MEASURING INTANGIBLES:
THE CONSIDERATION OF PRODUCT SUSTAINABILITY
WITHIN SUSTAINABILITY RANKINGS
Due to the disclosure of confidential information within this study, the ranking (RankingX) as well as the company (CompanyX), with whom this graduation project was in collaboration with, will remain anonymous.
ACKNOWLEDGEMENTS

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1. This report, as part of the graduation project aimed at attaining the BA title from the Amsterdam University of Applied Sciences, has been written and/or compiled solely by me.

2. This project report (or any amended form of it) has never before been submitted by me or anyone else in the framework of a learning assignment aimed at the attainment of a certificate or degree, within the AMFI programme or elsewhere.

3. The work that was necessary for the realisation of this project was performed entirely by me. All the data that have been collected are original.

4. All quotes from other sources are recognisable in the report by quotation marks and the sources of all my information have specifically been indicated.

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Signature,
The bittersweet reality behind the fashion business first became clear to me during a project on designing a fully sustainable fashion brand in the third semester at the Amsterdam Fashion Institute. During this project I got in touch with the facts and damaging impacts of the fashion industry in both environmental as well as social aspect. Particularly my deep-seated interest for product sustainability was triggered during this time, after learning that approximately 80% of a product’s environmental impact is based on decisions in the design and development phase.

Since then, I continued to observe efforts regarding sustainability made by small brands, but also by large high street retailers. Particularly in the aftermath of the Rana Plaza factory collapse in Bangladesh the public’s interest in the sustainability efforts of companies increased substantially. I noticed that a lot of companies have had difficulties to react to this increasing demand for transparency by the government, NGO’s, consumers and media.

During the course of my study I then also had the opportunity to take up an internship at a premium fashion company. In order to earn the trust of their stakeholders and to publicly communicate their consideration of corporate sustainability, this company focused on using third party verification. Rankings thereby function as seal and thus offer a continuous verification of sustainable economic activity. Furthermore, they intend to communicate the sustainability efforts of companies to stakeholders and offer potential investors a guarantee for their assets.

Still, since product sustainability is such an important factor for the textile industry, the question is whether these rankings support the implementation of product sustainability measures. Moreover, how exactly do they measure those intangibles?

Besides, while these rankings play an important role in pushing sustainability forward, the validity and credibility of their conclusions is still in question. This research thus focuses on the methodology behind one of these rankings, namely RankingX, and particularly its measurement of product sustainability.
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IT’S A HUGE CHALLENGE, BUT ACTUALLY, ISN’T IT THE HUGE CHALLENGES WHICH GIVE LIFE MEANING? AND WE REALLY DON’T HAVE A PLAN B.’

- John Grant
I. INTRODUCTION

1.1. RATIONALE

On April 24th 2013 the Rana Plaza factory in Bangladesh collapsed and claimed the lives of 1,200 people, which marks the worst accident in garment history (Hildebrandt. 2014). Since then, the fashion industry experiences an increased public interest in Corporate Social Responsibility (Talaga, 2014). But even before that working conditions and social welfare were a highly discussed topic since 1991, when SportswearCompany4 was exposed to be producing in sweatshops (Nisen, 2013). With an increase in public awareness as well as media interest in global environmental and social issues, consumers as well as investors are more and more interested in environmentally-friendly merchandise and fashion companies see themselves pressured to react to those changes in society (Black. 2008; Kaufman. 1999, La Ferla. 2001, Montoro et al. 2006, Wustenhagen and Bilharz. 2006 in Phau and Ong. 2007).

As a reaction to this growing appetite for environmentally conscious products, RankingX was developed in order to present an assessment platform for the corporate sustainability efforts of companies (Environmental Leader, 2014). Every year RankingX invites over 3,000 publicly traded companies to participate in its assessment, where they are being evaluated on industry-specific sustainability criteria covering economic, environmental and social aspects.

Moreover, various companies within the premium and lifestyle segment experience an increased stakeholder interest for sustainable products. According to a costumer survey, 65% of CompanyX consumers agree that the company has an obligation to offer a comprehensive sustainable solution. Besides the increasing pressure from stakeholder side, also the ambition to stay ahead of competitors persuaded CompanyX to aim for becoming an inherent part of RankingX. To do so, the company has to take part in the sustainability assessment, which focuses on sustainability factors that can create long-term value for the company and its stakeholders. For CompanyX, as well as the fashion industry in general, this means, that in order to be successful in the sustainability assessment, companies need to implement sustainability all along the product supply chain.

According to a widely accepted theory, at least 80% of a product's environmental impact is based on decisions that are made in the design phase (Black. 2013; Graedel et al. 1995 in TED. 2015,).
This research paper thus zooms in on the area of product design and development, which encompasses amongst others material selection and environmental impact of dye pollution as well as water and energy usage (Black, 2008).

During the past four years of engaging in the field of sustainability in fashion, my own personal observations and repetitious conversations have shown that transparency of companies is gaining importance amongst its consumers. The ranking delivers transparency, while offering companies an opportunity for evaluation and growth. This research is thus relevant for all premium fashion companies that are aiming to participate in the survey of RankingX. Especially for the ones with no product sustainability measures in place yet. The findings of this study will be presented by showcasing various examples of how commercially viable product sustainability measures are implemented by RankingX constituents as well as non-constituents.

1.2. AIM

The research aim of this study is to analyse the construction as well as methodology and assessment criteria of this RankingX. Especially the representation of the textile industry will be discussed, while focusing particularly on the area of product sustainability. Besides this, the thesis will contribute significant insights into the relevance of sustainability for businesses as well as consumers.

Furthermore, the practical aim of this research paper lies in the supply of tools for implementing product sustainability in a premium fashion company that is aiming for representation in the in RankingX.

More specifically, these tools will be translated into a guide for CompanyX to efficiently implement product sustainability, in order to reach a higher score in the sustainability assessment

1.3. RESEARCH QUESTION

*In which way does RankingX measure as well as support product sustainability within fashion companies?*
Sub-questions:

What is the relevance of sustainability in the fashion industry and how can it be communicated to the consumer?

What is the RankingX and how does it measure sustainable efforts?

How does the RankingX measure product sustainability and how do companies, which are currently represented in the this rating, employ product sustainability?

Are constituents of the RankingX more sustainable than non-constituents in regard to product sustainability?

1.4. METHODOLOGY

The research for this study was of an explanatory nature. Because of the complexity of the topic, a structured approach is used, which means that first existing literature was reviewed before primary data could be collected.

At first, secondary research was used to establish the theoretical framework for this thesis and to gain a better understanding of the topic of sustainability and its surrounding issues. Most of the relevant sources have been discovered online, including articles, books, studies and research papers.

Since this study is looking at the supply side of the fashion industry, the primary research focuses on the methodology and construction of RankingX. By analysing various documents and reports published by the rating developers as well as a benchmarking report released to CompanyX this thesis combines the information gathered from various primary sources into one document.

In order to gain multiple perspectives and add depth to the research, best practise case studies were carried out. The case studies focused on three best practise examples from companies that successfully participated in the assessment. Within all three of the case studies the method of data collection was primary research, which was based on information published by the companies themselves. Detailed information on the case studies can be found in Appendix nr. 8.2.
1.5. STRUCTURE

This thesis follows a funnel model, starting with the broader background knowledge and frameworks of the issue. At first the meaning of sustainability will be investigated in chapter 2, followed by an analysis of its relevance for businesses as well as consumers. Furthermore, consumer perceptions towards sustainability will be discussed and green communication strategies will be exemplified.

Chapter 3 then zooms in on the RankingX. The construction will be exposed, followed by a detailed analysis of the sustainability assessment methodology as well as weighting criteria. Additionally, this chapter addresses the credibility and recognition of the rating within the industry.

In chapter 4, the thesis then focuses on the representation of the textile industry within RankingX. Furthermore, the thesis especially zooms in on the areas that are industry-specific and investigates the assessment criteria that measure product sustainability. In addition, three of the rating constituents will be analysed on their product sustainability measures in place and thus offer best practise examples.

The fifth chapter then compares product sustainability measures implemented by RankingX constituents to the ones implemented by non-constituents. It showcases various ways in which commercially viable product sustainability measures are implemented within businesses. Furthermore, the measures will be subdivided according to their implementation complexity. All opportunities presented in this context have an influence on the environmental impact of a product and can thus be measured within the assessment. Especially companies without any product sustainability measures in place can benefit from this section.

Finally, the last chapter provides the reader with a summary of all the findings and offers an overall conclusion to this thesis by answering the main research question.

1.6. LIMITATIONS

Extensive research already existed in the area of sustainability as well as product sustainability, particularly within the fashion industry. Due to the limited time frame it was therefore impossible to consider all published theories and literature on these topics. Therefore only a selection of studies
is considered within this thesis, while a range of other theories were excluded. This especially affects the second chapter, where the relevance of sustainability is explored, as well as the fourth chapter where product sustainability is defined.

The lack of published information regarding the methodology of RankingX posed another limitation for this study. Due to the protection of intellectual property, only general details are revealed to the public, omitting the industry-specific criteria of the assessment. In order to fill these gaps, the benchmarking report of CompanyX was considered, which answered some of the remaining questions, while simultaneously revealing areas that are still missing detailed information. This limitation especially affects the scoring methodology of RankingX in Chapter three.

Even though it was the aim of this thesis to approach the research question in an objective way, my personal opinion could have influenced the research and writing. Particularly in chapter five, where constituents of the RankingX are compared to non-constituents based on their implementation of product sustainability measures, as well as within the best practise case studies my personal liking of a company could have influenced the brand presentation. Additionally, the experiences and insights gained during my internship at CompanyX could have affected my research as well as findings, especially in regard to the implementation guide for the company.
II. SUSTAINABILITY

2.1. INTRODUCTION

What is the relevance of sustainability in the fashion industry and how can it be communicated to the consumer?

The following chapter will firstly investigate the meaning of sustainability for the fashion industry. It will take a look at sustainability itself. How is it defined and what does it mean? This definition will then be followed by an examination of its relevance for the fashion industry. The question of relevance is examined from both the supply and demand side and will investigate the importance for businesses as well as consumers. Another section will then discuss the consumer perceptions towards sustainability in general and sustainability in fashion, followed by several ‘green’ communication strategies, which are currently used to market sustainable fashion to the consumer. A conclusion will round things up, bringing all the different aspects together.

2.2. DEFINING SUSTAINABILITY

Even though sustainability has been a highly discussed topic for the past two decades, researchers and industry professionals still differ in their opinion about the exact definition of the term ‘sustainability’. Recent literature states that, although it is an intricate task to define sustainability or ‘green’, which is often used as a synonym (Mohajan. 2012), there is no public consensus on what it actually means (The Boston Consulting Group. 2009; Defining Green Products. 2010). The most frequently quoted definition of sustainable development was published in the ‘Our common future’ report by the Brundtland Commission\(^1\) (International Institute for Sustainable Development. 2015). It presents a definition that encompasses social, ecological as well as economic factors, and will thus serve as foundation for this study.

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland Commission. 1987, p.41)

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\(^1\) Formerly known as the World Commission on Environment and Development (WCED), established by the UN in order to promote sustainable development.
Henceforth, in this thesis the terms ‘sustainable’ and ‘green’ are interchangeable. A green business is therefore a company that does not only strive for economic and financial success, but is also committed to act in way that brings social and environmental improvement (Biloslav and Trnavcevic. 2009). Producing a green product would thus be defined as zeroing the environmental and social impact of the product during the entire lifecycle of a product. This includes the whole supply chain of a product, from fibre to disposal, and ideally implementing a ‘closed loop system’, which uses the waste of one product as raw material of another, leading to ‘zero-waste’ (Ottman. 2012).

2.3. RELEVANCE

Sustainability and the Fashion Industry

Employing over 60 million people globally, the fashion industry constitutes one of the biggest economic industries (FashionUnited. 2015; International Labour Organization. 2015). Considering this immense size of the industry, the impact on the global environment as well as economy and social welfare is considerable, especially taking fibre, dying, garment transportation and wastage into account (Black. 2008). But precisely because of the size of the industry and its damaging impacts, the fashion industry has the chance to significantly impact the green movement (Hill and Lee. 2011). Furthermore, since fashion can act as a communication medium, it can inspire action towards greater environmental sustainability (Holgar, Foth and Ferrero-Regis. T. 2009).

Businesses

Various studies have shown that the implementation of sustainability within businesses has been beneficial to organizations (Blackburn, 2007; Esty & Winston, 2006; Willard, 2002 in Fairfield, Harmon and Behson. 2011: p.7). These benefits can be recognized in improvements in brand reputation, cost effectiveness, innovation and market expansion (Fairfield, Harmon and Behson. 2011), and even talent acquisition. For people of the Generation Y the meaning of their jobs becomes increasingly important (Gunther. 2013). They want to be employed by companies that recognize change as something positive and take part in finding a solution.
Companies have come to realize that they are not only part of the economic business world, but part of a broader community in which they together with the consumer bare social and environmental responsibilities (Mishra and Sharma. 2012). By offering products that reduce the harm on the environment, fashion companies can educate and exert influence on the consumer to make a conscious choice regarding the purchase (Hultin and Villberg. 2013). Businesses become increasingly aware of the increasing macro environmental pressures as well as the influence they have on the business performance and recognize it as a factor that needs to be addressed on internally. According to a study by Furterra (2013), the number of companies implementing sustainable development will double by 2018 (Figure 2.3.1).

![Figure 2.3.1. Companies implementing sustainable development data source: Futerra, Value_Gap report, 2013](image)

Even though many companies intent to implement sustainability within the core of their strategies, the UN Global Corporate Sustainability Report (2013) illustrates that there is still a big gap between making the commitment and actually taking action. The report further illustrates that this gap is a result of the early stages of sustainable development, where policies have to be defined and targets have to be set. It is expected that the businesses will then move forward to implement, communicate and measure sustainable development (United Nations. 2013).

The implementation of sustainable development within businesses is further encouraged due to the growing media interest for environmental as well as social issues in regard to resource
management, production and waste management (Deloitte. 2013). Businesses see themselves pressured to justify their choices and react to the consumers’ quest for transparency across the supply chain. Even though a lot has to change over the coming years, consumers already endorse smaller efforts of brands to lower their negative impact (Hill and Lee. 2012).

Consumers

Consumer awareness about environmental issues has been rising in the 21st century (Black. 2008; Phau and Ong. 2007), resulting in the emancipation of the ethical consumer (Ipsos. 2002; Nicholls. 2002 in Bezencon and Bili. 2009: p.1305). The increase in energy prices, limited resources as well as the achievements of Al Gore and other sustainability experts have forced consumers to face the “inconvenient truth” on how our lifestyles influences our environment (The Boston Consulting Group. 2009).


Another challenge for sustainable fashion is that consumers tend to purchase products based on the personal benefit they will receive from them (Carson et al., 1993, Vermillion and Peart, 2010 in Kim, Lee, Hur, 2012: p. 7). In terms of sustainable fashion however, the value of ‘green’ is not visible to the consumer and does not affect him directly (UN Global Compact and Accenture, 2014; Meyer, 2001). Instead its impacts are found further up the product supply chain, for instance in the production stage.

On the other hand, Gilg, Barr and Ford (2005) argue that a high level in ‘perceived consumer effectiveness’ (PCE) results in an increase in green consumerism. The authors define ‘perceived consumer effectiveness’ as “the extent to which any one consumer can have an impact on the environment” (Kinnear et al. 1974, Tucker. 1980; Roberts. 1996 in Gilg, Barr, and Ford. 2005:
In direct context to the apparel industry this signifies that consumers are more likely to engage in green purchasing, if they feel that their decision can actually have an impact on environmental or social conditions (Straughan and Roberts. 1999, Gilg et al. 2005 in Hill and Lee. 2012: p.485). This implies that brands should communicate the benefits and impacts of the purchase much clearer to the consumers, while highlighting effects that apply to them personally (Hill and Lee. 2012).

2.4. MAINSTREAMING GREEN FASHION

Consumer Perception

Sustainable fashion has an image problem. Even though it is already available to the consumer, it has not yet caught on the way it did in other industries. Reason for that are the somewhat negative perceptions towards ‘green’ fashion, which unfortunately are still deeply rooted within the consumers mind (Ethical Fashion Forum. 2014). Those reasons can be divided into three areas: Greenophobia, scepticism and green fatigue.

Greenophobia\(^2\) was identified by John Grant, author of ‘The Green Marketing Manifesto’ (2007), and describes a consumer attitude, that regards ‘green’ products as among other things unpleasant, primitive, rough and pricey (Ethical Fashion Forum. 2014; Grant. 2007). Furthermore, the credibility of ‘green’ suffered a setback after some brands were exposed of greenwashing\(^3\). As a consequence consumers became highly sceptical towards ‘green’ claims and lost trust towards green marketing (Ethical Fashion Forum. 2014; Rettie, Burchell and Riley. 2012; Vermillion and Peart. 2010). The third consumer perception is ‘green fatigue’, which is concerned with the phenomenon that “while media coverage of environmental issues increases our awareness decreases” (Shields. p.23. 2010). This unresponsiveness of the consumer occurs due to an oversaturation of green messages within the media (Shields. 2010).

Green Communication Strategies

In order to change those negative consumer perceptions and promote green purchasing marketers have come to realise that the fashion industry differs from other industries, such as the

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\(^2\) A phobia is an extreme or irrational fear of or aversion to something (Oxford Dictionary).

\(^3\) Disinformation disseminated by an organization so as to present an environmentally responsible public image (Oxford Dictionary).
food industry. The mainstream fashion consumer is primarily interested in the product design and the personal benefit, instead of the environmental benefit. This consumer is among other factors driven by fun, desires, esteem, social status, simplicity, as well as rewards and recognition. It is crucial for companies to research their audience, recognise their consumers’ motivation and build their marketing strategy around them (Ethical Fashion Forum, 2014; Schneider 2014). Given below is a selection of the most common and recognised green marketing strategies within the fashion industry based on an article published on the Ethical Fashion Forum platform (Schneider, 2014).

Communication Volume: This strategy considers the volume of green communication. While some companies build their whole marketing campaign about their green efforts, luxury brands, such as PremiumCompany1, often focus on their products and only promote the green benefits through their homepage, while others do not promote their green efforts at all and instead see them as something normal. (Heathcote. 2011; Sandeep et all. 2011)

Transparency: Enable consumers to gain insight into the product supply chain and disclose the brands’ efforts as well as weaknesses regarding sustainability. (Schneider. 2014)

Storytelling: A marketing tool that allows companies to communicate their story by addressing the emotions of the consumer. Not without risk, since those messages can be easily misunderstood due to their complexity. (Futerra. 2013; Schneider. 2014)

Education: Due to the public’s nescience regarding the fashion industry’s impact on the environment, brands can have role in educating their consumers through a combination of different green marketing strategies. (Gam. 2011, Gam and Banning. 2011, Su. 2006; Heathcote. 2011 in Hill and Lee. 2012. p. 487; Schneider. 2014)

Humour: Using humour or irony to communicate a serious topic such as sustainability encourages the consumers to self-reflect on their actions and thus inspires real change. (Futerra. 2013; Schneider. 2014)

The Unexpected: Communicating sustainability from a surprising and unexpected angle, such as the Patagonia ‘Don’t buy this jacket’ campaign, can especially attract a younger target group. (Heathcote. 2011; Schneider 2014)
Co-creation: By involving the consumer in the product development and engaging them to come up with new ideas, consumers are encouraged to deal with the topic of sustainability themselves. (Biloslavo and Trnavc. 2006; Pasquinelli. 2011 in Schneider. 2014)

Celebrity Endorsement: Promoting green products by featuring a celebrity or other role model in the advertising can highly influence the consumer perception on green fashion. (Schneider. 2014; World Economic Forum. 2013)

Scope Reduction: The green purchasing behaviour is positively affected if a brand highlights the personal benefit or the personal impact of the individual. (Futerra. 2013; Schneider. 2014)

All of the strategies above aim at establishing credibility with the audience and thus foster the relationship between brand and consumer. Furthermore, to increase the effectiveness of those marketing strategies, they are often combined with the use of third party certificates or labels. (Heathcote. 2011; Sandeep et al. 2011). Additionally, new technological inventions, such as company owned apps or programs, offer brands more and more possibilities to engage with the consumer directly and educate them simultaneously (WSG World Services Group. 2013).

2.5. CONCLUSION

This chapter investigated the relevance of sustainability in the fashion industry, while addressing the topic of mainstreaming fashion.

Defining sustainability or ‘green’ is a challenging task. Both consumers as well as companies are struggling to find an apposite definition for these terms. This ambiguity complicates the communication process regarding the topic of sustainability, potentially causing misconception on the audience side. To prevent this from happening it is first of all crucial for companies to define their understanding of the terms sustainability or ‘green’. In order to ensure an explicit communication process, it is then necessary to clearly communicate this understanding of a ‘green’ product to the consumer.

Furthermore, the relevance of sustainability within the fashion industry has been established. Companies that implemented sustainability within their business practices were often more
successful and with an increase in media coverage of environmental and social issues, consumers are also becoming more and more aware of the importance of sustainability. Still, among consumers there is a noticeable lack of knowledge regarding the actual damage of the fashion industry on our environment. This nescience offers brands an opportunity to play their part in educating the consumer on impacts and consequences on account of the fashion industry.

However, while companies should fulfil this educational role, they also have to face the challenge of green fatigue, and thus invent new and innovative ways to educate the consumer without tiring the audience. ‘Greenophobia’ additionally poses a main issue in consumer perceptions of sustainable fashion marking it as ‘less’ desirable. In order to reach a higher market share, sustainable brands need to overcome those negative perceptions and find ways to communicate ‘green’ fashion as something desirable and fun.

Technology is providing more and more opportunities to engage consumers and educate them on a subconscious level. In order to use those tools efficiently brands need to analyse their target audience carefully and choose the right combination of communication strategies to reach them. It is important for those brands to keep in mind that the personal benefit or perceived impact of the individual highly influences the consumers purchasing behaviour and that above all credibility and transparency are crucial elements to overcome the prevailing scepticism towards ‘green’ marketing.

The next chapter introduces the RankingX as a promising way to measure the sustainability efforts of companies.
III. RANKING X

3.1. INTRODUCTION

What is the RankingX and how does it measure sustainable efforts?
This third chapter will analyse RankingX. First, the Index will be introduced, and the idea behind Corporate Sustainability. Then the sustainability assessment will be explained, by analysing the methodology and structure of the Indices and the corresponding sustainability assessment. Finally, the eligibility and recognition of RankingX will be determined.

3.2. CORPORATE SUSTAINABILITY

A company’s performance is increasingly impacted by sustainable related issues, such as resource scarcity, climate change and demographic shifts. Those macro-environmental aspects hold challenges for businesses, due to redefined societal expectations, regulatory frameworks, public policies and business environments in general. In order to address those challenges, cooperation’s often develop new processes or procedures regarding corporate sustainability within their businesses. Just like ‘sustainability’, ‘corporate sustainability’ is a term that holds many definitions. The most widely cited version views it as follows:

“Corporate Sustainability is a business and investment strategy that seeks to use the best business practices to meet and balance the needs of current and future stakeholders”
(Artiach et al., 2010 in Searcy, Elkhawas. 2012, p.79).

This explication is thus coherent to the statement in chapter 2, where sustainable development was defined as a development that meets the needs of the present, while ensuring the ability of future generations to meet their own needs.

Still, stakeholders often have difficulties in making sense of the information reported and struggle to compare companies on the level of corporate sustainability (Searcy, Elkhawas. 2012). Also investors are more and more recognizing the importance of this topic. A traditional investment framework, which exclusively focuses on a financial analysis, easily oversees the challenges that
could derive from sustainability issues. By analysing the company’s performance regarding corporate sustainability, investors are able to gain a better vision of the future performance potential. Since this knowledge holds a lot of value for investors, who are seeking to generate long-term shareholder value, RankingX and other awards have been created, which highlight businesses with exemplary corporate sustainability measures in place. Established in the 1990’s, RankingX was one of the first global sustainability benchmarks that tracked the performance of the world largest companies in the terms of corporate sustainability (CDP-Driving Sustainable Economies. 2012; MarketWatch. 2014). The Indices are cooperatively maintained by a provider of financial market indices, and an investment specialist on sustainable investing (Investopedia. 2015; MarketWatch. 2014).

3.3. CORPORATE SUSTAINABILITY ASSESSMENT

The sustainability assessment was developed to identify companies that are better equipped to identify and respond to emerging opportunities and risks resulting from global sustainability trends. The assessment is initiated by an industry-specific questionnaire regarding the areas of economic, environmental and social issues. The rating follows a ‘best-in-class’ approach, selecting each year only the top companies within each industry to be included. This approach ensures that companies continuously develop and intensify their initiatives regarding sustainability in order to be included or to remain in the Indices.

Index Construction

In order to select the constituents for the RankingX, a rule-based as well as transparent selection process is used, which is predicated on the assessment score reached within the industry-specific sustainability assessment. The annual assessment process begins with the sending of extensive industry-specific questionnaires in March, and ends with the publication of new scores in September.

The RankingX is comprised of three geographical breakdowns, which cover 26 developed and 20 emerging markets: RankingX World, RankingX Regions and RankingX Countries Each rating consists of a first selection (a fixed number of publicly traded companies), which managed to reach a certain stock exchange value in the end of the previous year and were thus invited to participate in the assessment. The composition of those ratings is reviewed annually in
September, based on the assessment score of companies participating in the assessment. The first selection differs among the various sub-ratings, since it is designed to represent the larger market.

Usually not all companies, in a given first selection, choose to complete the questionnaires. Depending on the quantity of the non-participating companies the questionnaires are completed based on the information made public and, if applicable, zero score points are assigned to the questions where no information is available. This is done to obtain the necessary industry representativeness in order to develop a veridical evaluation of the actual industry environment. The combination of both the companies that actively participated in the assessment as well as the ones that were assessed based on publicly available information form the second selection.

Within this second selection the companies are then ranked in descending order according to their assessment score within their industries. To ensure the eligibility of those companies, they are then tested by the following process. Firstly all companies are removed that, in the assessment score, reached less than 40% of the highest scoring company. Then, it is ensured that in all industries there is at least one company with a sufficient assessment score to be included in the Index. If that is not the case industries might be combined according to their similarities in scores and sustainability issues addressed. The remaining companies then represent the third selection.

The final constituents of the RankingX are then determined based on the third selection. First of all, the target percentage of eligible companies is selected in each industry based on their assessment score, for instance within the RankingX World the top 10% of each industry are selected to become a constituent (Figure 3.3.1). Then the companies that are within 0.3 score points of the last selected company are appended as well. To reduce turnover within the rating, or to reduce the fluctuation to the years before, the remaining companies are then scanned for already existing constituents. In case there are existing constituents in the top buffer percentage of all companies within this industry they are included as well (Figure 3.3.1).

<table>
<thead>
<tr>
<th>INDEX</th>
<th>TARGET %</th>
<th>BUFFER %</th>
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<tbody>
<tr>
<td>RankingX World</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>RankingX Regions</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>RankingX Countries</td>
<td>30</td>
<td>45</td>
</tr>
</tbody>
</table>

(Figure 3.3.1. Target % and Buffer % based on assessment score data source: RankingX: Rating Methodology. 2014)
Assessment Criteria and Weighting

The foundation of the sustainability assessment is laid by an industry-specific questionnaire, which assesses the company’s opportunities as well as threats deriving from economic, environmental and social developments. This questionnaire comprises approximately 80 – 120 questions, determining the company’s long-term value creation potential. In order to incorporate current sustainability trends that are likely to impact the competitive landscape the questionnaire is being continuously adapted.

As mentioned above, the questionnaire consists of three dimensions: economic, environmental and social. Those three dimensions in turn are built up by 6 – 10 criteria, which each contain 2 – 10 questions depending on the industry. Every criterion can account for up to 100 score points and contributes an assigned percentage to the dimension weight. The assessment score can add up to 100 score points and is calculated on the basis of predefined percentages that were fixed for each dimension.

Each dimension, economic, environmental and social, consists of general as well as industry-specific criteria. The general criteria consider major global sustainability challenges and are thus applicable to all industries. Developments that affect specific industries are considered within the industry-specific criteria and account for approximately 50 – 60% of the assessment. Also the criteria weight varies between the industries, in order to reflect the industry-specific drivers. Figure 3.3.3, illustrates a comparison of the dimensions in the Banking, Electric Utilities and Pharmaceutical Industries.

![Figure 3.3.3. General versus industry-specific weights by dimension data source: RankingX’s sustainability assessment Methodology. 2014)
In order to gain a better understanding of the assessment construction, particularly the differentiation between general and industry-specific criteria, an overview of the dimensions specifically for the textile industry is given below (Figure 3.3.4.).

The dimension weight within the textile industry varies significantly. While the economic dimension accounts for 38% of the assessment score, the environmental dimension carries the least weight with 21%. With 41% the social dimension holds the most weight within the textile industry.
Scoring in the Assessment

To ensure objectivity, RankingX limited the answers in the questionnaire by offering predefined multiple-choice questions. In doing this, the companies receive a list of potential approaches, from which they can then check the answers that apply to them, and the score can easily be determined through the question weight which was defined beforehand. In case of open questions, a predefined appraisal method is used to convert the response into a quantitative score. Additionally, if a question does not apply to the business model of a company there is also the option to choose the answer 'not applicable', which then has to be confirmed by an analyst. If this is the case the question weight gets evenly distributed across the remaining questions. Since this, however, only gets approved in exceptional cases due to the industry-specificity of the questionnaire, companies can also choose to check ‘no such procedures / not known’ for which they will then receive zero scoring points.

EXAMPLE:
Assuming the company receives 50 points for its response to a question, the score will be calculated as follows:

\[
\text{Number of Points received (between 0 and 100) } \times \frac{\text{Question Weight (within the criterion)}}{50/100} \times \frac{\text{Criterion Weight (within the questionnaire)}}{3/100} = \text{Question Score} = 0.75 \text{ of assessment score}
\]

In order to verify the efforts, RankingX additionally seeks insight via company documentation, which is requested directly at the company. Those documents can be annual financial reports, sustainability reports, health and safety reports as well as special reports, such as corporate governance, R&D, intellectual capital management. Furthermore, various other sources are included, for instance internal documents, brochures and the official website.

Media Analysis

The media analysis constitutes another important part of the sustainability assessment. Throughout the assessment year RankingX monitors the company’s involvement and reaction to issues arising in environmental, economic and social areas. With the support of a leading
provider of media monitoring tools, media, press releases, articles and stakeholder commentaries are analysed on a daily basis to detect crisis situations as soon as possible.

A crisis arises, if issues or allegations harm a company’s reputation, resulting in financial consequences, such as declining sales or fines. In order to address the issue and minimize its consequences the company has to react as efficient as possible. The quality of the company’s crisis management is monitored and assessed, amongst others taking into account the communication efforts of the company, acknowledgement of responsibilities and solution management to avoid similar crises.

In order to incorporate the media assessment findings into the assessment, predefined weighs have been set aside within the questionnaire. Like the rest of the questionnaire, the weighing assigned to the media assessment component also differs between criterion and industry. If no media assessment case has been identified, the company receives a total of 100 score points in each media assessment component, resulting in no negative impact on the assessment score. If, however, a media assessment case has been identified, and the company did not manage it well, then the media assessment score can affect the final score negatively and thus risk exclusion from the Indices. In severe cases the eligibility of a company can be revoked, regardless of the assessment score.

3.4. CREDIBILITY AND RECOGNITION

Over the last decade the number of ratings and awards regarding corporate sustainability has increased dramatically, which caused many experts to question the credibility of those ratings. The project ‘Rate the Raters’ by SustainAbility aims to uncover this credibility issue. Together with GlobeScan, they contacted 850 sustainability experts across 70 countries and multiple sectors and interviewed them on their opinion regarding those ratings (SustainAbility. 2012).

While the experts name NGOs as the most trusted source to judge corporate sustainability performance, ratings have become more and more trustworthy over the last three years. Asked for the ratings they were most familiar with, the RankingX came in first together with one other rating (Sadowski. 2012). This goes hand in hand with the question regarding the ratings that experts put most trust in. In this case the RankingX reached 53% (SustainAbility. 2012).

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4 Non-governmental organization (Oxford Dictionaries).
During the Rate the Raters project it also become clear, that while experts trust ratings to some extent, their credibility never scored higher than 16%. This drop in percentages, compared to the 53% RankingX scored on the question regarding trust, can be explained as followed. When the experts were asked into which ratings they put most trust in, they had to list them according to their trustworthiness. During the question of the credibility however, they had to give a percentage. In other words, while the experts do not really believe in the credibility of those ratings, the RankingX constitutes one of the most trustworthy ones. As reason for this lack in credibility SustainAbility identified the lack of disclosure regarding methodology. RankingX for instance only publish the general criteria of their assessment, while the industry-specific criteria, which account for 51% within the textile industry assessment, are kept confidential. Rating agencies are in a conflict of interest here, since they need to respond to the need of transparency, while not revealing the intellectual property on which their business is founded.

Furthermore, it is important to keep in mind that RankingX only assesses the largest public companies, hence private companies as well as smaller brands or labels are not considered at all. While this limitation may not restrict industries, in which most of the companies or brands are public, it does so for the textile industry, where especially sustainable brands are often smaller or privately owned. Due to this limitation RankingX should not be considered as a valid representation of the complete industry, but only a selected part of it. Still, for large public companies RankingX is considered “one of the world’s best sustainability indices” (Searcy, Elkhawas. 2012) and thus serves as a relatively effective measurement for corporate sustainability.

3.5. CONCLUSION

This second chapter addressed the complex selection procedure as well as methodology behind RankingX. It first discussed the meaning of corporate sustainability, followed by an analysis of the corporate sustainability assessment and then investigated the RankingXs recognition as well as its credibility.

The relevance of corporate sustainability for both businesses and stakeholders has been established. Especially investors increasingly value sustainability as a crucial factor to business success, which leads to a growing interest in companies that are recognized for their sustainable business practises (Knoepfel, 2001 in Searcy, Elkhawas. 2012, p.79). Businesses thus see
themselves challenged to produce a competitive product while simultaneously protecting and maintaining natural and human resources (Artiach et al., 2010 in Searcy, Elkhawas. 2012, p.79). Ratings such as the RankingX provide those companies with a valuable platform to analyse their strengths and weaknesses regarding sustainability.

Furthermore, the methodology of the sustainability assessment was analysed. While uncovering its construction, assessment levels and weighting, further insight was gained into the complexity behind index. It became clear that RankingX works with a very broad assessment, covering everything from corporate government, to health and safety as well as waste management. Still, due to the non-disclosure regarding the industry specific part of the assessment, at least 50% of the assessment remains unpublished. This missing part of information results in a lack of transparency, which was also criticized in the Rate the Raters project by SustainAbility (Sadowski. 2012). Furthermore it became clear, that while RankingX offers a valuable sustainability rating for large public companies, privately owned companies as well as smaller brands receive no consideration within the assessment. This limitation raises the question whether constituents of the RankingX are actually more sustainable than non-constituents?

In order to answer this question in the fifth chapter; chapter 4 aims to deepen the analysis of the textile industry within the RankingX. Especially the role of product sustainability will be investigated and best practise case studies will be introduced.
IV. PRODUCT SUSTAINABILITY WITHIN THE RANKING X

4.1. INTRODUCTION

How does the RankingX measure product sustainability and how do companies, which are currently represented in the RankingX, employ product sustainability?

This fourth chapter addresses the issue of product sustainability within the RankingX. Firstly, the importance of product sustainability in the fashion industry will be discussed, by defining the scope a topic. This will be followed by an analysis of the textile industry representation within the RankingX and an explanation of the role of product sustainability within the sustainability assessment. Finally best-practise examples will be analysed and discussed regarding their product-sustainability practises.

4.2. PRODUCT SUSTAINABILITY WITHIN THE FASHION INDUSTRY

As outlined in the first chapter, the fashion industry constitutes one of the biggest economic industries and thus has considerable impact on the global environment (FashionUnited. 2015; International Labour Organization. 2015; Holgar, Foth and Ferrero-Regis. T. 2009). The areas of product design and development play a major role in reducing this impact, since they encompass some of the most damaging processes within the product life cycle.

A widely accepted theory in product sustainability is that at least 80% of a product’s environmental impact is based on decisions that are made in the design phase (Black. 2013; Graedel et al. 1995 in TED. 2015). These decisions can for instance encompass material selection, environmental impact of dye pollution as well as water and energy usage (Black, 2008). Especially the material selection has a tremendous impact on the environmental impact of a product, since it also influences the customer use phase. According to a frequently cited study by Franklin Associates, the life-cycle analysis of a polyester blouse for instance revealed that “82% of energy requirements, 66% of solid waste and 83% of carbon dioxide emissions derive from the customer use phase” (Black. 2013. p.93), a percentage that could be reduced by finding an alternative material.
Still, the question remains, what exactly is product sustainability? Like ‘sustainability’ and ‘corporate sustainability’, product sustainability is a term that holds many definitions. In the context of this thesis product sustainability is based on a definition by the Sustainable Products Corporation (SPC):

“Product sustainability advances those products that provide environmental, social and economic benefits while protecting public health, welfare, and environment over their full commercial cycle, from the extraction of raw materials to final disposition.” (Sustainable Products Corporation. 2015. Sustainable Products Defined & Identified)

SPC consults companies on sustainable product certification and provides Life Cycle Assessments for their products. This definition was selected, due to its coherence with the definitions for ‘sustainability’ and ‘corporate sustainability’ in chapter 2 and 3. All three of those definitions emphasize the importance that sustainability encompasses social, ecological and economic factors.

TED (Textiles Environment Design), a project based at the Chelsea College of Art and Design, seeks to question and explore the role of the textile designer in reducing the impact on the environment. In order to support as well as inspire designers in navigating the complexity of sustainability issues, TED has developed ten design strategies, referred to as TEDS’s TEN, which illustrate ways to design ‘greener’ products (TED. 2015). The strategies consider product sustainability from five different viewpoints: Design to minimize environmental impacts, design to prolong product or material life span, design that looks at models from nature and history, design for ethical production and design activism.

The first angle presents design strategies with the aim to minimize waste, reduce chemical impacts as well as energy and water use both pre and post-consumer. Those strategies often explore cleaner technologies or investigate better material options in order to reduce the environmental impact of the product. Examples for this can be zero waste cutting, low impact dye as well as materials, ozone technology and technical coatings as well as materials to reduce washing.

Prolonging the product or material life span is the aim of the second aspect. Design strategies within this group can aim for three different aspects. The first one aims for
cyclability, such as upcycling or mono materiality; the second one aims to reduce the need for consumption, examples therefor are slow fashion, co-design and product personalisation; or thirdly to develop Systems & Services, for instance lease, share and repair services.

Creating designs that are inspired by models from nature and history form the third viewpoint. Strategies that originate from this point of view study and reflect nature as well as textiles, habits and societies of the past. Examples for this are the Lotus effect, shape-memory polymers, Velcro, Make-do-and-mend as well as historic dyeing or printing methods.

The fourth strategic angle supports and values worker’s rights, while questioning the meaning of ethical production. Design strategies within this group can be concerned with the use of fair trade materials, the consideration of local resources as well as the engagement of suppliers who comply with the code of conduct.

Within the last viewpoint the designer becomes a ‘social innovator’, who goes beyond the product design, in order to educate the consumer as well as other designers about the environmental and social impacts of fashion and textiles. Examples for design activism can be conferences, blogs, publications, exhibitions, social media or open-source networks.

These five viewpoints demonstrate the broadness of the topic, while presenting various ways in which product sustainability can be implemented by a company. Within this thesis TED’s TEN are used to define the scope of product sustainability within the fashion industry. The questions that need to be answered now are: How is product sustainability defined within the RankingX? How does it relate to TED’s TEN? And how does RankingX measure the product sustainability efforts of companies?

4.3. THE TEXTILE INDUSTRY WITHIN THE RATING X

In the 2014 sustainability assessment 59 industries were represented and 1,995 companies have been assessed. 25 of those companies were part of the textile industry, which encompasses the following three sub-divisions: Apparel Accessories & Luxury Goods; Footwear and Textiles.
The Sustainability Annual

Each year, the sustainability annual, which displays the assessment results from the previous year, hence the results from the 2014 sustainability assessment are published in the sustainability annual 2015. The annual lists companies that are within the top 15% of their industry and additionally have received an assessment score within 30% of their Industry Leader. The company that scored highest in the assessment and is thus best prepared to manage upcoming opportunities and risks, deriving from economic, environmental and social developments, is named the RankingX Industry Leader. Companies, whose assessment score was within 1% of the Industry Leader's score were awarded the RankingX First Class award. The RankingX Second Class distinction is given to companies that reached a score within a range of 1% to 5% of the Industry Leader. Those that reached a score within a range of 5% to 10% of the Industry Leader's assessment score received a RankingX Third Class distinction. Additionally the sustainability annual also names the company, within the top 15%, that has achieved the largest proportional improvement compared to the previous year, the RankingX Industry Mover. Figure 4.3.1 displays the results of the past years assessment for the textile industry.

<table>
<thead>
<tr>
<th></th>
<th>SUSTAINABILITY ANNUAL 2015</th>
<th>SUSTAINABILITY ANNUAL 2014</th>
<th>SUSTAINABILITY ANNUAL 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>RankingX First Class</td>
<td>PremiumCompany1*</td>
<td>SportswearCompany3*</td>
<td>SportswearCompany3*</td>
</tr>
<tr>
<td>RankingX Second Class</td>
<td>SportswearCompany1</td>
<td>SportswearCompany2</td>
<td></td>
</tr>
<tr>
<td>RankingX Third Class</td>
<td>SportswearCompany2</td>
<td>PremiumCompany4</td>
<td>PremiumCompany3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SportswearCompany4</td>
<td>SportswearCompany2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TextileCompany1</td>
<td></td>
</tr>
</tbody>
</table>

* RankingX Industry Leader
** RankingX Industry Mover

(Figure 4.3.1. Sustainability Leaders 2013 - 2015
data source: RankingX sustainability annual. 2013 -2015)

It is noticeable, that the sportswear companies all managed to remain a constituent over the past three years. This dominance of sportswear brands, in the field of corporate sustainability, comes due to the fact that innovation is an extremely important factor in the sportswear industry.
(TriplePundit. 2015). Especially after the SportswearCompany4 sweatshop scandal mentioned in the first chapter, sportswear companies were in the spotlight regarding corporate sustainability and thus sustainable innovation became a competitive advantage.

**Driving Forces**

The sustainability annual also highlights current and future challenges, which are expected to be shaping the competitive landscape of each industry and thus influence the criteria weight within the assessment. In the 2015 sustainability annual, the adaption to slower growths markets is defined as a driving force behind the textiles industry. Companies would consequently have to leverage their brand recognition and innovation advantage to expand their businesses into new markets and categories. The 2015 sustainability annual further states that due to the high number of collections, companies also see themselves challenged to invent new and innovative marketing strategies as well as sourcing models. Additionally stakeholders expect businesses to fulfil health and safety regulations, while also improving the working conditions across all stages of the product supply chain.

Furthermore, the 2015 sustainability annual states that consumers increasingly expect companies to consider environmental issues in their product design as well as development. This change in consumer awareness puts pressure on companies to actively engage contractors and suppliers on sustainability issues and monitor their labour practises.

**Weighting Criteria**

Depending on those driving forces, RankingX decides on the criteria weighting and highlights selected criteria that are of importance in the assessment. In case of the textile industry the 2015 annual emphasizes the following general and industry-specific criteria:

**Economic Dimension:**
- Brand Management; Innovation Management; Supply Chain Management

**Environmental Dimension:**
- Environmental Policy / Management System; Operational Eco-Efficiency; Product Stewardship
Social Dimension:
Labour Practice Indicators and Human Rights; Occupational Health and Safety;
Stakeholder Engagement

The annual additionally offers insight into the assessment results by providing an overview of the RankingX sustainability assessment scores from the previous year. In the 2014 sustainability assessment PremiumCompany1 reached the best assessment score with 78 out of 100. The industry average score of all assessed companies was 47. Looking at the dimension weighting in Figure 4.3.2, it becomes clear that least scores are reached in the social dimension, even though it holds the highest dimension weight.

<table>
<thead>
<tr>
<th>DIMENSION</th>
<th>AVERAGE SCORE</th>
<th>BEST SCORE</th>
<th>DIMENSION WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td>56</td>
<td>82</td>
<td>38%</td>
</tr>
<tr>
<td>Environmental</td>
<td>41</td>
<td>90</td>
<td>21%</td>
</tr>
<tr>
<td>Social</td>
<td>41</td>
<td>72</td>
<td>41%</td>
</tr>
</tbody>
</table>

*Figure 4.3.2: Results at industry level data source: RankingX sustainability annual. 2015*

4.4. PRODUCT SUSTAINABILITY WITHIN THE RANKING X

Within the RankingX the term ‘product sustainability’ is not defined in any of the publicly available documents. However, taking a look at the 2015 RankingX Benchmarking Report for CompanyX, a paragraph was discovered with the subtitle ‘Sustainable Product Development’. Incorporated within the topic of ‘Future Trends in the Textile Industry’, this paragraph highlighted three trends that are important to for the future development of companies. Firstly, the report states that the integration of sustainability considerations into the development of new products reflects an understanding of current sustainability challenges. The second trend emphasizes that product innovations and the use of lifecycle analysis during product development allows capitalizing on the customers' potential savings in equipment lifecycle costs. And the third trend highlights that Product Stewardship processes add value to products by minimizing the risk of harm and by reducing the risk of marketing a defective product and, in consequence, reducing potential liabilities. So while no direct definition is given for the term ‘product sustainability’, it becomes
clear, that within RankingX, it is highly connected to Product Stewardship, a criteria that is measured within the environmental dimension.

In the beginning of the environmental dimension the questionnaire asks the participating companies to rank environmental issues according to their materiality. Environmental Product Innovation and Product Stewardship are two of the choices given there. In order to retrace how companies measure the progress regarding those environmental issues, a further criterion then requests to indicate the Key Performance Indicators as well as targets regarding those aspects. It is also of importance that the companies provide a link to where this information is communicated to the stakeholders.

**Product Stewardship**

According to the RankingX 2015 Benchmarking Report the rationale of the criterion Product Stewardship is based on the concept that the integration of sustainability practises into the product development demonstrates the ability of a company to capitalize on market opportunities and minimize market risk at product level. Furthermore, product stewardship processes add value to products by minimizing the risk of harm both to people and the environment and thereby reduce potential liabilities. Key focus of the criterion during the 2014 assessment was on Life Cycle Analysis, product design, maintenance, take-back schemes, reuse, customer information and initiatives to promote product stewardship amongst stakeholders.

Chapter 3 stated that Product Stewardship is an industry-specific criterion that accounts for 4% of the assessment score. In order to calculate the score for this criterion the following five aspects are taken into consideration. The first sub-criterion focuses on the Life Cycle Assessment (LCA) of products and is concerned with percentage of products that have undergone LCA as well as the certification of those assessments. Secondly, the management system regarding product stewardship is assessed. Hereby policies as well as accountabilities are evaluated and the existence of a centralized inventory database for the environmental impact of product related components is verified. The third aspect is concerned with Life Cycle Research Projects and assesses the company’s involvement in research projects aimed towards reducing the life cycle impact of its products. Furthermore, the sub-criterion evolving around product design criteria considers the formal inclusion of environmental concerns in the R&D processes. Finally, the Media and Stakeholder Analysis forms the last aspect within the Product Stewardship criterion.
The Life Cycle Assessment within the Product Stewardship criterion forms the basis for the implementation of product sustainability measures. It analyses the company’s product supply chain and identifies the areas as well as processes during which the product has the most severe impact on the environment. With this knowledge, the company has the opportunity to have a direct effect on the issue at hand.

Besides the Life Cycle Assessment, Product Stewardship also addresses the idea to prolong the product or material life span. In doing so, the criterion directly relates back to the definition and scope of product sustainability stated in the beginning of this chapter. With the LCA aspect incorporated in Product Stewardship, this criterion aims to protect the public health, welfare and environment over the full product life cycle, as formulated in the definition for product sustainability. Additionally, it also fosters the prolonging of the product or material life span through focusing on product design, maintenance, take-back schemes and reuse, an aspect that was also suggested within the design strategies of TED’s TEN.

**Operational Eco-Efficiency**

Besides Product Stewardship, especially the industry-specific criterion Operational Eco-Efficiency is of importance in regard to product sustainability. This criterion accounts for 7% of the assessment score and focuses on the inputs and outputs of business operations by assessing the consumption of natural resources and the production of environmental waste products specific to each industry. This criterion is based in the belief that by minimizing the consumption of natural resources as well as waste-generation activities companies can save costs and maybe even find new business opportunities. In order to measure this criterion the questionnaire assesses the following aspects throughout the entire supply chain, always considering information from the past four years as well as third-party verification:

**Greenhouse Gas Emissions (GHG):**

This sub-criterion focuses on the company’s direct and indirect GHG emissions regarding the operations for which reliable and auditable data is available. In order to define the scope of this question, the questionnaire refers to the GHG covered by the Kyoto Protocol which are Carbon Dioxide, Methane, Nitrous Oxide and the F-gases. In the fashion industry these GHG are mainly emitted from burning of fossil fuels, agriculture, waste disposal, transport and industrial processes. According to an article in Textile World (2010) the apparel and textiles industry account for approximately 10% of the total carbon impact.
Energy Consumption:
This sub-criterion aims to find out the total energy consumption of the company's processes. Companies are requested to disclose their energy consumption in MWh as well as the total costs of energy consumption in a currency of their choosing. In the fashion industry most of the energy use is required for laundry, the production of primary materials, especially man-made fibres, and the yarn manufacturing of natural fibres (Bocken, 2006).

Water Withdrawal:
The aim of this sub-criterion is to map the water consumption of each participating company by requesting the amount of total water withdrawal as well as the amount of water returned to the source of extraction at similar or higher quality. The apparel industries' key material cotton is responsible for 2.6% of the total water use, which leads to problems considering the worldwide water shortage (Environmental Leader, 2015).

Waste Generation:
This sub-criterion requests the total waste generated and is measured in metric tonnes. It regards waste as materials, which have no further use for the purpose of production or consumption and are thus discarded. This waste may be generated during the extraction of raw materials during the processing of raw materials to intermediate and final products, during the consumption or during any other human activity. In the fashion industry, approximately 1 million tonnes of textiles are discarded each year (Ethical Fashion Forum, 2009).

The sub-criteria above assess the impact of product sustainability measures in relation to environmental issues, such as global warming and water shortage. This criterion fosters a responsible consumption of natural resources and is thus in compliance with the first viewpoint of TED's TEN which promotes design strategies that aim to minimize the environmental impact of products. Supporting the decrease of water and energy consumption, GHG emissions as well as waste generation, also goes hand in hand with the definition of product sustainability, which defines a sustainable product as a product that aims to provide environmental, social and economic benefits while protecting public health, welfare, and environment.

Still, while Product Stewardship and Operational Eco-Efficiency measure and support product sustainability in some ways, the assessment neglects substantial elements of product sustainability. In regard to TED's TEN the assessment essentially acknowledges design
strategies that design to minimize environmental impacts or to prolong product and material life span. Design that looks at models from nature and history, design for ethical production and design activism are at most considered partially. For instance the assessment regarding R&D processes could look at processes that are inspired by models from nature or history, and the social dimension could assess design strategies that support ethical production, but none of this is documented within the available records.

4.5. BEST PRACTICE EXAMPLES

Within RankingX the representation of premium\textsuperscript{5} brands has changed continuously over the past three years. This becomes noticeable by analysing the sustainability annuals of the past three years, where PremiumCompany3 is the only company of the luxury fashion market represented during two years. PremiumCompany1, PremiumCompany2 and CompanyX are all only represented in the 2014 sustainability annual. The following section comprises a summary of the case studies for PremiumCompany1, PremiumCompany3 and Premium Company2, with particular attention on the product sustainability measures implemented by these companies. For further information please refer to the Appendix.

**PremiumCompany1**

PremiumCompany1, the RankingX Industry Leader 2015, is a luxury group with a worldwide brand portfolio including luxury as well as sport & lifestyle brands. Regarding product sustainability PremiumCompany1 displays remarkable efforts in three distinctive areas.

1. The first area is concerned with the sourcing of raw materials, especially skins, furs, leather and PVC. In regard to skins and furs, PremiumCompany1 states that by 2016 every skin or fur used in the final product will be deriving from verified breeding businesses or from wild, sustainably managed populations with accepted animal welfare practices in place. A similar target has been set for leather, where 100% of leather form domestic livestock will be from verified sources by 2016. Concerning PVC, a third 2016 target determines that its use within PremiumCompany1 collections will be reduced to 0%. In order to reach those targets the

\textsuperscript{5} In marketing and advertising, premium refers to brands or products that carry tangible or imaginary surplus value in the upper mid- to high price range. Premium brands are designed to convey an impression of exclusiveness, especially in the mass markets. (Encyclo, English Encyclopedia)
Material Innovation Lab (MIL) was established, which includes a comprehensive library of sustainable materials. The MIL is led by experts, who support and advice all brands within the PremiumCompany1 brand portfolio to make sustainable choices concerning their supply chain processes and products. Particularly one brand within the PremiumCompany1 brand portfolio is exemplary in this area of material innovation, since they use neither skins, nor fur or leather in their collections. Instead alternative materials are used, such as APINAT, a biodegradable bioplastic, and Eco Alter Nappa, a faux leather with a coating made from 50% vegetable oil.

2. Additionally, in March 2015 PremiumCompany1 started a collaboration with the UK start-up Worn Again, who are “developing a chemical textile to textile recycling technology that will enable end of use clothes and textiles to be collected, processed and made back into new yarn, textiles and clothes again and again” (Worn Again, 2015). This technology especially targets both Polyester and Cotton, enabling a separation of blended fibre garments as well as dyes and other contaminants from the fibres. PremiumCompany1 will support and monitor the further development process as well as testing of this technology via one of its brands.

3. Furthermore, a collaboration with the Clean by Design programme, lead to a saving of up to 30% on energy use and GHG emissions within production mills. Clean by Design is a programme that tackles the problem of a sustainable business development at its source, by auditing production facilities and offering them specific Best Practise advice afterwards. This advice varies depending on the mill’s line of activity, for instance, weaving, dyeing, finishing or leather production. The first brand already implemented Clean by Design at its textile mills whereupon PremiumCompany1 together with the NRDS enhanced the programmes methodology are now aiming at an implementation across all brands.

**PremiumCompany2**

PremiumCompany2 is a luxury fashion house that is distributing clothing, fashion accessories, fragrances, sunglasses and cosmetics. Known for its unique character PremiumCompany2 operates under three brands.

At Premium Company2, the first step of implementing sustainable business practises was to conduct an environmental baseline assessment, which would help to define priority areas that needed immediate attention of the company. The assessment measured the direct and indirect carbon dioxide equivalent impacts arising from materials, energy, water, chemical inputs and
waste, across all areas of Premium Company2’s business and its supply chain. The outcome of this assessment displayed that the processes surrounding the finishing of raw materials had the most significant impact with 29%, followed by raw materials with 20% (for a complete overview of this assessment, please refer to the Appendix).

As a reaction to those results, PremiumCompany2 set key targets for 2017 that are aiming to reduce the environmental impact of their three main raw materials, namely cotton, leather and PVC. Cotton and leather alone accounted for 57% of the raw materials environmental impact. In order to reduce the impact of cotton, PremiumCompany2 together with CottonConnect developed a training concept, which educates farmers on sustainable farming practices. Currently, this new concept is tested with one of their key cotton suppliers in Peru. Additionally, PremiumCompany2 aims to increase the use of leather that originates from tanneries with a Leather Working Group Certificate, by doing this the company wants to ensure that the waste water treatment process and the handling of chemicals is done effectively. Furthermore, the company wants to reduce the use of PVC within their collections due to its need of chemicals during the production processes.

In addition to the measures taken that aim at reducing the environmental impact of cotton, leather and PVC, PremiumCompany2 also offers customers the opportunity to personalize their products. This mass-customization project enables the consumer to co-create the product by choosing fabric, lining, colours, stitching and design details, which adds value and creates a customer experience. This creation of a unique product not only fosters the relationship between brand and consumer, but also reduces the need for consumption, which ultimately lengthens the products life span and is thus in coherence with TED’s TEN.

**PremiumCompany3**

Comprising a brand portfolio with over various prestigious Houses covering five different sectors, PremiumCompany3 is the world leader in luxury products.

Launched in 2012, the LIFE “PremiumCompany3 Indicators For the Environment” programme encourages all PremiumCompany3 brands to incorporate environmental factors more efficiently within managerial processes. The programme has identified nine strategic objectives, namely eco-design, access to raw materials, material traceability and compliance, supplier relations, protection of know-how, reduction of greenhouse gases, environmentally-friendly manufacturing processes, product duration and customer information relating to the environment. Depending on
the brands priorities in regard to sustainable development an action plan is developed, which aims to strengthen the brand as well as the Group management (for a more detailed description of the LIFE programme, please refer to the Appendix).

Regarding product sustainability, the Group mainly focuses on the packaging of their goods. PremiumCompany3 aims to reduce the product waste, by decreasing the use of raw materials at the production source. Louis Vuitton, for instance, demands that 85% of the packaging, used to transport products, is made from recycled materials. Furthermore, the use of cardboard for the perfume packaging was reduced by 186 tons thanks to the production of lighter boxes.

Overall it becomes clear that PremiumCompany1, PremiumCompany2 and PremiumCompany3 particularly implemented product sustainability measures that consider the first and second viewpoint of TED’s TEN and are thus measured within the Product Stewardship and Operational Eco-Efficiency criterion. Particularly PremiumCompany1, with the MIL in place and collaborations with Worn Again as well as Clean by Design is expected to reach a high score within the Product Stewardship criterion. This assumption is based on the fact that the company’s product sustainability measures are assessed within the criterion aspects Life Cycle Research Projects and Product Design Criteria.

4.6. CONCLUSION

This third chapter covered everything in regard to product sustainability and the RankingX. It started by addressing the importance of product sustainability within the fashion industry, then analysed the representation of the textile industry within the RankingX sustainability annual, followed by three best practise examples of the luxury industry.

At first, the relevance of product sustainability within the textile industry was established. By referring to the widespread theory that 80% of a product’s environmental impact is based on decisions that are made in the design phase, the importance of this topic was emphasized. Additionally, TEDs TEN were introduced and thus offered valuable insight into the various ways in which product sustainability can be implemented in a business.

Furthermore, the role of the textile industry as well as product sustainability within the RankingX has been explored. Taking a look at the assessment results from the past years, it becomes
visible that companies operate in the premium segment often only managed to be an annual constituent for one or two years, while sportswear businesses remained within the top 15% of the assessed companies for the past three years. This turnover rate emphasizes the importance of continuous improvement in order to stay successful within the Indices. Another interesting fact was that the environmental dimension, which includes product stewardship, only accounts for 21% of the assessment score. This seems especially low keeping in mind the importance of product sustainability on the product’s environmental impact.

Additionally, best practise case studies were conducted on PremiumCompany1, PremiumCompany2 and Premium Company3, in order to understand the status quo on product sustainability within the RankingX. Analysing those three companies, especially in regard to product sustainability, it becomes clear that PremiumCompany1, in comparison to PremiumCompany2 and Premium Company3, has more advanced measures in place, emphasising their superiority in this aspect. Furthermore, within the PremiumCompany1 group portfolio one brand clearly put the most effort in the implementation of product sustainability measures. The questions that remain now are: How does the assessment weigh the various sustainability efforts of individual brands within the group assessment? And are constituents of RankingX more sustainable than non-constituents in regard to product sustainability?

The next chapter will compare the product sustainability measures implemented by RankingX constituents to the ones implemented by non-constituents. Besides this, the chapter will also subdivide different measures in implementation categories.
5.1. INTRODUCTION

Are constituents of the RankingX more sustainable than non-constituents in regard to product sustainability?

This section compares product sustainability measures implemented by RankingX constituents as well as non-constituents. Furthermore, the measures are subdivided according to their implementation complexity. This chapter showcases various ways in which commercially viable product sustainability measures are implemented within businesses. All opportunities presented in this context have an influence on the environmental impact and can thus be measured within the RankingX. Especially companies without any product sustainability measures in place can benefit from this section.

The comparison between constituents and non-constituents was chosen, due to the fact that the participant selection process appeared to be limited in chapter 3. Only the largest publicly traded companies are invited to participate in the sustainability assessment, privately owned companies or smaller brands appear to be neglected. This chapter now aims to investigate, if constituents of the RankingX are actually more sustainable than companies not participating in the assessment. The companies that are included in this comparison are commercial businesses, which are well known for their sustainability efforts. Since this thesis focuses on commercially viable product sustainability measures, experimental processes or materials are not considered in this context.

5.2. APPROPRIATE MATERIAL SELECTION

One of the most important decisions in regard to the environmental impact of a product is the choice of material made by the designer. This decision influences processes up and down the supply chain such as the amount of water, chemicals, greenhouse gases and energy used during the entire life-cycle of a product. Especially for brands that source their materials from independent supplier companies, the material selection offers the part of the value chain, over which they have the most control. Overall companies should aim to source sustainable alternatives or develop environmentally preferred versions of their most commonly used materials.
Materials implemented by both Constituents and Non-Constituents

With cotton being the main source of natural fibre used in the textile industry, fashion cannot be imagined without it. Still its tremendous need for water and the intensive use of synthetic fertilizers as well as soil additives contributes to the need for more sustainable alternatives. To reduce this environmental impact companies can switch to sustainable or organic cotton. Since it is difficult to distinguish conventionally grown cotton from organically grown cotton most companies rely on certificates issued by a third-party initiative. While Patagonia and SportswearCompany1, for instance, work with the National Organic Program by the United States Department of Agriculture, both SportswearCompany4 and SportswearCompany3 source their sustainable cotton from the Better Cotton Initiative (SportswearCompany3. 2014; SportswearCompany1. 2015; SportswearCompany4 Inc., 2015; Patagonia. 2015). SportswearCompany2 uses besides organic cotton and sustainable cotton certified by Cotton made in Africa (CmiA) also a 30% recycled cotton fibre, which reduces the need for virgin cotton (SportswearCompany2. 2015).

Also materials that derive from animals require special attention, since they not only have an impact on the environment, but also require policies that ensure humane treatment. Especially in these cases companies rely on certificates from third-party organisations. Responsibly sourced wool, for instance, can help to reduce the impact of agriculture on the environment. PremiumCompany1 and Patagonia for instance work together with The Nature Conservancy and Ovis 21, a company that developed a network of local Argentinian farmers to ensure the conservation of the Patagonian grasslands (Patagonia, 2015; PremiumCompany1. 2015).

Made from petroleum, Polyester (PES) uses a lot of energy and discharges a lot of toxic emissions during its production processes. Recycled Polyester minimizes those environmental impacts, since it is based on plastic bottles, worn-out garments as well as manufacturing waste and thus requires less energy and reduces both waste and CO2 emissions. Various companies, such as PremiumCompany1, Gildan, H&M, Marks&Spencer, SportswearCompany2, SportswearCompany4, SportswearCompany3 and Patagonia have already implemented recycled polyester within their products (SportswearCompany3. 2014; SportswearCompany1. 2015; H&M. 2015; Marks&Spencer. 2015; SportswearCompany4. 2015; Patagonia. 2015; PremiumCompany1. 2015).

Furthermore, SportswearCompany2 together with BASF, the world’s leading chemicals company, developed Recycled Thermoplastic Polyurethane (TPU). This sustainable option significantly
reduces the need for virgin thermoplastic TPU and thus results in less energy use (SportswearCompany2, 2015).

**Materials only implemented by Constituents**

As mentioned above companies particularly rely on third-party certificates when it comes to materials deriving from animals. This is done to ensure humane treatment as well as a low environmental impact. In regard to leather for instance, various companies work together with the Leather Working Group, which promotes improvement in the tanning industry by developing an environmental stewardship protocol. Tanneries, among other criteria, are assessed on their water consumption, waste management and treatment transparency. The assessment delivers a better understanding of the company’s processes and the therewith connected environmental impact. SportswearCompany3, SportswearCompany4 and PremiumCompany2 rely on those assessments and the certificate awarded by them (SportswearCompany3. 2014; Premium Company2. 2015; SportswearCompany4. 2015).

**Materials only implemented by Non-Constituents**

Also organic hemp is becoming more and more popular within the fashion industry. While hemp has a similar feel and finish to linen, it requires no chemical pesticides or fertilizers and even improves the soil it grows on. The only challenge in implementing hemp is that for now its cultivation is still illegal in some countries due to its association with Marihuana. Still Patagonia, Marks&Spencer and H&M already implemented it in their collections (Marks&Spencer, 2015; Patagonia, 2015; H&M, 2015).

Furthermore, Tencel®, a branded lyocell fibre by Lenzing, provides fashion companies, such as H&M, Marks&Spencer as well as Patagonia, with a viable biodegradable alternative to viscose rayon. Produced from certified eucalyptus trees, Tencel® is a natural, man-made fibre that saves water and chemicals (Marks&Spencer, 2015; Patagonia, 2015; H&M, 2015).

Yulex®, a material made from guayule rubber, offers a renewable alternative to neoprene (polychloroprene), which is usually made from petroleum. Developed in a long-term research project by Patagonia, this material uses a low amount of water, little energy and absorbs carbon from the atmosphere. At the moment it is still used in a blend with polychloroprene, but since its
environmental impact is so much lower Patagonia continues to develop this material with the aim to completely replace polychloroprene (Patagonia, 2015).

Besides Polyester, also Nylon (Polyamide – PA) is based on petroleum and thus requires a vast amount of energy for its production. Recycled Nylon is based on reclaimed fibres as well as discarded fishing nets, but the recycling process is much more difficult than the one for Polyester. Still, Patagonia and H&M already incorporated the recycled fibre in their collections, since it reduces the dependence on petroleum and causes less environmental contamination (H&M, 2015; Patagonia, 2015).

The examples above clearly show that there are various commercially viable product sustainability measures available that are not implemented by RankingX constituents. Furthermore, most of the constituents that did implement sustainable material options were from the sportswear sector. This emphasizes the dominance of this sector in regard to product sustainability and highlights the importance for luxury good companies to increase their efforts. Since all of the material options above minimize the environmental impact of a product, through decreasing water consumption, GHG emissions or energy consumption, they are measured within the Operational Eco-Efficiency criterion of the assessment and belong to the first viewpoint of TED’s TEN. Furthermore, recycled material options may also be assessed within the Product Stewardship criterion since they prolong the product life span.

5.3. IMPLEMENT TECHNOLOGICAL INNOVATION

The implementation of technology within the supply chain of a product can have a tremendous impact on the products environmental impact. By considering new technologies or supporting suppliers and vendors that employ innovative technologies, the designer has the possibility to reduce waste, water and energy.

Technologies implemented by Constituents and Non-Constituents

Especially the dyeing process requires vast amounts of water and often chemicals are discharged into the rivers nearby. Both SportswearCompany3 and SportswearCompany4 already collaborate with DyeCoo, a Netherlands based company, that aims at solving this problem. The company developed a process where the “dye is injected into the fabric using compressed carbon dioxide.
After the dyeing cycle, the carbon dioxide is gasified, so that the dye condenses and separates from the gas. Thus, the clean carbon dioxide can be recycled and pumped back to the dyeing vessel” (SportswearCompany3. 2015). According to SportswearCompany4’s homepage, this CO2 dyeing method does not only reduce the need for water, it also decreases the use of energy and delivers more consistently coloured fabrics (SportswearCompany4. 2015).

Technologies only implemented by Constituents

Another project of SportswearCompany3 is the low-waste initiative, which aims at the maximum pattern efficiency and thus leads to waste reduction. To reach those goals, SportswearCompany3 developed a shoe that reaches a pattern efficiency of 95% and consists of only 12 parts instead of the normally needed 30 parts. In apparel the designers use simple shapes combined with stretchy inserts to create patterns with a low waste running range (SportswearCompany3. 2015).

Technologies only implemented by Non-Constituents

Furthermore, Levi’s Water<Less jeans accomplishes a water reduction in the finishing process by 96%. This was made possible through three changes in the finishing process. Multiple wet washing machine cycles were combined into a single one, Ozone processing was incorporated into the jeans washing and water was removed from the stone wash finishing. The jeans was launched in 2011, and already saved 172 million litres of water after one year (Levi Strauss & Co.. 2015)

The examples given above are only a selection of innovations regarding product sustainability. Still, due to the scope of this thesis, to only present commercially viable options, they were the ones that best matched this criterion. Within the RankingX the efforts of these innovations will be assessed in the Operational Eco-Efficiency criterion, since they directly affect the water consumption and waste generation. Besides this, the innovations are also in coherence with TED’s TEN first viewpoint, which includes design strategies and innovations that reduce the environmental impact of products.
5.4. PURSUE CLOSED – LOOP SYSTEM

Even though some of the examples given here already refer to the idea of a closed-loop system, its execution encompasses a lot more than only providing the technology for the recycling process. This thesis works with the following definition by Anna Brismar of Green Strategy, a consultancy firm based in Sweden, which specializes in sustainability issues of the fashion industry:

“A “closed loop system” is a societal system where products and their components are designed, manufactured, used and handled so as to circulate within society for as long as possible, with maximum usability, minimum adverse environmental impacts, minimum waste generation, and with the most efficient use of water, energy and other resources throughout their lifecycles.” (Brismar, A. / Green Strategy. 2015.)

From the product sustainability aspect there are two areas, which need to be considered. At first there are a few aspects the designer should include during the first stages of the product development. The closed-loop system aims at extending the products lifetime, which also includes the possibility of product repairs for the consumer. For the designer this means that the design should enable the disassembly of individual components, which in the end does not only facilitate product repairs, but also recycling processes. Nudie Jeans, for instance, offer their customers the possibility to repair their jeans for free in selected stores (Nudie Jeans, 2015).

Secondly, the material selection plays an important role, since the products should be produced without the use of hazardous substances in order to allow safe recycling and biodegradation processes. Materials can be sourced not only from existing products that reached their end of life, but also via cross-sector collaborations, in order to give products a new purpose and extend their lifetime. An example for this concept is the recycling of plastic bottles as mentioned in the paragraph regarding Recycled Polyester.

A closed-loop system is the ultimate goal for a business that aims to fully implement corporate sustainability. Since it aims to lengthen the product life-cycle and promotes a responsible consumption of natural resources, it is measured in both the Product Stewardship as well as the Operational Eco-Efficiency criterion. Based on the comparison of RankingX constituents and non-constituents in the areas of appropriate material selection and implementing technological
innovation, it became clear that neither the constituents nor the non-constituents are currently able to produce within a closed-loop system.

5.4. CONCLUSION

This chapter compared product sustainability measures implemented by RankingX constituents to the ones implemented by non-constituents. It additionally subdivided the measures according to their implementation complexity. Since the scope of this section was narrowed down to present commercially viable product sustainability possibilities, some companies clearly dominated the field, namely Patagonia, SportswearCompany3, SportswearCompany4, SportswearCompany2, H&M, Marks&Spencer and PremiumCompany1.

Since the material selection of a product influences the environmental impact up and down the supply chain, it is very important for designers to make a conscious choice in this aspect. Even if companies do not want to deviate from their current material choices, they can still develop environmentally preferred versions of their commonly used materials in order to reduce the environmental impact. While many of the material options were implemented by both RankingX constituents and non-constituents, there were still four materials that were only implemented by non-constituents. Furthermore the constituents that were represented in this part of the analysis were mainly part of the sportswear industry, which highlights the superiority from sportswear brands compared to luxury brands.

The second sub-division regarding implementation complexity focused on the implementation of technological innovations in the product development processes. Currently only few companies go that far, since many technologies are still in the development phase, and thus not yet commercially viable. Still, three options were identified as viable possibilities for larger companies. One of those technological innovations was implemented by the SportswearCompany3, a RankingX constituent.

Pursuing a closed-loop system combines the selection of sustainable materials with the implementation of innovative technologies and thus presents the highest complexity. Hereby the need for virgin materials would be reduced to a minimum, while water, energy and other resources are used in the most efficient way without the use of hazardous substances. With
regard to the amount of waste produced every year, this step actively seeks to tackle the problem of textiles in landfills as well as the resource scarcity that the world is facing.

As analysed in chapter 4, the criteria Product Stewardship and Operational Eco-Efficiency account for 11% of the assessment score. The analysis in this chapter emphasizes this fact, since it became clear that the assessment does not put a key focus on product sustainability. If they did, brands that focus on product sustainability, such as SportswearCompany3 and SportswearCompany4, would have reached a higher assessment score. Furthermore, while SportswearCompany3 is represented within the material selection and the technological innovation part, many of the other constituents, such as PremiumCompany2 and PremiumCompany1, are only represented in the material selection part. Additionally, the results of this analysis indicate that the representation of sustainable companies within the RankingX is clearly limited by the fact that only the largest publicly traded companies are invited to participate. For instance Patagonia is very well known as a pioneer company in the field of sustainability, yet they are not invited to participate in the assessment since they are privately owned. Also, SportswearCompany4 is clearly a brand with considerable efforts in both the material selection and the technology part, still they are not represented within the 2015 RankingX annual.

Overall, this chapter emphasized the fact that while RankingX measures product sustainability, it does not necessarily support it within their constituents. The next chapter will formulate an overall conclusion to this thesis.
VI. CONCLUSION

Before moving to the conclusion of this thesis, let’s first recapitulate what initiated this research. Since the Rana Plaza factory collapse in 2013, the fashion industry experiences an increased demand for transparency and an increase in public awareness for social as well as environmental issues concerning the textile supply chain. The RankingX provides investors as well as stakeholders with a ranking of companies according to their corporate sustainability efforts. CompanyX aims to become an inherent part of this ranking, but in order to be successful the company first needs to set targets in regard to the implementation of product sustainability measures. This thesis thus aimed to provide a tool for the implementation of product sustainability measures in luxury fashion companies that pursue representation in the RankingX. The question that needed to be answered was therefore:

*In which way does the RankingX measure as well as support product sustainability within fashion companies?*

The second chapter began quite broad by addressing the sub-question ‘What is the relevance of sustainability in the fashion industry and how can it be communicated to the consumer?’ It was established that a lot of companies are still hesitant to take action and implement sustainability, even though the ones that did incorporate sustainable thinking into their business practises often benefitted from it. Also consumer perception of sustainability is often somewhat negative, which emphasizes the importance of green communication strategies in order to mainstream sustainable fashion.

‘What is the RankingX and how do they measure sustainable intangibles?’ was the sub-question describing the aim of the third chapter. The index construction as well as assessment methodology and weighting criteria were analysed and finally its credibility was discussed. During this analysis it was discovered, that the RankingX only invites the largest publicly traded companies to participate in the assessment, which proposes an important limitation within the indices. Furthermore, regarding the credibility of the RankingX it was discovered that while RankingX expects transparency from the companies participating in their assessment, the ranking itself is lacking in disclosure as it is protecting the intellectual property on which the business is founded on. Approximately 50% of the methodology behind the RankingX is confidential, due to the fact that only the general criteria are disclosed to the public.
Zooming in on the fashion industry and product sustainability within the RankingX the fourth chapter investigated the sub-question ‘How does the RankingX measure product sustainability and how do companies, which are currently represented in the RankingX, employ product sustainability?’ A widely accepted theory in product sustainability is that at least 80% of a product’s environmental impact is based on decisions that are made in the design phase. This theory highlights the importance for product sustainability within the textile industry. Taking a look at the last years annual constituents in the Textiles, Apparel & Luxury Goods industry, it becomes noticeable that companies operating in the luxury segment often only manage to be represented for one year, while companies, which are based on innovation and technology, such as the sportswear companies SportswearCompany3, SportswearCompany1 and SportswearCompany2 remained a constituent for a few years in a row.

Furthermore, the fourth chapter addresses the initial research question, regarding the measuring of product sustainability within the RankingX. An analysis of the RankingX Benchmarking Report for CompanyX, sample questionnaires as well as the methodology guide, revealed that the topic of product sustainability is measured within the environmental dimension of the sustainability assessment. Particularly the criteria Product Stewardship and Operational Eco-Efficiency assess the product sustainability efforts of participating companies. While the criterion Product Stewardship focuses on the Life Cycle Assessment of products and addresses issues concerning the product life span, the Operational Eco-Efficiency criterion assesses the companies on their consumption of natural resources namely direct and indirect Greenhouse Gas emissions, energy consumption, water withdrawal and waste generation. These criteria thus consider design strategies that aim to minimize the environmental impact or prolong the material or product life span. While those aspects are in coherence with the scope defined by TED’s TEN, RankingX neglects other aspects of product sustainability such as ethical design or design activism.

Due to the limitation discovered in chapter 3 regarding the fact that only the largest participating companies are invited to participate in the assessment, the fifth chapter of the thesis then regards the question ‘Are constituents of RankingX more sustainable than non-constituents in regard to product sustainability?’ While comparing commercially viable product sustainability measures implemented by constituents to the ones implemented by non-constituents this chapter additionally subdivides the measures according to their implementation complexity. The lowest complexity has been identified in the implementation of sustainable materials, which can reduce the environmental impact of the product or lengthen the material or product life span. In this category the analysis has pointed out that non-constituents have implemented alternative
materials, which are not used by any of the RankingX constituents. This was then followed by a comparison in the area of implementing technological innovations, which presented the second stage of implementation complexity and supports the company in reducing water as well as energy consumption or waste generation. Only one RankingX constituent has already reached this stage of implementation complexity, namely SportswearCompany3. A closed-loop system has the highest implementation complexity, and thus presents the ultimate aim for companies. Currently the technologies that are needed to reach this stage are still in the development phase, which means that neither constituents nor non-constituents have reached this level in the implementation of product sustainability measures yet. The analysis in chapter 5 has thus established that the representation of companies within the RankingX annual is not in coherence with the findings in this thesis. Since product sustainability only accounts for 11% of the assessment score, companies are not necessarily represented in the ranking, even though they manage to score high in the Product Stewardship and Operational Eco-Efficiency criterion. Overall, this analysis discovered that while RankingX measures product sustainability, it does not necessarily support its implementation with its constituents.

Based on the findings in this analysis RankingX has been identified as a ranking that covers a broad area of business practises. The lack of disclosure however poses a tremendous weak point, since stakeholders are not able to comprehend how RankingX arrived at the conclusions. Also the criteria weighting is an important factor that should be communicated to the public. The actual impact on the environment for instance, which is the acme of sustainability for many people, only accounts for 7% of the assessment score. Particularly in the fashion industry, where product sustainability holds such an important role, it is important to know that Product Stewardship and Operational Eco-Efficiency only account for 11% of the assessment score. Additionally, the limitation to only represent the largest publicly traded companies has the result that not the whole industry but only a particular group of the industry is represented within RankingX. Furthermore, after analysing all publicly available documents as well as the RankingX Benchmarking Report for CompanyX, the scoring methodology behind the assessment is still somewhat unclear. One question that remains for instance is: How does the assessment weigh the various sustainability efforts of individual brands within the group assessment?

Even though there are areas for improvement within the RankingX, rankings like these carry an important role in pushing sustainable business development forward. Not only do they promote the implementation of sustainable business practises, they also encourage companies to constantly strive for sustainable improvement.
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VIII. APPENDIX

8.1. TED’s TEN

1 – Design to Minimise Waste
   Reduce the waste both pre and post costumer. “Of the total textile fibre produced, up to 65% is lost, post-consumer, to landfill, incineration or composting” (Allwood. 2006 in TED. 2015). Examples: Zero waste cutting, dematerialising, long-life design and recycling

2 – Design for Cyclability
   Avoid landfilling obsolesced products and instead reuse those resources by pursuing a closed-loop system. Examples: Design for upcycling, disassembly and mono materiality.

3 – Design to Reduce Chemical Impacts
   “One cupful of pesticides and fertilisers are used in the production of the average t-shirt” (Observer, 2005 in TED. 2015). Minimise environmental impact through well-thought-out materials as well as processes. Examples: Low impact materials, ozone technology, laser technology and low-impact dye.

4 – Design to Reduce Energy and Water Use
   Vast quantities of water and energy are used in each stage of the product’s lifecycle. The designer has the possibility to reduce this amount by considering new technologies. Examples: Ozone technology for denim finishing reducing water use, waterless dye technologies and technical coatings as well as materials to reduce washing.

5 – Design that Explores Clean / Better Technologies
   Replace processes with less energy consuming technologies to reduce environmental impacts. Examples: 3-D printing, laser, sonic cutting as well as welding and both digital printing and finishing.

6 – Design that Looks at Models from Nature & History
   Find inspiration from studying and reflecting upon nature as well as textiles, habits and societies of the past. Examples: Lotus effect, shape-memory polymers, Velcro, Make-do-and-mend and historic dyeing or printing methods.
7 – Design for Ethical Production

“For making a $100 pair of trainers, the factory worker will receive just 50 cents” (Clean Clothes.org in TED. 2015). This strategy supports and values worker’s rights, while questioning the meaning of ethical production. Examples: Fair trade materials, consideration of local resources and engaging suppliers who comply with the code of conduct.

8 – Design to Reduce the Need to Consume

“Clothing sales have increased by 60% in the last ten years” (Oakdene Hollins. 2006 in TED. 2015). Reduce textile waste by designing products that consumers want to keep and care for. Examples: Slow fashion, co-design, product personalisation, collaborations and emotionally durable design.

9 – Design to Dematerialise and Develop Systems & Services

“Systems & services design illustrates how consumers needs can be met with services as opposed to tangible products, and at the same time provide economic and environmental benefits” (Manzini. 2001 in TED. 2015). Examples: Lease, share, repair and experience design.

10 – Design Activism

The designer becomes the ‘social innovator’, who goes beyond the product design, in order to educate the consumer as well as other designers about the environmental and social impacts of fashion and textiles. Examples: Conferences, blogs, publications, exhibitions, social media and open-source networks.
8.2. BEST PRACTISE CASE STUDIES

**PremiumCompany1**

PremiumCompany1 is a luxury group which comprises various brands in the luxury and sport & lifestyle segment, which are distributed in over 120 countries. Regarding the strategy the group states, that it is their primary goal to reach organic growth by expanding and strengthening the market presence of their current brands, while also developing their distribution network and channels. Additionally, they seek to acquire small and medium size brands, which would strengthen as well as complement the current brand portfolio.

PremiumCompany1 about Sustainability:
“Sustainability for PremiumCompany1 is both a business and a leadership opportunity. Inherent in the quality of our products, sustainability gives us the opportunity to create value and competitive advantage. We propel our brands to lead with new business models that contribute to a better world economically, socially and ecologically. In line with our engagement with solidarity initiatives, we continue to support the PremiumCompany1 Foundation, which campaigns to stop violence against women.” – PremiumCompany1. 2015

PremiumCompany1 introduced the Environmental Profit & Loss account, which measures the corporate environmental footprint across the supply chain and monetises it. This tool allows PremiumCompany1 to get a better understanding of the businesses environmental impact and thus enables the company to take action more precisely.

**Product Sustainability:**

**Materials Innovation Lab (MIL):**
In order to reach the sustainability targets, PremiumCompany1 established the Materials Innovation Lab (MIL), which provides all brands, within the brands portfolio with a comprehensive library of sustainable materials. The MIL is led by a team of experts, who introduce the PremiumCompany1 brands to innovative raw materials, fabric processes as well as manufacturing processes and support them in making sustainable choices concerning their supply chain processes and products.

**PVC:**
Reduce the PVC used in PremiumCompany1’s collections down to 0% by 2016.
Skins and furs:
By 2016, 100% of all skins and furs used in PremiumCompany1 products will come either from verified captive breeding businesses or from wild, sustainably managed populations. Furthermore will those suppliers employ accepted animal welfare practises and ethical treatment in sourcing.

Leather:
By 2016, 100% of leather from domestic livestock will come from responsible and verified sources, which do not convert sensitive ecosystems for their production purposes.

One brand, within the PremiumCompany1 brand portfolio, does not use any leather, skin or fur products in its collections. Instead it finds alternative materials, such as APINAT, a bioplastic used in shoe soles, which will biodegrade when placed in mature compost. Also Eco Alter Nappa, a vegetable-based polymer, was used for bags as an alternative to leather.

Worn Again:
In order to address the problem of textile waste, the PremiumCompany1 teamed up with the UK start-up Worn Again, who are developing the first textile-to-textile chemical recycling technology. The aim of this technology is to first separate and extract polyester and cotton from old or end-of use clothing and textiles, and then spin this reclaimed polyester and cellulose into new fabric, resulting in a circular resource model for textiles.

By allowing to separate blended fibre garments, this technology accomplishes something, which until now proposed a major barrier to recycling. The technology additionally enables companies to separate dyes and other contaminants from the fibres, which overcomes another major challenge. PremiumCompany1’s brand SportswearCompany2 and also H&M will be monitoring the further development process of this technology, hoping to demonstrate that this is a commercially viable solution for circular recycling.

“Innovation is what we need to solve our global environmental challenges. Our collaboration with H&M and Worn Again is a great example of this, demonstrating how we can design and deliver a solution that will be fundamental in eradicating textile waste while simultaneously offering a new type of sustainable raw material for our Sport & Lifestyle brands.” - Chief Sustainability Officer and Head of international institutional affairs at PremiumCompany1.
Clean by Design:
Clean by design, in collaboration with the NRDC (National Resource Defence Council), helps designers and companies to reduce their environmental footprint by analysing their own processes as well as the ones from suppliers. It calls upon designers, retailers and brands to get to know their supply chain, to identify their fabric mills and then promote sustainable changes, while increasing the return on investment. PremiumCompany1 is implementing this programme within their brands, starting by auditing each mill and providing them with a fitting best practice guides, be it concerning weaving, dyeing, finishing, spinning or alternative leather production. Mills that implemented the changes suggested could see a enormous decrease in water and energy use.

PremiumCompany2

PremiumCompany2 is a global luxury brand that distributes clothing, fashion accessories, fragrances, sunglasses, and cosmetics via almost 2,000 points of sales worldwide and with a global team of over 10,000 employees.

Corporate Culture:
“A closely connected, creative thinking culture encourages cross-functional collaboration, intuition and a meritocratic ethos. United by open communication and a pure brand vision, and inspired by the Company’s core values – Protect, Explore and Inspire – compassionate global teams give back to their communities through the PremiumCompany2 Foundation and socially responsible initiatives.” – PremiumCompany2. 2015

Strategy:
Strengthen the brand and enhance consumer resonance through a more effective use of brand assets as well as product and market excellence.
Seize the opportunity to capitalize in the accessories market by using the iconic brand image and creative expertise of Premium Company2.
Increase growth in all distribution channels by applying a dynamic digital retail mind-set across all organisation processes.
Focus on opportunities in both developed markets such as the United States and the growth economies of China, India and the Middle East. Continue to pursue growth opportunities while being consistent with the brands product and marketing strategy.

Product Sustainability:
Environmental Baseline Assessment:

PremiumCompany2 initiated an environmental baseline assessment, in order to determine both the direct and indirect carbon dioxide equivalent (CO²e) impacts arising from materials, energy, water, chemical inputs and waste, across all areas of Premium Company2’s business and its supply chain (Figure Premium Company2). Goal of this analysis was, to define certain risk and priority areas that required the most attention of the company. Resulting from this assessment, PremiumCompany2 drew the following conclusion:

![Environmental Baseline Assessment](image)

(Figure Premium Company2. Environmental Baseline Assessment data source: PremiumCompany2 Corporate Responsibility. 2015)

One of the key targets 2017 is the reduction of the environmental impact of Premium Company2’s main raw materials, namely cotton, leather and PVC. Cotton and leather combined accounted for 57% of the CO₂e from PremiumCompany2 raw materials.

Cotton:

Regarding the reduction of cotton, PremiumCompany2 started a collaboration with one of their key suppliers in Peru. Together with CottonConnect, a specialist in the area of sustainable cotton farming, the company introduced a training concept that will educate the farmers in practices, which actively reduce the impact of their cotton production.
Leather:
In order to reduce the impact of the leather production, PremiumCompany2 aims to increase the use of leather originating from tanneries with a Leather Working Group Certificate. This certificate ensures the effectiveness of the tanneries waste water treatment process and their handling of the chemicals used during the production processes.

PVC:
Even though PVC was not identified as a high impact raw material, PremiumCompany2 wants to reduce the amount of PVC used, due to its need for chemicals in the manufacturing stage.

PERSONALIZE:
Additionally PremiumCompany2 also introduced their personalization service, which offers customers the opportunity to personalize their trench coat. By choosing fabric, lining colour, stitching as well as design details PremiumCompany2 offers consumers over 12 million available design variations, allowing the consumer to create a one-of-a-kind product.

**PremiumCompany3**

With over 3,000 stores worldwide and more than 120,000 employees, the PremiumCompany3 developed to one of the world leaders in high-quality products since its creation. Nowadays the company comprises a unique brand portfolio with over 70 prestigious Houses in five different sectors.

Mission:
“The mission of the PremiumCompany3 group is to represent the most refined qualities of Western "Art de Vivre" around the world. PremiumCompany3 must continue to be synonymous with both elegance and creativity. Our products, and the cultural values they embody, blend tradition and innovation, and kindle dream and fantasy.” – Premium Company3. 2015

Values:
Be creative and innovative: Nurture the combination of artistic creativity and technological innovation by supporting new talents.
Aim for product excellence: Never compromise when it comes to quality, endurance and finish of the products.
Bolster the image of our brands with passionate determination: The uniqueness of each brand image must be preserved through every step of the company’s communication with the public.

Act as entrepreneurs: Foster an efficient, productive and creative work environment through decentralization, which leads to encouragement of the individual.

Strive to be the best in all we do: Support the strive for improvement by providing the opportunity to gain new skills.

Sustainability:

“In fact, environmental protection is not merely an issue of generosity or philanthropy. It is critical to our future. For companies, it is a factor of progress and competitiveness while for society it represents a tangible proof of freedom and a new way of thinking. PremiumCompany3 has already met this triple challenge. Tradition cannot be separated from innovation, nor nature from creation.” – CEO of PremiumCompany3.

LIFE Programme

In 2012 PremiumCompany3 launched the LIFE programme in order to incorporate environmental factors more efficiently within managerial processes. The programme is specific to each brand, while offering a way to harmonize and share best practise between all brands. Nine strategic objectives have been identified that will help to strengthen the brands as well as the PremiumCompany3: eco-design, raw materials and supply chains, material traceability and compliance, supplier relations, reduction in greenhouse gases, environmentally-friendly manufacturing processes, product duration, customer information and protection of know-how and expertise relating to the environment. Each brand then defines their own action plan, depending on their priorities regarding those strategic objectives.

Main concerns regarding the Fashion & Leather Goods sector:

<table>
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<tr>
<th>Saving energy resources and combating climate change</th>
<th>Protecting and saving water resources</th>
<th>Protecting ecosystems and natural resources</th>
<th>Reduction in impact of production and transformation of raw materials, specifically through eco-design</th>
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<tr>
<td>• Store lighting and air-conditioning.</td>
<td>• Discharges of effluents from spinning and tanning facilities.</td>
<td>• Especially plant resources (textile fibres) required for production. • Exotic leather</td>
<td>• Packaging. • Cotton and other textiles, leathers. • Tanning.</td>
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| Transportation of product shipments. | |
|-------------------------------------|
Product Sustainability in the Fashion & Leather Goods sector:

Raw materials:
By optimizing manufacturing processes and the sparingly use of raw materials, the PremiumCompany3Group aims to reduce product waste at the production source. Louis Vuitton, for instance, demands that 85% of the packaging used to transport products uses recycled materials and is printed with inks that do not contain heavy metals. Also the cardboard packaging for Parfums was reduced by 186 tons of cardboard by producing lighter boxes.

Waste:
In order to reduce the waste created during the production phase, PremiumCompany3 started to donate the leather and textile waste to the ‘La Réserve des arts’, a non-profit platform that collects and recycles corporate waste by passing it on to professional artists and designers.