Public procurement of cellulose-based and locally produced textiles
- incentives and barriers for sustainable purchasing in the Swedish healthcare sector

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Abstract

Background This study describes the incentives and barriers of public procurement of cellulose-based and locally produced textiles in the Swedish healthcare sector governed by the county councils and regions. The size of the public procurement market is substantial which makes it imperative to analyse the procurement decisions taken by this large customer from a sustainability perspective. To understand these decisions better the public procurement is also analysed from an organisational perspective discussing pressures from global, regional and local stakeholders and governing authorities.

Methods Empirical and primary data was collected from three semi-structured interviews with procurement officers, strategic buyers and heads of procurement departments in three county councils and regions in Sweden. The qualitative data was supplemented with quantitative data from a survey targeting the additional 18 county councils and regions in Sweden. All 21 county councils and regions in Sweden participated in or responded to the interview and survey study. Six (33 %) complete responses were submitted, while five (28 %) surveys were partially responded to. Seven (39 %) county councils and regions did not participate in the study. The quantitative survey data was analysed through the Fisher’s exact test and a thematic analysis was applied jointly on the interview and survey data due to the identical interview and survey questions.

Results The four themes found in the empirical data were concluded to be the decision-making in these procurement processes being affected by many stakeholders, a high trust on suppliers for information updates and sustainable responsibility, an existing knowledge gap on cellulose-based and locally produced textiles and the challenges and opportunities surrounding the regulation of sustainability in the contract terms in the public procurement of textiles. The procurement officials being in a leading or non-leading position did not show any statistically significant effect on the perception of the clarity in the relevant political directives and how this influences the possibility to take sustainable action in the procurement process, nor on whether the short-term (lowest) price has a higher priority than the long-term (e.g. long-term societal and environmental costs) in the procurement of textiles.

Conclusion The sustainable public procurement of textiles within the Swedish healthcare sector governed by the county councils and regions is characterized by a high level of organisational complexity including many global, regional and local stakeholders. The governing authorities as well as the procuring organizations and suppliers show interest in implementing sustainable procurement processes which is however aggravated by static contract terms, limited knowledge on novel textile materials and the perceived costs related to the procurement.

Key words Public procurement; Green public procurement; Sustainable public procurement; Innovation procurement; Textiles; Healthcare sector; Sweden
Acknowledgements

The societal and global sustainability challenges ahead of us gives us all reason to question and challenge our daily actions and lifestyles. Working on this master thesis has increased my knowledge on the possibilities and contributions sustainable innovations and sustainable public procurement can bring to society, but has also taught me about the challenges surrounding these activities.

I would like to thank my parents for showing me and teaching me about the economic, environmental and social benefits of the forestry and the many ways a small-scale forest-owner in Sweden can contribute to a global, sustainable future. The instructive and energizing forest walks with my father and the inspiring and informative classes with my mother and the local forestry association for women in combination with my interest for entrepreneurship and innovative thinking has altogether inspired me to dedicate these months of thesis writing to the innovative ways through which the national forestry and forest raw materials can contribute to global sustainability, through the lens of public procurement.

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## Terminology and abbreviations

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<tr>
<td>Cellulose-based textiles</td>
<td>This study primarily focuses on the manufactured cellulosic materials, e.g. viscose, rayon (Zamani, 2014).</td>
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<tr>
<td>Locally produced</td>
<td>Locally produced goods in this study is referred to as goods produced in Sweden.</td>
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<tr>
<td>Corporate social responsibility (CSR)</td>
<td>This study applies the definition of corporate social responsibility used by Werther and Chandler being “a view of the corporation and its role in society that assumes a responsibility among firms to pursue goals in addition to profit maximization and a responsibility among a firm’s stakeholders to hold the firm accountable for its actions” (Werther &amp; Chandler, 2011, p. 5).</td>
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<tr>
<td>Life-cycle assessment (LCA)</td>
<td>Analysis of environmental impacts and costs related to the product or service in all stages, from the extraction of raw materials to manufacturing, distribution and final disposal (Europeiska Gemenskapernas Kommission, 2004).</td>
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<tr>
<td>Premium price</td>
<td>A price above the industry average paid by the customers because they believe the product’s additional qualities are worth this higher price (Hill &amp; Jones, 2011).</td>
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<tr>
<td>Sustainability</td>
<td>“Meeting the needs of the present without compromising the ability of future generations to meet their own needs” (Werther &amp; Chandler, 2011, p. 321).</td>
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1. Introduction
This chapter will introduce the reader to the practical sustainability challenges related to public procurement of textiles within the Swedish county councils and regions, discussed from a global to a local perspective. In addition, the theoretical background and research problem discussion will be presented.

1.1 Background

1.1.1 Textiles and sustainability in Sweden and the world
Governance bodies and representatives participating in the COP21 climate change global conference in Paris in December 2015 concluded and declared with strong emphasis to the participating countries, the global industry and other stakeholders that the world has only reached the initial phase of the strive for a limitation of carbon emissions aiming for building climate change resilience (Regeringskansliet, 2015). The concluding agreement urges parties to “cooperate in taking measures, as appropriate, to enhance climate change education, training, public awareness, public participation and public access to information, recognizing the importance of these steps with respect to enhancing actions under this Agreement” (United Nations Framework Convention on Climate Change, Article 12, 2015). In this study these broad sustainability goals and appeals are narrowed down and focused on the sustainability aspects related to public procurement of textiles in the healthcare sector governed by the Swedish county councils and regions and the organisational structures and processes affecting these procurement decisions.

The textile industry is a diverse sector with a long, global history of production of consumer goods. Textile and clothing is the second largest economic activity of the world and the sector accounts for 7 % of the global export while around 3 % of the total manufacturing value of Europe origins from textile. For centuries, the majority of the textile production was based in Europe and North America while today, Asia is the region of most textile- and clothing-related industries (European Commission – Retail Forum, 2013). In 1950 Sweden was self-supportive of textiles and ready-made clothing to a level of 85 % leaving 70,000 people employed in the national textile industry. In 1996 the industry had decreased to a number of 8,000 employees due to increased international competition mainly caused by lower wages abroad and an out-dated and ineffective national textile industry. Today the textile, ready-made clothing and shoe industry in Sweden nationally employs around 14,000 people while approx. 90 % of the sewing work is conducted outside of Sweden (Konsumentföreningen Stockholm, 2011).

Lately, the sustainability aspects of the textile industry have received increased attention. The sector is facing environmental, economic and social challenges concerning e.g. pollution and chemical waste related to the production as well as poor working conditions affecting many textile workers. Clothing alone accounts for 2-10 % of the total environmental impact of the products consumed and paid for by private households and the public sector in the European Union (European Commission – Joint Research Centre, 2006). The consumption of textiles accounts for 2-3 % of the Swedes’ greenhouse gas emissions, seen from a consumption perspective (Naturvårdsverket, 2015a).

The national consumption of clothes has been constantly increasing the last decades. Between 1999-2009 the sales of clothes and shoes in Sweden increased with 53 %, reaching a sum of 75 billion kronor a year (Konsumentföreningen Stockholm, 2011). The influx of imported clothing and textiles to Sweden was 128,000 tons in 2014, which corresponds to approx. 13,1 kilos per person. Of this consumption around 8 kilos textiles per person are annually thrown in the household waste. Almost no textile waste is currently recycled within Sweden but charity organisations send textile products that don’t sell in Sweden or Eastern Europe to e.g. Germany and the Netherlands for recycling and reuse. The most common textile recycling in Europe is currently the recycling of textiles in e.g. mattresses and car seats (Naturvårdsverket, 2015b).
Since the actual environmental and social costs are not included in the textile products produced by so-called virgin and never before used materials, which are produced in lower wage countries outside of Europe, the access to cheap textiles increases in Sweden and thereby also the consumption. This brings a challenge to the reuse and recycle initiatives since the costs related to these activities can be relatively high compared to the costs of importing new textiles. This is partly caused by the labour intensive activity of waste collection of textiles which would increase the costs if implementing these activities on a large scale in Sweden (Naturvårdsverket, n.d.).

The textile industry and production is legally and morally affected by an extensive number of labelling directives which sets both economic, environmental and social standards (European Commission – Retail Forum, 2013). REACH concerns regulations and evaluations of chemical effects of products and the chemical industry in Europe (European Chemicals Agency, n.d.) and the EU Eco-label, the Blue Angel, the Nordic Swan and the Global Organic Textile Standard (GOTS) are examples of other labels including environmental and social standards focused on the textile industry and its products (European Commission – Retail Forum, 2013). The environmental criteria referred to by the European Commission examine the product’s or service’s environmental impact during the whole life-cycle, which provides information on the costs related to the product or service in all stages, from the extraction of raw materials to manufacturing, distribution and final disposal (Europeiska Gemenskapernas Kommission, 2004).

The textile industry itself has also implemented several sustainability initiatives to improve its sustainable impact, e.g. Sustainable Fashion Academy (SFA) focusing on creating a platform for development and innovation for sustainable fashion and Sweden Textile Water Initiative (STWI) which was created by 30 Swedish textile and leather companies aiming for increasing the knowledge and improving the guidelines affecting the water use in the textile production. Research and development is conducted through several large research programmes, e.g. Mistra Future Fashion which is a cross-disciplinary research programme investing in research on sustainable fashion (Konsumentföreningen Stockholm, 2011).

1.1.2 Regional and local public procurement directives for textiles

The public procurement market is of extensive size, especially within health, energy and transport. “However, little public procurement is currently aimed at innovative products and services, despite the possibilities offered under the EU procurement directives” (OECD, 2011, s. 179). This study will therefore investigate the incentives for public procurement of cellulose-based and locally produced textiles in the Swedish healthcare sector and what organisational structures and processes that affect these decisions.

Public procurement refers to “the acquisition of goods and services by government or public sector organizations” (Brammer & Walker, 2011, p. 453) while sustainable public procurement “refers to the act of integrating a concern for broader social and environmental impacts within procurement undertaken by government or public sector bodies” (Brammer & Walker, 2011, p. 455). Brammer and Walker argue that international research shows that sustainable public procurement is encouraged among public bodies not only to increase the social and environmental sustainability among the public institutions but also to stimulate sustainable initiatives within the private sector (Brammer & Walker, 2011).

The European governments and heads of state agreed in the Lisbon treaty of 2000 that the European Union in 2010 should be the world’s most competitive and dynamic knowledge-based economy, aiming for a sustainable economic growth with more and better work opportunities and a higher degree of social cohesion. In 2001 the treaty was complemented with an environmental facet in the European strategy for sustainable development, through which all relevant authorities were encouraged to consider a sustainable development in their decision making and support public procurement policies that consider the development and distribution of environmentally friendly
products and services (Europeiska Gemenskapernas Kommission, 2004).

The European directives for public procurement of 2004 confirmed and complemented the legal frame for this sustainable approach. In the directive the possibilities to implement environmental criteria in the technical specifications, selection criteria and award criteria of the public procurement, as well as in the regulations of fulfillment of the contract, were emphasized. Strategic steps to ensure the environmentally friendly public procurement were determined, among these were the need for skills development among the procurement staff, securing the access of environmental information and prioritization of the aspects needed to establish the contracts e.g. including consideration of access and cost of more environmentally friendly alternatives, consideration of access to relevant information and the strive for visibility of the environmental actions taken to increase policy awareness both within and outside the organization (Europeiska Gemenskapernas Kommission, 2004).

The production methods can be considered in the technical specifications of the public procurement as an aspect that might decrease the environmental impact of the product. Also, a procuring authority is allowed to demand that the product is produced of a certain material, as long as the treaty’s principles of non-discrimination and free movement of products and services are respected. This can be done by listing preferred materials or by stating that the materials or chemicals included in the materials must not be environmentally hazardous. The right to make demands on materials or product content also includes the right to, if possible, demand a minimum of recycled or reused materials (Europeiska Gemenskapernas Kommission, 2004).

Environmental management systems are used to improve the environmental performance within organisations and in the European Union two main systems are used. The EMAS is an environmental management tool open for organisations with plants within the European Union and the EES region, which is used to improve the organisation’s environmental and financial performance and to communicate its environmental activities and achievements to stakeholders and society in general. The ISO management system have several environmentally focused standards and is open for organisations across the world aiming for environmental improvements in their activities (European Commission – EMAS, 2015; Europeiska Gemenskapernas Kommission, 2004; ISO, n.d.). Green public procurement (GPP) is an organisational process intended to increase the focus on and actions towards environmentally friendly procurement of products and services through the whole life cycle, a strategic tool recognized by the UN, the OECD and the EU as an approach to be used to mitigate the environmental impact and reach sustainability goals. The Swedish Environment Management Council developed GPP criteria for the health care sector in 2014, as the first governing body to do so within the sector. Acknowledging the GPP criteria as an important tool for sustainability measuring has increased the possibilities for the implementation of these procurement criteria in Sweden and elsewhere, even though the GPP is still a voluntary tool. The GPP techniques of life-cycle costing, definition of environmental award criteria and clarified specifications of what is a sustainable production process may facilitate the procurement authorities’ identification of sustainable contracts. The Sustainable Public Procurement approach (SPP) is more and more often applied by public authorities in Europe, through which both environmental and social sustainability aspects are considered in the purchasing process (European Commission – Environment, 2016; Innovation Seeds, 2016).

In 2014 the European Union agreed on new public procurement directives. “The new rules will make it easier and cheaper for small and medium-sized enterprises (SMEs) to bid for public contracts, will ensure the best value for money for public purchases and will respect the EU’s principles of transparency and competition. To encourage progress towards particular public policy objectives, the new rules also allow for environmental and social considerations, as well as innovation aspects to be taken into account when awarding public contracts” (European Commission – GROWTH – Internal Market, Industry, Entrepreneurship and SMEs, 2016). The directives are said to simplify and make the procurement processes more flexible while they are intended to open the union’s procurement market, to be used to act against nationalistic “buy national” policies and to promote the free movement of products and services which is argued to result in better value for money for the procuring authorities.
The directives were expected to be nationally implemented in the respective member countries by April 18, 2016 (European Commission – GROWTH – Internal Market, Industry, Entrepreneurship and SMEs, 2016). The legislative work has however been delayed in Sweden and the new directives are not expected to be implemented in Sweden until January 1, 2017. Meanwhile, the National Agency for Public Procurement has announced that the old directives are to be used (Upphandlingsmyndigheten, 2016a).

There are still several steps to be taken in the legislative process surrounding the new directives and the government’s final suggestion on how the directives should be implemented could change before the implementation in January 2017 due to viewpoints from e.g. the Council on Legislation – Lagrådet, the authority that scrutinizes the draft bills intended to be submitted to the Parliament from the Government (Lagrådet, n.d.; Upphandlingsmyndigheten, 2016b). The Council on Legislation has had several critical comments on the new EU directives, e.g. that the directives still contain ambiguities and the Council finds it unsatisfying that interpretative problems of the directives are passed on to the national legislation. This was already commented on by the Council on Legislation in the previous legislative process within the same field during 2006. The Council continue to point out that they find some parts of the directives incomprehensible and the extensive largeness of the directives makes the regulation difficult to overview and more detailed and unwieldy than motivated. The Council emphasizes that this is particularly unfortunate since those who have to apply the regulation are mainly authorities with limited resources and procurement skills (Lagrådet, 2016).

The new EU directives are said to clarify the possibility to set environmental and social requirements in the procurement process. The directives will however not entail any major differences compared to what is already case law today. During the last 10-15 years the Court of Justice of the European Union has announced several legal resolutions which bring increased possibilities to set sustainability requirements, to a greater extent than what is believed by many. "The possibilities hardly increase due to the new directive. What environmental and social requirements that are set is more a matter of the competence among the procurement officers, access to support and resources and political ambitions rather than the law being an obstacle", according to Henrik Grönberg, lawyer at the National Agency for Public Procurement (Miljö & Utveckling, 2016). However, Henrik Grönberg points out that having environmental and social considerations included in the directives is of symbolic value to ensure that these issues get increased attention within the public procurement.

Some sustainability improvements have been introduced in the new directives, e.g the member states are urged to take appropriate action in order to ensure that the suppliers comply with the environmental, social and labour law responsibilities. The interpretation on what this practically means is delegated to the member countries to decide. Also, the legal possibilities to demand a certain environmental labelling of a product or that the products should be approved of by certain environmental management systems, are increased. Furthermore, the new directives allow for life-cycle-costs to be used as an award criterion in the public procurement process (Miljö & Utveckling, 2016).

Innovation procurement can be used to implement innovative solutions to problems in public organisations. The innovation is not procured, since it’s not possible to know whether a solution is truly an innovation before it has been successfully implemented and used. Innovation procurement is rather an intention to support and encourage innovation by requesting and allowing for new solutions. This implementation of new products, services and processes might increase the efficiency and quality of the public organisation activities as well as increase the overall, public good. Demand-driven innovation policy is by many seen as a recommended tool to be used, where the need formulated by the public organisation is the foundation of the collaboration between the procuring authority and the supplier (Upphandlingsmyndigheten, 2015). Innovation procurement can, however, be a complicated process characterized by more complexity and requiring more engagement from the procuring organisation, compared to more regular procurement. This while the same level of transparency,
follow-up and evaluation needs to be applied as in all public procurement processes. Increased legal issues is one example of an inevitable challenge related to innovation procurement (EY & Karolinska Universitetssjukhuset, n.d.).

The public procurement of textiles in Sweden is mainly governed by the Swedish Public Procurement Act (2007:1091 – LOU) and The Act on System of Choice in the Public Sector. The procurement rules and processes must consider the fundamental principles of non-discrimination, equal treatment, transparency, proportionality and mutual recognition and The Public Procurement Act is based on the EU directives within the field (The National Agency For Public Procurement, n.d.a). The public procurement is expected to promote cost-effective use of the national tax revenue, promote free movement within the EU, eliminate practices that restrict competition, facilitate for companies aiming for doing business with the public sector and ensure that the company selling the most demanded products, services or contracts to the most favorable terms wins the contract (Konkurrensverket, n.d.).

The Swedish Competition Authority is the supervisory body of the public procurement in Sweden and has been given the task to supervise the establishment of systems of choice (Konkurrensverket, 2015). In September 2015 a new authority for public procurement was established, The National Agency for Public Procurement, whose task is to support contracting authorities, units and suppliers and to strive for ”an effective and socially and environmentally sustainable public procurement to the benefit of the society and the participants in the markets” (The National Agency For Public Procurement, n.d.b). The National Agency for Public Procurement has taken over the main part of the public procurement support from authorities e.g. Vinnova, Kammarkollegiet och Miljöstyrningsrådet and has allowed for the authority previously responsible for the support activities, The Swedish Competition Authority, to focus only on the supervisory activities (Konkurrensverket, 2014; Aktuell Hållbarhet, 2014). Other authorities informing and developing the public procurement field in Sweden are e.g. the Swedish Association of Local Authorities and Regions and the Swedish Agency for Economic and Regional Growth (EY & Karolinska Universitetssjukhuset, n.d.).

1.1.3 Sustainable procurement of textiles in the Swedish healthcare sector

The Swedish healthcare sector is the largest of all public sectors and accounts for a large percentage of all public consumption in the country (Sveriges läkarförbund, 2013). National initiatives have been taken to increase the sustainability in the procurement processes of the Swedish healthcare sector (Socialt Ansvarstagande i Offentlig Upphandling, 2016). Patient and personnel safety as well as service quality has historically been the predominant values guiding the Swedish healthcare system while the environmental aspects have received less attention. Stronger environmental regulations have however increased the environmental awareness and interest within the health sector and its governing bodies (Karlsson & Pigretti Öhman, 2005).

According to the National Agency for Public Procurement the county councils and regions in Sweden all intend to implement strategies to be able to evaluate all climate-affecting products procured within the healthcare sector from a long-term perspective, with a specific focus on function, price and the climate impacts from a lifecycle perspective (Upphandlingsmyndigheten, n.d). To increase the social sustainability of the public procurement the National Agency for Public Procurement provide a CSR tool that gives practical guidance to the procuring authorities on how to set social sustainability requirements towards the suppliers (CSR-kompassen, n.d.).

Many county councils and regions procure their textiles or utilize textile services via textile and laundry service firms. The textile and laundry services include rental of textiles and washing of rented textiles or washing of own textiles/goods. These activities including textile purchasing, textile maintenance and logistics have several environmental aspects linked to e.g. the extraction of raw materials for washing chemicals and textiles, the manufacturing of washing chemicals and textiles, the washing process and the use of fossil fuels in the distribution. The energy consumption, chemical use, carbon gas emissions and water consumption are examples of environmental aspects involved in the different textile manufacturing and washing processes. The social sustainability aspects of the textiles
and laundry service firms include e.g. labour conditions, access to minimum wages and the right to enroll with labour unions in the manufacturing industries and laundry service firms abroad and in Sweden (Miljöstyrningsrådet, 2012).

Berendsen and Textilia are two of the most engaged textile and laundry service firms in Sweden and the industry association Sveriges Tvätteriförbund provides the member companies with authorisation, the T-marking, which ensures environmental and labour standards (Miljöstyrningsrådet, 2012).

New methods are tested and/or applied in the washing process, e.g. the use of enzymes and ozone, in order to improve the washing efficiency while decreasing the environmental impact of the process (Miljöstyrningsrådet, 2012). Most textile and laundry service firms show interest in improving their environmental and social impact, but still face sustainability challenges. One example is the firms’ management of their textile waste. The main part of the textile waste from the textiles and laundry service firms end up in waste combustion while a limited part is sent to charity organisations (Naturvårdsverket, n.d.).

Many of the county councils and regions in Sweden show interest in engaging in an improvement of its sustainability actions in relation to the public procurement. While the economic sustainability of the public procurement activities traditionally has received considerable attention, the environmental and social aspects are now communicated as being more prioritized than before. Local environmental policies are directing the environmental aspects of the procurement of the county councils and regions and the decision-making in some cases follow the general, organisational hierarchy, where the governing council of the county council is the highest decision-making body in environmental issues. The board and director of the county council has the overall environmental responsibility while every head of department and co-worker has an environmental responsibility over his or her regular field of responsibility (Region Kronoberg, 2011). The local, social sustainability standards were put together to common standards in 2010 when all the county councils and regions in Sweden decided to make the same demands and requirements on their suppliers to ensure a social responsibility in the production of the goods being purchased. The partnership e.g. means that "in all procurement of medical supplies, suppliers shall ensure that the requirements of human rights, environmental considerations, freedom of association and working conditions are met" (Region Kronoberg, 2015).

The county councils and regions also collaborate in a national network in which the procurement directors gather to exchange experiences for the development of the field (Landstingsnätverket för Upphandling, 2016). This networking and knowledge sharing is highly encouraged by the OECD in relation to innovation procurement since the support this networking can bring might help facing the risks taken by procuring innovatively (OECD, 2011). Successful collaborations also improve the possibilities for sustainable public procurement. The collaboration between the textile service firm Textilia, the county council of Stockholm and the textile supplier Senstex is one example which has resulted in the development of several new environmentally certified textiles adapted for industrial laundry (MyNewsDesk, 2016; SensTex, n.d.; Textilia, n.d.).

1.1.4 Sustainability aspects of cellulose-based and locally produced textiles

Clothing and textiles are produced from several types of fibres “which are either natural (e.g. silk, wool), natural cellulosic (e.g. cotton, linen), manufactured cellulosic (e.g. viscose, rayon) or synthetic (oil-based e.g. polyester, acrylic and nylon)” (Zamani, 2014). The CelluNova is a prototype and regenerated wood based cellulose fiber produced in the unique CelluNova process, which could outperform both viscose and rayon-based lyocell since e.g. less chemicals are needed in the processing (Mistra Future Fashion, n.d.). Polyester is the base in 63 % of the total textile production in the world, while cotton adds up to 30 % of the production. The rest of the world’s textile production is cellulose-based, a part that is expected to increase due to e.g. the oil-based polyester being based on a finite raw material (Svensson, 2016).
The global need for textile is increasingly growing from an annual textile fiber consumption of 80 million tons to an expected treble demand up to year 2050, due to e.g. an increased middle-class population. The production of oil-based textile fibres and cotton fibres affect the environment negatively and this production is reaching its peak. The use of farmland for cotton production can not increase more and the water resources required for cotton production is not coherent with the expected, future global water scarcity, while prices on food and raw materials are rising. Technical and chemical research on many types of fibres is conducted with the aim to contribute to a more sustainable textile production and cellulose has potential to become a more influential alternative to cotton in the global textile production. While nature rebuilds 40 billion tons of cellulose each year, only 0,18 billion tons out of these are used as raw material in further processing (BiolInnovation, n.d.; Innventia, n.d; Mistra Future Fashion, 2013; Svensson, 2016; Swerea, 2015).

Ongoing research projects investigate the possibilities for a development and establishment of an innovative and more sustainable biobased textile production in Sweden, focusing on e.g. the use of textile fibres from recycled biobased textiles and forest raw materials (BiolInnovation, n.d.; Innventia, n.d; Swerea, 2015). While the lyocell is a regenerated wood cellulose fiber and a form of rayon that is currently produced in a less polluting process than viscose fibers and the lyocell material is both reusable, recyclable and biodegradable (Mistra Future Fashion, n.d.; Konsumentföreningen Stockholm, 2011), ongoing research is aiming for producing viscose in an environmentally friendly way with a better quality and a quality similar to cotton (Svensson, 2016).

While viscose has been produced from wood fibers in Sweden already hundred years ago the improved quality and more sustainable processing of the new material is expected to increase the interest in re-establishing a cellulose-based textile industry in Sweden (Svensson, 2016). According to the EU strategy for a sustainable bioeconomy investments in bioeconomy research and innovation will generate ten times the money spent up until year 2025 (Björnstedt, 2014; European Commission – Research & Innovation, 2015).

The competence on how to process wood pulp in an environmentally friendly and efficient way requiring limited work effort is already available within the wood research field and industry. This makes it possible to produce environmentally friendly viscose at a competitive price. A pilot laboratory for improved viscose production and fiber spinning is developed as a collaboration between the research institute Innventia and the Technical Research Institute of Sweden, SP. Research is also conducted on trying to develop new materials by mixing textile fibers with paper fibers or recycled textile fibers (Svensson, 2016). One example of an organisational result of the innovative research results within the field is the development of a pulp and paper cluster in the Värmland region of Sweden, where the cluster The Paper Province is aiming for becoming an international role model within the forest bioeconomy field, where the forest will be the raw material for most of the materials, products, chemicals and energy produced. A demo production of the CelluNova material is expected to result in a commercial launching of the CelluNova textiles by 2017. The integration of textile fiber production in existing plants focused on dissolving pulp for textile fibers is expected to be a fairly simple integration process (Björnstedt, 2014).

Two-thirds of the land area in Sweden is covered by forest. The Swedish, growing forest absorbs more greenhouse gases than it emits and is therefore often referred to as a “carbon sink”. The extraction of renewable raw materials, e.g. the extraction of cellulose from wood for production of textile fibers, is another substantial contribution to the reduction of greenhouse gas emissions originated from the forest. Since the beginning of the 1900s the forest volume content of firewood and lumber production has nearly doubled, due to plant breeding and improved forest management. Still, less trees are cut down each year than what is annually grown (Naturvårdsverket, 2015c). The Swedish government is introducing a national strategy for neo-industrialization and the enterprise and innovation minister Mikael Damberg emphasizes that in this context “the forest has never been more important” in the process towards a sustainable bioeconomy (Regeringskansliet, 2016; Sundström, 2015).
An important part in establishing a more local textile production in Sweden is the possibility to recycle existing textile materials. The main part of today’s textile waste in Sweden goes to combustion for energy recovery, since discarded household textiles are mainly put in the waste bin and due to today’s limited possibilities of textile material recycling. Since textile waste raises the average calorific value of the waste which contributes to a more efficient combustion, textiles are an attractive addition to the combustion process. Some parts of the textile waste are also mechanically recycled where the recycled materials are used in e.g. upholstery and insulation or used in new, spun thread. Mechanical fiber-to-fiber-recycling is however difficult to make economically viable since the recycled fibers have a lower quality than so called virgin, non-recycled fibers. Research is also conducted on e.g. chemical processes of textile recycling (Naturvårdsverket, 2015b).

The complex process of textile recycling, which includes many similar steps to the process of producing the material but in reverse order, as well as new materials including several types of fibers, are factors bringing challenges to the establishment of a more local textile production. More large-scale systems of collection of materials, increased automatic sorting of materials, processes of clothing design that integrates the recycling aspects already in the design process as well as improved consumer awareness to increase the consumption of sustainable fashion are some aspects that needs to be developed in order to improve the local recycling and production possibilities of textile materials, which would affect both private consumers and organisations such as county councils and regions. The environmental benefits also depend on whether the recycled fibers replace virgin, non-recycled fibers or not. The recycling initiatives lose its meaning if the only outcome is added products to the market without the saving of virgin resources which increase the negative environmental impact e.g. virgin cotton (Naturvårdsverket, 2015b).

### 1.1.5 Theoretical background and approach

Addressing and implementing economic, environmental and social sustainability in the organisational activities brings a competitive advantage and added value to organisations. Societal legitimacy and financial viability from a medium to long-term perspective is more likely to retain if an organisation implements strategic corporate social responsibility and sustainability practices (Werther & Chandler, 2011).

Crane, McWilliams, Matten, Moon and Siegel (2008) suggest four main types of business cases for corporate social responsibility: cost and risk reduction, profit maximization and competitive advantage, reputation and legitimacy and synergistic value creation, each bringing a possibility of increased value creation for the organization. The cost and risk reduction can be derived from attaining stakeholders’ concerns through social and environmental performance since avoiding decisions that might bring opposition from the stakeholders might decrease the risks and costs. Stakeholders’ demands of CSR initiatives should also be seen as opportunities rather than constraints on the organization, which could bring a competitive advantage and maximize the profit, e.g. by increasing the ability to attract competence and develop a sustainable supply chain, an alignment of stakeholder interests that could also increase the reputation and legitimacy of the organization. The synergistic value creation approach seeks to connect stakeholder interests and simultaneously create pluralistic value definitions for multiple stakeholders and a win-win-win outcome including e.g. sustainable local enterprise networks and societal learning (Crane, McWilliams, Matten, Moon & Siegel, 2008).

Businesses procuring renewable materials can brand their procurement as an added value and include the added sustainability and marketing value in an increased price. Paying a premium price may, however, be less accepted in tax-paid healthcare organisations than in private businesses. However, several aspects of sustainable public procurement give value for money, e.g. reduction of the products’ whole life costs, protection of the reputation of the organization, long-term viable supply chains and investments, minimising of health and environmental damage whilst maximising social benefits, all aspects in the long-term public interest. Additional costs can be recovered through whole life cost savings which might motivate to initially pay more for the products and services. The need to make yearly budget savings can, however, lead to an exclusion of products or services with a higher initial
cost on the grounds of the annual budget, even if this product or service would lead to long-term savings (Forum for the Future, 2007). This approach is quite the opposite to the well-known CSR criticism of Milton Friedman who argued that a manager spending someone else’s money, in the private sector case the money of the stockholders, employees or customers, for a general social interest is a moral hazard problem. However, Friedman argued that managers of an organization could set other objectives than profit maximization which could potentially lead to a more socially and environmentally sustainable outcome of the business activities (Crane et al., 2008).

Procurement theory “is theoretically diverse and fragmented and draws on a very wide range of underpinning disciplines” (Sanderson, Lonsdale, Mannion & Matharu, 2015) ranging from marketing, logistics, strategy, sociology, economics and operations management. Sanderson et al. (2015) point out that the procurement and supply chain management field mainly borrow theories from other disciplines, e.g. organisational decision-making theory as well as inter-organisational networks and organisational learning theory from the sociological field and agency theory from the field of economics (Sanderson et al., 2015). Relatively little research exists on the direct social and environmental outcomes of procurement and most existing research focus on stimulation of social and environmental benefits through imposing pressure on suppliers to decrease their potentially harmful social and environmental impact (Brammer & Walker, 2011).

This study investigates the incentives and barriers for sustainable purchasing in the Swedish healthcare sector. The theory of incentives of Laffont and Martimort is an important work on the relationship between and economics of incentives and information (Laffont & Martimort, 2002). Since public procurement is challenged by complex organisational structures involving many stakeholders the information and coordination aspects are important to address to reach sustainable decisions within the procuring organisations. This makes it relevant to use a model relating incentives with information facets.

Laffont and Martimort applies the theory of incentives through their principal-agent model which has mainly been related to game theory and private sector relationships but has also been applied in the field of public administration and public management. In the principal-agent model the principal delegates an action to the agent via an offer of a contract (Laffont & Martimort, 2002). Lane develops the principal-agent perspective in relation to the public sector and discusses several approaches in which the principal may be the population at large or elected politicians and the agents may be an entire organization or single individuals. Lane also points out that the government as the principal may deal with different agents, e.g. a public enterprise or a regulatory agency (Lane, 2005). In this study the incentives theory from a principal-agent perspective is discussed in relation to the governing international and national authorities acting as principal in the relationship with the public sector’s national councils and regions, as well as in the councils’ and regions’ role as principals towards the business sector’s agents tendering for public procurement contracts.

1.2 Problem discussion and formulation

1.2.1 Problem discussion

The sustainability benefits of cellulose-based and locally produced textiles combined with the public health sector being a large customer of textiles increase the need for investigating the possibilities and barriers for public procurement in the health care sector of products based on these materials. With an increased sustainability awareness and interest within the public health care sector, e.g. in Region Skåne, (Region Skåne, 2015) the incentives and barriers for public procurement of cellulose-based and locally produced textiles should be investigated, as a possible way to ensure the long-term use of sustainable products within these organisations.

Brammer and Walker present an insight in the global policy commitments to sustainable public procurement and investigate what facilitators and barriers affect the sustainable procurement and how
this affect the organisations’ and procurement officers’ engagement in the issue. They present a conceptual model on the influences upon sustainable public procurement (Figure 1), based on the research by Gelderman, Ghijsen and Brugman (2006) on the influences of procurement directives among procurement professionals in the EU. The model explains how public procurement policy is implemented into practice, with the addition by Brammer and Walker whom included the importance of the national policy context, and regional differences affecting the policy context, which ultimately affects the approach towards sustainable procurement (Brammer & Walker, 2011).

![Figure 1](image)

In relation to the previously mentioned theory of incentives and principal-agent model of Laffont and Martimort (2002) Crane et al. point out that the principal delegates authority to the agent to act on his or her behalf and the principal therefore must motivate the agent to act as expected. Agency theorists generally believe that agents act in their own interest rather than in those of the principal and the agency costs are the costs caused by the need to motivate the agents to act in the preferred way (Crane et al., 2008). Conflicting objectives and decentralized information are seen as the two main aspects of incentive theory according to Laffont and Martimort and they consider three types of information problems: adverse selection, moral hazard and nonverifiability to possibly be influential on the agency cost (Laffont & Martimort, 2002).

Tolbert and Hall argue that the organizational structures and processes affect the incentives and decision-making of an organisation. Since the high-level goals of an organisation are usually broadly stated, e.g. “conduct environmentally friendly procurement” or “enhance community health and well-being” it may be difficult to agree on what the goals entail and how these should be best achieved. Strategic decisions that could potentially include risk at high levels in an organization are therefore often affected by uncertainty (Tolbert & Hall, 2009). This may create a need for an incremental decision-making process based on bounded rationality and the realization that rational and planned goal realization is not fully possible, instead decision-making requires systematic bargaining, negotiation and evaluation of possibilities and outcomes.

Decision-making processes play an essential role in public procurement due to the complex organisational structures surrounding the organizations, the large number of stakeholders involved in the procurement activities and the extensive number of legislative and governing aspects to consider. Mintzberg referred to the incremental decision-making as a trial-and-error decision-making process in which managers take an incremental approach to the implementation of policies and continuously assess the impact of their decisions. The idea is that a comprehensive solution will finally be reached but this approach allows for decision-makers to proceed with caution (Denhardt, Denhardt & Blanc, 2017).
2013). Due to the complexity of the organizational processes surrounding public procurement within the health care sector and the caution needed to be taken within health care-related activities and in relation to the materials used in these activities, it is of relevance to relate the incentives and barriers for sustainable public procurement within the health care sector with the incremental decision-making model. Also, the implementation and use of innovative and novel materials and products within an organisation may increase the need for a continuous assessment and incremental implementation strategy.

1.2.2 Research problem
Relatively little research has been conducted on how public sector organisations respond to the encouragement of sustainable procurement (Brammer & Walker, 2011). Also, the innovation level of the development of cellulose-based and locally produced textiles in Sweden means the processes affecting the public procurement of such textiles within the country is a relatively novel field. Hence there is a need to investigate such public procurement incentives and barriers as well as the structures and processes affecting the related decision-making.

There is a research gap on the incentives and barriers for public procurement of cellulose-based and locally produced textiles in the healthcare sector of Sweden and this study applies a descriptive warranted inference on the topic.

1.3 Purpose
The purpose of this study is to describe the incentives and barriers for public procurement of cellulose-based and locally produced textiles in the healthcare sector of Sweden and what organisational structures and processes affect these decisions.

1.4 Research questions
What are the incentives and barriers for public procurement of cellulose-based and locally produced textiles in the healthcare sector of Sweden?
What organisational structures and processes affect these procurement decisions?
2. Methodology

In this chapter the methodology is presented including the philosophy of science and inference, research design, role of theory and overall research approach.

2.1 Philosophy of science and inference

The ontological and epistemological approach of this study is a combination of a realist and positivist approach. Realistic ontology states that facts are determinate and affect the claims about the truth which must be either true or false and established in the practical utility and convention of theories. Realists furthermore argue that our knowledge can therefore only be an approximation to truth since direct observations don’t cover the whole truth. To reach more reliable conclusions a warranted inference from the observed facts must be stated and the most appropriate analytical concepts should be applied (6 & Bellamy, 2012).

According to the realists the theories and conceptual frameworks through which the research is organized is bound to be temporary. This leads to the research being dependent on the constant development not only of the concepts and theories relevant to apply but also of more complete and accurate relations to the empirical findings (6 & Bellamy, 2012). Since the field of sustainable public procurement of novel textile materials has an innovative influence the field is continuously developing which motivates examining the research through the realist approach.

Realists also claim that it is possible to make knowledge about e.g. incentives and other phenomena that can not be directly observed (6 & Bellamy, 2012). The qualitative interviews conducted in this study are based on this view.

The survey conducted in this study has a more positivist approach. 6 and Bellamy refer to Laudan’s (1990) definition of positivism stating it is an attempt to codify and anticipate experience in studies where the raw materials of the science are raw data or observational measurements. This data is then correlated and explained through theories (6 & Bellamy, 2012). However, since the interview questions and survey questions are similar, the open-ended survey responses will also be analysed in a more realist way.

A descriptive inference is applied in the study when describing the incentives and barriers for public procurement of cellulose-based and locally produced textiles in the healthcare sector of Sweden and what organisational structures and processes affect these following decisions. However, 6 and Bellamy point out that separating a descriptive inference from a causally explanatory approach is not really appropriate, since descriptions are often followed by the use of categories that imply an explanation (6 & Bellamy, 2012).

2.2 Research design

An empirical, observational research design will be applied through a case-oriented and comparative research approach. The case-oriented research design involves comparisons between a small number of cases and a within-case analysis of each case (6 & Bellamy, 2012). This design will be applied in the interview study comparing three county councils and regions’ approaches to sustainable public procurement of textiles, including a within-case analysis of each county council’s and region’s perceptions of these issues.

The survey study conducted on the remaining county councils and regions in Sweden will add both comparative as well as within-case knowledge on the subject. A case study may involve both qualitative and quantitative methods and the purpose of the comparative case study is to examine different dimensions of the research issues (Ghauri & Grønhaug, 2010).
2.3 Role of theory
Initial questions will help to develop the research which applies a more inductive approach. 6 and Bellamy state that instead of trying to find out whether a hypothesis is true or false, “inductive research is used to develop such a statement from a position in which we have no real idea of what might turn out to be plausible, relevant or helpful about the subject of interest” (6 & Bellamy, 2012, p. 76). Through the systematic process of inductive reasoning general propositions can be established on the basis of observations or particular facts (Ghauri & Grønhaug, 2010). However, the use of previous theory as a guidance in the analysis brings deductive influence to the study as well (6 & Bellamy, 2012).

2.4 Overall research approach
The study applies a qualitative approach by three semi-structured interviews with three county councils and regions in Sweden. A more quantitative approach is applied with the supplement of a survey study targeting the remaining city councils and regions in Sweden aiming to examine their view on the incentives and barriers for public procurement of cellulose-based and locally produced textiles in the healthcare sector of Sweden (Kvale, 1997; Silverman, 2013; 6 & Bellamy, 2012).
3. Methods

The methods of the study are presented in this chapter, including a description of the collection, coding and analysis of data and quality and ethics of research.

3.1 Data creation and collection

3.1.1 Interviews

In this study three procurement officers, strategic buyers or heads of procurement department in three county councils and regions in Sweden are interviewed through semi-structured interviews on their view on the incentives and barriers for public procurement of cellulose-based and locally produced textiles (Kvale, 1997; Silverman, 2013). Qualitative interviews is one of the most flexible research methods available allowing for both focused questions and more open-ended broader issues to be addressed. Also, the method is fairly accepted among research participants since most people like talking about their work but rarely get the opportunity to share these thoughts with outsiders. On the disadvantageous side is however the fact that developing an interview guide, carrying out interviews, transcribing responses and analysing transcripts are all very time-consuming activities for the researcher (Cassell & Symon, 1994).

Kvale summarizes the interview research in seven stages of thematizing, designing, interviewing, transcribing, analyzing, verifying and reporting including the formulating of research questions and practical planning, preparation, execution and summarizing of the interviews (Kvale, 1996). In semi-structured interviews, which are conducted in this study, the topics to be covered, the sample size, whom to interview and what questions to ask has been determined beforehand (Ghauri & Grønhaug, 2010).

When creating the interview guide the interview questions should be compared with the research problem to test the consistency and see if the questions are thorough and relevant enough (Ghauri & Grønhaug, 2010). The interview questions as well as the survey questions were both based on input from the research institute Innventia, an organisation working with the development of innovations based on forest raw materials and e.g. the development of innovative cellulose-based textile materials, as well as the two companies Saiboo and Martinson – Fristads Kansas Sverige, both producing textiles and clothes targeting the health care sector and both being actively engaged in a sustainable development of the field (Innventia, n.d.; Saiboo, n.d.; Martinson - Fristads Kansas Sverige, n.d.). By approaching these stakeholders asking for input the relevance of the interview and survey questions were assessed by parties with extensive expertise and interest within the field, which increases the overall relevance of the study.

The interviews were all conducted in Swedish, as this is the native language of both the researcher and the interviewees, which was expected to e.g. decrease misunderstandings. Recording the interviews is generally encouraged, as this e.g. gives the advantage of being able to play back the interview to completely grasp all details communicated during the interview session (Silverman, 2013). Two of the interviews conducted in this study were recorded via both a dictaphone and an Iphone, to avoid possible technical concerns. These interviews took place in the premises of the respective county council/region. The interview with the third procurement officer could not be conducted in person since recording of the interview was not allowed due to internal policies. It was therefore decided to send the interview questions and get the response via email, since this response was expected to be more complete and extensive than if a personal interview were to have been documented via pen and paper.

3.1.2 Survey

A quantitative approach was applied through a survey study targeting the remaining 18 city councils and regions in Sweden on their view on the incentives and barriers for public procurement of
cellulose-based and locally produced textiles in the healthcare sector of Sweden. When constructing the questionnaire the researcher needs to consider to whom the questionnaire is to be sent and what questions that needs to be asked in order to obtain relevant data (Ghauri & Grønhaug, 2010). One procurement representative from each county council and region was chosen to participate in the survey study. Depending on the possibility to participate and the internal agreement within the organisations on which person would be the most appropriate to respond to the survey, the respondents’ positions varied from procurement officers to procurement directors and environmental officers/managers. This gives a variety to the responses from a hierarchical and organisational perspective.

As mentioned before the survey questions were assessed by three expert stakeholders within the field, Innventia, Saiboo and Martinson – Fristads Kansas Sverige. The survey was designed and administered via the online survey tool SurveyMonkey which is a renowned tool for online investigations (SurveyMonkey, n.d.).

The survey was sent to a procurement officer, strategic buyer or head of the procurement department in the remaining 18 city councils and regions in Sweden in April and May 2016, with two reminders being sent within a month’s period.

3.1.3 Documents
The local documents guiding the county councils and regions in their public procurement processes and being available via the web pages of the county councils and regions or via personal meetings during the interview sessions, e.g. local environmental policies and codes of conduct, will be referred to as research materials. The national and EU directives will not be referred to as research materials but only described in the introductory background and equally referenced to as additional theory, as the focus of the study is the activities and processes occurring in the local county councils and regions.

3.2 Sampling design
The participants of the interview study were determined through a non-probability and convenience sample, since the limited time frame of the research process did not allow for longer journeys for the execution of interviews. Ghauri and Grønhaug argue that it is not possible to make valid inferences about the population if the study is based on a non-probability sample (Ghauri & Grønhaug, 2010). However, since the three interviews were combined with a survey study targeting the remaining 18 city councils in Sweden the whole population was targeted, which allows for a statistical inference (Ghauri & Grønhaug, 2010). All city councils and regions in Sweden were thereby asked to participate in the study.

The hierarchical levels in terms of positions of the officers targeted and asked to participate in the study was randomly selected and based on access and availability as well as the intention of including responses from several hierarchical positions in the study as this could give interesting and possibly differing results.

3.3 Coding and organisation of data
Transcriptions involve close, repeatedly listening to the interviews recorded which often reveals previously unnoted parts of the sessions (Silverman, 2013) and the interviews conducted in this study have been transcribed accordingly. Since the interviews were conducted in Swedish the transcriptions have also been done in Swedish, to not miss out on any relevant information. The parts used in the study will then be translated into English.

Themes in the interviews will be searched for to classify and categorize the responses (Ghauri & Grønhaug, 2010). Themes will then be searched for in the survey data and similarities and differences between the interview and survey data will be organised for analysis. Relevant local documents guiding the public procurement decisions will then be related to the themes and empirical data.
The study will apply a thematic analysis through which “the ‘results’ of the qualitative thematic analysis are presented as illustrative quotations” (Silverman, 2014, p. 216). The mentions of a cause is is used as the analysis unit and all units are organized in a category and thematic scheme (Silverman, 2014).

3.4 Analysis of data
In the thematic analysis the mentions and analysis units from the interview data will be analysed, summarized and presented as quotations (Silverman, 2014).

The survey data will also be analysed through the qualitative, thematic analysis since many of the survey questions were constructed as more open-ended questions to give more qualitative answers. Also, the quantitative, two-tailed Fisher’s exact test method will be applied on the survey data, which is a useful technique when the data samples are small. The two-tailed test is used since this shows if the result leans towards any direction and not only towards one, more hypothesized course (Siegel & Castellan, 2002; Silverman, 2014).

Since the interview questions and survey questions are almost identical and the organisations participating in the interview and survey study are similar, the interview data and survey data will be combined in a joint analysis. The data extracted from the documents will be referred to in the same, thematic analysis which will include analytical additions on possible differences between the interview, survey and document data.

3.5 Quality and ethics of research

3.5.1 Validity, reliability and delimitations of research
The interview with the business unit director in county council I has constituted as a starting point in the analysis, since these interview answers are more detailed than the other interview results. The results in this interview has then been compared and analysed in relation to the results from the additional interviews and the results from the survey study. This makes the study somewhat biased towards the results from the interview with county council I.

3.5.2 Ethics of research
The decoding of the documents and data in the study decreases the possibilities of replicating the study. This is however needed and has been done in order to ensure the anonymity and research ethics of the study.
4. Empirical data

In this chapter the empirical data is described and presented including the interview, survey and research document materials.

4.1 Interviews

As mentioned before three procurement officers, strategic buyers or head of business unit in three county councils and regions in Sweden were interviewed through semi-structured interviews on their view on the incentives and barriers for public procurement of cellulose-based and locally produced textiles. Since the third interview was not allowed to be recorded it was conducted via email.

Analysis notes were extracted from the face-to-face interview data which was then organized in themes and sub-themes to be used in the analysis, see example below.

<table>
<thead>
<tr>
<th>Interview transcript</th>
<th>Analysis notes</th>
<th>Theme + sub-theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Interviewer: The existing directives, do you perceive them as sufficiently clear to set the direction for the opportunity to set sustainability requirements? (...) Respondent: Mm .. Yes, I guess so. Yes. I: Mm .. No thoughts? R: No, but we ... sustainability requirements, it's something we have to do our our share with, so it is not just to procure the cheapest thing from filthy factories or anything like that, but we have to lead by example.”</td>
<td>Regional and national directives affecting the public procurement process – perceives current directives as sufficiently clear to set sustainability standards – also a matter of the county council to lead by example.</td>
<td>Regional and national directives affecting the public procurement process – perceives current directives as sufficiently clear to set sustainability standards</td>
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</table>

County council F – interview with procurement officer

<table>
<thead>
<tr>
<th>Interview transcript</th>
<th>Analysis notes</th>
<th>Theme + sub-theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;We have possibilities, it’s just that we have a contract that doesn’t open up for these possibilities right now, based on the political decisions we got last time.”</td>
<td>Restricted by political decisions despite own initiatives and legal support to implement more sustainable solutions.</td>
<td>Political influence on sustainable public procurement – ignorant political restrictions despite legal support.</td>
</tr>
</tbody>
</table>

County council I – interview with business unit director

The interview data from the third email interview was summarized in a written description, see example below, from which themes and sub-themes were extracted.

12. To what extent can your individual county council/region and you as a strategic buyer affect the decision to apply sustainability criteria (environmental, social and economic), or influence decisions on innovation procurement when purchasing textiles?

Answer: (Miljö, sociala och ekonomiska krav finns beslutade och de måste följas. (Namn/vårt miljöprogram, uppförandekod). Gällande innovation så är det strategisk inköpare som kan ta det beslutet om möjlighet finns inom området.) Environmental, social and economic requirements are decided on and they must be followed. (Name/our environmental program, code of conduct). Concerning innovation, it is the strategic buyer who can take the decision if there are possibilities within the field.

Theme/sub-theme: Regulation of sustainability in contract terms – influence from several stakeholders

County council J - interview answers by email from strategic buyer
Four main themes were found in the interview data on which the thematic analysis will be based.

### 4.2 Survey

The participating county councils and regions were asked to forward the survey to “the person at your procurement unit who is responsible for the public procurement of textiles, or fill it in yourself if this is your responsibility”. This resulted in a diverse sample group, since the organisations themselves got to choose whom they found most appropriate to fill in the survey.

All 21 county councils and regions in Sweden participated in the interview or survey study, or filled in only contact information in the survey but no response on the questions.

If the respondents skipped five questions or less in the survey, the survey was considered “complete”. Six (33 %) complete responses were submitted, while five (28 %) surveys were partially filled in. Seven (39 %) county councils and regions did not fill in the survey nor participated in the interview study. Six respondents motivated why they only gave a limited response or did not reply at all.

<table>
<thead>
<tr>
<th>County council</th>
<th>Working title respondent</th>
<th>Complete response</th>
<th>Limited response</th>
<th>No response</th>
<th>Reason for limited or no response</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Contract controller</td>
<td>X</td>
<td></td>
<td></td>
<td>“We have all our textiles via our laundry service supplier Berendsend Textilservice AB. They own all textiles. You should send the survey to (contact at Berendsen) whom can respond it better. We set demands on the textiles which Berendsen then fulfil”</td>
</tr>
<tr>
<td>B</td>
<td>Procurement director</td>
<td></td>
<td>X</td>
<td></td>
<td>“Started to respond but realized that these are questions I can’t answer. Forwarded it to those who together with me form the county councils’ (C+O) steering group in these issues, but one is on holiday and doesn’t have time to answer and the other one I don’t know about.”</td>
</tr>
<tr>
<td>C</td>
<td>Strategic buyer (region C+O)</td>
<td></td>
<td>X (region C+O)</td>
<td></td>
<td>“This survey should be sent to our wholly-owned company (name). They have the regional mission to provide textiles and wash them.”</td>
</tr>
<tr>
<td>D</td>
<td>Group director - procurement division</td>
<td></td>
<td>X</td>
<td></td>
<td>“We buy textiles (besides operational textiles) via (name), in which we are partners. We refer you to (name) for contact.” (After several reminders from the researcher with the motivation that it’s in the study’s interest to get the first hand view on the issues from the county councils and regions themselves, from the person in charge of the field): “I’ve looked at the survey and the questions are so diverse that they can’t be responded by only one person. Some questions concern details around the demands in the public procurement of textiles and these questions can...”</td>
</tr>
<tr>
<td>E</td>
<td>Purchasing director</td>
<td></td>
<td>X</td>
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therefore only be responded by the responsible procurement officer, possibly with help from the reference group. I will get back to you when everyone has responded to “their” part.” *(Limited response in July)*

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<tbody>
<tr>
<td>F</td>
<td><em>interview</em></td>
<td></td>
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</tr>
<tr>
<td>G</td>
<td>Procurement director</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Procurement officer</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td><em>interview</em></td>
<td></td>
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</tr>
<tr>
<td>J</td>
<td><em>interview</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>Environmental developer</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>Buyer/procurement officer</td>
<td>X</td>
<td>n/a</td>
</tr>
<tr>
<td>M</td>
<td>Contract controller</td>
<td>X</td>
<td>n/a</td>
</tr>
<tr>
<td>N</td>
<td>Procurement lawyer</td>
<td>X</td>
<td>n/a</td>
</tr>
<tr>
<td>O</td>
<td>Manager for textiles/laundry</td>
<td>X</td>
<td>n/a</td>
</tr>
<tr>
<td>P</td>
<td>Procurement officer</td>
<td>X</td>
<td>“Due to a high workload I will pass this time. Also saw that it was questions I can’t reply directly, which means it takes too much time.”</td>
</tr>
<tr>
<td>Q</td>
<td>Contract controller</td>
<td>X</td>
<td>&quot;Unfortunately I won’t be able to participate in your survey. As I in a simple way can’t find out the answers. For I am newly employed since 2 months back, and unfortunately have not yet been able to get experiences on this.”</td>
</tr>
<tr>
<td>R</td>
<td>Environmental officer</td>
<td>X</td>
<td>n/a</td>
</tr>
<tr>
<td>S</td>
<td>Procurement director</td>
<td>X</td>
<td>n/a</td>
</tr>
<tr>
<td>T</td>
<td>Coordinator</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>U</td>
<td>County coordinator hospital textiles</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Themes were searched for in the survey data and were colour coded according to the four main schemes initially found in the interview data, which will then be referred to as headlines in the analysis.

### 4.3 Documents

As stated previously the local documents guiding the county councils and regions in their public procurement processes will be referred to as research materials. The documents will be decoded to ensure the research ethics and anonymity and will be related to the interview and survey data, e.g. documents related to county council or region A will be referred to as A_1, A_2 etc.
5. Analysis

This chapter will discuss the four main themes found in the empirical data and analyze these in relation to the theoretical background and approach.

5.1 Decision-making affected by many stakeholders

5.1.1 International and national stakeholders

Crane et al. identify several challenges for today’s managers in order to develop a sustainable organization, i.e. dealing with potential conflicts among multiple stakeholders, to comply with laws and existing corporate and organizational ethics as well as to address the public interest from a long-term perspective (Crane et al., 2008). The county councils and regions in Sweden are, as previously described, affected by a complex regulatory and organizational structure including interests from both international and national stakeholders.

Although there are today several tools and techniques available to achieve green public procurement (GPP) and an overall, sustainable public procurement (SPP) including social sustainability aspects as well, (European Commission – Environment, 2016; Innovation Seeds, 2016) the large number of stakeholders affecting the procurement process may be a hindering aspect and slow down an efficient purchasing and decision-making process. The business unit director in county council I describes the organisational changes within and between the authorities governing public procurement in Sweden:

..we base our work on what was previously the Environmental Management Council (Miljöstyrningsrådet). We've had some bad luck, I would say, with the set up. (...) They moved the Environmental Management Council to the Competition Authority (Konkurrensverket). Now it is moved over to The National Agency for Public Procurement (Upphandlingsmyndigheten), but they have not really started with these parts. And based on the demands that we have ... we have a demand on us to begin with systematic evaluations... (...) so we have focused, along with our environmental manager, on doing the follow-up on the supply side based on the available code of conduct.

(Business unit director, county council I, personal communication, May 3, 2016).

These re-organizations and ambiguity on what authority and what regulations to conform to might increase the inefficiency in the procurement process. Tolbert and Hall (2009) argue that the higher one goes in the organisational hierarchy the more likely it is that both the cause and effect relations related to the issue as well as the expected outcomes will be surrounded by a high level of uncertainty, partly because the high-level goals within organisations are often broadly stated, e.g. “increase the level of sustainable procurement”, which may e.g. lead to uncertainty and potential conflicts on how to best achieve the goals (Tolbert & Hall, 2009).

Tolbert and Hall emphasize the importance of power in decision-making where individuals and units with more authority within the organization and network have more influence in the decision-making process in terms of e.g. setting and controlling the agenda as well as controlling information and forming adequate coalitions. Tolbert and Hall argue that although low-level members often have less access to information than top-level members, this is not always the case (Tolbert & Hall, 2009). On the question of whether the political decisions and goals behind the procurement demands are perceived as clear enough to set the direction for sustainability demands in the procurement of textiles the survey responses were the following (analysed through Fisher's two-tailed exact test):

Are these (political) directives perceived as clearly formulated to indicate the direction for the possibility to set sustainability demands in the procurement of textiles?
<table>
<thead>
<tr>
<th>Leading position (director and manager)</th>
<th>Yes</th>
<th>No</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Non-leading position</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

The two-tailed P-value equals 1.0 and there is therefore no statistically significant difference between the officials in leading position and non-leading position concerning their respective perception of the clarity in the political directives and the following possibility to set sustainability demands in the procurement of textiles. The additional four officials participating in the survey study did not respond to the question. Even though these responses don’t explicitly say that it is the equal access to information that makes the hierarchical position unimportant to the perception of clarity in the directives, a sense of being able to inform yourself may increase the feeling of understanding of directives, no matter what position you have in the organization.

The re-organized and still-to-be-developed national, governing authorities are also affected by the international development of the governance within the field.

*We can make demands and we can evaluate the emissions etc., But we have to quantify it ..(..) in a way that makes it almost impossible. I do not think anyone has come up with a good way to solve the equations that are set up in the directives. It is put somewhere up here that is not practically feasible in procurements. Then there is an intention that one can bear in mind, and that's a whole other thing.*

(Business unit director, county council I, personal communication, May 3, 2016).

This expression of perceived difficulties with putting the EU directives in a manageable practice is to some extent contradicting the statement by Henrik Grönberg, lawyer at the National Agency for Public Procurement, who states that the new EU directives don’t add much possibility to act sustainably in the procurement process than what was already possible according to the previous directives. He also argues that the competence among the procurement officers, access to resources and support as well as the political standpoints and ambitions within the field is affecting the sustainability requirements more than the laws to be implemented and based on the new EU directives (Miljö & Utveckling, 2016). The business unit director in county council I agrees that there is quite a good possibility to work with sustainability issues already before the new EU directives are implemented (Business unit director, county council I, personal communication, May 3, 2016).

The business unit director continues to emphasize that he believes that the new EU directives are useful for setting the direction but don’t serve as practical tools in the procurement process, a criticism also forwarded by the Council on Legislation, the authority that scrutinizes draft bills to be submitted from the Swedish Government to the Parliament. The Council on Legislation believed the directives contain ambiguities and are in many ways overly complicated and incomprehensible while they also found it problematic that the interpretative problems of the directives are expected to be solved via the national legislation. They also pointed out that a lack of resources and competence within the procurement units can make this interpretation difficult. These are some of the reasons for why the directives were not implemented in Sweden in April 2016 as expected but will be more thoroughly investigated and interpreted before the expected implementation in January, 2017 (European Commission – GROWTH – Internal Market, Industry, Entrepreneurship and SMEs, 2016; Lagrådet, n.d.; Upphandlingsmyndigheten, 2016b).

Tolbert and Hall describe the organization’s top-level managers’ possibility to form coalitions that are likely to support the cause as one way in which power influences decision-making and a more non-participative approach, in which subordinates are less likely to be involved, is more common the more important the decision is to the organization (Tolbert & Hall, 2009). The county councils and regions have formed a network in which procurement directors and heads of procurement meet to discuss news and challenges (MedTech Magazine, 2016; Norrbottens Läns Landsting, 2016).
5.1.2 Local stakeholders

The national state is responsible for the government of the laws and regulations that direct the work of the Swedish county councils and regions as well as municipalities. The county councils and regions are then responsible for regional and collective functions, with a main focus on public transport, healthcare and the regional development (Stockholms läns landsting, n.d.). The county councils and regions can be seen as structured in a functional organisational form, as described by Tolbert and Hall (2009). The main divisions are divided after the skills provided by each functional unit, which e.g. is visualised in the organisational chart of Stockholm county council:

The functional form is beneficial for economies of scale and for giving large unities the opportunity to specialize. It is also argued that the functional form is suitable for organisations with stable markets that don’t need to adapt rapidly to new products and processes related to production. The product form of an organization is structured with a focus on the product and product line, which gives the ability to adapt to potential changes in the product line (Tolbert & Hall, 2009). Although the county councils and regions are organizations with a relatively stable structure which argues for the application of a functional form of organisation, these organisations may benefit from learning from the product organisational form in terms of its ability to adapt to changes. This might enhance the possibility of not only adapting to the product development within the textile industry but also to secure the knowledge update on other products and services provided and purchased by the organisation. This product focus is already implemented in several county councils’ procurement units, e.g. in Region Kronoberg which has divided the procurement unit in responsibilities of e.g. medical products and medical equipment (Region Kronoberg, 2016).

The complexity in having to relate to a vast number of stakeholders e.g. governing authorities and politicians, tax payers, patients, suppliers etc. makes the county councils and regions affected by a both horizontal and vertical organizational complexity. The horizontal complexity may be beneficial
for the specializations of tasks in an organization, but may lead to difficulties with the control and coordination of units and specialists which in the end may lead to potential conflicts. The vertical and hierarchical complexity, which is also often called differentiation, may also lead to coordination and communication problems, which is shown in this comment by a business unit director:

“What we got with us in 2008-2009 (previous procurement agreement), from the (local) politicians, was that when it specifically comes to child textiles it must be of organic cotton, and we have been locked by that the whole time. So we've been in a dialogue with a supplier that would like to develop and produce alternative solutions and, above all, instead of cotton, since cotton is not particularly good, as I understand it, anyway. But the decision was designed that way so there were no alternatives but we've been forced to have it that way. So when we have now presented the procurement .. the coming procurement, we have said that we want: ‘we would like you to give us a broader arsenal’. We should be able to make demands on the suppliers that they must develop the agreement continuously concerning sustainability .. both in terms of the environmental and social sustainability.”

(Business unit director, county council I, personal communication, May 3, 2016).

This shows a conflict in the decision-making process, where the political authorities, e.g. the county council assembly, put specific and detailed pressure on the county councils and regions to apply certain decisions, when these decisions are not coherent with the idea of the best solution as suggested by the county council itself as well as the supplier. Since the county council are governed by the political authority there is no room for objection but the political directives must be implemented, despite being badly informed. Lane argues that politicians expect technical and administrative competence as well as accountability to the principal from the public organizations (Lane, 2005). In the context of this study it could be argued that this expectation of technical expertise should also include a certain level of delegation of responsibility and trust on the county councils to have enough knowledge to make the best possible choice, a trust that would possibly lead to less badly informed demands from the politicians in the public procurement process.

Laffont and Martimort point out the hidden knowledge or adverse selection problem, through which the agent has private knowledge on the valuation of the contract and the included costs, which is ignored by the principal (Laffont & Martimort, 2002). The principal in this case is the political leaders who don’t have enough information on the sustainability costs of their demands and therefore make not fully informed demands on public procurement to the agent which in this case is the county council and region. Laffont and Martimort argue that the adverse selection problem is found in both private and public contractual agreements which makes it important to consider for both political leaders affecting the public procurement as well as the county councils and regions themselves and their relationships with their private suppliers.

The county councils and regions are obliged to adapt to regulations and laws on both national and local level e.g. local environmental programmes.

Then you come to the next part which we have sort of started working with now, and which is what the environmental plan... the environmental programme says, too. It is that we have a demand to follow up these parts. So that’s our next challenge. (...) Then we have an environmental program that controls our future work, too. (...) We perhaps have it a little differently than other county councils, in that sense, if we look at the procurement side, since we have an environmental adviser who is part of the business unit and who works both with developing requirements and evaluating the requirements, while we are working quite closely with the environmental manager.

(Business unit director, county council I, personal communication, May 3, 2016).

The environmental programme of county council I calls on not only that the county councils sets environmental requirements through the contract and follow up these requirements but also
encourages to, when suitable, divide the procurements in several minor procurement processes to facilitate the tendering for local producers (Document I_1). This should be seen as an opportunity for a possibly increased level of purchase of cellulose-based and locally produced textiles within the county council in the future.

5.2 Trust on suppliers for information update and sustainable responsibility

Several county councils did not participate in the survey study but instead referred to the suppliers and textile service firms for input on the survey questions and information on their standpoint in sustainability issues and incentives and barriers for public procurement of innovative textile materials (see 4.2 Survey). Several of the county councils and regions who did participate in the study showed a lack of knowledge on sustainability issues related to the procurement, e.g. the amount of purchase and disposal of textiles within the organization.

“... how much the provider needs to dispose.. it’s included in the service. We've bought the service and they have a responsibility to continuously update it (..) so we don’t get a good picture of what the disposal looks like, but it’s the waste we receive and that’s what we have to pay for (..) We have not regulated it (the degree of disposal). So how they manage that part, it's nothing that’s included in the agreement. And that’s an exciting thing to bring into a future procurement.”

(Business unit director, county council I, personal communication, May 3, 2016).

Crane et al. point out that the principal must motivate the agent to act as desired, since the principal delegates authority to the agent and is counting on the agent to act on his or her behalf and as expected (Crane et al., 2008). In this context it might be seen as problematic that the responsibility of sustainability information and updates as well as knowledge on products and materials in many cases is delegated and expected to be provided by the textile and laundry service firms since many agency theorists argue that agents act in their own rather than in the principal’s interest (Crane et al., 2008).

However, the business unit director in county council I emphasizes that despite the small market with only two main laundry and textile service firms, these two show a considerable interest in sustainability issues, which the business unit director believes is an interest partly based on the awareness of the marketing advantages a sustainability engagement can bring (Business unit director, county council I, personal communication, May 3, 2016), since the corporate sector in general is getting increasingly aware of the competitive advantage and added societal and financial value that is potentially following an implementation of a strategic corporate social responsibility and sustainability practices (Werther & Chandler, 2011).

The two laundry and textile service firms Textilia and Berendsen have a large share of the Swedish laundry and textile service market (Miljöstyrningsrådet, 2012). While there are several smaller, local laundry firms (Sveriges Tvätteriförbund, 2016) and European laundry firms in e.g. Poland and Finland have been encouraged to submit tenders for procurement, the business unit director in county council I states that only Textilia and Berendsen have shown interest in their ongoing procurement process focused on textiles (Business unit director, county council I, personal communication, May 3, 2016).

“If you don’t have your own laundry there are only two players in the public market .. it's an oligopoly.”

(Business unit director, county council I, personal communication, May 3, 2016).

Lane emphasizes that competition is essential in the public sector which has resulted in an increased level of competitive tendering and auctions. However, Lane argues that governments may replace outsourcing with insourcing and vice versa but the development of an internal market is challenging if few suppliers join the tendering process (Lane, 2005). This argues for an assessment of why few suppliers engage in the Swedish public procurement process related to the purchase of textiles by county councils and regions and a following evaluation on what consequences this brings. Crane et al.
point out profit maximization, altruism and threats as motivation for corporate engagement in sustainability issues (Crane et al., 2008). As stated before many companies today, including the textile and laundry service firms delivering textiles for the Swedish county councils and regions, seem to have acknowledged the competitive advantage of improving their sustainability engagement. To see threats as a motivation for this engagement argues for investigating how the interest from more suppliers to join the tendering process of public procurement of textiles in the county councils and regions can increase. Since increased competition may encourage and lead to increased sustainability engagement the fact that two main suppliers are influencing the public procurement of textiles in the county councils and regions could be seen as a challenge to address.

5.3 Knowledge gap on cellulose-based and locally produced textiles
Many agency theorists argue that problems between the agent and principal more likely arise when the the agent has more information than the principal (Crane et al., 2008). Several county councils and regions showed a high trust on the suppliers to take responsibility for the delivery of sustainable products and services. The interview and survey results showed that several organisations participating in the study had limited experience from cellulose-based and locally produced textiles, many giving very general answers on their experiences by formulating that they are interested in testing new products and that they have development groups focusing on these issues. Few concrete examples of products tested were mentioned. The limited experience may depend on the novelty and innovation level of the materials but a higher level of knowledge on sustainable and local product alternatives might have given more detailed answers and possibly examples on existing local manufacturers e.g. Saiboo and Martinson.

Laffont and Martimort emphasize that incentive problems emerge when principals delegate tasks to agents. “Delegation can be motivated either by the possibility of benefitting from some increasing returns associated with the division of tasks, which is at the root of economic progress, or by the principal’s lack of time or lack of any ability to perform the task himself, or by any other form of the principal’s bounded rationality when facing complex problems” (Laffont & Martimort, 2002, p. 28). Bounded rationality is described by Tolbert and Hall (2009) as the phenomena, first presented by Smith (1957), that occurs due to that people in general are incapable of assessing all information needed to make an optimal decision. Many institutional theorists suggest that organisational decision-makers are affected by a high level of bounded rationality, which leads to not fully informed choices and a choice that is referred to as “good enough”, while other researchers within the field agree that organisational decision-makers are capable of making complex, fully informed and correct calculations of the long-terms consequences of a decision. When applying bounded rationality the decision-making strategy is often referred to as “satisficing” and sufficiently satisfactory rather than optimized (Tolbert & Hall, 2009).

As mentioned before the European directive for public procurement from 2004 determined strategic steps to ensure the focus on environmentally friendly public procurement including “the need for skills development among the procurement staff, secure the access of environmental information and prioritize the aspects needed to establish the contracts i.e. including consideration of access and cost of more environmentally friendly alternatives, consideration of access of relevant information and the strive for visibility of the environmental actions taken to increase policy awareness both within and outside the organization” (Europeiska Gemenskapernas Kommission, 2004). This showed a need to intensify the knowledge and information update on sustainable alternatives related to the public procurement process among the stakeholders involved. Although there is a clear interest from several participants in this interview and survey study to apply a sustainable procurement process, the knowledge on e.g. the yearly amount of textiles purchased and discarded is limited. This limited knowledge is coherent with the knowledge among households on the amounts of textiles purchased and discarded (Konsumentföreningen Stockholm, 2011) which shows that there is a significant need for increased information and knowledge sharing on the purchasing behaviours and processes as well as disposal procedures related to both private and public textile consumption in Sweden.
5.4 Regulation of sustainability in contract terms

On the question of what aspects that have most influence on the procurement process of today when purchasing textiles, the business unit director in county council I states that the traceability and ability to follow the goods at an individual level as well as the size of the stock are two important aspects. These facets affect and are affected by aspects such as price, functionality, reliability of delivery and comfort and longevity of clothes and textiles. The contract period might be prolonged if the longevity of the textiles is increased which could also affect the total life cycle costs if less products need to be produced and purchased in the same period of time as before. This, as well as an increased traceability of the stock, to e.g. be able to control what causes extra damage to the textiles when used which increases costs, could also decrease the size of the stock which in the long run affects the overall costs and price. The intention in county council I is to decrease the size of the stock and to change the outline of the stock to make it possible to follow each piece at an individual level, which is expected to improve the reliability of delivery as well as decrease the environmental impact (Business unit director, county council I, personal communication, May 3, 2016).

There is, however, an awareness in county council I that changes in the stock management can bring challenges that can possibly affect the sustainability of the procurement process.

While in practice this can imply that we demand a replacement of an existing stock. And that's what we teeter between. (...) in the last procurement process we put an absolute demand that they had to deliver a new stock. And essentially the reason was that it should be competitively neutral, a new actor would have a reasonable chance to put itself at the same price level. But what we have had with us then, it is that ... it is worth, if there are existing clothes that actually still works, why should they be discarded? That's what we currently balance between.

(Business unit director, county council I, personal communication, May 3, 2016).

The problems with possibly disposing a functioning stock, due to e.g. competitive reasons or to get access to more updated and innovative materials, is a sustainability issue interesting to relate to the awareness of the amount of purchased textiles per year and the level of yearly disposal of textile materials within the organization. The business unit director in county council I motivates the lack of information on the yearly level of purchase and disposal of textile materials with the fact that the purchasing is done by the textile service firm. Information on what happens with the textiles after disposal is not available either (Business unit director, county council I, personal communication, May 3, 2016). The procurement officer in county council F can not provide confirmed information on the level of yearly purchase and disposal of textile materials but state that most of the textiles is burnt, apart from the cotton which is recycled and mixed with virgin cotton (Procurement officer, county council F, personal communication, May 4, 2016). The strategic buyer in county council J doesn’t confirm the exact amount of purchased textiles but states that the yearly budget for purchase is 20 million SEK and that 40 tons of textiles are yearly disposed, of which 100 % is burnt (Strategic buyer, county council J, written description, May 20, 2016).

The knowledge among the survey respondents on the yearly level of purchased and disposed textile materials within the organization differs a lot. Out of the 11 respondents participating in the survey only three (27 %) gave a number on the amount of purchased and disposed materials. The rest had no information on this or referred to the textile and laundry service firms as the owners of the textiles. This shows that many of the county councils and regions also refer to the textile and laundry service firms as the owners of this information and the possible need for an information update is delegated to the suppliers. On the question on the awareness of what happens with the discarded materials only four of the 11 respondents (36 %) answered and confirmed that the main part of the materials were burnt to e.g. be used for district heating, while minor parts were recycled or sent to charity organisations for reuse abroad.
Static contract terms might affect the capacity for action on sustainability issues negatively. By implementing more flexible contract terms the business unit director in county council I expects it to be easier to demand the suppliers to continuously follow up and make use of the product and sustainability development which may lead to changes in the product line also during ongoing contract periods (Business unit director, county council I, personal communication, May 3, 2016).

.. and what we have missed, or what we have not managed, it's the follow-up side. And we will, this is of course a prioritized area, so there we have a plan for a follow-up as well. But we can not do it before we have set the requirements. And the requirements in this agreement are static. That is what was the miss. They have never been developed.. (..).

we set the level of requirements exactly in 2009, and that's where we are now. And they've come much further themselves. If we look at Textilia they have developed, from what I see, at least, their laundry equipment, and then, in a completely different way during these years, so we do not have a contract that puts pressure, pressures forward, or develops. This (contract) is from 2009 and the only thing that was focused on then was the cotton parts.

(Business unit director, county council I, personal communication, May 3, 2016).

.. what we will revise, it’s a completely different, a completely different way of working and being able to follow the development. And make demands on the supplier to follow the development.

(Business unit director, county council I, personal communication, May 3, 2016).

There is a difference in how the county councils and regions apply and evaluate sustainability in their contract terms. Region K uses this evaluation model with criteria for all product groups within the textile field (email correspondence with region K, May 16, 2016):

Model A
(evaluation criteria for all product groups, apart from product groups baby clothes and surgical clothing)
Finances 50 %
Quality 50 %
  - quality 20 p max
  - function 20 p max
  - delivery capacity/delivery time 10 p max
Max points are 50 points

Model B
(evaluation criteria for product groups baby clothes and surgical clothing)
Finances 30 %
Quality 70 %
  - quality 20 p max
  - function 20 p max
  - delivery capacity/delivery time 10 p max
Max points are 50 points

County council I, on the other hand, apply a different approach:

We have never chosen, in any great extent, to have environmental and sustainability standards as an evaluation, but we have it as additional contract terms. (..) “If you get the contract you must fulfil this part.”

(Business unit director, county council I, personal communication, May 3, 2016).

Although evaluation criteria might facilitate the evaluation and follow-up process, the assessment of sustainability aspects is challenging:
All our demands which we make.. (..) .. they must be controllable. Which in itself can be a problem when you get to the next part in terms of emissions and production processes and all that.

(Business unit director, county council I, personal communication, May 3, 2016).

By including the sustainability standards as an additional contract term it is possible to give stronger sanctions than what would be the consequence if a more general evaluation does not give a satisfying result, since not fulfilling an additional contract term leads to a breach of contract.

In the evaluation model by region K it is shown that the price has a substantial influence on the public procurement of textiles, which is emphasized by many other county councils and regions as well. On the question on whether the short-term (lowest) price have a higher priority than the long-term price (e.g. long-term societal and environmental costs) in the procurement of textiles the survey respondents of this study answered the following:

Does the short-term (lowest) price have a higher priority than the long-term (e.g. long-term societal and environmental costs) in the procurement of textiles?

<table>
<thead>
<tr>
<th>Leading position (director and manager)</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Non-leading position</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

The two-tailed P-value equals 1.0 and there is therefore no statistically significant difference between the officials in leading position and non-leading position concerning whether they believe the short-term (lowest) price have a higher priority than the long-term (e.g. long-term societal and environmental costs) in the procurement of textiles. One procurement director answered both yes and no to the question, with no clear motivation, which might be caused by an intention that both a low price with a low long-term cost, so called best price, is strived for.

It is of interest to compare the confirmation on whether the short-term (lowest) price have a higher priority than the long-term (e.g. long-term societal and environmental costs) price in the procurement of textiles, with the willingness to pay a premium price for cellulose-based and locally produced textiles. Out of the 11 survey respondents five respondents (45 %) answered that it is not possible to pay a premium price for cellulose-based and locally produced textiles while one respondent (9 %) said this might be an option. Reasons given for no possibility to pay a premium-price were a limited budget and not yet tested materials. The environmental developer in region K argued that a premium price is currently not possible to pay but that money will most certainly be available for test environments and purchase of cellulose-based materials in the future.

When analyzing if there is coherence in the county councils’ and regions’ statements that the short-term or long-term price is more prioritized in the procurement of textiles with the possibility or inability to pay a premium price for cellulose-based and locally produced textiles three respondents out of 11 (27 %) answered that the short-term price is more prioritized. This could be seen as a reason for the same respondents’ answers that it is not possible to pay a premium price for cellulose-based and locally produced textiles. One respondent (9 %) argued that the long-term price is more prioritized which might be the reason for the same person’s answer that it would be possible to a premium price for these textiles. One respondent (9 %), however, answered that the long-term price is more prioritized but that a premium price is nevertheless not possible to pay for the cellulose-based and locally produced textiles, which could be seen as contradicting answers. No motivation was given to the contradicting information.

In the European directive for public procurement of 2004 two main principles were stated to be followed by the procurement organizations, due to the activities being financed with tax money. To get the best possible value for money and to act fairly were considered to be the most important facets to consider in the procurement process (Europeiska Gemenskapernas Kommission, 2004). Brammer
and Walker argue that in the existing research on public procurement there is a tendency that local suppliers are favoured over foreign suppliers in the procurement (Brammer & Walker, 2011). This is contradicting the EU directive which says the public procurement authorities must act against nationalistic “buy national” policies and promote the free movement of products and services (European Commission – GROWTH – Internal Market, Industry, Entrepreneurship and SMEs, 2016). The fact that some local strategic programmes, e.g. the environmental programme of county council I, encourages to, when possible and suitable, divide the procurements in smaller procurement processes to facilitate the tendering for local producers (Document I_1) could be seen as a way in which the county councils and regions adapt the strategic, international directives into a more practical approach encouraging local, sustainability initiatives.

Best value for money does not necessarily mean procuring the cheapest alternative but rather focusing on making the best possible deal within the parameters established. Best value for money could thereby include environmental protection as this could be part of the established parameters. The procuring authority must notify about whether the contract with the “lowest price” or the “economically most advantageous” price will be awarded the contract and the criteria for the “economically most advantageous” contract must be transparently presented. The life-cycle costs, i.e. the total costs of a product or service during its whole lifetime and the whole process of procurement, owning and disposal, are expected to be included in the cost calculation. The acting fairly principle focuses mainly on equal treatment of all competitors whom are to be given equal opportunities to compete for the contract, as well as the principle of openness securing equal treatment of competitors involved in the procurement process (Europeiska Gemenskapernas Kommission, 2004). Doing and presenting a life-cycle assessment and calculation of the environmental, social and economic costs of the cellulose-based and locally produced textiles as well as presenting a comparison with the life-cycle costs of imported textiles, might facilitate the marketing and sales of the cellulose-based and locally produced textiles towards the county councils and regions. If the life-cycle costs are shown to be lower in the first product category these products could be categorized into and procured according to the “economically most advantageous contract” rather than the contract with the lowest price.

5.5 Relationship between themes
As presented before Brammer and Walker (2011) have developed a conceptual of influential aspects on sustainable public procurement, based on the work of Gelderman et al. (2006), which is shown in Figure 1.

![Figure 1](image_url)
A conceptual model of the influences upon SP (Brammer & Walker, 2011; Gelderman et al., 2006)
In this study the influential aspects on sustainable public procurement have been discussed in relation to the interview and survey respondents’ experiences of public procurement of textiles in Swedish county councils and regions. This has resulted in an extended model of the influences upon this procurement:

**Figure 2**
Conceptual model of the influences upon sustainable procurement, focused on public procurement of textiles in Swedish county councils and regions (author, 2016)

The study shows that the international policy context is affecting the sustainable procurement through global environmental regulations and social sustainability standards as well as related EU directives. This study also shows that the national policy context with governmental regulations and laws is affecting the regional policy context. However, the regional policies and local, political authorities are influencing the sustainable public procurement process to a considerable extent as well, by e.g. setting specific procurement demands that are obliged to be fulfilled.

The perceived costs and benefits of the sustainable public procurement process are shown in this study as a part that is related to the potential costs followed by unfulfilled requirements related to the governing regulations. Also, it has been shown that many organizations of today realize the potential marketing advantage and added value followed by engaging in sustainability, and the level of acknowledgment of this possible benefit influences the decision-making related to the procurement process.

The challenges related to the familiarity with policies affecting the procurement has been discussed in relation to the challenge of understanding international and national strategic policies within the field, but also in relation to the delegation of information update on the field to suppliers whom are then expected to be fully informed on all policies and regulations related to the products delivered. This
trust on suppliers is also shown in the aspect of supplier availability and resistance since a well-functioning collaboration with the suppliers may improve the county councils and regions technical knowledge and product expertise. The oligopoly problem characterized by two main suppliers dominating the public procurement field of purchase of textiles by Swedish county councils and regions has also been acknowledged.

An influential aspect of knowledge on product alternatives has been added to the model since the study shows a need for increased knowledge on novel materials and products within the textile field, not only among suppliers, county councils and regions but also among the politicians setting demands for the procurement process.

Finally, organizational incentives and pressures have been discussed through international and national directives affecting the process as well as local and internal strategic documents developed to influence and increase sustainable public procurement within the county councils and regions.
6. Conclusions

In this chapter the conclusions of the study are presented followed by practical and research implications as well as suggestions on further research.

6.1 Concluding remarks

As stated in the introduction sustainable public procurement is encouraged to stimulate sustainable activities and initiatives within the private sector and not only with the aim to increase the social and environmental sustainability among the public bodies (Brammer & Walker, 2011). In what some call “the third industrial revolution” digital technology will be a contributor in the manufacturing of products and new, technical skills are required by the workforce, while governing bodies might need to re-think their view on the manufacturing industry (The Economist, 2012). Despite the new challenges facing the manufacturing industry many companies in the existing Swedish textile industry is positive towards the future, seeing opportunity for market expansion while having an interest and focus on developing a sustainable production characterized by innovative processes and products (TEKO – Sveriges Textil- & Modeföretag och Marknadsakademien, 2015), which will potentially lead to new job and business opportunities.

This study has presented organizational structures and processes affecting the incentives and barriers for sustainable public procurement of textiles in the healthcare sector of the Swedish county councils and regions, with a focus on the purchase of cellulose-based and locally produced textiles.

The study shows that the organizational complexity surrounding the procurement process results in challenges related to too broadly stated regulations and laws which are difficult to practically implement in the county councils and regions. However, the encouragement among the governing authorities to increase the level of sustainable procurement in Sweden and the European Union has been shown to be a strong incentive for the county councils and regions to engage in this issue.

The large number of stakeholders involved in the decision-making process increases the information and collaboration barriers and challenges. The knowledge and information sharing between all parties included in the procurement process is a main challenge that needs to be addressed in order to facilitate for the sustainable public procurement. Also, an evaluation of the reason for the few tendering suppliers is encouraged as too few competitors can decrease the engagement in sustainability issues related to the procurement process.

6.2 Implications for practice

Setting more flexible procurement contract terms that are developed with an intent to be able to follow the product development will give an increased possibility to follow sustainability updates related to the procurement process. By making demands on the supplier to follow the development and sustainability updates within the field, trust is still put on the suppliers to bring knowledge and information on product updates to the county council and region. However, if the requirements and contract terms are formulated in a way to make it mandatory for the supplier to continuously update on sustainability news and the sustainable product development within the field it is easier to take measures in case this is not followed as this could entail a breach of contract.

The procuring authorities may also be more specific in their contract terms than what seems to be done today, as the European procurement directives allow procurement demands that require products to be produced of a certain material, as long as the treaty’s principles of non-discrimination and free movement of products and services are respected. As stated before, this can be done by listing preferred materials or by stating that the materials or chemicals included in the materials must not be environmentally hazardous. Also, it is allowed to demand a minimum of recycled or reused materials (Europeiska Gemenskapernas Kommission, 2004). If the county councils and regions state a demand...
on a minimum of recycled materials this could act as an incentive for the national textile recycling activities to increase and improve.

This study shows that many county councils and regions follow very broadly stated regional and local procurement and sustainability directives which could benefit from being translated into more practical and specific procurement demands. The Swedish Environment Management Council’s green public procurement (GPP) criteria is one practical tool that might be useful and applied to calculate life-cycle costing, define environmental award criteria and clarify specifications of what is a sustainable production process (European Commission – Environment, 2016; Innovation Seeds, 2016). Since the new EU directives encourage and allow for life-cycle-costs to be used as an award criterion, this cost calculation can be seen as increasingly important in coming procurement processes (Miljö & Utveckling, 2016). This is in line with the intention of all county councils and regions in Sweden to implement strategies to be able to evaluate all products procured within the health care sector on function, price and life-cycle costs while CSR aspects are to be assessed via a CSR tool provided by the National Agency for Public Procurement (Upphandlingsmyndigheten, n.d; CSR-kompassen, n.d.).

6.3 Research implications and suggestions on further research
This study does not clearly show that the respondent’s formal position within the organization affects the extent of knowledge on sustainable product alternatives and engagement to achieve a sustainable procurement process within the county councils and regions. Further research within the topic could focus on a more thorough study on several organisational levels in the county councils’ and regions’ public procurement units, comparing the level of knowledge on sustainability aspects in the procurement process as well as the perceived possibility to affect the decision-making within the topic in relation to the organisational hierarchy.

Since many county councils and regions rely heavily on the suppliers to provide sustainable products and services it would be of interest to investigate to what extent the suppliers’ deliveries are sustainable and if the level of sustainable delivery originates from the principal’s and county council’s and region’s contract demands or the agent’s and supplier’s own interest to deliver sustainable products and services as a consequence of an ambition to exploit a possible market and competitive advantage.
References


Appendix A

Interview questions
based on input from Saiboo, Martinson - Fristads Kansas Sweden and Innventia

1. How large volumes of textiles does your county council/region purchase every year? State in kilos.
2. How large volumes of textiles does your county council/region discard every year? State in kilos.
3. What happens to discarded textiles, divided in % of second hand, charity, burning, etc.?
4. What’s your take on the disposal of textiles today and in the future?
5. What political decisions and objectives underlie the procurement requirements? Are any of them linked to sustainability requirements and if so, which ones? Are these directives perceived to be clearly formulated to set the direction for the possibility to set sustainability requirements?
6. What aspects have most influence today in the procurement process when purchasing textiles? For example price, function, delivery reliability, comfort in clothes, environmental standards, social sustainability standards, life-span etc. Enter the share the aspect is affecting the procurement in %.
7. What aspects do you consider to be most important in the procurement process when purchasing textiles? For example price, function, delivery reliability, comfort in clothes, environmental standards, social sustainability standards, life-span etc. Enter the share you think the aspect should affect the procurement in %.
8. How is a short-term (lowest price) valued compared to a long-term price (e.g. long-term societal and environmental costs) in the procurement of textiles?
9. What sustainability requirements (environmental, social and economic) are part of a possible RFI (Request For Information)-document before the procurement of textiles?
10. What follow-up is done to ensure that the sustainability criteria (environmental, social and economic) are followed by both the procurement unit in the specifications as well as the company that wins the tender, when purchasing textiles?
11. How imperative are the sustainability criteria (environmental, social and economic) and what are the consequences if these are not met in the procurement of textiles?
12. To what extent can your individual county council/region and you as a strategic buyer affect the decision to apply sustainability criteria (environmental, social and economic), or influence decisions on innovation procurement when purchasing textiles?
13. What experience do you have of cellulose-based (viscose, modal, lyocell), and locally produced textiles?
14. What incentives motivate procurement of cellulose-based and locally produced textiles?
15. What possibilities are there to pay a premium price for cellulose-based and locally produced textiles?
16. What challenges do you see concerning procurement of cellulose-based and locally produced textiles?
17. What incentives and possibilities are there for innovation procurement of cellulose-based and locally produced textiles?
Supplementary questions:
# What’s your take on the new EU-directives concerning sustainability in public procurement?
# What sustainability requirements are included in other beforehand-documents (in addition to RFIs) e.g. hearings?
# Are your sustainability efforts marketed and communicated internally and externally in any form?
Appendix B

Survey questions
based on input from Saiboo, Martinson - Fristads Kansas Sweden and Innventia

1. Name
2. Working title
3. County council/region
4. E-mail

5. How many kilos of textiles does your county council/region purchase every year?
   Answer: Free text
6. How many kilos of textiles does your county council/region discard every year?
   Answer: Free text
7. What happens to discarded textiles, divided in % of second hand, charity, burning, etc.?
   Answer: Free text
8. What’s your take on the disposal of textiles today and in the future?
   Answer: Free text
9. What political decisions and objectives underlie the procurement requirements when purchasing textiles?
   Answer: Free text
10. Are any of these political decisions and objectives linked to sustainability requirements and if so, which ones?
    Answer: Free text
11. Are these directives perceived to be clearly formulated to set the direction for the possibility to set sustainability requirements when purchasing textiles?
    Answer: Yes/No
    If no: Why?
    Answer: Free text
12. What aspects have most influence today in the procurement process when purchasing textiles? Enter the share the aspect is affecting the procurement in %.
    8a) Price
    8b) Function
    8c) Delivery reliability
    8d) Comfort in clothes
    8e) Life-span of textiles
    8f) Environmental standards
    8g) Social sustainability standards
    8h) Other: Specify what and include %
    Answer: Percentage
13. What aspects do you consider to be most important in the procurement process when purchasing textiles? Enter the share you think the aspect should affect the procurement in %.
    Answer: Free text
14. Does the short-term (lowest price) have a higher priority than the long-term price (e.g. long-term societal and environmental costs) in the procurement of textiles?
   Answer: Yes/No
   Why?
   Answer: Free text

15. What sustainability requirements (environmental, social and economic) are part of a possible RFI (Request For Information)-document before the procurement of textiles?
   Answer: Free text

16. What follow-up is done to ensure that the sustainability criteria (environmental, social and economic) are followed by both the procurement unit in the specifications as well as the company that wins the tender, when purchasing textiles?
   Answer: Free text

17. How imperative are the sustainability criteria (environmental, social and economic) when purchasing textiles?
   Answer: Imperative/not imperative

18. What are the consequences if the sustainability criteria (environmental, social and economic) are not met in the procurement of textiles?
   Answer: Free text

19. To what extent can your individual county council/region and you as a strategic buyer affect the decision to apply sustainability criteria (environmental, social and economic) or influence decisions on innovation procurement when purchasing textiles?
   Answer: To a small extent/to a large extent

20. What experiences do you have of cellulose-based (viscose, modal, lyocell), and locally produced textiles?
   Answer: Free text

21. What incentives motivate procurement of cellulose-based and locally produced textiles?
   Answer: Free text

22. Is it possible to pay a premium price for cellulose-based and locally produced textiles?
   Answer: Yes/No
   If no: Why not?
   Answer: Free text

23. What challenges do you see concerning procurement of cellulose-based and locally produced textiles?
   Answer: Free text

24. What incentives and possibilities are there for innovation procurement of cellulose-based and locally produced textiles?
   Answer: Free text

   Supplementary questions added after interviews with three county councils (added May 18, 2016):

25. What’s your take on the new EU-directives concerning sustainability in public procurement?
   Answer: Free text

26. What sustainability requirements are included in other beforehand-documents (in addition to RFIs) e.g. hearings?
   Answer: Free text
27. Are your sustainability efforts marketed and communicated internally and externally in any form and if so, how?
Answer: *Free text*