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Selecting sustainability management tools for medium sized companies

Development of a structured method for companies in the retail and energy industrial sectors

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Abstract

Keywords: sustainability management, medium size companies, sustainable development, SME, energy industry, clothing retail industry

Within sustainability management, there are several sustainability management tools which have been developed to help companies address disparate aspects of sustainability. This multitude of options means that selecting the best possible tool for companies is a challenge in and of itself. In the case of small- and medium sized companies, there are additional difficulties in regard to most aspects of sustainability management, primarily due to a lack of resources. Among these challenges are finding and implementing suitable and useful sustainability management tools.

This project attempts to simplify the tool selection process, by creating a structured tool selection model based on sustainability key performance indicators. A large number of sustainability management tools are focused on different areas of sustainability, often divided into some form of indicators. Different industries have different tools available and suitable for them, and different priorities among sustainability performance indicators, based on which impacts and effects the industry has on sustainability. Individual companies have differing requirements on sustainability management tools as well, based on unique circumstances, impacts, available resources, and existing sustainability measures. One way to handle tool selection is thus to match tools to companies, based on indicators and the factors described above. The intention for this project is to create a model for simplifying tool selection, and to test it by creating suggested combination of tools, a "toolbox", to use for two case companies. The toolbox includes which tools are currently used, suggestions for which additional tools should be implemented to cover indicator gaps, and which tools are unnecessary to focus on, since used tools cover equivalent indicators.

In this project, two mappings of tools and indicators were performed to test the model. This was based on information gathered about the tools and which indicators they cover, combined with information about the conditions and sustainability work from two Swedish medium sized companies. The selected companies were Houdini, from the Swedish clothing retail industry, and Jämtkraft, from the Swedish energy sector. The model can be used to generate toolbox suggestion for these cases. However, there are several limitations to this model, such as the exclusion of non-indicator focused tools, and the assumptions that these sustainability tools produce equal results and are useful for medium sized companies.

The conclusion is reached that a decision-making process based on indicators is possible, but there are several important considerations not included within this specific model which limits its potential use. Further development of this model can be done to remedy these shortcomings.

Sammanfattning

Inom området hållbarhetsledning så finns det många verktyg som har utvecklats för att hjälpa företag att adressera och hantera olika delar av hållbarhet. Mängden verktyg som finns tillgängliga innebär att det är en utmaning i sig att välja det bästa möjliga verktyget för ett givet företag. För små och medelstora företag finns ytterligare svårigheter inom de flesta delar av hållbarhetsledning, framför allt på grund av begränsade resurser. En av dessa utmaningar är att hitta och implementera lämpliga och användbara hållbarhetsledningsverktyg.

Många hållbarhetsledningsverktyg fokuserar på olika områden av hållbarhet, indelade i indikatorer. Olika industrier har olika verktyg som är utvecklade för och passar dem, och lägger olika vikt vid indikatorer baserat på vilken påverkan industrin har inom hållbarhetsområdet. Utöver detta har företag olika krav på hållbarhetsledningsverktyg, baserat på deras unika omständigheter, påverkan, resurser och existerade hållbarhetsarbete. En metod för att hantera valet av verktyg är därför att matcha verktyg och företag baserat på indikatorer och faktorerna beskrivna ovan. Detta projekt försöker förenkla processen att välja verktyg genom att skapa en strukturerad modell för urvalsprocessen, baserad på hållbarhetsindikatorer, och att testa den genom att skapa en verktygslåda med kombinationer av verktyg för två fallstudieföretag. Verktygslådan framtagen i projektet innehåller verktyg företaget använder i nuläget, verktyg som föreslås som komplement, och verktyg som är onödiga att fokusera på då använda verktyg täcker ekvivalenta indikatorer.

I det här projektet utfördes två jämförande kartläggningar av verktyg och indikatorer för att testa modellen. Detta baserades på information om verktyg och vilka indikatorer de täcker, tillsammans med information om nuläge och hållbarhetsarbete hos två medelstora svenska företag. De båda företagen är Houdini, som arbetar med produktion och försäljning av kläder, och Jämtkraft, från energisektorn. Den utvecklade modellen kunde användas för att generera förslag på verktygslådor för de båda fallen. Dock visade dessa verktygslådor även modellens begränsningar och brister, såsom exkluderingen av verktyg som inte använder indikatorer, och antagandena att verktygen passar medelstora företag lika bra och producerar lika bra resultat om de täcker samma indikatorer. Projektets slutsats är därför att det är möjligt att använda den här modellen för att välja verktyg baserat på indikatorer, men dess användning begränsas av vad som exkluderas. Dock bör fortsatt vidareutveckling av modellen kunna lösa dessa problem.

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Abbreviations

Corporate Social Responsibility (CSR)

EU Eco-Management and Audit Scheme (EMAS)

Environmental management system (EMS)

Global reporting initiative (GRI)International Chamber of Commerce (ICC)

Integrated Reporting (IR)

International Organization for Standardization (ISO)

The Millennium Development Goals (MDG)

Small and medium size enterprise (SME)

The Sustainability Development Goals (SDG)

Sustainability Key Performance Indicator (SKPI)

Sustainability management tool (SMT)

World Business Council for Sustainable Development (WBCSD)

1. Introduction

This chapter of the report will introduce the background and key concepts for this project. Among these concepts are an introduction to sustainability management and sustainability management tools, as well as a definition and description of medium size companies. It is also describing how and where the concepts interact. Finally, the chapter will describe the aims and objectives of this report.

1.1 Sustainability management and sustainability management tools

1.1.1 What are sustainability and sustainability management?

Sustainable development is a concept originated by the report "Our common future", created by the Brundtland Commission, in 1987 (World Commission on Environment and Development, 1987). A now commonly used definition of sustainability from the report is:

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (World Commission on Environment and Development, 1987).

Since the concept of sustainability was created, the role of companies in sustainability has been debated, as have the means for the sustainable management of them. Preference within this discussion often depends on which political opinions, ethical perspectives, and which definitions of sustainability that are used and held.

A common view is that companies should take the so-called "triple bottom line" into consideration, consisting of environmental, economic, and social perspectives. This report uses the Brundtland definition of sustainability and the triple bottom line, and discusses sustainability management based on these concepts.

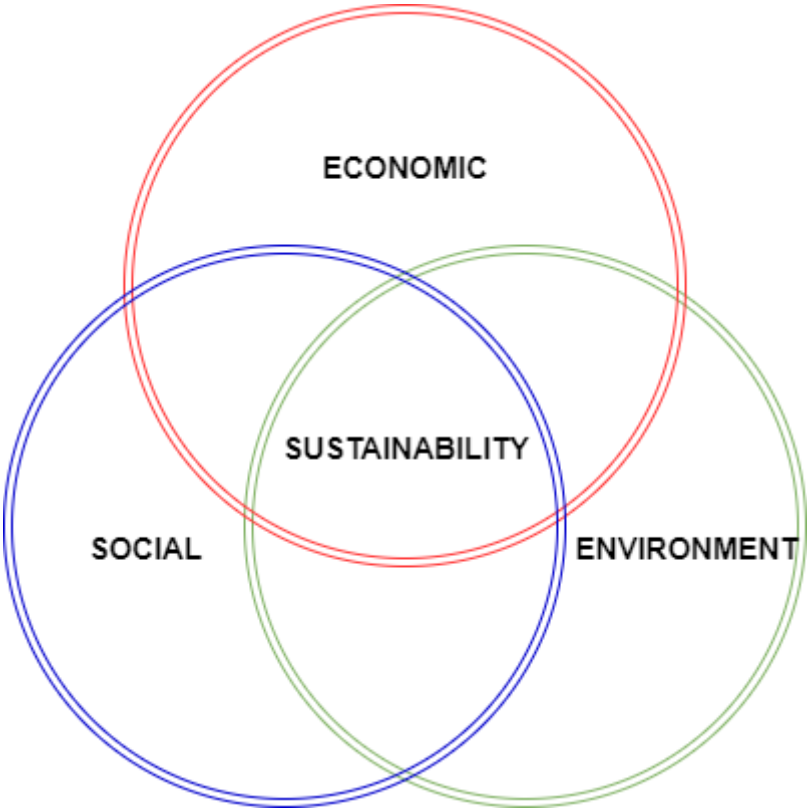

Figure 1 An illustration of concept of the "Triple Bottom Line"

This thesis project is conducted within the discipline of sustainability management. Sustainability management is a field which concerns itself with how sustainability principles can be combined with management approaches. While sustainability management can be applied in different contexts, such as personal, societal or corporate ones, this thesis primarily focuses on the corporate aspects. It can be divided into the same three aspects as sustainability itself. Sustainability work for companies is important under the fundamental assumption that companies in a future sustainable world must operate sustainably in a social and environmental way, as well as economically. There are several alternative concepts existing in parallel to and overlapping with sustainability, for example:

- Corporate Social Responsibility (CSR),
- Corporate Responsibility (CR),
- Responsible business conduct,
- Corporate citizenship,
- Voluntary corporate activities (ICC, u.d.).
- Environmental and Social Governance (ESG)

In this report, the term sustainability management will be used to refer to the broad group of methods and approaches that companies apply in order to progress towards sustainable development.

One of the fundamental divisions in sustainability management is between legal compliance and voluntary efforts. In the history of the environmental movement, legal environmental compliance requirements have steadily increased in number and severity since the 1960:s. For some areas of sustainability work, this is and continues to be an important driver for company change. However, a common part of sustainability management in the last decades has been the use of voluntary sustainability efforts. While some voluntary company efforts have existed for longer, most of the ones studied in this project originate in the 1990: s or the early 2000: s, such as GRI(1997), UN Global Compact (2000), EMAS (1995) and ISO14001 (2004) (United Nations, 2004; European Comission, 2017a; GRI, 2017; British Assessment Bureau, 2015)Both the number of environmental directives and legislation within the EU and the number of sustainability management tools has increased over the last thirty years, meaning that both the impact of environmental legislation and the options for voluntary efforts has increased for companies (European Comission, 2017b).

Voluntary sustainability management efforts can take several forms. In the most general case, any voluntary action conducted by a company which benefits sustainability could be considered this. However, these actions often follow external guidelines or structures, such as management systems, reporting frameworks or sets of principles. Another interesting aspect is that legal requirements sometimes catch up to previously voluntary sectors. One such example is the EU directive about non-financial reporting, which requires companies categorized as large to report on environmental, social, and human rights issues, starting for the year 2016 (EU, 2016). Voluntary non-financial reporting has been done according to the Global Reporting Initiative (GRI), the Integrated Reporting Council (IR), the EU Eco-Management and Audit Scheme (EMAS), the UN Global Compact (GC) and other initiatives since the 1990:s. While it is possible to conduct non-financial reporting in compliance with the EU directive as well as the voluntary efforts, it is also possible to report just according to the legal standard. Another example of this is the Swedish legal requirement for state owned-companies to report according to GRI, that has existed since 2008 (Regeringskansliet, 2007).

Legal requirement for reporting can both increase use of and replace reporting frameworks. The primary focus of this thesis project is on the use of voluntary sustainability management tools.

Another key concept within sustainability management is that of reactive and proactive strategies (Epstein & Rejc Buhovac, 2014). Reactive environmental work only occurs in response to negative events. Examples of events inciting a response can be that a large negative environmental or social impact becomes public knowledge, or that stricter legislation is coming into effect. Proactive environmental work, on the other hand, strives to be ahead of these issues and work precautionarily with sustainability issues. From a pure business standpoint, both strategies have benefits and drawbacks. Reactive companies save money, time and effort short term but take long-term risks. Proactive companies spend more money in the short term, but can achieve risk mitigation in several ways, as well as higher efficiency and a lucrative environmental profile. However, from the perspective of achieving global sustainability, encouraging proactive sustainability work is beneficial. In this study, the focus will be on companies with primarily proactive strategies. The action of making proactive sustainability efforts is closely related to the taking of voluntary action. Proactive companies are thus more likely to use voluntary sustainability management tools.

A concept from economic management is the key performance indicator (KPI), which measure types of company performance. Most commonly, economic KPI: s are used to evaluate company financial performance. However, for this report sustainability key performance indicators (SKPI) will be discussed. Since the sustainability performance of companies encompass all their positive and negative impacts on the environment and humanity, there is a large and varied range of indicators available to use (Epstein & Rejc Buhovac, 2014). This means that the choice of indicators used should be adapted based on the companies in question. One way of doing this in a structured way is by using a sustainability management tool.

1.1.2 What are sustainability management tools?

Within sustainability management exists the concept of sustainability management tools (SMT). There are several possible ways to define what constitutes a sustainability management tool.

Johnson & Schaltegger (2015) defines a sustainability management tools as:

"management instruments, concepts, and systems, also known as sustainability management tools. This encompasses a broad range of environmental, social, and integrative tools, such as environmental and social audits, eco-efficiency analyses, life-cycle assessments (LCAs), environmental and social management systems, and sustainability reports." (Johnson & Schaltegger, 2015)

Another version of the definition, from Hörisch et. al (2015), is that sustainability management tools are:

"…defined as management methods that specifically serve the purpose of implementing corporate sustainability." (Hörisch, et al., 2015)

In for example Johnson & Schaltegger (2015) and Hörisch et.al (2015), sustainability management tools are presented as generalized groups of methods, such as LCA: s, sustainability reports, or environmental and social audits. However, due to the methodology of this project, a narrower use of the term encompassing specific tools will be more useful. This means that when using the concept SMT: s within this report, it represents specific examples of tools. For example, SMT is used to represent specific examples of tools such as ISO 14001 or EMAS instead of their common group of environmental management tools (EMS).

One of the key issues when using environmental management tools is how and what to prioritize. As the definitions of sustainability management tools are wide, the group can contain management systems as well as frameworks, guidelines, principles, directives, and standards, related to everything within sustainability. This means that the sheer number of sustainability management tool options can be overwhelming, and that comparing and selecting where to begin is a potentially complex issue.

Sustainability management tools can be compared on several different aspects they possess. This can be relatively simple, such as age, or which type of tool it is classified as (reporting, management, etc.). It can also be about more complex set of traits, such as how well the evidence backs that this tool leads to meaningful improvements within sustainability. In this project, the main point of analysis is which sustainability key performance indicators (SKPI:s) each tool covers. . As previously stated, different SKPI:s are relevant to different companies. As the general area of sustainability is very broad, there are several potential SKPI:s, and different tools cover different ones. This in turn means that different sustainability management tools are relevant to different companies, purely based on SKPI:s.

1.2 The selected industries

Which sustainability issues are relevant and important, and which tools are available for solving them, varies from industry to industry. As a part of setting the boundaries for this project two industries were selected: the clothing retail sector, and the Swedish energy sector. On the surface, these industries have little in common. However, both industries work in a business-to-consumer model, and the produced goods are necessary parts of modern life. Another commonality is that they both have well known sustainability issues, but the main impacts are different. The differences and similarities make it interesting to potentially compare and contrast the results for each industry.

1.2.1 The energy industry

The generation and distribution of energy is central to modern life, and its sustainability concerns have ramifications for the entire world. The sustainability of the energy sector is at the forefront of the global discussion, because of the use of fossil fuels in the energy generation, and the resulting contribution to climate change. The long-term availability of fossil fuel is another sustainability concern. The debate is also due to the large societal changes which will be needed in order for the global energy industry to mitigate its environmental impact.

The sustainability impacts vary based on the fuel used. The Swedish electricity generation is for the most part from sources other than fossil fuel, with limited carbon emissions (Energimyndigheten, 2015). The primary fuel for electricity generation are hydro power and nuclear power, complemented with wind power and biofuel. This means that other impacts than climate change are relatively more important, such as the risks associated with nuclear power or the local social and environmental impacts of hydroelectric power dams such as biodiversity (IVA & KVA, 2009). For heat, the most common type of fuel is biofuels, with several other types of fuel existing (Energimyndigheten, 2015). Due to the companies selected to be part of this study, the primary types of energy generation which will be discussed within this report are hydropower, wind power, and combined heat and power fueled by bio fuels, peat, and oil (Jämtkraft, 2015). For an industry with such large sustainability impacts, there is very little research conducted about its sustainability management. There are very few tools which are especially constructed for this industry, especially when compared to the clothing retail industry.

1.2.2 The clothing retail industry

Clothing retail is a strong industry in Sweden. There are several Swedish clothing manufacturing and retail companies, from giants like H&M to small companies. There are several clothing retail companies in Sweden, which are medium sized, within diverse subsets of the industry.

The most well-known sustainability issue within this sector is social concerns within the supply chain. Among the key social sustainability management indicators are social sustainability risk management, access to basic necessities and first aid, documentation, wages and overtime, gender equality, child labor, and labor rights. There are also several different types of workplace hazards, from fire, poor building construction or noise to mechanical, chemical, biological, ergonomic and psychosocial ones (SGS, 2017).

Within the textile-clothing sector of EU small and medium enterprises (SME:s), the largest environmental impacts are said to be energy intensive spinning, as well as chemicals, water and energy for textile finishing (preparation, dyeing, and printing). Additionally, the raw materials have large impacts. The main concerns with synthetic fibres are that they derive from oil, which is finite and has large impacts during extraction. However, natural fibres such as cotton require large amounts of pesticides, water and weed killers, with other environmental impacts (European Commission, 2016a).

There are many SMT:s available specifically for the clothing retail industry, based on different parts of the value chains and with different focus and perspectives.

1.3 Medium sized enterprises

This project is focused on medium sized companies, which is a subset of the commonly used term SME. Over 99% of companies within the EU are SME:s (European Commission, 2017e). There are varying definitions of what a ‘‘medium sized’’ company is. The SME concept can be grouped into three main size categories: medium sized, small, and micro, defined both by number of employees and by financial aspects (European Commission, 2017e). According to the EU definition, a medium size company has between 50 and 250 employees, and either a turnover between 10 and 50 million euros, or a balance sheet total of 10-43 million euros (European Commission, 2017e). In some parts, such as when offering types of support, Sweden is using the EU definition.

However, in other areas such as when Statistiska centralbyrån (SCB) is tracking statistics of company employees, it uses nine different brackets. Of these, three (50-99, 100-199 and 200-499 employees) overlap with the EU definitions (Statistiska centralbyån, 2016b). The typical characteristics of SME:s in general are limited resources, in terms of money, personnel, knowledge and time. This, combined with the fact that they are numerous, that they are key to the European economies, which has led to different types of support and information services being available at national and EU levels. Examples of such support at the EU level can be: help to find business partners in other EU countries, information about financial service, and support with sustainability and resource efficiency efforts (European Commission, 2017d).

Additionally, some laws and rules, such as the 2017 Swedish sustainability reporting law, only affects large companies (Riksdagen, 2017). The main reason for this focus is due to the selection of the energy sector. In Sweden, most energy production companies are either large or medium-size. Since small companies are not represented within the sample, and large companies do not face the same challenges in this context , medium size selection is a good compromise. Another factor of the SME:s concept is the heterogeneity within the SME concept. Since all companies with between 0 and 249 employees are included, between very different industry sectors, the sustainability issues relevant

will vary within the group (Hillary, 2004). Most research that has been done the last 20 years has been conducted using the EU SME concept as a whole. This makes conclusions about sustainability management of medium sized companies in isolation a rarity, and results in claims about the SME field that are very generalized.

There are few Swedish energy companies who fulfill the complete EU SME requirements. This is primarily because of municipality ownership. Some of the clothing companies studied also fail the definition due to corporate ownership structures. As the problems studied in this report are about the needs and perspectives of medium sized companies, the EU definitions are used as a guideline but not followed strictly. A company with 251 employees is likely to have the same issues and perspectives on this topic as one with 250 employees, while differing from a company with 1000 employees. The use of the medium size company definition will be discussed further within the report.

1.4 Sustainability management and medium sized companies

The issues of sustainability management and SME:s have been discussed a lot within research and by the creators of sustainability management tools. It has been assumed that as much as 70% of industrial pollutants or 64% of environmental impacts can be sourced to SME:s (Hillary, 2004; European Commission, 2016a). The issue of the environmental impacts of SME:s can be seen as a type of diffuse emission problem: many small, poorly overviewed sources contribute to small impacts individually, but large when aggregated for the whole sector.

As previously discussed, managing the sustainability aspects of business, and selecting which sustainability management tools to use is a potential issue for all companies. However, SME:s in general face additional issues in their sustainability work. The main challenge can be generalized as a lack of resources. One of these resources is knowledge: SME:s in general have a lower degree of both knowledge of and applications of tools, when compared to larger ones (Hörisch, et al., 2015; Johnson, 2013). When it comes to sustainability management tools and medium size companies, almost all of the tools studied within this project claimed that they are adoptable for companies, regardless of size. The research into the adoption rates of sustainability management tools shows that the adaption of SMT:s within SME:s is low (Hillary, 2004). Statistics for the EU shows that 24% of SME:s are actively working to reduce environmental impact, but only 0.4 % use a certified EMS (European Commission, 2016a). The larger the SME, the more likely it is to use a sustainability management tool (Johnson, 2013).

Hillary (2004) focuses on the adoption of environmental management systems (EMS) by SME:s, and discusses the internal reasons for low adoption rate as issues with resources, understanding and perception, implementation, and attitude and company culture. Out of all resource types, the main reason for non-implementation is cited as lack of human resources, as well as the lack of personnel with dedicated sustainability knowledge. The report also claims that the potential benefits are poorly understood by companies, and that the practical implementation is a common obstacle. A final hindrance is disinterest, especially from upper management. Santos et. al (2016) discuss similar blockage for the adoption of EMS within SME:s already using ISO9001. Additionally, external barriers exist, such as the potentially prohibitive cost for certifications, and the lack of support and guidance.

Hillary (2004) also discusses the common benefits and disbenefits from adapting EMS. The main internal benefits come in three categories: organizations, economic and people, as do the external: commercial, environmental and communication. The main disbenefits are considered as: the cost/time/skill required, a potential lack of rewards, and negative surprises (Hillary, 2004). From this

point of view, removing barriers and creating conditions where benefits outweighs the drawbacks would lead to a larger adoption rate.

Johnson & Schaltegger (2015) arrives at a differing conclusion: that most current, commonly used SMT:s does not serve SME:s well. While some tools which are typically used by large companies have made adaptions for SME contexts, SME-specific tools are rare. The study suggests that tools suitable for SME:s should be considered using six criteria:

1. Simple and user friendly
2. Practical and cost-effective
3. Adaptable and flexible
4. Company-tailored
5. Locally focused
6. Group-or network oriented (Johnson & Schaltegger, 2015)

However, it has not yet been proven that adhering to these principles increases SME use rate of tools. The conclusion of the literature review is instead that there is need to develop SME specific sustainability management tools which reflect the diversity within the SME concept, since few of the existing tools adhere to the criteria described above, and are likely to serve SME:s in a suboptimal way. Additionally, there is diversity and complexity within the SME concepts, which means that it is important to note that there is no one-size-fits-all-approach, even within SME:s.

In contrast to this result, a necessary assumption for this project is that there are working and suitable sustainability management tools in existence for SME:s. While creating better tools is likely a better long-term solution, improving selection within currently existing tools is a short-term option. The aim of this project is to simplify the tool selection process, thus reducing some potential blockages, such as the lack of dedicated sustainability knowledge and a lack of support and guidance.

1.5 Aim, objectives, and research questions

The two research questions for this project are:

1. Can the most important management tools for medium size companies to use to further improve their sustainability work be selected in a systematic, indicator focused way?

2.How can these tools be clustered to provide a simple, understandable set of choices about sustainability management for medium sized companies in the selected sectors?

The aim of the study is to evaluate, select and compare sustainability management tools, based on their suitability for medium sized companies within the retail and energy sectors.

The objectives for this project are:

- To create a possible model for structured selection of sustainability management tools based on indicators
- To analyze the sustainability management tools to find similar and contrasting aspects for the selection model
- To investigate the existing sustainability management situation of two relevant companies
- To adapt the model to suit each case and use it to develop relevant “toolboxes” for the respective cases
- To evaluate the method of sustainability key performance indicator mapping as a possible decision aid for companies
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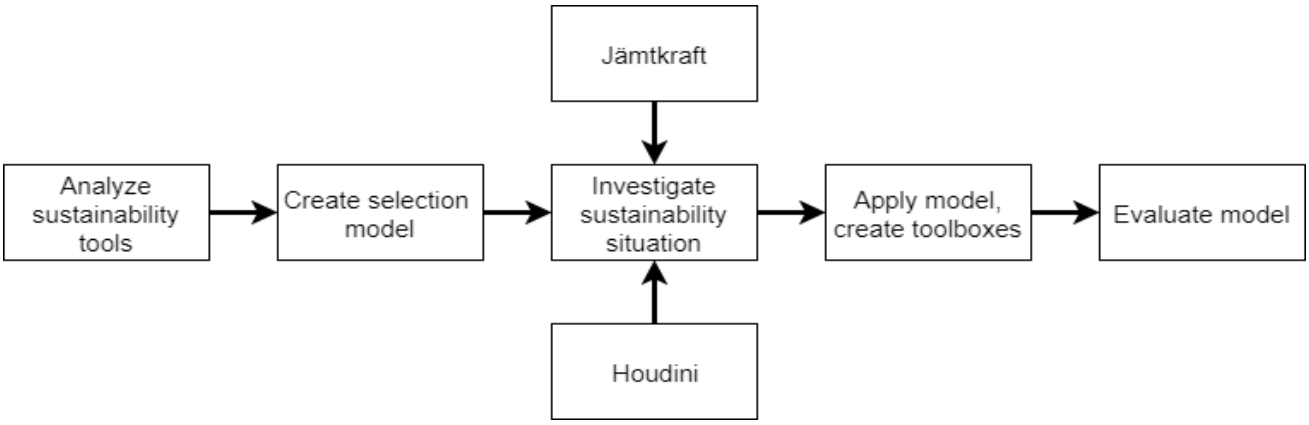

Figure 2: The connections between the project objectives

2. Methodology

The foundation of this project is to systematically and quantitatively summarize and compare specific sustainability management tools and to use information about relevant companies to suggest sets of tools which complement each other. This project is divided into two main parts:

1. Information gathering
2. Analysis

In this chapter, the methodology of each part is discussed, as well as the boundaries for the project.

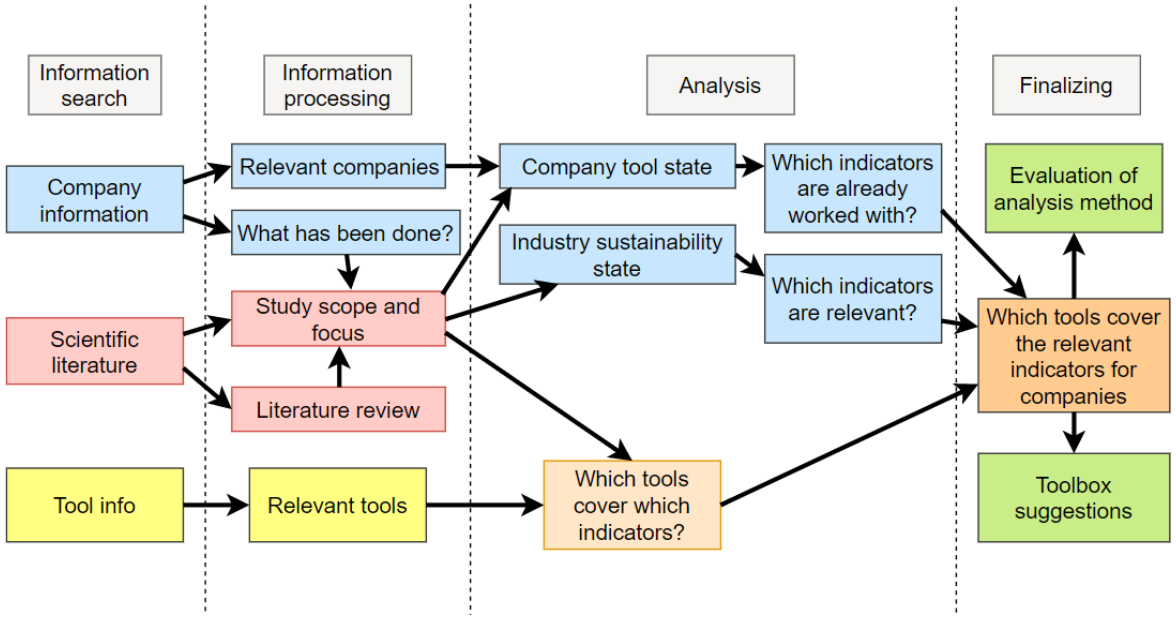

Figure 3: A overview flowchart of the thesis project

Figure 3 illustrates the general structure of the thesis project, as well as which steps impact which.

2.1 Scope and boundaries

To limit the scope of this project, but still ensure that it has relevant applications, several boundaries were set for the project. One of the first boundaries set was that Sweden was to be the geographic boundary for this project. The main reason for this was simplicity in contacting and communicating with companies. Another effect of this boundary is that it enabled inclusion of tools existing or relevant in Sweden only, such as “Svensk miljöbas”. A potential alternative for a geographic boundary would have been the EU. Using that boundary would require taking a more generalized perspective of tool selection, since there are several tools available at the different national levels. Using Sweden as a boundary meant giving a more accurate selection model suitable for a narrower range of companies.

Another boundary affecting both company and tool selection for this project was the choice of the clothing retail industry and the energy industry sector. Making specific industry choices was necessary to limit the amount of research required to understand company needs, to limit the pool of companies available for case study and survey purposes, and to reduce the amounts of tools included within this study. Within this, the tool reduction is the key reason. There are more non-industry specific tools available than is possible to cover in this study. To not limit the scope of the industry specific tools to the ones relevant to selected industries would be unmanageable.

The initial intention for this project was to use SME:s as a boundary for company selection and for which tools to map. However, the choice of the energy sector as one of the industry sector meant that the company selection had to be adjusted to only cover medium sized companies. In practice, medium sized companies are still a subset of SME:s. There are tools intended for and research done on SME:s, but no tools and almost no research for medium sized-companies only. This means that while the company selection scope, and thus the results, are primarily suitable for a medium size context the SME concept remains relevant as the main category for research and tool selection. This also means that the literature review and tool selection sections will be relevant for small company context, and that the results could be adapted to a small company or SME context.

2.2 Information gathering and selection

Out of the two broad project steps, gathering information was the first. Within it, the first thing to do was to conduct a literature review to assure the relevancy of this project. This was done by searching in databases such as KTHB Libris, Science Direct, and Web of Science for combinations of keywords such as:

Sustainability management/environmental management
Environmental/social/ethics
SME/Medium size companies
Retail/energy

These searches were complemented with equivalent searches in Google Scholar. Based on these searches, relevant articles were collected and read. Additionally, since environmental management is a field in the intersection between research and company efforts, what has been done by companies is also relevant for this project. This information was primarily found by recommendation from project supervisor Magnus Enell, as well as from company websites.

Once the scope and focus for the study had been set using the literature review, the next step was to gather information useful in the analysis. This information would consist of two main parts:

1. Company information
2. Tool information

To evaluate tools and find toolboxes, it is necessary to select and collect data about tools. However, it is also important to know information about the state of sustainability and sustainability work within the selected sectors, as well as which criteria and concerns are seen as the most relevant. Here, the method was to collect lists of as many tools and companies as possible, and to sort and prioritize them according to set criteria.

When a list of companies suiting the set project parameters was generated, two companies were selected as case study companies, one from each industry. The general criteria for the companies were:
1) that they were the correct size and industry for the project,
2) that they had well developed sustainability management work
3) that they were willing to participate with time and information

However, the selection of the case study companies was not neutral but based on previous contacts of project supervisor Magnus Enell, since this made it more likely that condition 3 would be fulfilled.

2.3 Mapping and analysis

Within this project, the word "mapping" is used to describe the process of comparing the KSPI:s for sustainability management tools. Since the end goal of this project is to make comparisons between different SMT:s, certain commonalities must be selected to be compared. Based on the existing comparable projects, such as the Vattenfall Sustainability Platform, the KSPI:s were selected as a common point of comparison (Bowen-Schrire & Enell, 2012). The benefits of using KSPI:s is that it enables comparisons between a large number of differing tools, and that if a company knows its relevant sustainability aspects, it makes it relatively easy to select a suitable tool on a case by case basis.

To conduct the analysis of which tools are suitable to use for which problems, it is important to identify which tool options there are in the first place. As has previously been established, one of the core issues that this project is working to solve, is the multitude of options available. The main categories in which they fall are: management systems, guidelines, directives, certifications, principles, and reporting frameworks. During the project process, tools were identified from several different sources and gathered in a master list. Among the sources were: Magnus Enell, certification websites, companies themselves, research papers as well as books about environmental management. The collected main list contained over 60 tools of very different kinds.

Based on the selected scope of this thesis project, some tools were removed from this initial list. The main reason for removal were:

- Not being in use anymore
- Not being applicable due to sector
- Not being applicable for reasons of geographic scope
- Covering too narrow a problem
- That no in-depth information was available
- That in-depth information was unavailable due to important documents costing too much for this project
- That the tool was theoretically developed but was not practically applied anywhere
- Being relevant but lacking the key environmental performance indicators to be compared to other tools

Conversely, priority status was given to common and well-known tools, such as ISO14001 and GRI, and to tools that were already used by some companies selected for this study. From the total list of over 60 suitable tools, a narrower list of 30 tools was created based on the criteria above. The total list of considered tools is available in appendix 3.

The first aspect of the mapping was to create a baseline spreadsheet. After the tool selection process, which is described further in section, a list of all 30 remaining tools was gathered. The initial reference point for KSPI:s was set to be the indicators used by the Global Reporting Initiative (GRI) Standard disclosure series (GRI, 2016a). This is the latest version of GRI, a commonly used framework for sustainability reporting. GRI Standards will replace the currently active version GRI G4 in July of 2018. For the purposes in this report, both GRI G4 and GRI Standard are represented due to the proximity of the version change. From a KSPI perspective, the versions are relatively similar, but has some key changes and clarifications. For this reason, GRI Standard and GRI G4 are treated as different tools in the mapping, but the version differences are considered in later steps.

There are several reasons to make GRI Standards a reference point. One is the sheer number of KSPI:s used within the GRI framework. The framework gives specific descriptions of how to report on

numerous aspects of sustainability and uses the concept of materiality to let companies make selections about which parts to use (GRI, 2013a). Another reason is that there are several pre-existing documents describing the linkages between the GRI framework versions and other important tools. Selecting it as an initial reference simplified the mapping process.

All relevant standards from the GRI Standard series, along with a description of the underlying disclosures, were entered into the left-hand column of the baseline indicator mapping spreadsheet. The standards were used to represent the theme in general, while the detailed disclosures were included to be able to give a more detailed mapping when available. This was also necessary since tool overlaps are not perfect, and the indicators of other tools sometimes match entire standard themes and sometimes match disclosure mappings.

Using a reference document from the GRI homepage, the GRI G4 disclosures were also added. As tools were added that contained KSPI:s not used within GRI G4 or GRI Standard, the reference list in the leftmost column was expanded accordingly. For the remaining mapping process, the tools themselves or reference documents which already contained the connections between two tools, were used to identify areas of overlap between the tools. The criteria for the existence of a linkage was that the tools had management of a KSPI as a part of it purpose and application. If such a connection existed between tool and indicator, a brief description of what part of the tool it originated in was entered into the spreadsheet.

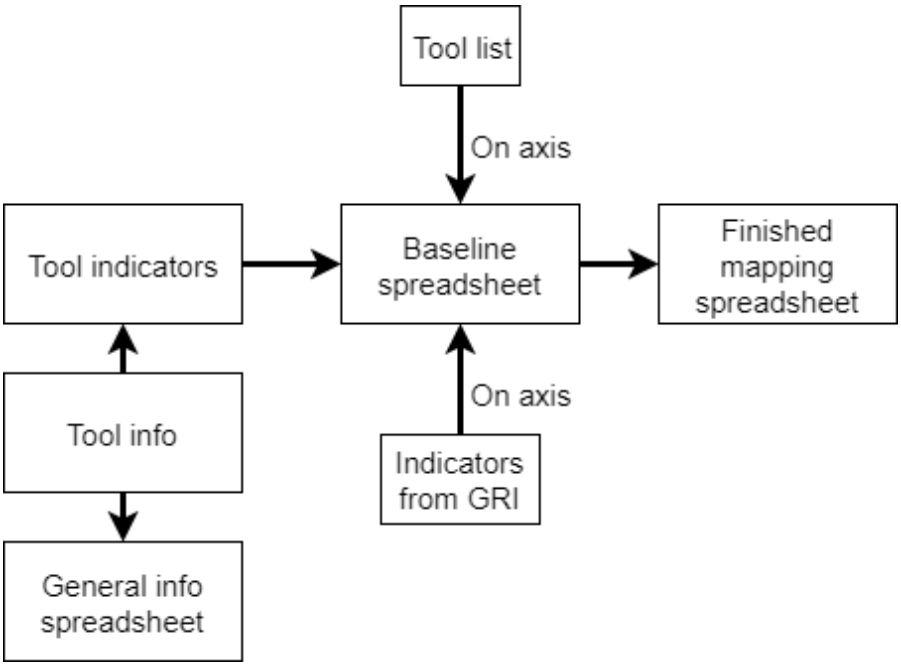

Figure 4 A flowchart of the creation of mapping and general info spreadsheets

When this process was repeated for all selected tools, a spreadsheet was made of which KSPI:s each tool covered. This is called the indicator mapping spreadsheet. These versions were edited based on industry sector, to create one spreadsheet based on the energy industrial sector and another base on the clothing retail industrial sector. However, the KSPI:s are not the only important aspects of a tool. To complement each indicator mapping spreadsheet, a second spreadsheet of tool traits was collected. This contained information such as the origin, purpose, and type of tool for each individual tool, and is called the general information spreadsheet. Examples of categorization is whether the tools are focused on reporting, are management systems, or a more generalized set of principles.

For the analysis section, the case study companies, Jämtkraft and Houdini were used to test the method and to make selections. Using the indicator mapping spreadsheet with all indicators of all studied tools entered, the first step was to create an industry specific indicator mapping spreadsheet by removing tools which are not suitable. For example, the energy sector spreadsheet was created by removing tools specific to the textile industry. Then, the tools which each company uses and which indicators within them are worked with are marked. In some cases, such as when working with GRI, not all tool indicators are used by each company.

When all marked indicators were entered, a comparison was done between the marked indicator and the column containing all indicators. The remainder of the indicators, the ones not covered by any tool, was extracted to form a list of potential ‘‘gaps’’. The gaps are not sorted for materiality until the following step. Using information from the case study, as well as surveys and general industry information, these gaps were evaluated and the ones deemed material are collected. Now, some potentially important indicators have been identified, and can be compared to what is covered by which tools. The aim of this step is to select potential complementing tools, or sets of tools. If a single tool is a perfect fit at this stage, it is likely the most relevant, simple choice for a company of limited resources. However, this method can also be used to compare different choices or suggest tools together as a toolbox.

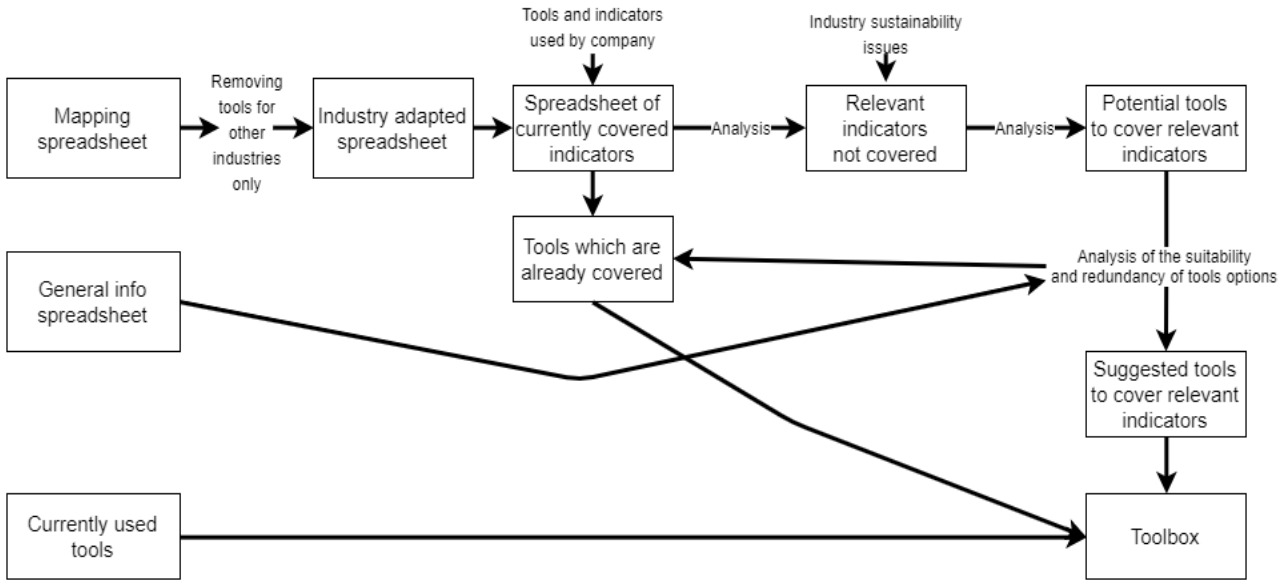

Figure 5 A flowchart of the mapping analysis process, using mapping and general info spreadsheets as input

When interesting sets and combinations have been selected, the general tool info spreadsheet is used to analyze them based on suitability and redundancy. Here, too, company perspective should be considered. The tool traits are a check, to see how other abilities of tools interact. For example, it is likely unnecessary to include a second sustainability reporting tool into a toolbox, even if the indicators match the need. Finally, a suggestion is made for new tools to potentially use. An additional layer of analysis would be to use the indicator mapping spreadsheet to see if other tools are entirely covered by what is currently used. This will result in a recommendation for ‘‘toolboxes’’, divided into three parts:

1. Tools that are currently used
2. Tools complementing the already used options
3. Tools for which the relevant aspects are already covered.

This project is comparing tools in two ways. In the general information spreadsheet constructed for the project, the tools are sorted by a set of their traits. While most tools have different methods and purposes, there are several common attributes which can be compared, such as scope, type, how it is used, how many companies use it, its origin and whether it is uses specific or generalizes sustainability criteria and indicators. The indicator mapping spreadsheet will use the key sustainability performance indicators either covered or recommended by a tool to describe which tools compliment and include each other. These matrices will complement each other in finding compatible and varied toolboxes.

As seen in the descriptions above, there are several ways to group the tools by scope. One type of scope is whether the tools is of a general purpose or industry branch specific. Here is one of the main differences between the respective industry branches compared. Very few energy industry-specific tools are available for the energy sector, while there are several tools created for the clothing and textile industries only. This means that all tools will potentially be applicable for clothing, while only the general-purpose ones are reliably applicable for the energy cases.

Another type of scope is geographic. In this particular case, there are three main geographical scopes considered in the project: global tools, EU tools, and Swedish tools. Yet another is company size: whether tools are said to be useful for companies of all sizes, only smaller or only larger entities. This is a relatively contentious aspect in this particular context. While most tools self-report that they are usable within all contexts, this might not be true in practice, as discussed in the literature review. Mostly, self-reported assessments are used in these descriptions. Another option here is whether the tools are specifically made for SME:s or not.

Some other descriptors for tools are number of users. This is specified as the number of companies who are using the tool, when the information is available and this way of describing it is applicable. This indicator of use was selected since the spreadsheets are intended for a company decision aid perspective. Also included is the organization responsible for the tool, when it was created and when it was last updated.

Another possible division is by type and purpose. Under type, the tools are sorted into commonly used categories, such as whether it is an EMS, a reporting framework, or a goal setting document. However, this does not describe all factors of its practical use. Johnson (2016) cites Kundt (2004) as dividing the tools into three purposes:

1. Action oriented (EMS according to ISO 14001),
2. Analysis and evaluation (e.g., LCA), and
3. Communication based (e.g., sustainability reporting)

Since this report uses a wider definition of SMT, there are tools studies that fall far outside these three categories. To solve this, a fourth and a fifth category has been added:

4. Guideline
5. Foundations

The first of these is ‘‘guideline’’, which represents a voluntary, less specific tool which is commonly used as in a guiding principle-context. Additionally, this project is also using using a group called ‘‘foundations’’, which is used for laws and other important, ‘‘foundational’’ documents, such as human rights. To complement these two categories, the category ‘‘results’’ has been added. This grouping describes what the outputs will be for a company who implements this tool, when a specific

result is applicable. This division is also helpful when studying possible redundancy between tool options.

Finally, it is included whether the environmental key performance indicators included within this project are specific or general. An example of a general indicator is that the company is to work with general environmental areas such as ‘‘water’’ while leaving the interpretation of the details within it to the specific company case. Specific indicators would instead specify more detailed areas within the larger environmental category of ‘‘water issues’’, such as company emissions to water, water use and sources, water recycling. Note however that not all specific indicators are necessarily relevant to each company case, nor required to be applied when using a certain tool. This last category is important to consider when reading the indicator mapping spreadsheet.

A list of the analyzed tools in alphabetical order are as follows:

- Amnesty international human rights guidelines for companies
- Better Cotton Initiative
- Bluesign
- Earth charter
- EMAS
- EMAS Easy
- EU Non-financial disclosure
- Global Compact
- GRI 4
- GRI standard
- ICC Business Charter
- ILO Labor standards/fundamental rights at work
- ILO Tripartite Declaration
- International Integrated Reporting Council (IIRC)
- ISO 14001
- ISO 26000
- ISO 50001
- OECD guidelines for multinational companies
- PACI Principles
- Planetary boundaries
- SA 8000
- Sustainable Development Goals
- Svensk miljöbas -UN Guiding Principles (Ruggie Principles)

The complete base list of tools is available in appendix 3.

2.4 Company selection

Since the field of sustainability management exists in the intersection of academia and business, using company perspectives for academic projects means that there is a stronger connection to the potential real-life implications and uses for project results. Companies for this project were selected for two purposes:

1. To be the basis of case studies
2. To be asked a set of survey questions about the sustainability work that they conducted.

The intention for the case study companies was to have a case for testing the tool mapping model and its applications. The surveyed companies were selected in order to obtain a wider understanding

of the ways medium sized companies in these industry sectors work with sustainability management tools, and to achieve additional points of comparison.

The selection criteria for case study companies were:

- that they confined to the boundaries set by the project: medium sized, and in the selected industry branches
- that they already conduced interesting and extensive sustainability work
- that they were interested in participating and had relevant information available

The third criterion was the most critical aspect. For this reason, the case study companies were companies that were contacted using the existing contacts of the project supervisor, Magnus Enell. After establishing contact, both the energy company Jämtkraft and the clothing company Houdini were willing to participate as case study companies. They both fit all three of the above criteria.

However, while the first contact and some contact information were managed by Magnus Enell, this was only done to facilitate a more efficient contact. Later interaction was managed by the author of this report only.

For the survey companies, a benchmark list of companies which conformed to the first two case study criteria was collected. However, the case study companies were also asked about which companies they were interested in being benchmarked to. The aim was to gain the perspectives from 3-5 relevant companies from each industry sector. Based on similarity to the case study companies, recommendations and availability of contact information, the survey was sent out to 5 energy companies and 5 clothing sector companies. However, no survey responses were received from the clothing section.

2.5 Surveys, interviews, and case studies

As described in the previous section, information about the relevant company, their needs, their sustainability impacts, and their important indicators is needed to conduct the analysis. To test the applications of the mapping- and general information spreadsheet, two case studies were performed. The additional benefit to this part of the project was to potentially inform decision making and to benchmark the current state of the sustainability management work in the relevant sectors. The two case study companies were Houdini and Jämtkraft.

Once these companies had been selected as case study companies, similar companies were found from the total company lists and collected. Discussions were also held with the case study companies about which companies they deemed similar to themselves. The purpose of the surveys sent out to companies was to get quantitative information about the industry sector and the SME-specific case. The first surveys were sent out in March of 2017 to 5 energy companies and 5 clothing companies. However, none of the clothing companies wished to participate in the project. From the energy side, 2 companies responded.

The survey email contained a set of survey questions also available in appendix 1. The contacts were allowed to choose which way of participating would be easiest for them: answering the semi-controlled survey questions in a word document, or by phone as a semi-structured interview. All respondents chose the written option. The lack of answers from the clothing sector meant that the information had to be gathered in other ways, possibly from sources further removed from the parameters of this study, such as the SME context.

The information about the case study companies was gathered from their websites and through interviews. Since one of the criteria for the case study companies was that they were to have well

developed sustainability work, much information was easily available. In the case of Jämtkraft, a contact from their environmental department answered a modified version of the survey questionnaire in text. This was complemented with a phone interview on the 16:th of May 2017, as well as additional questions by e-mail. In the case of Houdini, a semi-structured face-to-face interview was held on the 27:th of March 2017.

3. Results

In this section, the results of the study will be presented. The first part of the chapter will describe the literature review. Following that is the selection of companies for interviews and case studies, as well as details about the surveys, interviews and their results. After that, the tool list and tool use results will be presented along with mappings of their types and what they cover. Finally, the mappings will be applied to the existing sustainability test cases of Jämtkraft and Houdini.

3.1 Literature review

As described in Chapter 2, the first thing done in the project was a literature review. When searching for scientific studies, two things became apparent. The first was that there are few studies of environmental management specifically for the industry sectors selected for this report. The second is that the existing research typically considers either SME: s, or large sized companies only. The sub-sections within SME: s are not well studied in this context. Almost no studies have been done about sustainability management in electricity generation, and most reports concerning the clothing industries focus on specific larger companies. Thus, there was almost no existing research with results directly transferrable to this study topic. Below follows an overview of existing research in the field of SME: s and sustainability management.

Johnson & Schaltegger (2015) have done an overview of the last 20 years research of SME:s and sustainability management tools. Their conclusions were that the typical study in this research area concerns the use of a single tool, studies both small and medium size-companies, emphasizes environmental management systems, and is done on companies based in the Europe following an European ruleset (Johnson & Schaltegger, 2015). In general, the studies made also focus on the benefits of SMT:s for SME:s, rather than the disbenefits. One of the main points of the study was that the implementation rates of SMT:s for SME:s is very limited. The conclusion is that ‘‘At this point, it is reasonable to state that most SMT:s are found not applicable or with limited implementation’’ (Johnson & Schaltegger, 2015). The implications of this statements are also discussed in section 1.4.

There are studies about tool selections, such as Wen-Hsien & Wen-Chin, (2009). In this paper, some models are developed to improve the selection between some sustainability management tools for SME:s. However, the study was done for SME:s in general, and not for medium sized or industry specific companies. Another difference is that it is constrained to just four management tools for some part of sustainable development, as they just look at ISO 9001, ISO 14001, OHSAS 18001 and SA8000. The basis of the models are the lack of resources of SME:s, in time, personnel and money. Compared to other research, this paper takes a more quantitative and optimized approach to the problem.

There are also studies describing and discussing the issues for SME:s in implementing sustainability management tools. Hörisch et. al (2014) identified knowledge as the most important variable for adoption rates for SME:s. Johnson (2013) studied tool awareness in management and found that it correlates positively with implementation, as does perceiving tools to have positive effects.

Another group of studies discusses the effective use of sustainability management. Within this groups is the previously discussed Johnson & Schaltegger (2015), for which one of the main

conclusions of is that the currently available SMT:s are unsuitable to the SME context and more specialized tools should be developed. Ferrón Vílchez (2016) studies the connection between ISO 14001 and purely symbolic environmental efforts, while Milne & Gray (2009) critique sustainability reporting.

As described in Johnson & Schaltegger (2015), there are several studies focused on comparing a few environmental management tools in different contexts. Among examples are Neugebauer (2012), which discusses whether ISO 14001 and EMAS are complements or substitutes to each other in the German industry, and Heras & Arana (2010), which compares ISO 14001 with the lesser known EcoScan model for environmental management, within a SME context.

For this project, it is also relevant to study what has been done on the corporate side of sustainability management projects. However, it is more difficult to clearly interpret what has been done in a corporate context, since transparency is an issue. Some companies provide comparing and mapping of sustainability management as their business case, while others structure it for internal analysis. However, for both of these cases, the details are commonly company secrets. In general, most company interaction with sustainability management tools are in the form of implementing an existing tool. Fewer create own standards, synchronizations, and integrations between tools. One example of the creation of a new tool is Houdini as a test case for a planetary boundary-tool (Houdini, 2015). Every time a company makes a selection of what to implement and what not to implement, a type of evaluation and comparison of sustainability management tools is done. However, while comparing existing tools to company needs is a common process, systematic comparisons are relatively rare.
There are also organizations which produce documents about synergies and linkages between tools. However, these linkage documents are commonly between just a few tools. They will be further described in section 3.6.3.

One example of internal analysis is for the Vattenfall Sustainability Platform, which is the project that this project is mapped on. The Sustainability Platform is a project which was developed by Vattenfall in 2012 and is currently out of use. The Vattenfall Sustainability Platform is a mapping example used for internal analysis. It consists of a mapping and comparison of several tools and systems and would be used to answer two questions: “How can we improve our sustainability performance?” and “How can we solve a specific sustainability-related business dilemma?” (Bowen-Schrire & Enell, 2012). The Vattenfall Sustainability Platform and this project are both using mapping as a decision-making aid and the foundational tool selection in this project is based on the Sustainability Platform. However, the purpose, use and analysis method for this project is different.

As can be seen in this literature review, most studies done on SME:s and environmental management are only concerned with a single tool, or compare a few tools based on only some criteria. However, in a decision-making context such as when a company is selecting their toolbox, all relevant aspects of available tools should be comparable to others, to make the optimal decision. Thus, there is demand for a comparison method.

The conclusion of this literature review is that there exists a general research gap within research about the overlap between SME:s and sustainability management, as well as a for methods of tool selection as well as comparisons between several different kinds of tools. Additionally, there is little research into both SME:s and sustainability management which focuses on the specific industries relevant in this case. From a science standpoint, it is interesting to conduct a systematic comparison and analysis of several different tools. There are also interesting applications for using the selected

sectors and focusing on medium sized companies. From a business standpoint, this project benefit from an academic perspective and a systematic, transparent approach.

3.2 The case of Jämtkraft

Jämtkraft is an energy company with primary operation in the Jämtland region of Sweden, founded in 1889. Jämtkraft is owned to 98% by the municipality of Östersund, with Krokom and Åre municipality owning 1% each. It a part of a business that works with energy generation, energy distribution, and heat (Jämtkraft, 2015). Counting all these fields, the number of employees is 402 and the turnover is 4 259 178 tkr. However, the number is smaller for the energy generation business, which is the focus of this project. The turnover for the energy generation was 489 068 tkr in 2015 Most of the energy generation comes from 19 hydroelectric power plants, with 17 being located in Jämtland and 2 in Norway. The secondary sources of energy extraction are wind power and solar power, with some contributions of combined heat and power generation, and biofuels as well. Jämtkrafts business case is described as "verksamheten ska bedrivas på ett sådant sätt att förutsättningar skapas för utveckling av regionen genom leverans av energi med hög kvalitet och god service till långsiktigt låga priser." (Jämtkraft, 2016a). A general translation would be "the business should be run in such a way that conditions are created for regional development through delivery of energy, with a high quality, good service and prices that are low in the long-term".

3.2.1 Sustainability work

Jämtkrafts sustainability work is in-depth and multi layered. Jämtkraft uses what they call their sustainability tools: a set of concepts and actions that together create their sustainability work. These tools are:

- Vision and core values
- Leadership
- Code of conduct
- The Jämtkraft environmental fund
- Compliance
- Stakeholder dialogue
- Communication
- Education
- Commitment
- Standards and guidelines,
- Action programe,
- The precautionary principle,
- Risk analysis and management
- Organizations and networks (Jämtkraft, 2016a).

Out of these sustainability work aspects, the focus of this project is on complementing the existing "Standards and guidelines"-aspect. Presently, Jämtkraft works with GRI G4 and ISO14001 as sustainability management tools within this category.

Jämtkraft has presented sustainability reports every year since 2014 (Jämtkraft, 2017c). They also have an environmental policy and have concrete environmental goals set, with follow-ups and external revisions (Jämtkraft, 2017e).

One of the most interesting aspects of the Jämtkraft sustainability work is the Jämtkraft environmental fund. Money is set aside within this fund and used for restoration projects (Bergh,

2017; Jämtkraft, 2017a). Currently, the money is used to fund a passage for fish past dams and the restoration of a peat bog (Jämtkraft, 2016b).

During an interview, Jämtkraft requested that the social responsibility tool ISO 26000 was to be part of this project, as it was a potential tool that they considered involving in their future sustainability work (Bergh, 2017).

3.2.2 Sustainability impacts

As discussed about the energy sector in general, the impacts depend heavily on fuel types used. As has previously been described, most of Jämtkrafts energy production comes from renewables. However, this does not mean that the production lacks environmental impacts. Jämtkraft is describing its main environmental impacts in its yearly sustainability report. Greenhouse gas emissions is one issue, of which about two thirds originate from using peat and woodchips for combined heat and power. About 1% of the energy generation by Jämtkraft is based on oil (Jämtkraft, 2017b).

For hydroelectric power, heat and wind power production, two of the main environmental risks are local land use change with added biological supplanting, and threats to biodiversity. Additionally, wind power has noise impacts. The use of renewable fuels is discussed as an issue, as is energy use and energy intensity, as well as water use (Jämtkraft, 2017d).

As for social aspects, the main local social negative impacts are the impacts on local populations from energy generation, such as noise and emissions to air (Jämtkraft, 2017d). Jämtkraft works with diversity issues and human rights issues, as well as with integration and workplace safety.

3.3 The case of Houdini

Houdini is a Swedish manufacturer of outdoor clothing that was founded in 1995 by skiers and climbers. Their business concept is: ”Houdini develops, markets and distributes addictive outdoor wear to aware and responsible people with an active lifestyle” (Houdini, 2014). Houdini employs 10 people, and had a turnover of 10 131 tkr in 2016.

Houdini’s sustainability work is integrated throughout the entire part of the Houdini organization (Wetterborg, 2017). The main sustainability efforts are also integrated, so that sustainability concerns are a part of the process from design to end-of-life. The circular, life cycle perspective is an important consideration in Houdini’s sustainability work.

Environmental sustainability enters early as a part of Houdini’s design and production philosophy. The product idea is discussed with a set of questions, to ensure that the product contributes to something new and necessary, and will be suitable for an activity long-term (Houdini, 2016a). The sustainability concerns discussed in the material choices are concerns about water and energy use, transportation, recycling, and chemical treatment, interwoven with a discussion about the traits and uses of the materials as well as which future improvements are considered (Houdini, 2017b). Houdini’s main choice of material is recycled polyester. To ensure access to materials and reduce end-of-life impacts, Houdini collects and recycles old clothes. However, they also offer reparation services, rentals and second-hand services within their brand, to ensure that clothes have longer lifespans (Houdini, 2016c). This is working in accordance to the waste hierarchy of reduce, reuse, recycle, as well as a slow fashion perspective (Wetterborg, 2017). Houdini claim to be careful in selection of production methods and suppliers, both concerning environmental sustainability and ethics. Currently, all production takes place in Europe. The used materials comes from Japan, Italy, Thailand, and the US. Houdini collaborate with specific partners, both for materials and production, and information about both types are detailed on the Houdini website (Houdini, 2016d). However,

even using such a specific supply chain, Houdini has identified a potential issue with information concerning details about the origins points of used materials (Wetterborg, 2017).

In the GRI report from 2013 that Houdini has published on their website, Houdini specifies goals related to all three aspects of sustainability. Presumably, these goals identify important sustainability concerns for Houdini. The environmental goals concern the use of recyclable fibers, a minimization of water, chemical and energy use in production, and to be an inspiration for other companies (Houdini, 2014). Socially, the goals concerns ensuring that clothes are ethically produced, and that a long-term perspective is taken, both when interacting with customers and suppliers. Additionally, Houdini strives to be the best employer (Houdini, 2014).

From a tool use perspective, Houdini uses Bluesign and GRI reporting. However, not all materials used by Houdini are Bluesign certified, and the last GRI report available was for 2013 (Houdini, 2014). Houdini have some suppliers using ISO14001 certification, but are not certified themselves (Houdini, 2017a).

The most interesting future aspect for Houdini is that they are a part of the development of a new tool, based on the concept of planetary boundaries. This is done together with Albaeco (Houdini, 2015). It is currently not known what this tool will cover and how it will be used. However, the interview conducted established that Houdini is interested in using a very in-depth tool which requires detailed information about for example material origins (Wetterborg, 2017). Based on the planetary boundaries concept, this tool is also likely to evaluate company sustainability performance in relation to the global boundaries: environmental tipping points which should not be crossed.

3.4 Survey results and use

The main intention behind conducting the survey sent out to energy and clothing retail companies within Sweden was to obtain a more nuanced picture of the industries, and to gather data about the current tool use within the industries. The results of the survey are thus intended more as a source of information for the information gathering phase than a key result of the study. This information would primarily have been used in three places:

1. For describing the industry sector
2. For comparing the case study company with the general state of the industry
3. For applying to the analysis of aspects like relevant sustainability

For the clothes retail sector, there were no respondents for the survey.
For the energy sector, there were two respondents: Skekraft, and Mälarenergi. Since the goal was 3-5 respondents from each category, these results are limited and give limited context about the industry. This means that this part of the project did not have as large an information contribution as initially planned. However, the information from the answers are interwoven into the fabric of this report.

The general results from the survey answers from the two responding companies was:

- That sustainability was about resource management and economic, social and environmental sustainability, with a long-term view
- That sustainability was generally integrated in all parts of the company
- That the primary long-term sustainability challenge of the energy sector is climate change
- That current need affected aspects such as the number of tools and the additions of new tools, but the preference was as few as possible
- That one interesting need was that for more sustainability data

3.5 The tool list

In the following section, nine key tools will be described in short. These include some commonly used tools, as well as tools that are used or discussed in the analysis of this project, presented here in alphabetic order.

Bluesign

Bluesign is a system which strives to minimize environmental impacts throughout the value chain (Bluesign, u.d.). It uses a starting point perspective, and tracks production. There are five core principles involved:

- Resource productivity
- Consumer safety
- Water emissions
- Air emissions
- Occupational health and safety (Bluesign, u.d.)
-

Bluesign is used to certify some manufacturers for Houdini. However, the entire Houdini company is not certified (Wetterborg, 2017).

EMAS

EMAS stands for Eco-Management and Audit Scheme. It is an EU-developed voluntary management instrument, which is based on ISO 14001 but requires additional auditing and reporting (Naturvårdsverket, 2017). Using EMAS means that the criteria for ISO14001 are fulfilled.

GRI 4/GRI Standards Guideline

GRI is a commonly used standard for sustainability reporting. The current version of GRI in use is the GRI G4 (GRI, 2013b). The replacement, GRI Standards, will replace GRI 4 by summer 2018, so both versions are compared and included within this work in order to improve the relevancy (GRI, 2016b). Over 10000 organizations use GRI as a guideline for their sustainability reporting (Global Reporting Database, 2017). As has already been described, GRI 4 and GRI Standards are the reference tool for the comparison.

GRI G4 is made up of two main documents: the reporting principles and standard disclosures (GRI, 2013c) and the implementation manual. Additionally, there are several sets of sector specific disclosures that can be applied when relevant (GRI, 2015a).

GRI Standards is made up by six main sets of documents:

- A foundational document (GRI 101 Foundation)
- A set of disclosure for general context about the companies (GRI 102)
- A set of management approaches (GRI 103)

and three sets of topic specific standards:

- the GRI 200 series (economic),
- the GRI 300 series (environmental)
- the GRI 400 series (social) (GRI, 2016a)

Each describe various aspects of the requirement to produce a GRI report. However, as a reference point, all potential disclosures from the GRI 200 series, the GRI 300 series, and the GRI 400 series, as well as some from GRI 103, are used within this project.

ISO 14001

ISO14001 is an environmental management system created by the ISO Foundation. It is among the most commonly used environmental management tools, with about 300000 certificates currently used (ISO Survey, 2015). ISO 14001 is based on the plan-do-check-act methodology, and one of the key aspects is that of continuous improvements. This means that there are no environmental levels to reach to remain certified, but that improvements based on the previous environmental state is continuously required. ISO 14001 does not specify any required detailed environmental indicators to work with, but states categories within which companies should evaluate their important impacts (ISO, 2004).

ISO26000

ISO26000 is a guidance for social responsibility. It contains seven core subjects: Human rights, labor practices, organizational governance, environment, consumer issues, community and development, and fair operating practices (ISO, 2010a).

ISO 50001

ISO 50001 is an energy management system in the ISO family. Like ISO14001, it follows a plan-do-check-act process and continuous improvements.

OECD Guidelines for Multinational Enterprises

The OECD Guidelines for Multinational Enterprises are a set of guidelines for responsible business in an international context (OECD, 2011). This tool has several linkages to others, such as to GRI G4 (GRI, 2013b).

UN Global Compact

UN Global Compact is a set of ten principles developed by the UN, under the four themes of human rights, labor, environment, and anti-corruption (UN Global Compact, 2014).

The UN Sustainable Development goals (SDG)

The Sustainable Development goals are a set of 17 goals, developed by the UN to replace the Millennium Development Goals and to promote sustainable development (UN, 2015).

3.6 Case study analyses

3.6.1 Jämtkraft analysis

The analysis for the cases were conducted in steps. First, a sector relevant mapping sheet was generated. For the Jämtkraft case, this simply meant taking the indicator mapping spreadsheet and remove a few tools specific to the clothing industry. Within this spreadsheet, the aspects covered by Jämtkrafts use of sustainability management tools were marked as exemplified in table 1, 2 and 3.

	Tool		
	Wider indicator category covered by tool		
	Specific indicator covered by tool		
	Indicator not covered by tool		
	Tool used by company		
	Wider indicator category covered by company tool use		
	Specific indicator covered by company tool use		

Table 1 Standard color meanings for the spreadsheets

In table 1, the first four colors are the ones used in the spreadsheet before the company preferences are entered. They relate to tools, indicator categories, and which tools cover which indicator categories. An example can be seen in table 2.

Tools / Indicators	GRI 4	ISO 14001
Category: Materials		Example of a reported criteria
Extent of impact mitigation of environmental impacts of products and services	G4-EN27	
Materials used by weight or volume	G4-EN1	
Recycled input materials used	G4-EN2	
Reclaimed products and their packaging materials	G4-EN28	

Table 2 Excerpt from indicator mapping spreadsheet, before company used tools and indicators are marked.

Table 2 shows an excerpt of the base indicator mapping spreadsheet. On the top row, the tools GRI G4 and ISO 14001 are represented, and in the leftmost column, the general indicator category of materials are indicated. Under this, four specific material related indicators are entered. These are based on GRI G4. From this, it can be read that GRI G4 cover the four light green categories, and which section of GRI G4 covers them. However, ISO 14001 does not cover these specific indicators. What ISO14001 does instead is give the entire indicator category of "materials" as an example of an indicator to work with within its management system. As such, the "materials"-category is represented in dark green within the "ISO14001" column.

Tools Indicators	GRI 4	ISO 14001
Category: Materials		Example of a reported criteria
Extent of impact mitigation of environmental impacts of products and services	G4-EN27	
Materials used by weight or volume	G4-EN1	
Recycled input materials used	G4-EN2	
Reclaimed products and their packaging materials	G4-EN28	

Table 3 An excerpt of the indicator mapping spreadsheet, with tools and indicators used marked in blue

Table 3 represents the same section of mapping as before, but has the company situation entered. Jämtkraft uses both GRI G4 and ISO14001, and as such, both tools are marked with blue. Within ISO 14001, Jämtkraft works with the category of materials, meaning that this category is also marked with darker blue. However, the first and fourth specific indicators within the "materials" indicator category are not reported by Jämtkraft through GRI reporting. They remain green, but the second and third indicators are reported and are changed to blue.

When this step had been completed, the next step was to identify all "gaps", or topics not managed by any tools. Based on table 3, since Jämtkraft works with parts of the category of "materials" using two different tools, this category does not represent a "gap". However, if the indicator sector had remained looking like table 2, materials would have been a possible "gap". This selection shows which areas are candidates to be priorities for coverage.

General indicator category	Specific indicator within category	Specific indicator within category	Specific indicator within category
Biodiversity	Significant impacts of activities, products, and services on biodiversity	Habitats protected or restored	IUCN Red List species and national conservation list species with habitats in areas affected by operations
Supplier Environmental Assessment	New suppliers that were screened using environmental criteria	Negative environmental impacts in the supply chain and actions taken	

Products and services	Extent of impact mitigation of environmental impacts of products and services		
Environmental Grievance Mechanisms	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms		
Child Labor	Operations and suppliers at significant risk for incidents of child labor		
Human Rights	Operations that have been subject to human rights reviews or impact assessments	Employee training on human rights policies or procedures	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening
Supplier Social Assessment	New suppliers that were screened using social criteria	Negative social impacts in the supply chain and actions taken	
Public Policy	Political contributions		
Customer Health and Safety	Assessment of the health and safety impacts of product and service categories	Incidents of non-compliance concerning the health and safety impacts of products and services	
Marketing and Labeling	Requirements for product and service information and labeling	Incidents of non-compliance concerning product and service information and labeling	Incidents of non-compliance concerning marketing communications
Labor/Management Relations	Minimum notice periods regarding operational changes		

Forced or compulsory labor	Operations and suppliers at significant risk for incidents of forced or compulsory labor		
Security Practices	Security personnel trained in human rights policies or procedures		
Anti-competative behaviour	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices		
Human Rights Grievance Mechanisms			
Grievance Mechanisms for Impacts on society	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance		
Customer Privacy	Substantiated complaints concerning breaches of customer privacy and losses of customer data		
Labor Practices Grievance Mechanisms	Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms		

Table 4 The indicator ''gaps'' for Jämtkraft

The next step is to prioritize and evaluate these concerns based on relevancy to the company and sector. As can be noted, most aspects in table 4are primarily related to the social aspects of sustainability. Since Jämtkraft is located in Sweden, and do not have energy production which heavily features problematic supply chains, several of the social performance indicators will already be managed by Swedish law. It is therefore reasonable that the social aspects of the tools have not been a critical priority. The most interesting aspect on this list is biodiversity, which Jämtkraft has reported as a notable environmental concern for their most important power generation methods. It is also one of few environmental concerns to remain unreported. This means that biodiversity is likely to be the most critical issue to potentially address with implementation of a new tool.

When the "gaps" had been evaluated, the next step was to study which tools could be used to fill them. When studying the indicator mapping spreadsheet several selected tool options can potentially cover the biodiversity aspect: GRI, the OECD guidelines, UN Global Compact, EU non-financial reporting, ISO26000, the earth charter, and the Integrated Reporting framework. Using their traits, EU non-financial reporting and the Integrated Reporting Framework can be removed, since using several reporting frameworks is unnecessary and the GRI is already in use. Of the remaining options, the OECD Guidelines, the UN Global Compact, and the earth charter cover several environmental impact categories and could lead to contradictions. ISO26000 however, includes biodiversity concerns in its otherwise relatively scarce environmental section.

The questions then becomes why the GRI should not be used to cover the lacking social aspects, since they can be covered by both Standards and G4. One reason can be the public nature of sustainability reporting. The report is an informative but public document, and open discussions of, for example, potential instances of forced or compulsory labor, can have a negative effect. Instead, a less public set of guidelines can be implemented to manage potential problems while not publicizing them. In this case, since Jämtkraft has already chosen not to disclose and work with these issues through GRI, another tool is likely to be more suitable, since

Based on this analysis, ISO26000 is the recommended tool to use for Jämtkraft to fill their gaps. It gives guidelines on several sets of social issues, and the main potential environmental gap. Table 5 shows the indicator gaps, with issues covered by ISO26000 marked in blue.

General indicator category	Specific indicator within category	Specific indicator within category	Specific indicator within category
Biodiversity	Significant impacts of activities, products, and services on biodiversity	Habitats protected or restored	IUCN Red List species and national conservation list species with habitats in areas affected by operations
Supplier Environmental Assessment	New suppliers that were screened using environmental criteria	Negative environmental impacts in the supply chain and actions taken	
Products and services	Extent of impact mitigation of environmental impacts of products and services		

Environmental Grievance Mechanisms	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms		
Child Labor	Operations and suppliers at significant risk for incidents of child labor		
Human Rights	Operations that have been subject to human rights reviews or impact assessments	Employee training on human rights policies or procedures	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening
Supplier Social Assessment	New suppliers that were screened using social criteria	Negative social impacts in the supply chain and actions taken	
Public Policy	Political contributions		
Customer Health and Safety	Assessment of the health and safety impacts of product and service categories	Incidents of non-compliance concerning the health and safety impacts of products and services	
Marketing and Labeling	Requirements for product and service information and labeling	Incidents of non-compliance concerning product and service information and labeling	Incidents of non-compliance concerning marketing communications
Labor/Management Relations	Minimum notice periods regarding operational changes		

Forced or compulsory labor	Operations and suppliers at significant risk for incidents of forced or compulsory labor		
Security Practices	Security personnel trained in human rights policies or procedures		
Anti-competative behaviour	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices		
Human Rights Grievance Mechanisms			
Grievance Mechanisms for Impacts on society	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance		
Customer Privacy	Substantiated complaints concerning breaches of customer privacy and losses of customer data		
Labor Practices Grievance Mechanisms	Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms		

Table 5 The gaps filled in by implementing ISO26000

The final step of analysis is to compare the covered indicators of used tools to the already existing toolset, to see if any relevant tools would already be covered by the used ones. This is relevant information for companies since there are context where tool names are used as shorthand for work with certain issues. For the Jämtkraft spreadsheet, however, few unused tools are fully covered. Since ISO14001 and a sustainability reporting framework is used, EMAS is covered. Apart from that case, the only one covered is ISO50001. However, this just means that Jämtkraft works with the energy issues related to sustainability. Figure 6 shows the final toolbox suggestion for Jämtkraft.

Use	Covered	Suggested
ISO 14001	EMAS	ISO 26000
GRI G4	ISO50001	
EU-non financial disclosure		

Figure 6 The suggested toolbox for Jämtkraft

3.6.2 Houdini analysis

In the case of Houdini, the indicator mapping spreadsheet used contained all tools studied within this project, as no energy sector specific tools were used. As with Jämtkraft, the indicators covered in the most recent GRI report and by other used tools such as Bluesign were marked in the same manner as for Jämtkraft.

When all the covered indicators had been identified, these were the identified gaps:

General indicator category	Specific indicator within category	Specific indicator within category	Specific indicator within category	Specific indicator within category
Economic performance	All			
Labor/Management Relations	Minimum notice periods regarding operational changes			
Non-discrimination	Incidents of discrimination and corrective actions taken			
Freedom of Association and Collective Bargaining	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk			
Child Labor	Operations and suppliers at significant risk for incidents of child labor			

Forced or compulsory labor	Operations and suppliers at significant risk for incidents of forced or compulsory labor		
Security Practices	Security personnel trained in human rights policies or procedures		
Rights of indigenous peoples	Incidents of violations involving rights of indigenous peoples		
Human Rights	Operations that have been subject to human rights reviews or impact assessments	Employee training on human rights policies or procedures	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening
Local Communities	Operations with local community engagement, impact assessments, and development programs	Operations with significant actual and potential negative impacts on local communities	
Supplier Social Assessment	New suppliers that were screened using social criteria	Negative social impacts in the supply chain and actions taken	
Public Policy	Political contributions		
Marketing and Labeling	Requirements for product and service information and labeling	Incidents of non-compliance concerning product and service information and labeling	Incidents of non-compliance concerning marketing communications

Customer Privacy	Substantiated complaints concerning breaches of customer privacy and losses of customer data			
Socioeconomic Compliance	Non-compliance with laws and regulations in the social and economic area			
Human rights policy				
Environmental Grievance Mechanisms	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms			
Biodiversity	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Significant impacts of activities, products, and services on biodiversity	Habitats protected or restored	IUCN Red List species and national conservation list species with habitats in areas affected by operations
Environmental compliance	Non-compliance with environmental laws and regulations			
Supplier Environmental Assessment	New suppliers that were screened using environmental criteria	Negative environmental impacts in the supply chain and actions taken		

Table 6 The impact not covered by Houdini's SMT:s

The most important result from the analysis presented in table 6 is that Houdini works with no economic performance criteria through sustainability management tools. This is represented through a category called "economic performance" in table 6. This combines all economic indicator included within this analysis. However, as a for profit-company under Swedish law, this is not an issue in and of itself. Houdini works with environmental aspects of sustainability throughout the value chain, and cover most relevant aspects. However, the supplier social assessment and the supplier

environmental assessment indicators would be especially relevant to include in a recommended tool, especially since Houdini wishes to ensure their customers that the clothes are sustainably produced. The main issue here, as for Jämtkraft, is the social aspects of sustainability, but in contrast to Jämtkraft, Houdini has a global, more involved supply chain. While Houdini works with limited numbers of suppliers and works to ensure ethical production, a generalized social sustainability tool can be helpful. Using these requirements as the prioritized indicators, the options are: GRI, OECD, EU non-financial reporting, UN Global Compact and the ICC principles. Of these, EU non-financial reporting can be removed as not to use overlapping reporting frameworks. Expanding GRI is an option, but reporting on supply chain practices can be sensitive. Out of the remaining options, one could be to implement the OECD guidelines, as it covers both of the supply chain aspects, as well as missing economic principles. Another option is the UN Global Compact. In table 7, the effects of each of these options on the gaps is shown.

General indicator category	Specific indicator within category	Specific indicator within category	Specific indicator within category	Specific indicator within category
Economic performance	All			
Labor/Management Relations	Minimum notice periods regarding operational changes			
Non-discrimination	Incidents of discrimination and corrective actions taken			
Freedom of Association and Collective Bargaining	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk			
Child Labor	Operations and suppliers at significant risk for incidents of child labor			
Forced or compulsory labor	Operations and suppliers at significant risk for incidents of forced or compulsory labor			
Security Practices	Security personnel trained in human rights policies or procedures			

Rights of indigenous peoples	Incidents of violations involving rights of indigenous peoples		
Human Rights	Operations that have been subject to human rights reviews or impact assessments	Employee training on human rights policies or procedures	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening
Local Communities	Operations with local community engagement, impact assessments, and development programs	Operations with significant actual and potential negative impacts on local communities	
Supplier Social Assessment	New suppliers that were screened using social criteria	Negative social impacts in the supply chain and actions taken	
Public Policy	Political contributions		
Marketing and Labeling	Requirements for product and service information and labeling	Incidents of non-compliance concerning product and service information and labeling	Incidents of non-compliance concerning marketing communications
Customer Privacy	Substantiated complaints concerning breaches of customer privacy and losses of customer data		
Socioeconomic Compliance	Non-compliance with laws and regulations in the social and economic area		
Human rights policy			

Environmental Grievance Mechanisms	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms			
Biodiversity	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Significant impacts of activities, products, and services on biodiversity	Habitats protected or restored	IUCN Red List species and national conservation list species with habitats in areas affected by operations
Environmental compliance	Non-compliance with environmental laws and regulations			
Supplier Environmental Assessment	New suppliers that were screened using environmental criteria	Negative environmental impacts in the supply chain and actions taken		

UN Global Compact
OECD Principles
Both

Table 7 GC, OECD and the gaps

From table 7, it can be read that both options resolve a number of the social issues. However, of the two options, OECD covers both several economic performance aspects and the supplier social assessment, making it the most relevant of the two options. However, aspects such as human rights should not be deprioritized. Out, of the tools in this project, none covers only the remaining social issues. Thus, the suggested toolbox will be the OECD Guidelines, combined with an expansion of the GRI report to discuss some aspects of human rights. For Houdini, none of the studied tools are fully covered by what is used. The final toolbox is suggested in Figure 7.

In use	Covered	Suggested
GRI G4/Standard	None	OECD Guidelines
Bluesign		Report Human rights with GRI

Figure 7 The suggested toolbox for Houdini

4. Discussion

4.1 Uncertainties, limitations, and criticism

Methodologically, this project is based on the Vattenfall Sustainability Platform, which was developed in a vastly different context, as well as different tool selection methodology. This means that some of the methods, selections and strategies used in this project lack previous testing in a real-world context. There are several uncertainties and criticisms possible to make for this model, which are discussed in this section.

One of the main problems is the SME context. The fundamental assumption during this report is that if applied correctly, the tools discussed would improve the management done by the SME: s. As seen in the literature review, this is not necessarily the case. Of the tools selected for the participation in this study, almost none works exclusively for the SME context. This is because of the lack of dedicated tools which are used and applied for SME: s. When the additional tool constraint of suitability for specific industries is present, the result can be a limited set of tool options... Based on the research in the field, a better long-term solution than selecting the correct existing tools would be to develop tools especially for their use. However, that is only a potential, long term solution. In the short-term, the better option is to simplify selection of existing tools and use the presently available options

As the mapping process is used within this study, there must already be some SMT:s applied. For a SME just starting their sustainability work, this selection process would need some modification in order to be helpful. An option here would be to create recommendations by comparing indicators covered by tools to the most important sustainability impacts for the company in question, combined with information about what type of tools suit company needs. However, it is likely that too many tools would fit company needs, and this method would need further adaptions in order to truly narrow down which tool options are available.

Another aspect which is not used as a part of this analysis is the resource constraint for SME:s. As the relevant companies are willing to use their resources on sustainability management, there is no priority given to costs. A possible way to remedy this would be by comparing the costs of implementing different tools. However, the costs are likely to be very variable and depend on company size as well as personnel costs and hours. Conducting this analysis is outside the scope of this project. Other aspects which are neglected within this analysis is the actual effect on sustainability work of the tools, as well as how easy they are to implement. Both of these are difficult aspects to quantify, and more research would be needed on the implementations process and longer-term effects of tools on sustainability work in order to add these aspects to the system.

Another relevant criticism is that the use of key sustainability performance indicators as the only point of comparison both limits and simplifies the complexity of most sustainability management tools. A good example of this is the simplification of the standard ISO50001, which is highly specialized within energy management. For the model used in this project, any other tool which works with the question of energy efficiency would cover the entirety of ISO50001, suggesting that they are equivalent. This would not necessarily be the case, since it is possible that the other tool is a principle which gives a generalized recommendation to used best available technology with regards to energy efficiency, while ISO50001 is detailed and contains implementation and management structure with regards to energy. The mapping prioritizes broad, generalized tools to narrow and specified ones, which might be justified in the SME case, since the resources for multiple tools are limited. However, it can also be argued that there must be a limit to variables for the comparison, especially in the SME case.

Another issue with the SKPI:s as a comparison point is that only tools using them are included. Some tools lack indicators and only exemplifies a methodology. One example of this is LCA, which is used as an example of a SMT in several descriptions of the concept. However, the ISO standards surrounding LCA do not use KSPI:s, so they are excluded from the consideration. This limits the number and type of tools to be considered in this report. A suggestion for further research can be the development of a comparison method for the excluded tool types. Other issues of tool selection can also be discussed. Some tools were excluded from this project for reasons such as geographic scope or the information existing beyond a paywall. While a selection of tools to use for indicator mapping is necessary, which tools are included may skew the results. Among these are the preference shown for larger, more common tools, compared to less famous options. A selection using other parameters may have affected the suggested toolboxes.

Another possible error source is the survey. Since the intended respondents of the survey for the clothing retail industry declined or neglected to send responses, the results of this report were affected. Primarily, this meant that when specific information was required to conduct the Houdini case study, it had to be gathered from other sources. Since the information was thus not tailored to the case and limitations of this study, this may have introduced uncertainties. However, the focus of this project also changed during its creation. Initially, the model was intended to potentially suggest industry-based toolboxes, and the industry context was intended as a stronger point of discussion. If this had been the result of the project, the lacking survey results would have had a larger impact.

4.2 Case study results and further uses of the model

Despite the criticisms in section 4.1, there can still be merits to this approach. The most relevant use of this mapping method is likely as a decision-making guideline for companies. The main benefit would be to be able to narrow down the number of potential tool options which would need to be researched further before a final decision. This can be the case whether the company is starting from a position of using no tools or already has a few in use. However, as previously discussed, this method would need to be adapted to generate useful sets of tools starting from none. As such, this method is not currently potentially useful for companies looking to change their sustainability work from reactive to proactive, but for companies seeking to complement their existing proactive sustainability work.

To fully evaluate this method as a decision-making aid, more testing and adaption of this model would be needed. While the model has been applied to the two case study companies, no company has currently attempted to actually implement the suggested toolboxes. To progress, this model should either be applied to more companies which may implement the toolboxes, or conduct more research into what toolboxes are already in use within companies and compare that to which toolboxes the model would suggest. Both of these options could likely generate information that could be used to calibrate the model further, increasing real life applicability and reliability.

Additionally, the visualizations and results of the process leading from spreadsheets to toolbox selections are currently not simple and easy to visualize. The case study process also led to one toolbox suggestion each for Jämtkraft and Houdini. To be a better potential decision-making aid, the focus should be to present a number of toolbox options, which can then be discussed with the company in question. An optimized version of the model would have clearer explanations of the pros and cons of the suggested toolboxes, as well as a better presentation of the process which led to them.

Of the two results from the case study mapping examples, the Jämtkraft case overlapped far better with what the company communicated that they wished to implement. However, there are some

contrasts between the actions and words of Houdini. Houdini is the part of the development of a new, very in-depth sustainability management tool, which they wish to use to manage their sustainability from specific origin points. Of the two companies, Houdini are currently using tools to manage fewer indicators, and are more sporadic in the use. The OECD guideline, which is the main recommended addition for Houdini, is not similar to their future planetary boundaries-based tool. However, the disparity can be explained by the removal of analytical tools to focus on the indicator-based systems. Additionally, Jämtkraft has a separate environmental department while Houdini's sustainability work is spread through the organization, which makes it easier for Jämtkraft to implement tools. Due to the disparity between Houdini's wishes and results, another model with a potentially different studied toolset could give a more relevant result for that case. However, this model gives Jämtkraft more information about a tool selection they are currently considering. Compared to unstructured selection, this model is an improvement.

5. Conclusions

The main conclusion to draw from this project is that indicator-based selection models could be helpful for companies of all sizes in the future, but that the methods used need far more research and actual real-life evaluation behind them to be a helpful decision-making aid.

It is possible to select criteria for comparing tools with each other and map them to company needs, in an indicator based, focused manner. It is also possible to apply this method and to suggest toolboxes as a result. What can not be claimed is that these recommendations are necessarily useful or suitable for companies. Currently, the method has been applied to two case study companies, but the time and scope of this study is limited with regards to tracking implementation and follow up.

The model is also limited in aspects such as which tools can be used within an indicator-based comparison. Applying it to medium sized companies also comes with issues, since the current research is divided on whether the existing tools are suitable for them, and resource constraints are a large aspect which is not discussed within this project. Additional aspects to add to an improved model can be non-indicator-based tools, and aspects such as resource limitations (through costs) and impact of implementation on sustainability work (based on existing research).

When conducting a mapping to suggest a toolbox of sustainability management tools, specialized information of industry and company context is required. It is thus not useful to develop generalized industry tool boxes. However, it is possible to conduct a case study and compare and contrast tools for a specific company sector case, especially when company needs and requirements are already well known. This is the case with the suggested toolboxes presented for Jämtkraft and Houdini in figures 6 & 7. As long as the company complements the information presented by the model with their own research, and have resources and knowledge available, this could presently be helpful. However, it will not presently be important in helping the majority of SME:s, which lack knowledge and resources.

In conclusion, this method works in theory, and can be used to produce materials which companies could use for decision making. Further research and development is needed, but the method has potential.

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Appendix 1: Survey questions

The following survey questions were developed in collaboration with project supervisor Magnus Enell. Since all parties involved were Swedish, the questions were not translated to English.

”Hej

Jag heter Amanda Sievers och gör mitt examensarbete på masternivå på KTH. Min handledare är Magnus Enell. Jag läser till civilingenjör Energi och miljö med en specialisering inom miljöfrågor för företag.

Tanken med mitt examensarbete är att studera hur medelstora företag inom kläd- och energibrancherna arbetar med hållbarthets”verkyg”. Hållbarhets”verktyg” är ett samlingsnamn för alla sorters certifieringar, standarder, riktlinjer, märkningar och liknande som företag använder i sitt miljö- och hållbarhetsarbete.

Slutmålet är undersöka och jämföra dessa verktyg för att till slut rekommendera en ”verktygslåda”, alltså en kombination av verktyg som passar för olika behov. Jag ska skapa rekommendationer för hur företag ska använda och prioritera verktygen, och beskriva hur verktygen kompletterar varandra. Tanken är att resultaten ska hjälpa företag att effektivisera arbetet med hållbar utveckling, för att spara tid, pengar och resurser.

Bland de verktyg som jag studerar finns ledningssystem för kvalitet, miljö och arbetsmiljö, till exempel GRI 4, ISO 9001, ISO 14001, UN Global compact, EU non-financial reporting directive, med flera.

Först vill jag ställa några generella frågor om företagets syn på och tankar om miljö och hållbar utveckling:

1. Vilka delar ingår i ert hållbarhetsarbete?
   - Vad tycker du som privatperson att hållbar utveckling är?

2. Vad är huvudorsaken till att ditt företag arbetar med hållbar utveckling?

3. Vad ser du som den vanligaste hållbarhetsutmaningen inom företagets bransch?

4. När började ditt företag arbeta med hållbar utveckling?

5. Har ditt företag en miljöchef/-samordnare, hållbarhetsansvarig, etc.?

6. Var i företagets organisationstruktur finns arbetet med miljö och hållbarhet?

Nu kommer några mer specifika frågor till mastersarbetet:

7. Använder ni miljö- och hållbarhets”verktyg” idag?
   a. Om nej
      i. Varför inte?
      ii. Arbetar ni med miljö- och hållbarhetsfrågorna på andra sätt?
      -Om ja, hur?
   b. Om ja
      i. Vilka?

ii. Varför valde ni att använda just dessa?
iii. Är ni nöjda med dom? (Ja/nej)
iv. Har ni samordnat dom på något sätt (ja/nej)
- Varför/Varför inte?
v. Arbetar ni med miljö- och hållbarhetsfrågor på annat sätt?
1. Om ja
a. Hur?
2. Om nej
a. Varför inte?

8. Om ni skulle välja ett nytt ”verktyg” inom miljö och hållbar utveckling, vilka egenskaper hos ”verktyget” är viktiga?

9. Hur många olika hållbarhets”verktyg” skulle ni maximalt vara intresserade av att använda?

10. Vilka är de största hinder ni ser med att jobba mer med miljö och hållbarhetsfrågor?

11. Ungefär hur mycket tid totalt (alla inblandade) per vecka lägger ni på miljö- och hållbarhetsarbetet?
- Hur många i personalen har definierade arbetsuppgifter kopplade till miljö och hållbar utveckling?
- Vilka andra funktioner i företaget har dessa personer?

12. En avslutande fråga: kan ditt företag kvantifiera hur det miljö- och hållbarhetsarbete som ni genomför påverkar företagets varumärke och påverkat affärsnyttan?”

Appendix 2: The general information spreadsheet

This is a representation of the indicator indicator mapping spreadsheet used in this report.

Tool	GRI 4	GRI Standards	OECD guidelines for multinational companies	UN Global Compact
Purpose	Communication	Communication	Guideline	_
Type	Reporting	Reporting	Guideline	Principle + Reporting
Geographic scope	Global	Global	Global	Global
General/industry spec.	General	General	General	General
No. of companies	Report	Report	Guided management	Report
Company use number	10500	_	_	13000
Made by	CERES, UNEP	CERES, UNEP	OECD	UN
Specific indicators	Specific	Specific	General	General

Covers	Sustainability	Sustainability	Sustainability	Social + Environmental
SME/Not	No	No	No	No
Origin date	1997	1997	1976	2000
Last update	2013	2018	2011	2004

Tool	EU Non-financial reporting directive guidelines	UN SDG:s	EMAS	EMAS Easy
Purpose	Communication	_	Action	Action
Type	Directive	Guideline	Management System	Management System
Geographic scope	EU	Global	EU	EU
General/industry spec.	General	General	General	General
Result	Report	_	EMS & Reporting	EMS & Reporting
Company use number	_	_	4000	_
Made by	EU	UN	EU	EU
Specific indicators	General	Specific	General	General
Covers	Social + Environmental	Sustainability	Environental	Environental
SME/Not	No	No	No	Yes
Origin date	2016	2015	1995	_
Last update	2016	2015	2009	_

Tool	ISO 14001	ISO 50001	ISO 26000	SA 8000
Purpose	Action	Action	Action	Guideline
Type	Management System	Management System	Standard	Standard
Geographic scope	Global	Global	Global	Global
General/industry spec.	General	General	General	General
Result	EMS & Certification	Action	Action	Certification
Company use number	319324	6600	_	8000
Made by	ISO	ISO	ISO	Social Accountability International
Specific indicators	General	General	General	Specific

Covers	Environental	Environental (Energy)	Social + Environmental	Social
SME/Not	No	No	No	No
Origin date	2004	2011	2010	_
Last update	2015	2011	2010	2014

Tool	OHSAS 18001	Amnesty Jnternational human rights guidelines for companies	Earth charter	ILO fundamental rights at work declaration
Purpose	Action	Action	Guidance	Guidance
Type	Management System	Guideline	Framework	Declaration
Geographic scope	Global	Global	Global	Global
General/industry spec.	General	General	General	General
Result	Certification	Action	_	_
Company use number	_	_	_	_
Made by	BS	Amnesty	Earth Charter Initiative	ILO
Specific indicators	General	Specific	General	General
Covers	Social (Occupation health and safety)	Social (Human rights)	Sustainability	Social (Rights at work)
SME/Not	No	No	No	No
Origin date	1999	1998	2000	1998
Last update	2007	1998	2000	2010

Tool	ILO Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy	International Chamber of Commerce (ICC) Business Charter for Sustainability	Integrated Reporting (IIRC)	PACI Principles
Purpose	Assistance	Guidance	Communication	Action
Type	Principles	Charter	Framework	Principles
Geographic scope	Global	Global	Global	Global
General/industry spec.	General	General	General	General
Result	Social action and policy	Action	Report	Anti-corrupition action
Company use number	_	_	497	80
Made by	ILO	ICC	IIRC	PACI
Specific indicators	Yes	General	General	Yes

Covers	Social + Economic	Sustainability	Sustainability	Economic (Anti-corruption)
SME/Not	No	No	No	No
Origin date	1976	1991	2013	2004
Last update	2017	2015	2013	2005

Tool	UN Guiding Principles (Ruggie Principles)	Planetary boundaries	Svensk miljöbas	World Fair Trade Organization Guarantee System (WFTO GS)
Purpose	Guidance	Guidance	Communication	Organization
Type	Standard	Description	Certification	Standard
Geographic scope	Global	Global	Swedish	Global
General/industry spec.	General	General	General	General
Result	Management of human rights	_	EMS & Certification	Assurance
Company use number	_	_	650	_
Made by	UN	Stockholm Recilience Center	Föreningen Svensk Miljöbas	WFTO
Specific indicators	Specific	Specific	General	Specific (social), nonspecific (environmental
Covers	Human Rights	Environental	Environental	Social, environmental
SME/Not	No	No	No	No
Origin date	2011	2009	2005	2013
Last update	2011	2009	2013	2013

Appendix 3 The base tool list

EMAS easy

GRI 4

GRI Standards

ISO 14001

ISO 50001 (Energy management)

ISO 9000/9001

OHSAS 18001

SA 8000

Sustainability Development Goals (SDG)

UN Global Compact

Universal Human Rights

AA 1000 (AccountAbility 1000)

Amnesty international human rights guidelines for companies

BCI (Better Cotton Initiative)

Bluesign

Earth charter

EcoMapping

EUs directive on non-financial reporting

Global Social Compliance Programme

IFC

ILO Labour standards/fundamental rights at work

ILO Tripartite Declaration

International Chamber of Commerce (ICC) Principles

International Integrated Reporting Council (IIRC)

ISO 14025

ISO 14063:2006

ISO 26000 (Social responsibility)

OECD riktlinjer för multinationella företag

PACI Principles

Planetary boundaries

RIO declaration on environment and development

UN Guiding Principles (Ruggie Principles)

World Fair Trade Organization Guarantee System (WFTO GS)

Andra ISO14000, ex 14063

Better work

BSCI (Business Social Compliance Initiative)

Caux principles

EHS Guidelines

Ethical Trade Initiative

EU Ecolabel

EU ETS (Emission Trading Systems)

Fair Labor

Fairtrade (FLO International)

Fairwear

Global Organic Textile Standard

ISO 14006 (EcoDesign)

PAS 2010 Biodiversity

PAS 2060 Carbon neutrality

PRI (Principles for responsible investments)

RSB (Roundtable on Sustainable Biomaterials)

SSI State of Sustainability Initiatives (Standards and the green economy)

Svenska miljökvalitetsmålen

Worldwide Responsible Accredited Production (WRAP) principles

Carbon footprint

FR2000 Verksamhetsledning

ISO 14005

LIFE certification

Natural Step 4 conditions

NTA 8080

Svanen

Bra Miljöval

Integrated reporting

Rena Kläder

Svensk miljöbas

PACI

OECD (riktlinjer för multinationella företag)

Sustainability Evaluation and Reporting System (Perrini and Tencati 2006)

UNDP

UNEP

World Business Council for Sustainable Development (WBCSD) toolbox

BES 6001 (Responsible Sourcing of Construction Products)

BREEAM

IPC

ISO 20121

RTFO

RSPO

ISO 29001

Better business pack (BBP)

Beyond Intent Sustainability Assessment and Evaluation Tool

LEED

FSC (Forest stewardship council)

Sedex

Better Business Plan (Friedman and Miles 2002)

CERO model

EcoProfit

EcoVadis

Efficient Entrepreneur Calendar

Supply chain management

Environmental cost accounting

EMP-KOMPAS

Ecological footprint

FTA

Wrap Resource Revolution

Global Sullivan principles

VerdEE

ENWORKS

UL certification

Sustainability assessment for Enterprises

TRITA TRITA-SEED-EX 2017:21