretation can occur that even double coding and calculation of interrater reliability scores cannot eradicate. When considering the developed conceptual framework, such error could arise when asking corporations to self-assess their overall implementation level for each best practice and would almost certainly rise if corporations were to self-assess at the most granular levels of implementation. This thus provides strong grounds for considering this challenge in IAS practice and in subsequent academic research. The latter will briefly be addressed in section 7.5 on contributions and section 7.6 with reflections on methodology

## **7.5. Contributions**

### **7.5.1. Contributions to Theory**

This dissertation contributes to theory development on a number of levels across literature streams and domains, ranging over topics such as IAS, SSCM, and ACAP.

The initial study's assessment and analysis of the sustainability performance of 67 Scandinavian corporations addressed a call for research on implementation of the UNGC standard and its four core sustainability issues: human rights, labor, environment, and anti-corruption. This empirical study is believed to be the first study published that uses the UNGC sustainability performance framework while benchmarking the implementation of the four core sustainability issues. This study demonstrates the explanatory power of the UNGC framework through, for example, comparisons across levels of reporting (Active versus Advanced Level) and across countries (Denmark, Norway, Sweden, and Finland). Provision of quantitative benchmarking on the latter represents a noteworthy contribution to an ongoing academic discourse, whereas the data on the low average implementation complements the otherwise positive, but less substantiated, view concerning sustainability in Scandinavia. The study also evaluates the structure and design of the framework in an attempt to determine the validity of the data generated by applying the framework. Hence it provides a basis for future studies using this framework.

Furthermore, the second study follows up on value chain implementation as the weakest part

of the UNGC framework, and its initial findings contribute prospectively to an otherwise predominantly retrospective discussion in the literature on SSCM and operations management concerning IAS. The derivation of a set of best practices as the basis for an IAS framework and the proposal for the full design of such a framework contributes by offering a path for future research. This work was also a first step in addressing a call in the IAS literature to focus on implementing the UNGC standard in corporate supply chains—a call that this researcher and colleagues have attempted answering by addressing and extending the initial propositions.

The development of a conceptual framework for sustainable learning capabilities must be considered a noteworthy contribution to the scarce literature on the design of IAS, especially in light of the embedded perspective of best practices as leading indicators for sustainability performance. The framework is a significant contribution to the literature on *decoupling*, adding much detail to the understanding of this notion; moreover, the framework's theoretical rooting in contingency theory breaks away from and complements the decoupling literature, which is typically rooted in institutional theory. The establishment of a 12-point scale addressing decoupling must be considered a contribution to the IAS literature in itself, but its significance is emphasized by further differentiation into five implementation levels for each best practice. The application in the case study demonstrates that the granularity of the framework provides a unique opportunity for capturing corporations' development of potential and realized learning capabilities over time. However, as is also demonstrated, the current conceptualisation of the framework does not sufficiently address why and how this decoupling takes place and thus must incorporate contextual factors.

The developed framework and empirical application through a single case study act as an initial step toward contributing to the literature on the ACAP construct and, potentially, strategic management. Three aspects of the framework are novel in the current state of this literature, namely: the granularity of the framework, including implementation levels; the use of intention as the first level; and the use of the concept of materiality to differentiate among levels. However, further empirical research through multiple case studies and, eventually, quantitative studies must be conducted with an eye to significantly contribute to the development of this literature.

### **7.5.2. Contributions to Practitioners and Policy makers**

Corporate as well as institutional practitioners can benefit from this dissertation, which sheds light on the current level of implementation of the UNGC standard in Scandinavian countries. In addition, it sets a direction for future design of sustainability performance frameworks in corporations and the IAS to which they report. Both contributions should be of interest to the policymakers and legislators who set the bar for national and regional adherence to sustainability

reporting.

A basic lesson for corporate practitioners is that deciding to report on the Advanced Level of the UNGC standard seems to lead to sustainability performance significantly beyond the level needed for compliance with this level of reporting. Conversely, such practitioners can also learn about the weaknesses of this framework. Also, they are exposed to an alternate framework that focuses on learning capability as a leading indicator which is thought to be more applicable to, and complementary of, the sustainability performance frameworks already in place in corporations. From the single case study, they can learn about the explanatory power of applying this framework, as well as about the need to develop supplementary indicators of contextual factors' influence on the development of learning capabilities. Institutional practitioners could learn from the evaluation of the current UNGC IAS framework—and even more so from the novel design of the alternate framework, particularly its demonstrated power of weighing and differentiating and the evident feasibility of implementing the framework in practice.

Policymakers might be interested in differences in performance across the Scandinavian countries and consider whether these might result from differences in national policies and legislation. In a strictly Danish context, policymakers might consider alternate ways of measuring the reporting status quo. This should, however, focus not only on whether corporations have developed strategies and policies for sustainability, but even more so on transformation to practice and on the contextual factors that influences this transition. A single case study cannot adequately provide a foundation for general policy recommendations, but it might well stir reflections among national policymakers for the food industry in particular. Certainly the case study indicates that the legislative and policy environment for food producers in core markets other than their original ones can prompt action.

## **7.6. Reflections on Methodology**

The research presented in this dissertation aimed to contribute to the understanding of how corporations implement UNGC sustainability issues. It subsequently engaged proactively in research aimed at designing frameworks that enable IAS and corporations to effectively capture and measure sustainability performance. Thus, this research was driven not only by a desire to develop the related literature, but also by a desire to influence corporate as well as institutional sustainability reporting. Considering these combined retrospective and prospective ambitions, a critical realist approach to research was thought most suitable, allowing for methodological pluralism. A critical realist approach enables the researcher to move from the *concrete* to the *abstract* and back to the *concrete* again, reflecting the research process described in this dissertation—thus the initial descriptive study of corporations' concrete sustainability performance and the two subsequent

studies of the conceptualisation of an abstract framework and the application of such a framework in a single case study of concrete learning capabilities and influencing contextual factors.

Each of these three studies subscribed to particular modes of inference that represent different thought operations, but that are to be considered complementary in research practices from a critical realism approach. The first study was retrospective and largely descriptive. However, it was concrete in the sense that it leveraged a data set for the sustainability performance of a larger sample of Nordic corporations. In a prospective response to the first study's evaluation of the UNGC framework for sustainability performance, the second study moved to the abstract by developing a number of propositions and pursuing these with the conceptualisation of a framework. Thus, this is done using abduction as the mode of inference. The third study returns to the concrete by applying the developed conceptual framework in a single case study that reveals the framework's ability to capture specific structures and mechanisms over time through a deductive mode of inference. Also, the study contains an aspect of abduction, and some of its more specific structures and mechanisms also leverage the definition of more granular implementation levels. Also, it finalises the conceptual framework and identification of contextual factors that influence the development of sustainability learning capabilities.

The methods applied in the studies were qualitative and consisted of content analysis, standardized and nonstandardized interviews, group discussions, and reviews of literature and other document sources (news articles, websites, and the like). The range of different methods limits the risk of bias during collection and analysis of data, especially when triangulating interviews with a literature review in the second study and when triangulating content analysis with interviews and other documentation in the third study. Therefore, the extensive theoretical and literature framework elaborated on in chapter 5 not only supports the conceptualisation of the framework in this chapter, but also indicates the reliability of what was ensured in this process and in the application of the framework outlined in chapter 6.

## **7.7. Directions for Further Research**

Directions for further research are now presented to extend previous reflections on methodology and the modes of reference in particular. Two main directions for future research are outlined: research aimed at increasing the validity of the framework and research applying the framework to large sample sizes for increased generalisability. Much effort has been directed at securing reliability in the process of developing the conceptual framework and thereby increasing the validity of the framework. However, the framework could be strengthened further, thereby increasing the validity of the results through quantitative and contingency-focused research using the framework.

A first step in strengthening the framework could be further conceptualisation, and thereby engagement in further research, using abduction as the mode of inference. More specifically, this direction could include further research on the 12 best practices constituting the core of the framework to more exhaustively identify relevant typologies. The integration of more robust typologies can strengthen the basis both for identification of implementation levels for best practices using the materiality concept and for identification of additional causal connections between best practices across the different ACAP dimensions. Another strengthening step using abduction as a mode of reference could concern an extension of the conceptualisation to identify more generic thresholds for the most granular implementation levels (for example, 2.33, 2.66) and to identify the contextual factors influencing the corporate development of learning capabilities. Such a conceptualisation could leverage a generic 12-point scale for the most granular implementation levels and the development of typologies for the ACAP-based contextual factors *activation triggers*, *organisational determinants*, and *regimes of appropriability*. Further contextualization could be achieved through a multiple case study of corporations in a broad spectrum of industries; when concerning the contextual factors, such empirical support would go well beyond the limited definitions of typologies for organisational determinants introduced by Bosch et al. (1999).

Furthermore, such a multiple case study could also be of a deductive nature, using the developed typologies for contextual factors to confirm their influence on the development of corporate sustainability learning capabilities, which has been demonstrated merely in the single case study conducted in this dissertation. Such qualitative studies could also be used to develop robust hypotheses for quantitative studies following an inductive mode of reference and aiming to draw universally valid conclusions about a whole population. In addition, such hypotheses could concern the ways that learning capabilities influence the adoption of a variety of IAS, and vice versa, across industries and countries. This is with a variety of influencing contextual factors as triggers and moderators. Testing such hypotheses would require significantly larger sample sizes, making it no longer feasible to generate quantitative data for correlation analysis through a combination of content analysis of sustainability reports and other qualitative methods. Rather, data should be collected directly from corporations, perhaps using a survey. However, other perspectives on the application of quantitative methods that better complement corporate and institutional practice for sustainability reporting to IAS could also be considered.

## Appendix A – Coding Scheme for Content Analysis (Chapter 5)

Year	2010	2011	2012	2013	2014
<b>Stakeholder consultations on sustainability issues</b>					
Assessment	Limited (2)	Limited (2,66)	Corporate (3)	Corporate (3)	Corporate (3)
Materiality factor levels	Stakeholder Range: 2	Stakeholder Range: 3	Stakeholder Range: 3	Stakeholder Range: 3	Stakeholder Range: 2
	Qualities given presence: 2	Qualities given presence: 3	Qualities given presence: 3	Qualities given presence: 3	Qualities given presence: 4
	Scope: 2	Scope: 2	Scope: 3	Scope: 3	Scope: 3
	Average: 2	Average: 2,66	Average: 3	Average: 3	Average: 3
Stakeholder range	Consumers, customers, owners, suppliers, authorities, interest groups, NGO's, global dairy industry, politicians, opinion leaders, industry organisations, general public, universities, communities				
Qualities given presence	Health, food safety, additives, animal welfare, ingredients, carbon footprint, allergens, traceability, hAccp system, monitoring of listeria, salmonella and other pathogen bacteria, contamination, packaging, nutrition, gluten				
Scope	Stakeholder management system, survey, materiality study, phone, email, letter, social media channels, online platform, face-to-face dialogue, study trips, working groups, roundtable discussions				
<b>Assessment and measurement of the sustainability impact in the corporate value chain</b>					
Assessment	Limited (1,33)	Limited (1,33)	Limited (2)	Corporate (2,33)	Corporate (2,33)
Materiality factor levels	Stakeholder Range: 1	Stakeholder Range: 1	Stakeholder Range: 2	Stakeholder Range: 2	Stakeholder Range: 2
	Qualities given presence: 2	Qualities given presence: 2	Qualities given presence: 2	Qualities given presence: 3	Qualities given presence: 3
	Scope: 1	Scope: 1	Scope: 2	Scope: 2	Scope: 2
	Average: 1,33	Average: 1,33	Average: 2	Average: 2,33	Average: 2,33
Stakeholder range	Owners, core markets, suppliers, consumers, communities,				
Qualities given presence	Greenhouse Gas (GhG), carbon footprint, emissions, soil fertility and nutritional balance, feed production, measures to protect and encourage biological diversity, efficient use of resources and reducing greenhouse gas emissions. renewable energy, biological tests of water, chemical substances (e.g. Bisphenol A, phthalates, pesticides and heavy metals)				
Scope	GhG protocol, calculation of carbon footprint, carbon and energy assessment, new standard for sustainable production, improvement of analytical methods, engagement with external specialists, total cost of ownership				
<b>Engagement in external research activities related to sustainability issues</b>					
Assessment	Limited (2)	Limited (2,33)	Corporate 3,33	Corporate 3,66	Limited (2,66)
Materiality factor levels	Scope: 2 Stakeholder	Scope: 2 Stakeholder	Scope: 3	Scope: 3 Stakeholder	Scope: 3 Stakeholder

	Range: 2	Range: 2	Range: 4	Range: 4	Range: 3
	Qualities given presence: 2	Qualities given presence: 3	Qualities given presence: 3	Qualities given presence: 4	Qualities given presence: 2
	Average: 2	Average: 2,33	Average: 3,33	Average: 3,66	Average: 2,66
Stakeholder range	Suppliers, competitors, consumers, all markets, industry organization, authorities, global industry, export to new markets, NGO's, university				
Qualities given presence	Food safety, Contamination, Nutrition, hygiene, quality, traceability, protecting cultures, health, reduced salt content, vitamins, probiotics, saturated fat, whey protein, emergency aid food, greenhouse gas emissions, animal health and welfare, food waste, packaging, responsible soya production, women's empowerment, gender equality, BPA, child labour				
Scope	Contamination tests, internal project, realistic test, pilot tests, international cooperation centre, final test phase, commercial testing, study, cooperative research project, EU partnership project, PhD funding, project collaboration with external partners and institutes, supporting independent research, comparative study, partnership with university, industry organization and technology provider, participation in International industry climate partnerships, working groups, food safety qualification, research committee with global specialists, study tour				

### Analysis of the sustainability risks and opportunities in the value chain

Assessment	Limited: (1,66)	Limited: (2)	Limited (2,66)	Limited: (2,66)	Limited: (2)
Materiality factor levels	Stakeholder Range: 2	Stakeholder Range: 2	Stakeholder Range: 2	Stakeholder Range: 2	Stakeholder Range: 2
	Scope: 1	Scope: 2	Scope: 3	Scope: 3	Scope: 2
	Qualities given presence: 2	Qualities given presence: 2	Qualities given presence: 3	Qualities given presence: 3	Qualities given presence: 2
	Average: 1,66	Average: 2	Average: 2,66	Average: 2,66	Average: 2
Stakeholder range	Consumers, employees, core market c suppliers, ingredient and packaging suppliers				
Qualities given presence	product quality, food safety, certified ingredients. cocoa, tuna, palm oil, allergen, BPA, listeria, phatalate, antibiotics				
Scope	risk assessments, well-developed procedures and strong methods, established a process that integrates food safety and product quality awareness into the development of new products, standardised global processes, compliance & control committee, compliance maturity, awareness programs, suppliers in core market subject to a risk assessment, risk categorization (low-medium-high), standardised ingredient specification framework - effective process to prevent potential risks associated with ingredients, global approver function, predictive microbiology method, monitoring suppliers and procedures for handling allergens, Allergen risk management, Allergy Network for support, Food Safety Network, well-established inspection and risk prevention procedures, global standards relating to risk, screening programme for relevant products to assess the level of DEHP, microbiological risk assessments				

### Internal coordination and communication concerning sustainability issues

Environmental Assessment	Limited (2)	Limited (2)	Limited (2,66)	Corporate (3)	Corporate (3,66)
Materiality factor levels	Stakeholder Range: 2	Stakeholder Range: 2	Stakeholder Range: 3	Stakeholder Range: 3	Stakeholder Range: 3
	Qualities given presence: 2	Qualities given presence: 2	Qualities given presence: 2	Qualities given presence: 3	Qualities given presence: 4

	Scope: 2 Average: 2	Scope: 2 Average: 2	Scope: 3 Average: 2,66	Scope: 3 Average: 3	Scope: 4 Average: 3,66
Stakeholder range	Consumers, business partners, owners, suppliers				
Qualities given presence	Organic production, food safety, energy-saving measure, cocoa, nutrition, renewable energy, biogas, phatalate,				
Scope	working groups within board structure, new reference group for consumer-related issues, csr committee, responsibility Arla has when entering new partnerships and emerging markets, internal database of activities, allergy network, food safety network, establishment of control and compliance committee, energy task force force, specialist groups around specific themes, cross-functional teamwork				

#### Development of strategies, policies, and targets for sustainability in the value chain

Environmental Assessment	Corporate (2,33)	Extended (3,33)	Extended (3,33)	Extended (3,33)	Extended (3,66)
Materiality factor levels	Stakeholder Range: 2 Qualities given presence: 3 Scope: 2 Average: 2,33	Stakeholder Range:3 Qualities given presence: 4 Scope: 3 Average: 3,66	Stakeholder Range: 3 Qualities given presence: 4 Scope: 3 Average: 3,66	Stakeholder Range: 3 Qualities given presence: 4 Length of Time: 3 Scope: 3,66	Stakeholder Range: 3 Qualities given presence: 4 Scope:: 4 Average: 4
Stakeholder range	colleagues, owners, suppliers, partners, customers, consumers				
Qualities given presence	Food safety, antibiotics, health, emissions, raw material, packaging, food waste, carbon footprint, transport, packaging, greenhouse gases, recycled plastic, animal welfare, quality, animal feeds, energy, water, biological diversity, certified palm oil, cocoa, soy, ingredients, primary packaging materials, responsibly forested timber				
Scope	UNGC principles in strategy, strategy for antibiotics (includes all steps in the supply chain), health strategy, target is to reduce our direct and indirect emissions of greenhouse gases by 25 percent in production, transport and packaging by 2020, environmental strategy for core market c includes suppliers, environmental strategy 2020 includes owners, new strategy includes our products' complete life cycle, greenhouse gas emissions calculated at owner level - receive advice and suggested areas for improvement (goal – all owners), produce plastic bottles using 50 percent recycled plastic, strategy for sustainable production, quality programmes, support nature conservation projects and activities, code of conduct for suppliers – goal is 100% signed, palm oil targets, membership of RSPO (Round table for Sustainable Palm Oil), Certified Segregated Palm Oil (CSPOI, UTZ certified cocoa, RTRS (Round Table on Responsible Soy), Proterra certified., engagement with key stakeholders, standardised requirement for third party certifications for each sourcing category - The requirements were implemented in the global procurement department's standard contracts, signed an agreement with authorities on food waste, strategy includes food waste, FSC Forest Stewardship Council) or PEFC (Programme for the Endorsement of Forest Certification)				

#### External communication and capacity building concerning sustainability issues in the value chain (including suppliers and other business partners)

Environmental Assessment	Limited (2)	Limited (2,33)	Limited (2)	Limited (2,33)	Limited (2)
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Materiality factor levels	Stakeholder Range: 3 Qualities given presence: 1 Scope: 2 Average: 2	Stakeholder Range: 3 Qualities given presence: 2 Scope: 2 Average: 2,33	Stakeholder Range: 2 Qualities given presence: 2 Scope: 2 Average: 2	Stakeholder Range: 3 Qualities given presence: 2 Scope: 2 Average: 2,33	Stakeholder Range: 3 Qualities given presence: 2 Scope: 1 Average: 2
Stakeholder range	Consumer, representatives (owners), owner suppliers, owner supplier advisors, industry, interest groups, schools,				
Qualities given presence	Emissions, water consumption, energy consumption, animal health and welfare, carbon footprint, high levels of bacteria, medicines, listeria, cocoa, responsible business.				
Scope	Online environmental database (provides emissions and consumption data at group level, per country and per site), preparing a global position paper and stand concerning animal welfare, awareness training, online platform for owners, social media channels, workshops, working with demonstration productions to develop, test and implement new methods, targeted visits at suppliers production sites, owner seminars, technical advice, check list for refurbishments (includes guidelines for structuring such a process), participated in supplier meetings, seminars and industry meetings, supplier with local educational units with mobile agricultural schools, support our partners in identifying gaps and developing plans for how to close them, using back panel of product packaging to communicate with and educate the consumer, 160,000 subscribers to the weekly meal plans, Smartphone recipe application, partnership activities, supporting community partnerships, foundation established, engagement in industry training				

**Integration of sustainability issues in processes for the selection and evaluation of suppliers and other business partners**

Environmental Assessment	Intention (1)	Limited (2,33)	Limited (2,66)	Corporate (3)	Corporate (3.33)
Materiality factor levels	Stakeholder Range: 1 Scope: 1 Qualities given presence: 1 Average: 1	Stakeholder Range: 2 Scope: 2 Qualities given presence: 3 Average: 2,33	Stakeholder Range: 3 Scope: 2 Qualities given presence: 3 Average: 2,66	Stakeholder Range: 3 Scope: 3 Qualities given presence: 3 Average: 3	Stakeholder Range: 4 Scope: 3 Qualities given presence: 3 Average: 3,33
Stakeholder range	Owners suppliers, ingredient suppliers, agents, distributors, local partner, packaging suppliers, business partners				
Qualities given presence	Quality, detergents, hygiene, medicine, sustainable production, certified ingredients (cocoa, tuna and palm oil), packaging, food safety, health, safety certificates, allergen management, packaging suppliers' food safety and traceability management, as well as food safety management, waste				
Scope	Third-party certified quality programme, targeted visits, audits, RTRS certificates (soy), UTZ, Green Palm Certificates, membership of RSPO (Round table for Sustainable Palm Oil), visit to our cocoa supplier on the Ivory Coast, tuna approved by the Earth island institute, formal supplier evaluations, supplier evaluation system, audits, assessments of suppliers of ingredients and packaging materials, new programme for sustainable sourcing, code of conduct, programme for pre-selection of suppliers, global standardization of supplier auditing tools and processes, global supplier auditing team, lead auditors have been appointed, a global process for subcontracting has been established, production supervised by representatives of agent in particular market, partnership selection model, Integrity Due Diligence Process, joint ventures, FSC or PEFC certification				

**Engagement in sustainability-oriented collaboration in the value chain (including suppliers and other business partners )**

Assessment	Intention (1)	Limited (2)	Limited (2)	Corporate (3)	Corporate (3,33)
Materiality factor levels	Stakeholder Range: 2 Scope: 1 Qualities given presence: 0 Average: 1	Stakeholder Range:2 Scope: 2 Qualities given presence: 2 Average: 2	Stakeholder Range: 2 Scope: 2 Qualities given presence: 2 Average: 2	Stakeholder Range: 3 Scope: 3 Qualities given presence: 3 Average: 3	Stakeholder Range: 4 Scope: 3 Qualities given presence: 3 Average: 3,33
Stakeholder range	Competitor, suppliers, global industry, packaging experts, engineering experts, owner suppliers, customers, regional authorities, consumers, hospital kitchens, retailer, interest group, industry partners,				
Qualities given presence	Contamination, melamine, bacteria, recycled plastic, slurry, biogas, soil fertility, nutritional balance, biological diversity, efficient use of resources, greenhouse gas emissions, carbon footprint, animal health, waste, biodiversity, proteins, food waste, emissions, BPA, soy, malnutrition				
Scope	Detection method collaboration with competitor and supplier, Ecc bottle collaboration between purchasers, packaging experts and suppliers, test phases, H2AD. Third , generation anaerobic digestion unit that can handle slurry and convert it into biogas, new standard for sustainable production, zero waste to landfill at one processing site in one core market, biodiversity project in collaboration with regional authorities in one core market, develop and improve our analysis methods and risk assessments together with customers, collaboration with hospital kitchens, partnerships with retailers and other organizations on food waste in multiple core markets, participate in waste reduction programme in single core market, participate in EU project, one of 12 companies taking part in a cooperative project run by an industry group in order to reduce emissions during the transportation of goods, contribution to various industry projects on sustainable innovation approaches, carbon footprint, biodiversity, working with industry partners to accredit a new nationally recognised food safety qualification for dairy manufacturing in a single core market, joint project with a retailer group, a supplier and a fund for increased resource efficiency on food waste, industry collaboration on Improved nutrition with the mission to reduce malnutrition of population at risk.				
<b>Innovation of sustainable products, services, production or delivery processes which are technologically new or significantly technologically improved</b>					
Assessment	Limited (1,66)	Limited (1,66)	Limited (2,33)	Limited (2,33)	Limited (2,66)
Materiality factor levels	Stakeholder Range: 1 Qualities given presence: 2 Scope: 2 Average: 1,66	Stakeholder Range: 1 Qualities given presence: 2 Scope: 2 Average: 1,66	Stakeholder Range:2 Qualities given presence: 3 Scope: 2 Average: 2,33	Stakeholder Range: 3 Qualities given presence: 2 Scope: 2 Average: 2,33	Stakeholder Range: 3 Qualities given presence: 2 Scope: 3 Average: 2,66
Stakeholder range	Owner suppliers, industry group, competitor, supplier, consumers, retailers				
Qualities given presence	Antibiotic substances, bacteria, contamination, food safety, additives, natural sweetener, different ingredients, vitamins, calcium and/or fibre, lactic acid bacteria, whey-based, protein, reduced salt content, less sugar, less plastic used, carbon footprint reduced, sustainable energy, biogas, water				
Scope	Advisory service in two core markets, contamination method commercially test in two core and one thirdmarkets, predictive microbiology method, adaptation of the risk factor analysis, using protecting cultures to increase the shelf life, where possible, artificial additives have now been removed or replaced by natural variants, introduction of new products using natural sweetener on several core markets, same nutritional content with different ingredients In new markets, product range with communicable health claims in relation to bone health, digestion and the immune system, whey-based product for clinical nutrition products, for example, products beneficial for building muscle mass and rehabilitation after illness (withstand the high temperatures necessary to produce products with a long shelf-life), new protein-enriched product, a lot of new and healthier products in different categories				

have been launched in several core markets, protein based products in two core markets, information shared with us by consumers through traditional and new communication channels new initiatives, including improved packaging and new products, organic product range launched in two core and one new market, reduction of plastic material in product containers in two markets, increase sustainable energy and the use of biogas, new eco plastic bottles with 15% recycled plastic, product container with cardboard outer case which has resulted in less plastic being used and its carbon footprint being reduced by 40 percent, one more biogas plant on the way, increased water recycling in a unit in a core market, renewable energy sources, energy mapping programme

**External recognition and compliance through the adoption of and adherence to sustainability standards and certifications**

Assessment	Limited (2)	Limited (2)	Limited (2,33)	Limited (2,33)	Corporate (0,33)
Materiality factor levels	Stakeholder Range: 2 Qualities given presence: 2 Scope: 2 Average: 2	Stakeholder Range: L2 Qualities given presence: 2 Scope: 2 Average: 3	Stakeholder Range: 2 Qualities given presence: 3 Scope: 2 Average: 2,33	Stakeholder Range: 2 Qualities given presence: 3 Scope: 2 Average: 2,33	Stakeholder Range: 0 Qualities given presence: 1 Scope: 0 Average: 0,33
Stakeholder range	Costumers, third-party verification provider, ingredient suppliers, own production sites, owner suppliers				
Qualities given presence	Sustainability work, CSR, materiality, soy, food safety, cocoa, palm oil, responsibly forested timber, food safety				
Scope	Conformity statement from the independent Bureau veritas certification organization, certified according to the national standard CSR Performance Ladder, RTRS (Responsible Soy association) certification of soy, UTZ certification of cocoa, RSPO (Roundtable on Sustainable palm oil) and CSPO (Certified Segregated Palm Oil) certified palm oil, WWF evaluation on palm oil, FSC (Forest Stewardship Council) or PEFC (Programme for the Endorsement of Forest Certification) certified packaging, ISO 22000, BRC, IFS and ISO 9001 certification of sites, German Naturland organic labelling scheme, GFSI recognised standards, Dutch Lean & Green Star Award, including Recycling Business of the Year and Best Environmental Sustainability initiative, Carbon Trust Standard				

**Integration sustainability issues in the corporate communication, advertising and marketing directed towards customers**

Assessment	Limited (2)	Limited (2)	Corporate (3)	Limited (1,66)	Limited (1,33)
Materiality factor levels	Stakeholder Range: 2 Qualities given presence: 2 Scope: 2 Average: 2	Stakeholder Range: 2 Qualities given presence: 2 Scope: 2 Average: 2	Stakeholder Range: 3 Qualities given presence: 3 Scope: 3 Average: 3	Stakeholder Range: 2 Qualities given presence: 2 Scope: 1 Average: 1,66	Stakeholder Range: 2 Qualities given presence: 1 Scope: 1 Average: 1,33
Stakeholder range	Consumers, customers, interest groups, authorities				
Qualities given presence	Keyhole labelling, health, ingredients, climate, natural products, environmentally friendly, responsible working practices, reliable nutritional information, ingredients,				
Scope	Internal and external identity campaign, introduction of new corporate identity, product container as a communication channels. launch of a new health brand in a core market, communicate products nutritional benefits in one core market,				

## Appendix B – Interview Guide (Chapter 6)

### 1 - Acquisition of knowledge

Topic	Nr.	Question	Comments
Stakeholder consultations on sustainability issues	1.1	How is your corporation in dialogue with your external stakeholders concerning the corporation's current and future practice for sustainability and CSR?	External stakeholders: investors, customers, suppliers, NGO's etc.
	1.1.1	With which frequency and in which form is your corporation in dialogue with external stakeholders concerning your practice for sustainability and CSR?	Frequency: Every year, every second year...or continuesly?  Form: One-way communication (passive), dialoge (active) or inklusive (interactive)
	1.1.2	How is your corporation communicating with your stakeholders concerning sustainability and CSR and which communication channels are you applying?	Communication channels: face-to-face meetings, online surveys, social media etc.
	1.1.3	On which topics concerning sustainability and CSR are you consulting with your stakeholders and to which extent?	Topics: Environmental and/or social dimension (including human rights, labour rights and anti-corruption issues)  Extent: Are you only consulting on internal matters or also matters in the value chain?
Assessment and measurement of the sustainability impact in the corporate value chain	1.2	How does your corporation assess or measure the environmental and social impact of the corporation's activities, products and services throughout its value chain?	<i>Value chain: upstream: suppliers and potentially sub-suppliers, downstream: customers and potentially their customers</i>
	1.2.1	Does your corporation assess or measure the environmental and social impact of one or more activities, products and services and to which extent in the value chain?	<i>Extent - 1st tier upstream and/or downstream or also beyond 1st tier</i>
	1.2.2	Is your corporation applying certain approaches, methods or tools to assess or measure the environmental and social impact of of the corporations activities, products and services throughout it's value chain? And if so, why this particular approach or tool?	<i>Measurement tools and methods: balanced scorecard approach, carbon footprint, ecological footprint and life cycle analysis)</i>  <i>Valuation tools and methods: ecosystem service valuation, sustainable value added and triple bottom line reporting</i>

	1.2.3	How is this assessment or measurement organised in your corporation when concerning responsibility and execution?	<i>Is one or more people involved internally and in which functions are the based? Is external assistance applied?</i>
Engagement in external research activities related to sustainability issues	1.3.1	Is your corporation engaged in investigative activities or profound research with direct or indirect focus on sustainability and CSR?	Investigative activities: Research by acquisition of information in different ways, but not scientific research  Profound research: Research activities involving universities and scientists
	1.3.2	To which extent is your corporation participating in networks, events etc. as part of investigative activities with a direct or indirect focus on sustainability/CSR	Extent: Passive participation, active participation with project focus or interactive participation  Network, events etc.: UN Global Compact local networks etc.
	1.3.3	To which extent is your corporation participating in conferences, consortia, projects etc. as part of investigative activities or profound research with direct or indirect focus on sustainability/CSR?	Extent: Passive participation, active participation with project focus or interactive participation
	1.3.4	Do the investigative activities or the research the corporation engages in contribute directly or indirectly to the corporation's practice of sustainability and CSR, in the short and long term?	

## 2 - Assimilation of knowledge

Topic	Nr.	Question	Comments
Analysis of the sustainability risks and opportunities in the value chain	2.1	Is your corporation conducting a risk analysis concerning CSR and sustainability in your value chain?	
	2.1.1	How are you retrieving knowledge of and identifying risks concerning your supplier's practice of CSR and sustainability?	
	2.1.2	How are you assessing risk concerning your suppliers practice of CSR and sustainability and is a categorization and prioritization part hereof?	
	2.1.3	Does your risk assessment include other actors in your value chain in addition to your suppliers? E.g. your customers and their use of your products?	

	2.1.4	Is your approach to risk assessment derived from the influence of external stakeholders and do you in any way integrate them in your risk assessment proces?	<i>E.g. the compliance with certain criteria and standards required by customers.</i>  <i>External stakeholders: investors, customers, suppliers, NGO's etc.</i>
	2.1.5	Is your corporation conducting an analysis of the business opportunities concerning CSR and sustainability in your value chain?	<i>Business opportunities: savings, new markets, new products, ny cooperation opportunities etc.?</i>
	2.1.6	To which extent is your organization involved in the analysis of the business opportunities?	<i>R&amp;D, Marketing, Production, Business Development etc. or individuals.</i>
	2.1.7	Is the analysis of busines opportunities primarily conducted on the basis of an assessment or measurement of the corporation's environmental or social impact, or do you use other sources and how is your access to these?	Examples of other sources could be internally or externally developed reports, knowledge acquired from participation in different forums etc.
	2.1.8	Do your corporation apply specific tools or approaches to process the acquired knowledge and develop it intp potential business opportunities?	Basically, a SWOT-analysis could be such a tool, but also other more advanced tools for development of e.g. business models
Internal coordination and communication concerning sustainability issues	2.3.1	Does your corporation have a strategy, policy and/or code of conduct for sustainability and csr in your value chain?	
	2.3.2	To which extent has your organisation and possibly your value chain been involved in the development of a strategy, policy and/or code of conduct for sustainability and csr in your value chain?	<i>Human Resources, Corporate Affairs, Production, Business Development etc. or individuals.</i>  Direct involvement of suppliers or other stakeholders beyond acquiring knowledge
	2.3.3	To which extent has your corporation sought external assistance in connection with the development of a strategy, policy and/or code of conduct for sustainability and csr in your value chain?	Assistance from external consultants, experts and others not directly employed by the corporation
	2.3.4	How has your corporation organized the development of a strategy, policy and/or code of conduct for sustainability and csr in your value chain and which approaches and communication tools have you applied to support the development?	
Development of strategies, policies and targets for sustainability in the value	3.1	How is your corporation communicating your expectations to suppliers and other business partners in	

chain		the value chain concerning sustainability and CSR; shape of policies. code-of-conducts etc.?	
	3.1.1	How are these expectations communicated and which communication channels are applied?	
	3.1.2	Is the communication of these expectations a singular event or are these expectations communicated systematically and repeatedly?	
	3.1.3	Can the communication be characterized as passive or active with e.g. confirmation of the receiver having understood the message?	

### 3 - Transformation of knowledge

Topic	Nr.	Question	Comments
Integration of sustainability issues in processes for the selection and evaluation of suppliers and other business partners	3.2	Is your corporation integrating sustainability and CSR in the evaluation and choice of suppliers and sub-suppliers?	
	3.2.1	Is your corporation requiring self-evaluation on sustainability and CSR issues among your suppliers and business partners? Which role does self-evaluation have in your evaluation and selection process?	
	3.2.2	How detailed is this self-evaluation, when do you follow-up with control visits or audits of the supplier and to which extent?	
	3.2.3	Are these control visits or audits initiated without prior notification of the supplier beforehand and how are they generally completed?	
	3.2.4	Does your corporation perform monitoring and assurance of suppliers and business partners practice of sustainability and CSR?	
External communication and capacity building concerning sustainability issues in the value chain (including suppliers and other business partners)	3.4.1	Is your corporation attempting to raise awareness of sustainability and CSR, perform training and other forms of capacity development among your suppliers and business partners?	
	3.4.2	To which extent is your corporation	<i>E.g. by inviting the corporation to</i>

		performing awareness raising activities on sustainability and CSR among suppliers and business partners and in which form?	<i>supplier days, which informs on the corporations policies, but also provides examples of business opportunities related to sustainability and CSR</i>
	3.4.3	Is your corporation performing training or educational activities related to sustainability and CSR among suppliers and business partners and how is this effort then prioritized?	
	3.4.4	Do your corporation work with other forms of capacity development related to sustainability and CSR of suppliers and other business partners?	
	3.4.5	How do you organize these activities and how systematically are the activities performed and followed up on?	
Engagement in sustainability-oriented collaboration in the value chain (including suppliers and other business partners)	3.5.1	Is your corporation engaged in innovation-orientated collaboration with suppliers and other business partners in the value chain?	
	3.5.2	How is this collaboration organized and how many of your business partners are collaborating herein?	
	3.5.3	To which extent is your corporation participating in the corporation, what are you contributing with and what are the outcomes for your corporation?	
	3.5.4	Is this collaboration contributing directly or indirectly to your corporation's practice of sustainability and csr in the short and long term?	

#### 4 - Exploitation of knowledge

Topic	Nr.	Question	Comments
Innovation of sustainable products, services, production or delivery processes which are technologically new or significantly technologically improved	4.1	Has your corporations acquisition, assimilation and transformation of knowledge related to sustainability and CSR led to the innovation of new products, services or processes, which are new technologically or significantly technologically improved?	Technologically new or significantly technologically improved: If products/services based on completely new technology then they are characterized as technologically new
	4.1.1	Are these technologically new or significantly technologically improved products, services or processes new on a global scale, in a particular region or only in your corporation?	

	4.1.2	How do these products, services or processes differ from those produced and applied by the closest competitors to your corporation?	
	4.1.3	What is the added value for the customers concerning these products, services or processes in relation to sustainability and CSR?	
External recognition and compliance through the adoption of and adherence to sustainability standards and certifications	2.2	Has the corporations acquisition, assimilation and transformation of knowledge related to sustainability and CSR led to certifications of products, services or processes or standardized reporting heron to stakeholders?	
	2.2.1	Is your corporation adhering to standards for sustainability and csr for products, services or processes and/or have you achieved certifications?	
	2.2.2	Is your corporation reporting on your sustainability and CSR practice for your whole organization to international standards like the Global Reporting Initiative (GRI) or the UN Global Compact (UNGC)?	
	2.2.3	How are you assessing your use of resources to adhere to theses standards and certifications and what is your output from this in terms of e.g. more satisfied stakeholders, increased productivity or competitiveness?	
Integration sustainability issues in the corporate communication, advertising and marketing directed towards customers	2.3.1	Has the corporations acquisition, assimilation and transformation of knowledge related to sustainability and csr led to a focus on csr and sustainability in the advertising and marketing of the corporation and itøs products or services?	
	2.3.2	Is sustainability and CSR included in your advertising and marketing of products and services and to which extent is labeling of products and services applied?	
	2.3.3	Is sustainability and CSR integrated in your branding of the corporation and is your advertising transparent (beyond labeling of products and services) in relation to your value chain?	
	2.3.4	Is sustainability and CSR a USP which your corporation applies in branding, advertising and marketing globally or only on selected markets of for selected customer groups?	USP - Unique selling proposition

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