Strategic Sustainable Development-Based Tool for Needs Analysis in Public Procurement

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Abstract:

In light of the pressing sustainability challenges, new solutions are needed in all aspects of society. Sustainable public procurement (SPP) plays a crucial role in aligning public organizations' own actions with political goals and ambitions. In this paper, we focus on the first stages of procurement processes in order to realize the potential of SSP to contribute to a more sustainable society. We also acknowledge the potential advantages of the Strategic Sustainable Development (SSD) approach, including a common definition for sustainability, promoting a more holistic understanding and these together enabling organizations to act more strategically.

To realize these advantages in practice, we propose an applicable tool for analyzing procurement needs through an SSD lens. The tool guides procurers to consider sustainability aspects and to apply strategic and systemic thinking early on in procurement projects. We argue that this supports more efficient use of resources, including not only the benefits of increased sustainability considerations, but also use of public funds. We further argue that despite current challenges of insufficient resources allocation to proper SPP considerations, it is essential to include foundational considerations such as what the need is and what options exist to meet the given need in every procurement project.

Keywords:

Public Procurement, Sustainable Procurement, Strategic Sustainable Development, Procurement Need Analysis

Statement of Contribution

Looking back at our thesis journey, we learned not only about public procurement but equally much about aligning as a team. Each of us brought different qualities to the process and contributed to the successful completion of our thesis in our unique way. Our work was built on trust and curiosity. With the ultimate aim of finishing the thesis project, we also prioritized spending time to develop our team capacity throughout.

While some specific parts of the work was mainly carried out by one team member, far most of it is not clearly relatable to one of us due to our collaborative approach. Throughout designing the research approach, creating the questionnaire and interview guideline, conducting data gathering, analyzing the results, prototyping, report writing, and communicating with various stakeholders, we managed to benefit from our collective intelligence and creativity.

Helena Excels at hosting. This reflected in the numerous iterations of crumble cake that emerged from the oven. Not only did she prepare feasts for the team on multiple occasions, she also warmly took care of everyone's well-being. This helped us manage to navigate the waters of the process with a healthy working culture on board. Her contributions took the proofreading and referencing to the next level with a certain degree of German accuracy. She also contributed greatly to sharpen and describe our methodological approach.

Juho was our late night working ant and dedicated himself to the results and discussion hereof with the might of his academic capacity. Henceforth, he broke the limitations of the analyst, merely having an overview of the coding sheets, to crystalize findings in the report. Juho helped out where it was needed and thereby supported the rest of us and made us Finnish things. Together with Kai, he took on networking with procurement practitioners. With his playfulness and lightness, he ensured that we had fun along the process. He contributed to finding our balance as a team by bringing his warm and kind spirit to the room.

Kai brought his kai'nd presence, fantastic humor and outside-the-box thinking to the team. Since critical thinking lies deep within his nature, he made major contributions to the discussion parts and general collective sense-making. His well nuanced questions came into play in various conversations as well as in interactions with experts. Together with Juho, he made sure to keep in touch with external contacts by writing engaging emails. He was encouraging the rest of the team with his trust in the process and 'everything is possible'-go-getter-attitude.

Nora's strong suits include structure and managing progress. She not only provided our interactions with structure, but also reviewed the report – down to the specific location of each dot (literally). Throughout the process, she ensured that things got done, but also that we delivered a high quality output every time. With her experience touching upon tin…tendering, she helped to build a common understanding of the procurement process. She also took major responsibility for the introduction and formatting.

All in all, we are happy to wrap up our thesis project with a shared sense of accomplishment and are proud of the spacious collaboration we managed to carry with us throughout.

Acknowledgements

This journey would not have been possible without numerous people whom we could count on throughout the past few months. We want to express our sincere gratitude to:

…Our loving families, partners and friends, for listening and carrying us through the intense moments. Thanks for being there and having our back! <3

…Our supervisors Pierre and Cecilia for providing ingenious feedback and tips on how to improve our work. Their guidance helped us navigate through the process ever since the research proposal hitherto as the paper stands now.

…The procurement experts who devoted their precious time to help us understand the many nuances of the public procurement practice. Their insights were invaluable to us moving forward with the development process. We are truly grateful to them showing genuine interest in our work, and encouraging us to iterate a revised version of the tool prototype.

…The MSLS community: external lecturers, staff members and our fellow classmates, for the many hugs and for balancing the spring with non-thesis-related activities. Thank you for making the past year a memorable, exciting adventure!

Tusen tackar!

Executive Summary

Introduction

In the past years, the pressure on governments to "walk the talk" has increased along with the systemic sustainability challenges that the world is facing. One significant way governments accumulate their sustainability impacts is through providing public services, which are ultimately delivered through various purchases via 'Public Procurement' (PP). PP is also a significant market driver, as for example in the EU the total PP expenditure accounts for on average 19 percent of the GDP (Olsson and Öjehag-Pettersson 2020). Thus strengthening sustainability considerations within PP is not merely a way for governments to pursue their sustainability goals, but it also makes Sustainable Public Procurement (SPP) a central instrument in the transition towards a sustainable society.

To maximize these sustainability outcomes, it is important to apply sustainability thinking across the whole procurement process (UNEP 2021). Sustainability can be considered in multiple ways at different stages along the PP processes (Igarashi, de Boer, and Michelsen 2015; EC and ICLEI 2016; UNEP 2021). However, In this paper we focus on the first potential point of applying these considerations: identifying the procurement need. This step includes the question "what is to be procured", which is critical both in terms of efficient use of public money as well as for potential environmental and social sustainability impacts (UNEP 2021). While it is commonly known that "*the most sustainable purchase is often the one not made*" (UNEP 2021, 74), seeking out various solutions for meeting the need (UM n.d.a) and understanding of their sustainability impacts (EC and ICLEI 2016) are also needed early in the procurement processes.

In this paper, we are looking at the SPP from a Strategic Sustainable Development (SSD) perspective. The SSD approach holds potential to address some of the challenges of SPP. First, the lack of a shared definition and mental model of sustainability could be addressed by applying a general and science-based principled definition of sustainability that can be shared and agreed upon across fields (Broman and Robèrt 2017). Secondly, there is potential to address the lack of a strategic approach, lack of systemic understanding of the complex sustainability problems, and the tendency for short-term thinking (Bratt et al. 2013). This kind of shift to a more strategic approach could potentially result in more efficient use of public funds compared to current practices.

Despite the advantages and applicability of SSD, there is a lack of strategic approaches to PP. Therefore, we explored in this paper how SSD could inform PP by designing a prototype of a tool that supports analyzing procurement needs. The research questions that supported development of the tool were: 1) *How is sustainability considered in early stages of public procurement processes, especially in practices related to procurement needs identification?* and 2) *What might an applicable SSD-informed tool that supports analyzing procurement needs look like?* Our research was based on PP practices in Swedish regions. However due to the general nature of the tool and focus on the initial stage of the procurement process, it might be considered to be relevant and applicable also to current practices undertaken in other public institutions and in other countries globally.

Methodology

The underlying framework for our research is the Design Research Methodology (DRM). We chose this action-based approach as its core includes both understanding as well as changing and improving current practices (Savin-Baden and Major 2012). In accordance with the DRM, the research process was divided into three stages: Analysis, Design, and Evaluation (Blessing and Chakrabarti 2009a). In the Analysis phase, we used a qualitative questionnaire to gain knowledge about current practices in the early steps of procurement processes. The questionnaire was sent to PP practitioners in Swedish regions. We used this knowledge in the second phase of the research, where we designed a prototype of a tool for analyzing procurement needs. The prototype was built based on the Framework for Strategic Sustainable Development (FSSD). Finally, in the Evaluation phase, the tool was theoretically validated by five semi-structured interviews with PP experts. Afterwards we iterated the prototype by considering the feedback we received in the interviews.

Analysis

In order to answer the first research question of how sustainability is currently considered in the analysis of procurement needs, we analyzed the received 19 questionnaire responses. The results were categorized into procurement process, stakeholders, sustainability considerations in the process, and challenges. Based on these results we found that the early steps of PP do not necessarily form a linear process and there is variation due to differences in procurement projects. Similarly, various stakeholders' involvement in the process seems to vary case by case. We also found out that it can be difficult to gather enough information to define the need and that the need itself is not deliberately questioned. We received a few sample documents that support the view that no extensive analyses are carried out on the fundamental needs behind the purchase.

Regarding sustainability, we found that practitioners give relatively high importance to sustainability considerations at early stages of the PP processes. Different motivations for this were mentioned including organizational goals, wider political environment and societal consensus as well as issues beyond organizational boundaries like biosphere, climate, supply chain and resource depletion. Also, a variety of currently used measures for this consideration were mentioned. Regarding social aspects, examples such as human rights, workers' rights, and anti-corruption were listed. For the environmental requirements, hazardous substances, resource consumption, climate impact, emissions, and energy consumption were named as areas of deliberation. Overall, the environmental considerations were dominant among the answers. It was also pointed out that individuals' competences and knowledge about sustainability impacts have a notable influence on these considerations.

We identified a few main challenges: i) lack of clarity and communication of the early steps of procurement process, ii) risks of missing out important sustainability considerations about the procurement, iii) assumption of only necessary purchase requests taking place and iv) lack of systemic understanding of sustainability. Thus we argue that there is a need to improve the process around the analysis of the procurement needs. Considering the high variance of the processes, while acknowledging the importance of considering needs in all procurement cases, the proposed tool needs to be applicable in different scales and in various types of procurement projects. This together with the lack of time and the need for collaboration,

points to the benefit of a relatively simple tool that fits existing practices and promotes a systemic understanding of sustainability. Finally, to address the seemingly superficial understanding of the underlying need and the habit of locking into old patterns and solutions, the tool should provide means to provoke more deliberate thinking around the procurement needs.

Design

Based on the findings of the Analysis phase, we developed the first prototype of a tool to support the analysis of procurement needs. The intention of the tool is to help build a solid basic knowledge that enables better considerations of sustainability to be embedded into the procurement process. The intended target audience of the tool are procurers working in the public sector. The tool is intended to be utilized in the first steps of the procurement process and it was designed to be general by nature to be applicable in different kinds of procurement projects of various scales.

The prototype consists of a list of questions aimed to guide procurers' thinking around the needs to be fulfilled by a given procurement project. The questions included in the prototype are organized according to four levels of the FSSD, namely: System, Success, Strategic Guidelines, and Actions. The fifth level of the FSSD, Tools, is present in the prototype as the proposed support tools are linked to each of the four above-mentioned sections. These listed support tools might be used to build or enrich the procurers' understanding in relation to the questions within each of the levels. Purposes of the four sections are stated in the table below.

Section	***Purpose***
System	Building understanding of the system in which the client organization operates, where the need comes from, and why it is important to meet this need.
Success	Building a common understanding of the fundamental need and how to best meet it in a way that does not disadvantage the biosphere and the society at large.
Strategic Guidelines	Defining the requirements and guidelines that should be followed in the process.
Actions	Suggesting actions that support identifying, analyzing, and understanding the fundamental procurement needs.

We argue that the tool holds potential to address the issues regarding analyzing procurement needs identified in the Analysis phase. Thus, while the usage of this tool might require devoting more time than the existing practices, the time investment is likely to be compensated for along the process, as critical aspects of the project are explicitly described and agreed upon earlier.

Evaluation

In the final phase of our research, we evaluated the prototype of the tool by interviewing procurement experts. Overall we received positive feedback for the tool. Experts stated that it covers important aspects of procurement practices, and especially the aspects covered on the

System and Success sections of the tool were praised as the most important. Additionally, the questions under the Strategic Guidelines section pointing to various organizational and political goals, agreements, and strategies were considered relevant by all the participants. Also, the tool was seen as relatively applicable as it was found both to be practical and to have potential for strengthening sustainability considerations in the early procurement phase.

We also received some improvement ideas. First, the extensive number of questions was criticized. No unnecessary queries were identified, but the need of specifying and clarifying some of the questions as well as adding more guidance arose from the interviews. We also received other suggestions related to prioritization and ways to utilize the tool, namely in terms of organizing and dividing the questions per order of importance, using the tool as a checklist, or as a basis for staff training. Some limitations for the applicability of the SSD concepts were also identified during the interviews including current unfamiliarity in the field. General challenges related to introducing new practices in organizations were brought up in the interviews. However, we argue for the importance of developing new applicable SPP practices, such as this tool, in order to achieve real progress towards the set sustainability goals of the organizations and on the wider political level.

Based on the received feedback, we iterated and improved the prototype. For this second version of the prototype, we especially considered comments regarding the user-friendliness. The questions were split into two categories of ‘foundational’ and ‘additional’ questions to support prioritization and focus in case of time constraints. We also added general guidelines in the beginning of the prototype aiming to simplify the navigation through the tool accompanied with other minor edits for increasing clarity.

Final Discussion

The DRM framework functioned well as a foundation for our research. The Analysis phase was necessary before jumping into the development phase since actual practices in place in various organizations would not have been covered by merely reviewing academic literature and the organizations’ publicly available resources. However, we did face some challenges related to data collection. Due to high variation in our results, slight lack of clarity of current procurement processes and practices remained. It could also have been beneficial to have more iteration rounds to further develop the prototype. In future research, a case study could be considered as an alternative to the selected approach to overcome these challenges.

Our proposed tool ultimately aims to help realize the existing potential of PP to contribute to a more sustainable society. A potentially high leverage in regards to sustainability is opening the procurement project up to a wider range of possible ways to meet the given need. This might help public organizations achieve more sustainable outcomes by means of product or service solutions that are alternative to those commonly or previously procured. Another and arguably even higher leveraged impact of taking the tool into use is the possibility of not procuring a product or service altogether, since the relative importance or even existence of the given need might be called into question. In addition to its direct impact potential, the tool also supports developing a shared understanding of sustainability, necessary for effective cooperation both between a procurer and a client, as well as with suppliers and other stakeholders. The need for common understanding was indicated by both our results from the questionnaire and the interviews as well as findings from literature, indicating that the

perception and understanding of sustainability varies between organizations and individuals involved in the procurement process.

Though the proposed tool might bring various potential benefits for sustainability, it is crucial that it is being systematically used in order for such benefits to be actualized. We identified multiple challenges related to this, which should be considered and monitored moving towards an eventual implementation. We also conclude that it is crucial to conduct a practical validation. Upon validating the general relevance and applicability of the tool, it could be contextualized for a specific procuring organization and eventually implemented together with necessary complementary activities such as training programs for the core users.

Conclusion

In light of the pressing sustainability challenges, new solutions are needed in all aspects of society. SPP plays a crucial role in order to align public organizations' own actions with the political goals and ambitions. Additionally, SPP holds the potential to influence market availability of more sustainable solutions and to challenge overconsumption. In this paper, we argue that focusing on the first stages of PP has a high leverage potential in order to realize the above-mentioned contributions to a more sustainable society. We also acknowledge the potential advantages of the SSD approach for PP, including a common definition for sustainability, promoting holistic understanding as well as enabling organizations to act more strategically. To realize these advantages in practice, we propose an applicable tool for analyzing procurement needs through an SSD lens.

The tool guides the procurer to consider sustainability aspects, and to apply strategic and systems thinking early on in the procurement project. We argue this to be beneficial in terms of more efficient use of resources including not only the benefits of increased sustainability considerations, but also more efficient use of public funds. The tool was planned to be general enough so that it could be applied for different types of procurements. We further argue that despite the current challenges of lacking resources for proper SPP considerations, it is essential to include foundational considerations such as what the need is and what different options there are to meet the given need in all procurement projects. As PP practitioners showed genuine interest towards the tool and saw potential for applying it in practice, we continued our research by developing a second prototype that takes into account the received feedback. However, in order to be able to introduce the proposed tool in PP organizations, further practical validation is required.

List of Abbreviations

DRM	Design Research Methodology
FSSD	Framework for Strategic Sustainable Development
GPP	Green Public Procurement
HU	Nationalkansli för Hållbar Upphandling, Swedish cross-regional Sustainable Public Procurement network
MEAT	Most Economically Advantageous Tender
PP	Public Procurement
RFI	Request for Information
SPP	Sustainable Public Procurement
SPs	Sustainability Principles
SRPP	Socially Responsible Public Procurement
SSD	Strategic Sustainable Development
TBL	Triple Bottom Line
UM	Upphandlingsmyndigheten, Swedish National Agency for Public Procurement

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1 Introduction

Our world is facing multiple challenges. During the coming decade, the most severe risks are anticipated to be related i.e. to climate change and extreme weather patterns, biodiversity loss, erosion of social cohesion, livelihood crises, natural resource crisis and debt crisis (World Economic Forum 2022). These environmental, social and economic risks are only part of the systemic sustainability challenge that is causing decline in society's ability to meet human needs (Broman and Robèrt 2017). The result is an increasing pressure on governments and public institutions to take action on these sustainability challenges. In recent years, much of the focus has been around climate issues – for example, the youth climate movement *Fridays for Future* has succeeded to mobilize young people and influence public discussion around the world (Huttunen and Albrecht 2021). Furthermore, non-governmental organizations have raised lawsuits against governments and for example, in the Netherlands a court has ruled that the government must protect its citizens against climate change (Bateman 2021). In addition to the climate issue, the public has shown their power also for other causes. For example, in 2019 the Bavarian government in Germany directly enacted a law to protect pollinators which was based on a petition signed by 1.75 million people (Agence France-Presse 2019).

Indeed, national governments have a central role in addressing wicked sustainability problems. For example, public policies promoting sustainability are considered as such contributive actions (Kulin and Johansson Sevä 2019). While these policies impact the society, public institutions are also directly accumulating their own climate and environmental footprints as well as social impacts through providing public services. This calls for public organizations to "walk the talk" also in their own actions and services for the public, which are ultimately provided through various purchases via 'Public Procurement' (PP). Therefore, PP plays a central role in the transition towards a sustainable society.

The European Commission defines PP as *"the process by which public authorities, such as government departments or local authorities, purchase work, goods or services from companies"* (EC n.d.a). When considering the scale of these operations, there is a significant leverage potential for implementing sustainable practices and above-mentioned "walking the talk". PP accounts for approximately 12 percent of the total gross domestic product (GDP) in the Organisation for Economic Co-operation and Development (OECD) countries, while in the European Union (EU), the share reaches up to 19 percent on average (Olsson and Öjehag-Pettersson 2020). Similar to this EU average, Swedish PP represents roughly one fifth of the country's GDP, amounting to over 800 billion SEK annually (UM n.d.b.). Thus, PP acts as a significant market driver. Indeed, besides the actual procurement objectives aiming to deliver public services, various non-procurement objectives which aim to foster national economic and social development (e.g. to provide jobs), have traditionally turned PP into an effective policy tool across the world (Pouikli 2021; Keulemans and Van de Walle 2017).

Along with growing sustainability concerns and related objectives such as carbon neutrality pledges and the United Nations (UN) Sustainable Development Goals (SDGs), PP is increasingly considered as one of the key measures in promoting sustainable development (Pouikli 2021; Nordic Council of Ministers 2021). In this context, PP is referred to with various more descriptive terms such as Sustainable Public Procurement (SPP), Green Public Procurement (GPP) and Socially Responsible Public Procurement (SRPP). These instruments play a dual role of driving both sustainability policies and demand-side policy i.e. creating market opportunities for desired products and services. Correspondingly, PP is nominated as a

key driver for green growth, as acknowledged e.g. on the EU Green Deal roadmap (Pouikli 2021). Meanwhile, SPP and GPP have been criticized for not being the most cost-efficient tool compared to market-based instruments such as taxes (Olsson and Öjehag-Pettersson 2020), but they are also claimed to have a relatively higher level of precision leading to a desired sustainable output compared to market-based instruments (Cheng et al. 2018). Despite some debate around applying SPP, the general attitude seems to be positive. For example, sustainable PP practices are promoted along the UN Agenda 2030 for Sustainable Development, by having raised them as a target under SDG Twelve – *Responsible Consumption and Production* (UN n.d.).

1.1 Basics of Public Procurement in Sweden

PP is characterized by legislative requirements and regulations that aim to ensure best use of public money coming from taxpayers. As an EU member country, the rules and regulations for PP used in Sweden are set by EU directives[1] (Government Offices of Sweden 2018). These directives establish two basic principles for PP: value for money and fairness (EC and ICLEI 2016). The principle of value for money can be seen in practice as the legal requirement by which contracting organizations must always choose the Most Economically Advantageous Tender (MEAT). This does not mean that the cheapest offer should always be chosen, but rather finding the most cost-effective solution that is able to meet the identified needs. The second principle, fairness, relates to applying the rules and principles of the open internal market within the EU. These include non-discrimination, equal treatment, transparency, and proportionality, which in the context of PP translates as i) all supplier candidates must be treated equally no matter which EU country they originate from; ii) procurement processes must be transparent to ensure fair competition among suppliers, and iii) only measures and requirements that are proportional to the PP objectives shall be used (EC and ICLEI 2016). While these basic principles must always be met in the PP, they do leave room for different criteria such as quality and fitness for purpose to be taken into account in procurement processes. In other words, this provides space for authority-initiated requirements such as environmental performance (EC and ICLEI 2016).

In addition to regulations and rules set by the EU directives, member countries can also set rules for PP in their national legislation (EC n.d.a). This is also the case in Sweden, where the Swedish Public Procurement Act follows the same basic principles as the directives (Konkurrensverket 2017). Furthermore, national legislation has an important role in covering procurements that fall below certain thresholds, i.e. when the EU directives are non-applicable. These represent a total of 53 percent of all PPs in Sweden (UM and Konkurrensverket 2020). All legal acts are enforced by the Swedish National Competition Authority, while another governmental agency, Upphandlingsmyndigheten (UM, the Swedish National Agency for Public Procurement) holds a supporting and guiding role (UM n.d.b).

[1] There are currently two public procurement directives in use: directive 2014/24/EU on public procurement and directive 2014/25/EU on procurement by entities operating in the water, energy, transport and postal services sectors (EC n.d.b).

1.2 Sustainable Public Procurement

Sustainable Procurement has been a growing topic among procurement research throughout the past decades (Walker et al. 2012). The practice emerged when public authorities started to consider environmental impacts in their purchases (Andrecka and Mitkidis 2017). The focus on environmental aspects has also been mirrored in past scientific research in the field (Walker et al. 2012; Montalbán-Domingo et al. 2021). GPP can be defined as "*a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured*" (EC and ICLEI 2016, 4). Besides GPP, consideration of social aspects in procurement has also been developed by public authorities. The European Commission's (n.d.c) definition of SRPP states that public organizations *"[...] engage in socially-responsible public procurement by buying ethical products and services, and by using public tenders to create job opportunities, decent work, social and professional inclusion and better conditions for disabled and disadvantaged people.*".

Building upon the past research on PP with mere environmental focal point, the concept of SPP was developed to widen the scope of considerations (Andrecka and Mitkidis 2017). According to Walker and Brammer (2009, 128), sustainable procurement *"is consistent with the principles of sustainable development, such as ensuring a strong, healthy and just society, living within environmental limits, and promoting good governance"*, meaning that both environmental and social as well as economical aspects should be considered while procuring for public organizations. Compared to GPP and SRPP, SPP can thus be utilized to support and implement broader policy objectives (Andrecka and Mitkidis 2017) such as the Agenda 2030.

There are multiple barriers and challenges for implementation of SPP practices. One key challenge identified in SPP research is a lack of a common definition of sustainability (Bratt et al. 2013). The inadequate definition is particularly challenging in the case of social sustainability, which results in unclarity of which indicators should be used in procurement processes and how to measure them (Montalbán-Domingo et al. 2021). Some authors (e.g. Olsson and Öjehag-Pettersson 2020; Ottelin, Heinonen, and Junnila 2018) have also criticized the policy tool role of SPP representing a weak notion of sustainability, in which economic growth and technological advancements are thought to solve the complex issues of unsustainability. Along the same line of arguments, the very problems are regarded to be resulting from overconsumption of material resources, while aggregating the unjust global distribution of both the resources and the problems. Sustainable growth in this case is based on a belief that further consumption can be decoupled from its negative impacts on environment and society. However, Olsson and Öjehag-Pettersson (2020); Ottelin, Heinonen, and Junnila (2018) are skeptical of how effectively this decoupling can be made in practice. In other words, if the problems can be truly resolved without addressing the root causes of the very issues (Ottelin, Heinonen, and Junnila 2018).

On an organizational level, the challenges of applying SPP practices include a lack of considering a long-term perspective (Bratt et al. 2013). This together with the focus on existing products and services, instead of incentivising innovative product-service solutions, can lead to less sustainable outcomes as well as to a lack of incentives for suppliers to develop new sustainable solutions (Bratt et al. 2013). The missing incentives to procure product-service systems, which promote an alternative model to owning products (Mont and

Lindhqvist 2003), form a barrier to sustainability as this could be one possibility to face the sustainability challenge on the systems level.

Procurement organizations are also faced with other barriers to implementing SPP practices, including behavioral challenges such as individual resistance to change and former deep-rooted practices, lack of competence e.g. as limited understanding of sustainability, and insufficient support from the management (Brammer and Walker 2011; Bratt et al. 2013; Olsson and Öjehag-Pettersson 2020). Additionally, financial constraints represent one of the main barriers because environmentally sound products are often considered more expensive, especially when exclusively looking at the purchasing price (Cheng et al. 2018). Limited financial resources can be a detrimental factor especially in smaller procurement organizations, further exacerbating other above-covered hindrances. For example, by not having enough time or specialized personnel to devote to stronger sustainability considerations or to further improve the existing practices (Michelsen and de Boer 2009).

1.2.1 Sustainability in Public Procurement Processes

Ultimately, all PP processes focus on selecting the suppliers to provide the products and services needed by public organizations. There are multiple procurement methods that may be applied for this, but most of them can be collected under the umbrella term, tendering. The Cambridge Dictionary (n.d.) defines tendering as *"choosing the best or cheapest company to supply goods or do a job by asking several companies to make offers for supplying the goods or doing the work"*. There are a few variations of the tendering process, with the most commonly used being open tendering, in which suppliers can submit tenders based on publicly announced calls for tenders. Other options include restricted tendering procedure and competitive negotiated procedure. Additionally, procurement organizations can utilize framework agreements for recurring needs, form innovation partnerships or use design contests as alternative procurement methods (EC n.d.d). Despite the differences between the various methods utilized in PP, they all share the basic elements of the procurement process. These general steps are presented in Figure 1.1.

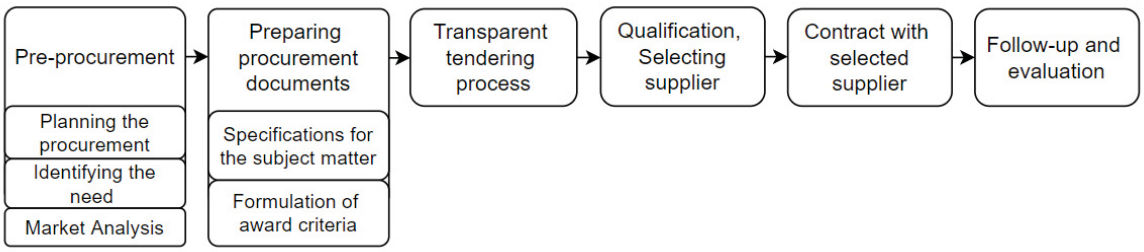

Figure 1.1. General procurement process (Igarashi, de Boer, and Michelsen 2015; EC and ICLEI 2016; UM n.d.c).

Procurement processes generally start with a pre-procurement or planning step, which includes various planning activities and identification of the initial need for the procurement. The planning activities can include e.g. procurement project planning, setting working groups and conducting a market analysis. After setting the frame for the purchase, the focus of the procurement project shifts to preparing procurement documents which specify what is to be procured and under which conditions (UM n.d.c). This includes the specifications for the

procured subject matter i.e. defining mandatory requirements called technical requirements, or specification requirements that a given product or service must fulfill (Igarashi, de Boer, and Michelsen 2015; EC and ICLEI 2016). In addition to the mandatory criteria, suppliers can be ranked in the qualification stage by using certain award criteria that are not mandatory to meet, but give suppliers voluntary incentive through a scoring system, evaluating their respective performance (Igarashi, de Boer, and Michelsen 2015). In other words, requirements considering the supplier performance can be defined in this stage (EC and ICLEI 2016).

The following steps of a procurement process include a transparent tendering process, selecting (a) supplier(s), writing a contract with the selected supplier(s) as well as follow-up and evaluation of the supplier performance (Igarashi, de Boer, and Michelsen 2015; EC and ICLEI 2016; UM n.d.c). The requirement of transparency of the public tendering process comes from the EU directive principle of fairness that ensures an open market, which also links to efficient use of public money as open competition between suppliers is believed to deliver the most cost-efficient results (EC and ICLEI 2016). In practice, this transparency appears as a legal obligation to announce different requirements and criteria to the procurement already in the beginning of the tendering phase, usually in calls for tenders. Likewise, the same obligation applies to how these criteria are measured and what kind of proof is required from the suppliers (EC and ICLEI 2016).

It is important to apply sustainability thinking across the whole procurement process in order to maximize the sustainability outcomes of the procurement (UNEP 2021). In the generalized procurement process described above, there are multiple steps where sustainability can be taken into consideration. These five potential points of intervention are presented in Figure 1.2. below (Igarashi, de Boer, and Michelsen 2015; EC and ICLEI 2016; UNEP 2021). The first potential point of intervention can be found in the beginning of the process under the pre-procurement step in identifying the need. Following opportunities for interventions can be found in the preparing procurement documents step both in terms of specifications for the subject matter and formulation of award criteria. Additionally, final selection and supplier evaluation hold the possibility to take sustainability into account.

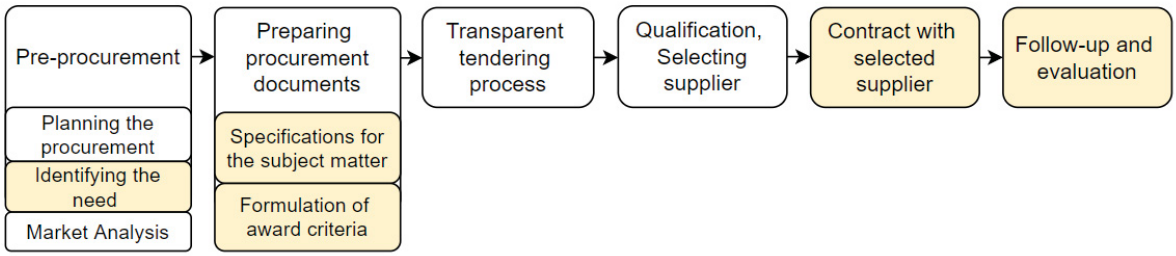

Figure 1.2. Integrating sustainability into the procurement process (potential points of consideration marked yellow) (Igarashi, de Boer, and Michelsen 2015; EC and ICLEI 2016; UNEP 2021).

The first potential point of applying sustainability considerations to the procurement process comes in identifying the procurement need. The question "what is to be procured" is critical both in terms of efficient use of public money as well as for sustainability, as all purchases have environmental and social impacts (UNEP 2021). Going further, the UNEP (2021, 74) report states: *"the most sustainable purchase is often the one not made*", encouraging inquiry into the fundamental need. When evaluating the true need for the purchase, it is important to

consult the client organization who prompted the initial need and the end users of the intended solution. Inadequate involvement of these important stakeholders throughout the procurement process is common, which often has a negative impact on the success of the procurement (EC 2018). That in turn can lead not only to additional costs (EC 2018) but also to additional environmental and social burdens.

In addition to questioning the need of the purchase, sustainability can be considered in the need identification by seeking out various kinds of solutions for meeting the need in question. Market analysis is one such tool that can provide information about the potential available solutions (UM n.d.c.). Alternatives for purchasing can also be considered (UNEP 2021). These can include utilizing reused or recycled products (EC and ICLEI 2016), shifting to service-oriented product-service systems (Mont and Lindhqvist 2003), and giving suppliers an opportunity to propose novel innovative ways of providing the solution to meet the need (Andrecka and Mitkidis 2017).

When considering these alternative solutions, it may be helpful to apply a performance-based needs definition. When using a performance-based definition, the procurement need is presented as an output or application description that does not include any specifications to the design of the solution (Pienaar 2012). This way of defining the need leaves more room for suppliers to deliver defined performance in the most efficient way (EC and ICLEI 2016).

Lastly, after identifying the underlying needs and potential solutions to meet those needs, the potential sustainability impacts to be considered in the purchase should be identified (EC and ICLEI 2016). Gaining a basic understanding of sustainability impacts, which can be negative or positive, lays the foundation for finding the solution with the best sustainability performance possible.

In the following stage of the PP process, criteria for the purchase are defined, which makes this step crucial for applying sustainability considerations to the process. In fact, traditionally SPP has focused solely on this step of procurement (UNEP 2021). However, the mandatory and optional criteria, that can be set both to the subject matter as well as to the supplier, must always relate to the purchase in question (EC and ICLEI 2016; UNEP 2021). The requirement of criteria being related to the subject matter as well as proportionality to the scale of the purchases has led to a number of court cases as suppliers have questioned the final selection decision made by the procuring organization (EC and ICLEI 2016). Due to the cost and time intensiveness of the court processes, these cases might hinder the willingness of procurement organizations to develop and apply new criteria.

Nevertheless, several international and national organizations offer ready-made sets of criteria for different product groups and service types that can be utilized when forming these procurement criteria (EC and ICLEI 2016; UM n.d.a). Despite being a good tool for promoting SPP, there are also challenges related to these standard criteria sets. For example, defining them entails a work-intensive process,, which leads to another challenge pointed out in the UNEP (2021, 73) report: *"...the progress of sustainable procurement implementation in a country gets limited only to those products for which sustainability criteria have been defined and communicated to contracting authorities*". This emphasizes the role of the predefined criteria sets as a solution that aims to improve sustainability performance of purchases case by case, not as a way to promote a systems level change.

Another mechanism to enhance sustainability of the procurement is setting contract clauses requiring certain sustainability practices from the chosen supplier (EC and ICLEI 2016). As

soon as a contract is signed by the latter, these requirements become legally binding. Thus, contract clauses provide a good opportunity to influence the sustainability performance of the procurement (UNEP 2021). Such contract terms similarly need to be stated in the calls for tenders and thus need to be decided on in the early steps of the PP process (EC and ICLEI 2016).

The final point of intervention is in evaluation of supplier performance, which can provide important information about meeting the sustainability goals and can thus help develop the process and criteria for future procurements (EC and ICLEI 2016; Igarashi, de Boer, and Michelsen 2015). Evaluation of supplier performance and managing contracts is equally important for ensuring the sustainability performance during the contract period. Especially in case of contracts with high sustainability risks, this monitoring phase can play a crucial role (UNEP 2021).

However, possibilities for taking sustainability into consideration in procurement are not limited to the supplier selection undergone through the general process described above. Other potential activities include stakeholder engagement and boosting sustainable innovation. Such activities can be crucial as buying more sustainable products and services requires knowledge about market availability and potentially influencing the available market offerings (EC and ICLEI 2016). There are various methods to engage suppliers such as Competitive Dialogue Procedures and Private-Public Partnerships (Uttam and Le Lann Roos 2015; Keränen 2017). Such procurement methods may lead to increasing the potential of PP in contributing to sustainability (Uttam and Le Lann Roos 2015), as they also allow for solutions to be created collaboratively with suppliers as well as supporting their understanding of and inviting for feedback on requirements and criteria including those tapping into sustainability (Nordic Council of Ministers 2021). This type of collaboration with suppliers is one possible way for public organizations to boost innovation and create a market for new types of products. In addition, public organizations can decide to procure innovations to support the research and development function for novel products and services (Obwegeser and Müller 2018).

1.2.2 Sustainable Public Procurement in Sweden

Sweden has been entitled as being among a few frontrunners with its relatively high SPP uptake in comparison to the other EU countries (Keulemans and Van de Walle 2017; Olsson and Öjehag-Pettersson 2020). The history behind this success goes back a few decades. Already in 1995, the majority of Swedish PPs were claimed to include some kind of environmental criteria – though seemingly incremental. However, their occasional successes encouraged the government to launch a specialized Committee for Ecological Sustainable Procurement, with a dual purpose: i) to promote GPP uptake within domestic institutions, namely by initiating a tool to consider GPP aspects in the most prevalent product-service groups, and ii) to advocate for wider GPP implementation within the EU. The committee ran from 1998 to 2001, while its successor, the Swedish Environmental Management Council, took over the responsibilities in 2003. Four years later, the government launched an action plan to harness GPP practices as an official policy tool (OECD 2015; Olsson and Öjehag-Pettersson 2020).

In 2013, the Swedish government further initiated a reform to promote strategic PP, with sustainability aspects such as the then-to-be-launched Agenda 2030 at its core (OECD 2015;

Government Offices of Sweden 2017). In this case, the notion of strategic PP refers to a determined use of PP as a tool to achieve set national policy goals through efficient use of financial resources. The initiative consisted of three pillars: i) including improvements to the procurement legislation to couple it with set and future sustainability goals, ii) launch of the National PP Strategy that includes notions of environmental and social sustainability, and the related policy objectives, and iii) establishing UM to implement the latter (Government Offices of Sweden 2017).

Today, UM provides a comprehensive set of tools and services to contracting authorities in SPP. For instance, it offers product and service specific GPP and SRPP criteria with three different levels of ambition – basic, advanced, and frontrunner – that are set as pre-formulated requirements (EC and PWC 2015). All levels are stated to be more ambitious than the existing legislation. The levels are represented through 54 different product-service groups, which each have a varying number of product-service-specific criteria. The basic level represents 70 percent of all criteria, the advanced level accounts for a 23 percent share, while the remaining seven percent are covered by the frontrunner level. This variance is mainly because the criteria are co-developed and reiterated with contracting authorities over time, with each new contract experience having the potential to feed into the accumulating pool of criteria. Also, the advanced and frontrunner levels may pose hindrances to practical implementation due to their resource-intense nature – in terms of time and expertise – and potential shortage of suppliers that would be able or willing to meet the criteria. Indeed, UM underlines the importance of initial conditions of the procurement and ensuingly, the relevance of analysis work under the pre-procurement phase (UM n.d.c).

Besides UM, there are several other Swedish organizations and initiatives whose interests and work touch on issues around SPP. For example, Nationalkansli för Hållbar Upphandling (HU), which is a collaboration platform for Swedish regions focusing on advancing SPP practices in a cross-regional setting. The aim of the network is to utilize synergies by dividing its work into steering groups, which consist of one or more regions. Each group is allocated certain product-service groups to specialize in, to advance and to streamline the development work, while the results are then shared among the platform with the other steering groups. The fruits of this collaboration are also embodied in a variety of general documents, such as the supplier code of conduct used by all regions, and a joint follow-up scheme – all aimed to overcome the resource shortages within the procuring organizations (Hållbar Upphandling n.d.).

1.3 Framework for Strategic Sustainable Development

In this paper, we are looking at SPP from a Strategic Sustainable Development (SSD) perspective and use the Framework for Strategic Sustainable Development (FSSD). This approach differs from more conventional Sustainable Development approaches as it focuses on supporting organizations to act strategically from a foundation of science-based information and a systemic worldview. The advantages of this approach include organizations being able to see themselves as part of the interconnected world and their impacts on global sustainability challenges, which allows them to make more informed and strategic decisions related to their actions (Broman and Robèrt 2017).

This organizational focus makes the SSD approach applicable to the PP context, which is a highly practical field. The potential to enable more strategic actions could support meeting the

overall purpose of SPP while at the same time supporting the most efficient use of economic resources of public organizations. For example, in Sweden there has been an aim to develop more strategic approaches to PP (see Chapter 1.2.2). In addition, being a general approach and applicable in different sectors and fields (Broman and Robèrt 2017), SSD holds potential advantages considering the diverse range of disciplines represented in public organizations.

The foundation for organizations being able to act strategically is laid down by promoting a shared understanding inside the organizations. Understanding the complex and systemic sustainability challenge as well as identifying related opportunities that can be achieved by acting strategically are central elements of the SSD approach. In the SSD, the systemic understanding is based on the nested Triple Bottom Line (TBL) model (see Figure 1.3.), where society is a subsystem within the biosphere, while the economy is a subsystem within society. Additionally, interlinkages between different subsystems and parts of the system as well as their interactions are acknowledged. As the challenge itself is highly complex and downstream problems are interlinked, it is crucial to acknowledge the system as a whole, constituting more than just the sum of its individual parts (Broman and Robèrt 2017). Without this kind of foundational holistic understanding, the contribution of SPP towards a more sustainable society could be questioned.

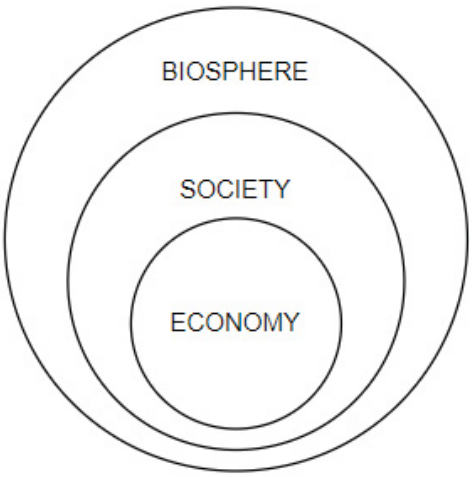

Figure 1.3. Nested Triple Bottom Line -model (adapted from Griggs et al. 2013).

Moreover, SSD introduces a general science-based principled definition for sustainability, the Sustainability Principles (SPs), which is another key enabler for strategic actions as it provides a basis for a common understanding of sustainability (Bratt et al. 2013; Broman and Robèrt 2017). These eight SPs (see Figure 1.4.) are based on ideas of systematic increases and structural obstacles, which aim to define sustainability as a state of system rather than an utopic end goal (Broman and Robèrt 2017). When we use the term sustainability in this paper, we refer to this SP-based definition of sustainability.

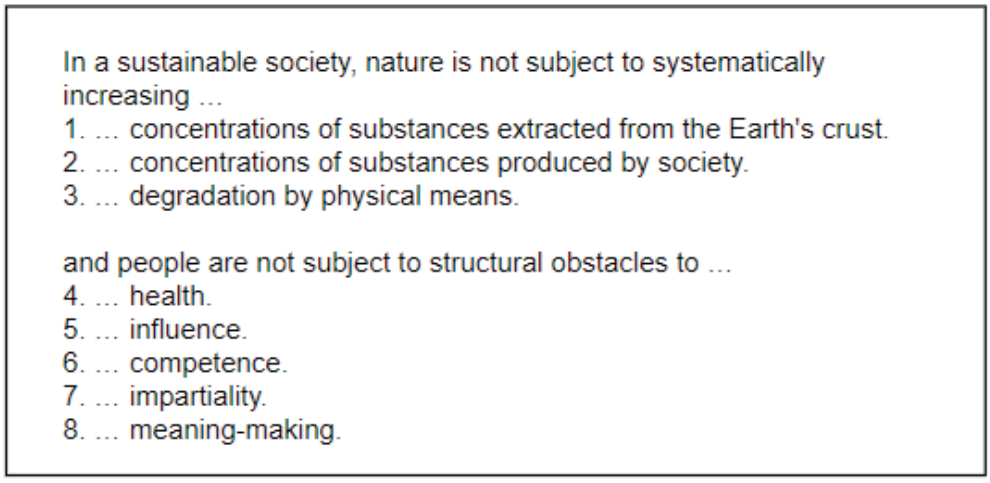

Figure 1.4. Sustainability Principles (Broman and Robèrt 2017).

The sustainable state of the system needs to be upheld continuously by finding ways to maintain a functional society while simultaneously ensuring that the availability of the necessities to support a functioning society, like natural resources and social capacity, are not compromised. As this sustainable state of the system is defined by the boundaries set by the SPs, setting the minimum requirements for both environmental and social sustainability, there is operational flexibility. The space left within the set boundaries provides room for different solutions and preferences (Broman and Robèrt 2017), which offers flexibility for contributing actions and makes the underlying definition both agreeable and functional for different organizations.

These two core elements of the SSD offer several possibilities to address some of the challenges of SPP discussed in Chapter 1.2. First, the lack of a shared definition and mental model of sustainability could be addressed by applying the SPs. Being general and science-based, this definition of sustainability can be shared and agreed upon across fields for example between different suppliers and public organizations (Broman and Robèrt 2017). Especially the present challenge of defining social sustainability in various ways that tend to spur debate about values – as views differ between organizations and individuals – could be tackled with the definition provided by the five social SPs (Missimer, Robèrt, and Broman 2017). Additionally, the flexibility of potential measures to achieve the goal of a sustainable society holds potential to be agreed on by different political interests that might not be able to agree on the actual means to reach this goal. Thus, if the goals for SPP would be defined based on the SPs, they might be less volatile to changes in political agendas over time.

Another issue in which SSD could offer potential support is the lack of a strategic approach in procurement organizations. Economic aspects are arguably playing a decisive role in valuing PP tenders i.e. as key selection criteria to conduct the purchases (Keulemans and Van de Walle 2017; Olsson and Öjehag-Pettersson 2020). This approach suffers from a lack of systemic understanding of the complex sustainability problems and from the tendency for short-term thinking, which pose an obstacle for reaching the full potential of contributing to sustainability (Bratt et al. 2013). For example, Cheng et al. (2018) argued that the main focus tends to be only on a few current environmental issues, due to which a strategic approach is needed to widen the attention to long-term sustainability objectives and to cover other sustainability aspects. This kind of shift to a more strategic approach requires an

understanding of the systemic challenges and framing the actions accordingly, which could potentially result in more efficient use of public funds compared to current practices.

These central elements of SSD discussed above are gathered in a practical framework, the FSSD, which enables analyzing complex issues in a structured way and achieving the mentioned potential benefits. The FSSD (see Figure 1.5.) is organized in five different levels as follows: System, Success, Strategic Guidelines, Actions, and Tools.

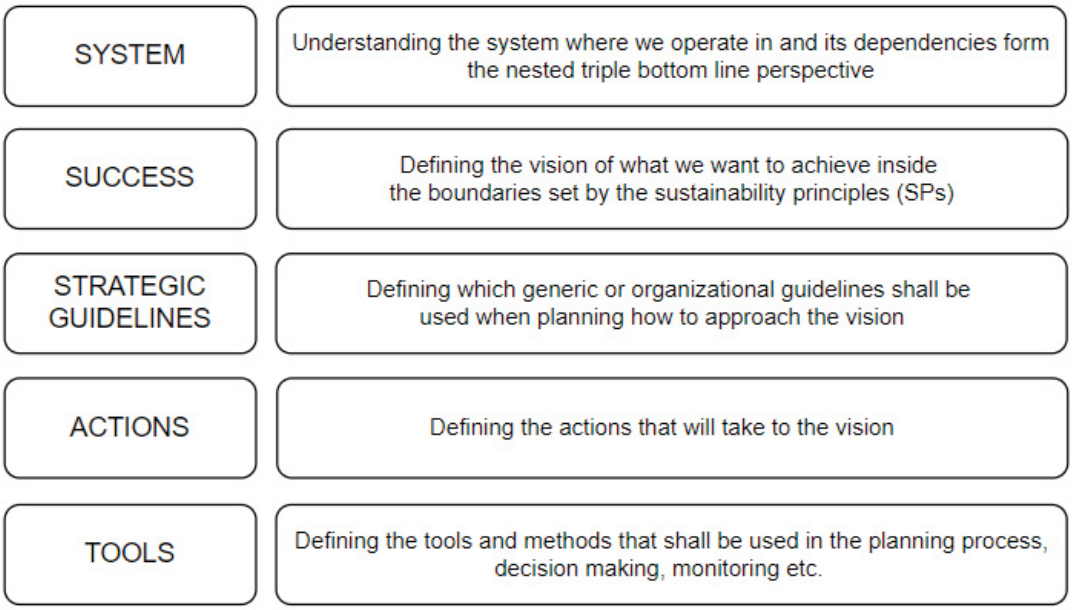

Figure 1.5. Framework for Strategic Sustainable Development (Broman and Robèrt 2017).

The first level, System, emphasizes understanding of the wider system around the given issue or organization. The starting point for building this understanding is to apply the nested TBL model. Further exploration can be conducted via various mappings to understand the relationships and influences between different systems e.g. organizations in this wider main system. The Success level, in turn, focuses on defining the vision that is aligned with sustainability and thus can be achieved within the boundaries set by the SPs. On the third level, the Strategic Guidelines, a set of guidelines to be used in planning the path towards the vision is defined (Bratt et al. 2013; Broman and Robèrt 2017). Additionally, this level can include considerations about prioritization principles as well as uncertainty and risks, which can be dealt with by taking a precautionary approach. Applying precaution is important especially when dealing with complex systems, in which the true impacts of actions are impossible to predict as small changes in parts of the system can be amplified throughout the interconnected web of subsystems (Waldron et al. 2008). The Action level in turn includes the practical measures that are defined during the planning, and based on the guidelines set above. The final level, Tools, contains other tools, instruments and concepts that are helpful in order to achieve the vision defined on the success level (Bratt et al. 2013; Broman and Robèrt 2017).

1.4 Research Questions and Scoping

Despite the advantages and applicability of the SSD described in Chapter 1.3, there is a lack of SSD-informed research and applied tools in the field of PP. The aim of this paper is to develop such a tool to support purchasers in their analysis of procurement needs. The SSD approach is applied in the tool development by utilizing the FSSD as a base for the tool. Due to the general nature and aimed focus of the tool on the early stages of the procurement process, it might be considered to be relevant and applicable not only in the Swedish context, but also to current practices undertaken in public institutions in other countries globally.

This research consists of three parts that are further described from a methodological point of view in Chapter 2. In Chapter 3, we present the first phase of our study, Analysis. In this descriptive part, we aim to address the first research question (RQ1): *how is sustainability considered in early stages of public procurement processes, especially in practices related to procurement needs identification?*

Swedish regions were chosen as the best possible scoping to represent public institutions in Sweden due to a number of reasons: i) appropriate quantity, ii) available resources for sustainability considerations, iii) large average expenditure of procurements focused on specific procurement areas, and iv) the existing network. With the 21 regions in Sweden, a representative sample would be more accessible to our research compared to the 290 municipalities while still enabling perspectives from different organizations. The generally larger size of the regional organizations compared to smaller municipalities enables more resource allocation for sustainability considerations. Although regions and companies owned by regions only conducted 11 percent of all Swedish PPs in 2020, the share of the total expenditure of regional PPs out of the accumulated Swedish PP expenditure added up to approximately 35 percent (UM and Konkurrensverket 2020). This indicates that the average monetary value of procurements conducted by regions is relatively larger, which relates to the responsibility areas of regions in providing public services for example health and medical care as well as public transport infrastructure. Indeed, a number of regions are amongst the public organizations that have the largest PP expenditure (UM and Konkurrensverket 2020). Finally, every region is already taking part in HU which supports cross-regional collaboration to promote sustainable procurement.

We decided to focus on the early steps of the procurement process as they define the foundation for the following process. These early steps also include identifying the procurement needs, which was pointed out to be the first possible point in which sustainability could be considered in the PP process. Based on upstream thinking, the early steps might hold higher leverage potential than the following intervention points, and additionally, tackling the issues is less complex compared to addressing them later in the process (Broman, Holmberg, and Robèrt 2000). The need to focus on higher leverage points in order to promote sustainable transitions has been emphasized for example by Abson et. al. (2017) and for PP, the step of identifying procurement needs e.g. defining goals for procurement projects could serve as one. Defining goals for a system was also listed by Donella Meadows (1999) as the second highest leverage point, and identifying the procurement need to be met by the purchase can be seen as a definition of a goal to the purchase. Additionally, the nature of PP being a transparent process that early on requires locking in all requirements before sending calls for tenders further emphasizes the importance of the first steps of procurement as a point in which sustainability performance of the procurement can be truly impacted. This step also holds potential to question what is

purchased in the first place, which in turn holds potential to directly impact one of the root causes of unsustainability of our modern society – overconsumption. Thus we argue that identifying the and analyzing procurement needs has high potential to impact overall sustainability performance of the purchases.

Following the description of the methodology (Chapter 2) and the analysis of current practices addressing RQ1 (Chapter 3), we aim to address our second research question (RQ2): *What might an applicable SSD-informed tool that supports analyzing procurement needs look like?* In the second part of our research (see Chapter 4), we use the knowledge of the current state of these practices to develop a prototype of the above-mentioned tool to support purchasers in their analysis of procurement needs. The prototype tool is an application of the FSSD. Finally, in the third stage of our research presented in Chapter 5, the suggested prototype is evaluated by Swedish PP practitioners and experts. In Chapter 6, the methods applied in this study and the overall findings are discussed, as well as suggestions for further developing the tool. Chapter 7 presents the conclusion including suggestions for further strengthening sustainability in the needs analysis in procurement processes and more generally in PP.

2 Methodology

For our research, we chose an action-based approach since it helps engage research subjects in problem solving. The core of this approach is to understand as well as to change and improve current practices (Savin-Baden and Major 2012). The underlying framework for this research was the Design Research Methodology (DRM) (Blessing and Chakrabarti 2009a). The objective of DRM is to improve the design of things and ideas by validating and developing knowledge, models, and theories. Design in this context is understood as the development process of a product that meets the user or stakeholder needs (Blessing and Chakrabarti 2009b). The DRM research process also allows gaining knowledge of the field before designing a new product. This was useful because of the contextual nature of PP as local legislation and political strategies needed to be considered. Applying DRM enabled us to suggest a new SPP practice.

In this paper, we used DRM to develop a prototype of a tool that supports the analysis of procurement needs in order to build foundational knowledge that enables better consideration of sustainability in the procurement process. The DRM process was divided into three stages as illustrated in Figure 2.1. Each of the phases of our research are described further in the following chapters. Before starting with the DRM process, we had four exploratory interviews with procurement experts to gain a better understanding of the field and to support findings from the initial literature review.

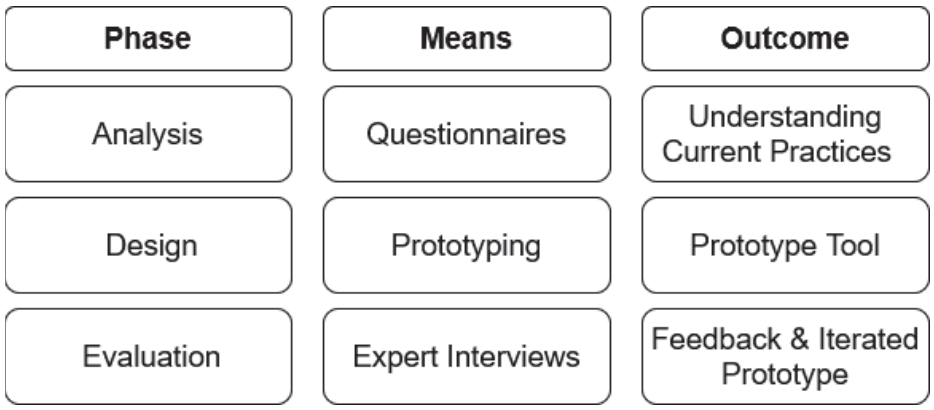

Figure 2.1. Design research process (adapted from Blessing and Chakrabarti 2009a).

2.1 Analysis

In the analysis phase, we mapped current practices used in the early steps of procurement processes. This was done with a qualitative questionnaire (Appendix A). The questionnaire allowed us to gather more answers at this stage in comparison to e.g. conducting interviews with each respondent. We were therefore able to gather data from more regions than a mere sample of a few organizations as would be otherwise possible within the limitations of this study, or by using interviews as an alternative method as exemplified above. The questionnaire allowed us to gather wider information to understand if and how the procurement processes might vary across organizations. In addition, the uniform structure of the data gathered through the questionnaire, allowed for a faster analysis and we thus deemed this method to be most fitting to the purpose of understanding current practices.

The questionnaire consisted of eleven open-ended questions as well as three questions to be answered using scales of 1 to10 with ascending order in importance (see Appendix A). We chose those types of questions to avoid limiting the answers to predefined options, especially as we were gathering foundational knowledge at this stage. The questions were formulated through brainstorming, clustering, and piloting. After brainstorming the questions based on our research questions and understanding gathered from literature, we designed the questionnaire by clustering these questions into the following categories: process, people, and sustainability. Before launching the questionnaire, we made use of piloting rounds within our thesis team as well as with three procurement practitioners from whom we received written feedback. We finalized the questionnaire considering their comments. The questions were asking about how current practices look like, what stakeholders are included and what role sustainability has in the process.

The questionnaire was sent out to a total of 152 people who are all involved in the procurement process within regional organizations in Sweden. Their contact details were collected from HU's webpage, the regions' webpages, and through a series of LinkedIn searches. The questionnaire was forwarded to other practitioners by some of the people whom we had contacted directly because they felt less competent to answer the questions or were too constrained on time. Answers were received both in English and in Swedish. Swedish answers were translated into English for analysis of the results by using Google Translate software. The translations were double-checked by one of us as members of the research team with Swedish language capabilities. Qualtrics software was used as the questionnaire tool.

To evaluate the questionnaire replies, we applied coding as a preferred method, namely by creating deductive categories based on the questionnaire questions and the first research question. During the evaluation process, we also added inductive categories , which were then used as codes in a spreadsheet (Appendix B). Secondary data used in this phase consisted of a mix of existing research and case studies; reports, policy documents and other relevant information available on subject organizations' websites; and of sample documents related to the initial steps of the procurement process which three respondents later provided us upon our request. Due to confidentiality, these documents are not provided as appendices, but parts that we found relevant for this research are further described in Chapter 3.

2.2 Design

In the design phase, we developed a prototype of a tool for analyzing procurement needs (Appendix C). We used insights from the preceding analysis phase to explore current practices and to identify their weaknesses and challenges. In order to not create any additional unnecessary burden for the procurers, we wanted to design a prototype of the tool that fitted existing practices and strengthened them.

The prototype was designed solely by us as the research team rather than for instance involving an expert group in the process. A reason for this was to bring a higher degree of thinking outside common norms of the field since we are not experts in the field. This can be beneficial for prototyping to come up with new innovative ideas (Franke, Poetz, and Schreier 2013). Additionally, since the number of procurement experts within the scope of this research is limited and we thus would not necessarily be able to invite different experts in the consecutive phases of the research, we wanted to avoid the evaluation of the prototype being biased due to the same experts taking part both in the design and review phases.

The tool was intended to introduce sustainability considerations when analyzing procurement needs in a procurement project. Therefore, during the design process, we utilized the FSSD (described in Chapter 1.3) to categorize the brainstormed guiding questions and support tools according to the five levels of the framework. Some inspiration for the development work was taken from the question list *"Possible questions to help assess the need*" provided in the EC guidance document for PP practitioners (2018, 18).

2.3 Evaluation

In the evaluation phase, the prototype was evaluated theoretically. A theoretical evaluation was conducted rather than for example practical testing due to time constraints and the limited availability of procurement test cases. We chose the method of interviews in this phase as it allows for collecting more in-depth and detailed data. The semi-structured approach allowed us to get more elaborate answers by asking follow-up questions in comparison to questionnaires while still ensuring a degree of comparability of the results. The interview guideline (Appendix D) was designed based on a similar process to the questionnaire described above. Questions were brainstormed and then clustered into categories in the interview guideline.

The interviews took around an hour each and took place using the virtual meeting software, Zoom. All interviews were conducted in English. We interviewed five experts in PP in total, who, as part of the previously conducted questionnaire, had indicated their interest in taking part in the evaluation phase. The interviews were carried out in teams of two, in which one of us took on the role as the main interviewer, and another as the secondary interviewer. The main interviewer was responsible for following the interview guideline, while the secondary interviewer provided technical assistance and asked follow-up questions based on the notes they had taken during the interview. This configuration was mixed along the process so that all of us took on both roles at least once. Since the interviewees were not part of designing the prototype of the tool nor had been asked questions directly linking to it in the questionnaire, it was assumed that they had enough distance to the design phase to be able to evaluate the prototype.

The same categories, which were defined when designing the questions, were used afterwards for analyzing the interviews together with the inductive categories which were found during the analysis process. The interviews were transcribed using Otter.ai software and coding was applied again to support the interview analysis. The used codes can be found in Appendix E. The feedback was considered in an improved version of the prototype which can be found in Appendix F.

2.4 Ethical Considerations

The ethical concerns regarding our research topic seem to be quite minor since we do not study a sensitive topic nor an individual behavior. Though in the design of our research, we still consider some ethical aspects such as the contribution to knowledge, sound methodological basis, and the researcher ability (Savin-Baden and Major 2012). In the literature, there is a seeming lack of strategic approaches to SPP. This means that we potentially provide novel relevant knowledge to the field.

Moreover, the "*excellent treatment of individuals*" (Savin-Baden and Major 2012, 333) was followed when we carried out questionnaires and interviews. We made sure that the people participated voluntarily by letting them sign a consent form. Since the participants all have a higher education and execute specialized tasks, it can be assumed that they understand and can give consent in English. For the online questionnaire, we also offered the respondents the option to answer in Swedish if they felt more comfortable with their native language. Protecting the individuals' privacy confidentiality was ensured, as carrying research out online poses the risk of data storage and identification of individuals that took part. Therefore, we anonymized the answers and destroyed the interview recordings once no longer needed.

3 Analysis

In order to answer the first research question of how sustainability is currently considered in the analysis of procurement needs, we aimed first to build a better understanding of how these steps are practiced in different organizations. In the following sections and chapters, we use the following terms for different roles that are present in the procurement projects: i) '*purchaser'* or *'procurer'* as a person working in the procurement organization and holds the overall responsibility for execution of the procurement projects, ii) *'client organization'* or *'client'* as a public organization that has the ownership of the need, the solution chosen to meet the need as well as budget responsibility, iii) '*user'* as the function, unit, or individual inside the client organization that is responsible for utilizing the chosen solution to meet the need, and iv) *'supplier'* as an external organization providing the solutions or suggestions for solutions.

3.1 Results

We received 19 responses on the questionnaire, with the respondents representing 12 different regions. All respondents are involved in the procurement process in some way, but their roles vary from procurers to procurement managers and directors, and further to environmental and sustainability specialists. Eight respondents acknowledged that sustainability aspects are part of their job description. 15 out of 19 answers were originally written in Swedish and later translated to English. The roles of all respondents are collected in Table 3.1. below.

Table 3.1. Questionnaire respondents.

Role	***Respond number(s)***
Procurer	*2, 9, 11, 12, 13, 14, 16, 19*
Agreement controller	*8*
Category Leader	*3*
Procurement Manager / Director, Head of Healthcare Purchases	*7, 10, 18*
Environmental Strategist / Coordinator, Sustainability Controller	*1, 4, 5, 15*
Sustainable Procurement Consultant	*6*
Sustainable Development Leader	*17*

The results in this section are categorized based on our coding system (Appendix B), namely: the procurement process, stakeholders, sustainability considerations in the process, and challenges. We started by gaining knowledge of overall practices of this stage of the procurement process to understand its flow and what happens in practice in the early stages of procurement projects. Additionally, we were curious about who were involved in the process and what positions they held. Both these areas of interest built our foundation to better understand how sustainability was considered in the process. Lastly, we collected challenges that arose from the answers to the final section of this chapter.

3.1.1 The First Steps of the Procurement Process

Our results indicated that the first steps of the procurement process do not necessarily form a linear process that is strictly followed – rather, various processes might occur simultaneously and influence one another. This variance stems from different types of purchases e.g. recurring, ones under framework agreements, and completely novel, and further due to differences in scales and volumes. For example, the recurring purchases and those within framework agreements can be carried out by simply renewing old contracts and by utilizing old documents, as suggested by three participants – *"It is unnecessary to invent the wheel again"* (#6). Whereas in novel purchasing cases, pre-procurement processes can become immensely extensive.

Similarly, practices of identifying and specifying the procurement needs clearly varied between the regions, which was also reflected in differences of how the processes were informed by related guideline documents. Six participants mentioned that their regions had formal guidelines and supporting documentation. Participant #10 described them as "*a formal procedure to motivate the need*", whereas three others said the practices differ depending on the type of the procurement. The rest of the respondents claimed not having any guidelines at all. However, five experts pointed out that there are relevant guidelines on a generic level, and are not specifically focusing on the needs analysis work.

Despite these differences in the flow of the early steps of procurement projects, almost half of the experts (9 out of 19) identified the process to start with a *"procurement assignment"* or a procurement request submitted by the client organization to the procurement department.

> *"[The client organizations] fill [the procurement assignment] in so well they can, [and] when we receive the assignment, we call up and ensure that we perceive everything right. Then the procurement begins."* (#3).

We received and analyzed three sample documents to understand what is included in these procurement assignments. All of the received documents inquired the client need by asking for a brief description such as *"describe the need your business has and in what way procurement of service/product can fulfill that need"* – and scope delimiting the extent of the purchase, while one of these assignments necessitated to specify the "purpose" of the procurement. All the sample documents identically asked to name the client, provide contact details, state the budget, and name the responsible contact person. One of the samples further asked to provide information about existing agreements on the subject matter, whereas one respondent supplemented this list with *"[asking for a] description of [client organization's] expectation"* (#3).

The nine responses naming the procurement assignment as the initiator of the procurement process also supported the view of the assignment prompting the planning phase of the procurement (see Figure 1.1.). The latter involves gathering further information such as schedule, market offering, data from previous or similar procurements, and relevant client documents such as business strategies. Moreover, the majority of responses (14 out of 19) suggested an initiation of an appointed *working group* to take place in this phase. The role of the working group is to bring together the procurer, the client organization representative, and potentially other internal experts. This kind of collaboration group was described in the answers with various other names including *procurement group*, *expert group* and *reference*

group. Despite the different names for the groups, the descriptions were similar. Thus, based on our results we were not able to see differences between them.[2]

There was a divide in acknowledging who is ultimately responsible for the definition of the initial procurement need, as eight participants named client organization(s) to bear this responsibility, which was contrasted by another eight respondents pointing to the working groups to be in charge. Participant #2 distinguished this variation to stem from the type and scale of the procurement.

> *"It depends on the type of procurement, but for smaller procurement or procurement where the need is for an individual business, it is primarily the client in consultation with the procurer that defines the need. For procurement where several/many businesses have the need, a reference group is put together with representatives from businesses and functions needed for the current procurement."* (#2).

After these first steps, the process then moves on to form procurement requirements that bound the subsequent stages. However, three participants noted that this can in some cases be fast-forwarded. Examples of such cases included regularly occurring procurements and when the old contracts are renewed with similar terms as those of previous framework agreements.

3.1.2 Stakeholder Involvement

Similarly to the process itself, stakeholders' involvement in the process was said to vary per procurement project, depending on differences in product and service categories and on regional practices that are in place. The stakeholders were in several responses (7 out of 19) said to be identified by the procurer or jointly together with an appointed responsible person from the client organization, who then might initiate a working group as described above.

A working group of the appointed experts represents functions that are seen to be relevant for the particular procurement project. Besides users, sustainability (especially environmental), IT, and safety functions were the most often taken into consideration (7 out of 19 suggested relevant perspectives). These support functions scored relatively higher with an average of 7.5 out of 10 (on a scale with ascending order of importance) compared to the involvement of end users and suppliers, who had average scores of 6.9 and 3.9, respectively. According to written answers, the support functions ranged from being *"more or less involved"* (#8) to them being part of the working group to be consulted throughout the procurement process by default. Suppliers can be consulted in case the procurer or working group lacks information about products and service solutions that the suppliers are currently able to offer. Involving suppliers can be done using a Request for Information (RFI) form or by inviting them to a supplier hearing appointment.

[2] In addition to the working group, another internal cross-functional unit, a strategy group, was introduced to us in interviews conducted in a later evaluation phase. The role of the strategy group is to identify benefits and make recommendations of the potential of involving experts such as environmental strategics in a given procurement project prior to the procurement request being handed to a procurer. This finding supports our overall understanding of the procurement process.

3.1.3 Sustainability Considerations

The importance of sustainability aspects in specifying needs was ranked with an average score of 7. The procurement experts scored in average slightly lower than their sustainability counterparts in valuing the sustainability aspects, scoring 6.8 versus 7.8, respectively. Respondents mentioned different reasons for the importance to consider sustainability in the early stages of the procurement process. 8 out of 19 respondents recognized organizational goals, wider political environment and societal consensus for acting on sustainability as the key motivators. Four other respondents referred to issues beyond organizational boundaries related to biosphere, climate, supply chain and resource depletion as key motivators for their sustainability considerations. Participant #9 exemplified that *"it is important not only for humans, but also for the entire environment"*.

On the organizational level, our results showed that sustainability considerations are seen as crucial for achieving the organization's sustainability goals. Participant #4 stated that *"[w]e cannot reach our organization's sustainability goals if we don't include the sustainability aspects in the procurement process."*. Thirteen participants briefly described the work or measures their respective organizations were or have been taking in regards to sustainability. For example, organizational policies were pointed out: *"Sustainability linked to procurement is described in the region's environment and sustainability plan."* (#5).

However, there were a few deviances in terms of more critical voices. Participant #2 identified challenges in the overall regional sustainability efforts, which had trickled down to the procurement level – ensuingly, the importance of sustainability is then dependent on the involved individuals. He pointed out that the perceived importance of sustainability by these individuals will then affect how much it weighs in the overall procurement processes. Similarly, when asked about what sustainability impacts are considered, Participant #3 gave a few examples, adding *"there are certainly more that I do not know about"*. Furthermore, Participants #3 and #9 suggested the importance of sustainability considerations to depend on the subject matter, with Participant #17 adding that there can be potentially conflicting requirements in some cases, further exemplifying that safety requirements can be deemed more important than sustainability.

Regarding sustainability requirements for purchases, Participant #10 claimed that *"[s]ocial, environmental and financial impacts are always considered once the purchase is about to start."* Other things to be considered in all of the purchases were listed by nine participants, focusing mostly on social and environmental sustainability. Regarding social aspects, examples such as human rights, workers' rights, and anti-corruption were listed. For the environmental requirements, hazardous substances, resource consumption, climate impact, emissions, and energy consumption were named as areas of deliberation. Also, the joint supplier code of conduct, where this information is gathered, was mentioned three times along their answers. Overall, the environmental considerations were dominant among the answers.

Participant #6 noted that these impact considerations are extensively based on wider international agreements such as the Agenda 2030 and the Paris Agreement, or on national and local sustainability goals. Four others also referred to the cross-regional cooperation, with Participant #3 further describing the nature of this collaboration as being a way to designate different responsibility areas between the regions where they focus on sustainability regarding specific product groups. Additionally, it was pointed out that these kinds of considerations take place later in the procurement process. Participant #6 specified the timing of the

intervention as part of the process as follows: *"to a large extent, sustainability requirements are identified after the need has been identified by the organization"*. Another participant however identified room for improvement on the order of things, stating: *"We can definitely be better in covering sustainability aspects before/when specifying a need."* (#10).

Related to the above-mentioned resource consumption issue, we specifically asked if there were any processes to question the need i.e. if the given product or service was actually needed at all. Most of the respondents (a total of 12) admitted that there are no systematic procedures in place for such an inquiry, with two referring to the procurement assignment to tap into the question. Also, four others said that this question should already be considered before contacting the procurement department, assuming the responsibility of this consideration to rest on the client organization. However, Participant #18 recognized room for improvement in the existing practices, stating: "*This is an important management responsibility to actually build the future plan for its department. Don't just copy what you have had."*

3.1.4 Challenges in Procurement Need Identification

Virtually all (18 out of 19) respondents identified challenges in gathering information about the clients' needs. The biggest challenge shared by seven responders was related to a lack of time, as the *"[inquiry] often needs to be investigated further with both the [client organization] and sometimes with other departments"* (#10). In five of these cases, the respondents recalled having faced challenges in getting sufficient information or to have the relevant stakeholders to devote sufficient time or to take responsibility for the process. Furthermore, to get a holistic image of the procurement need e.g. in terms of the *"entire region's needs"* (#4), two respondents deemed the challenges to result from the client organization's limited resources for *"forward-looking analysis"* (#12) as well as their overall understanding on the subject.

The availability of relevant needs-related data can be occasionally further limited due to restricted access to relevant statistics held by the clients or suppliers, or in case of new products and services. Additionally, three respondents named the conflicting requirements posed by the different support functions as such a hindrance. Participant #1 specified this by saying that sometimes the clients have described their desire with such level of detail that "*it can take some time to find out what specific requirements and needs really are [relevant]"*. While many (9 out of 19) of the participants referred to stakeholders as a source of these obstacles, only two blamed their respective organizations. Participant #18 exemplified this with organizational rigidity, as *"our own organization does not want to change"*.

3.2 Discussion

The following discussion is organized according to the categories in the results section above. However, the challenges are presented in their respective categories, while this section ends with the key findings to be considered in the following design phase in Chapter 4.

3.2.1 Procurement Process

Overall, the results showed that there is quite a clear description of the first steps of the procurement process and potential steps that follow. Despite the seemingly well-established cross-regional collaboration through HU and the national authority (UM) promoting the importance of the analysis work before starting the actual procurement process, our results however indicated substantial variation in these practices. This variation stems from differences in needs and types of procurements as well as prioritization of procurements with seemingly high sustainability impacts. Such impact is linked to effectiveness – using both the limited resources and tax money in the best possible way.

Whereas variation in the PP processes offers possibilities to use limited organizational resources more strategically, it also poses some challenges. First, there seemed to be a communication challenge as a number of answers were clearly talking into a different phase of the procurement process than what we were asking about or these questions were skipped completely. This was despite the questions being based on the process description used by the UM. There might have been several reasons behind this challenge like language barrier or general unclarity and lack of focus on the pre-procurement steps. If this similar unclarity and communication problems take place also between different procurement organizations, it might pose a barrier to effective collaboration.

A second challenge of having variation in the process is the risk of missing necessary considerations and analysis relating to the procurement need. Especially in the case of recurring and smaller procurements there lies a big risk, when it is deemed *"unnecessary to reinvent the wheel"*. This kind of thinking as well as not devoting time to consider the necessity of each of the purchases might lead to not only unnecessary use of resources in both client and procurement organizations but also unnecessary consumption of natural resources and other negative sustainability impacts. Additionally, not perceiving part of the purchase requests important enough for sustainability considerations or not considering alternative options both risk missing out opportunities to pursue better sustainability outcomes.

Moreover, the received sample documents did not support the view that there would be extensive analyses carried out on the fundamental needs behind the purchase. It was evident that the responsibility of acknowledging those needs are delegated to the client organization to a large extent. In addition, it seemed to be up to the client to identify also the relevant and affected functions and stakeholders. Indeed, the ownership and responsibility over the procurement need identification seemed to be heavily relying on the client organization, whereas the purchaser is not necessarily helping the client to think of their fundamental need. This might be due to their budget responsibility as well as ownership of the solution after the procurement leading to the assumption that only necessary needs are taken forward to the procurer in the first place. However the absence of inquiry by an external party – in this case the procurer – may also lead to distortion in the analysis, since the first hand analysis by the client organization on their own need can provide biased results. The shallow inquiry and unclarity of the responsibilities, together with potentially limited understanding of the subject by the client, as acknowledged by two respondents, all suggest that the fundamental need is not deeply understood.

With the above mentioned arguments regarding challenges in communication and lack of clarity, risks of missing out important sustainability considerations about the procurement to

be made as well as assumption of only necessary purchase requests taking place, we argue that there is a need to strengthen the process around the analysis of the procurement.

3.2.2 Stakeholder Involvement

The main challenge regarding stakeholder involvement seemed to be the lack of time, which may lead to not always having the working group or other stakeholders sufficiently involved. This may lead to the group members' potentially low level of perceived ownership and agency along the process, leading to varying levels of devotion. Furthermore, there appeared to be a narrow understanding of whom to consider as stakeholders with a select few internal functions from the client organization named most often as relevant experts to be heard. The results suggested that the responsibility of this consideration lies with both the client organization and the procurer, while there seemed to be a lack of clarity about the ownership. Miscommunication between stakeholders might arise from the procurer not initiating a working group or inviting important experts. Both the client organizations' potentially limited devotion and the narrow understanding of stakeholders may indicate them facing somewhat similar challenges as introduced in Chapter 1.2, for example in terms of lack of competence and support.

Moreover, in cases where the suppliers were mentioned, their role was deemed to be limited to merely presenting what alternatives are readily available on the market. Together with the above discussed *"unnecessary to reinvent the wheel"*-thinking, these aspects support Bratt's et al. (2013) view of heavy focus on existing products and services, to the detriment of innovation or of impacting the market availability of more sustainable alternatives.

3.2.3 Sustainability Considerations

In the procurement context, sustainability is clearly present on the agenda, in strategies and in policies, but the outcomes are arguably inefficient. Even though considering sustainability in the early steps of the procurement process was rated relatively high in importance, there is lack of evidence for these considerations taking place in this stage of the project. On the contrary, many pointed out the actions taking place in the following stages of the process. Moreover, despite one participant highlighting overconsumption as an example of environmental considerations, the results suggest that the fundamental need for purchase is not much questioned. This speaks to the fact that the guideline of UNEP (2021, 74) *"the most sustainable purchase is often the one not made"* has not been taken into practice. Even more so, as the responsibility of this inquiry seems to be delegated to the client organization to a large extent as discussed above.

Additionally, despite high importance and being heavily present on the agenda, the understanding of the term 'sustainability' seems to be narrow among the responders. Even though three different aspects of sustainability (environment, social and economic) were mentioned by some, the focus was clearly on environmental issues like climate and emissions. In the few responses considering social issues, only a very narrow list of relevant aspects was mentioned. In addition, the results demonstrate that there is a lack of understanding interlinkages between these three aspects of sustainability, and the understanding of sustainability could be described to be close to the conventional TBL model, where all the aspects serve equal importance. The varying notions on sustainability with perceived

importance varying between individuals, points to behavioral challenges and deviation in competence levels of both the practitioners and the organizations, as argued by Brammer and Walker (2011), and Bratt et al. (2013).

All in all, the above aspects indicate a wider lack of systemic understanding of sustainability. Furthermore, as the sustainability aspects largely seem to be considered after identification of the need, it can be assumed that the first potential intervention point in the procurement process is systematically being neglected in practice. This emphasizes the need for formal processes taking place to analyze the procurement needs more in the early stages of the procurement projects.

3.2.4 Key Findings for Designing the Prototype of the Tool

Considering the high variance of the processes, while acknowledging the importance of considering needs in all procurement cases, the proposed tool needs to be applicable in different scales and in various types of procurement projects. This together with the lack of time points to the benefit of a relatively simple tool that fits existing practices. Also, considering the existing cross-regional collaboration and need for clear communication with various stakeholders, a generic tool has the potential to be more effectively disseminated through the network as it could be applied in all procurement organizations.

Additionally, we argue that the tool should promote a systemic understanding of sustainability. This is important as the results point to a lack of this as well as a shared definition of sustainability, which potentially contributes to inefficient outcomes in terms of related work. Indeed, considering the variation of understanding, the tool should be accompanied by a clear, operational definition for sustainability, in addition to promoting a systemic understanding. Furthermore, as the first sustainability intervention point in the procurement process seems to be largely missed in practice even if considered important by the experts, the tool should aim to address this lack of sustainability thinking already early in the process.

Finally, to address the seemingly superficial understanding of the underlying need and the habit of locking into old patterns and solutions, the tool should provide means to provoke thinking around the procurement needs. One way to do that could be promoting inquiry into help the procurers to both analyze the needs of the client organization, but also to widen the clients' perspective on their fundamental needs. This could build a common understanding resulting in more successful procurement projects in general as the goals are defined better already from the beginning. Additionally, strengthening the consulting role of procurers that they are already taking on, could help avoid potentially biased thinking in the client organizations related to their own operations.

4 Design

Based on the findings about current practices in the first steps of the PP process (see Chapter 3), we developed a first prototype of a tool to support the analysis of procurement needs. The intention of the tool is to help build a solid basic knowledge that enables better considerations of sustainability in the procurement process. In the following sections and chapters, the notion 'tool' is used to highlight characteristics of the intention of the design, whereas the notion 'prototype' is used to highlight the properties of this specific iteration of the design. Both terms are referring to the same document, though from these two different perspectives. The prototype can be found in Appendix C.

4.1 Results

The intended audience of the tool are procurers working in the public sector. It consists of a list of questions aimed to guide their thinking around the needs to be fulfilled by a given procurement project. The questions included in the prototype are organized according to four levels of the FSSD, namely: System, Success, Strategic Guidelines, and Actions. Purposes of each of these sections are stated in the prototype to clarify the intention behind including the given section to the user. These purposes are also presented in the Table 4.1. below.

Table 4.1. Intended purposes of all sections from the prototype.

Section	***Purpose***
System	Building understanding of the system in which the client organization operates, where the need comes from, and why it is important to meet this need.
Success	Building a common understanding of the fundamental need and how to best meet it in a way that does not disadvantage the biosphere and the society at large.
Strategic Guidelines	Defining the requirements and guidelines that should be followed in the process.
Actions	Suggesting actions that support identifying, analyzing, and understanding the fundamental procurement needs.

The fifth level of the FSSD, Tools, is present in the prototype as the proposed support tools linked to each of the four above-mentioned sections. These listed support tools might be used to create or enrich the procurers' understanding in relation to the questions within each of the levels. The enlisted support tools include those mentioned in questionnaire answers in order to help the users understand how the existing practices, concepts and frameworks relate to each of the sections. The lists are supplemented with additions based on our sustainability expertise.

4.2 Discussion

The tool is designed to be general by nature and to be applicable in different kinds of procurement projects of various scales, which based on the analysis revealing the variance of procurement projects was deemed relevant. The intended users of the tool are procurers, but it may also be utilized by the working groups set for supporting the procurement project, and in the communication between the procurer and the client organization(s) to develop their common understanding. The tool is intended to be utilized in the first steps of the procurement process (pre-procurement and in preparing the procurement documents) to guide the procurer to apply sustainability and systems thinking early in the given procurement project. However, as the tool aims to support procurers in their work, the impact of its use is not necessarily limited to any specific step of the procurement process.

Guiding questions and proposed support tools are part of the tool because we believe this way of structuring to provide the best support for the procurers to build their understanding around the procurement needs. While we deem it important to consider all the guiding questions of the prototype, the eventual judgment of how to use the questions in terms of obtaining a certain depth of both answers and analysis of these is left to the individual procurer, and is thus likely to vary case by case. In order for the procurer to successfully make use of the proposed support tools, it is assumed that procurers have either a basic knowledge of them or access to expertise that may be able to help them achieve this – for example, sustainability experts either in their respective organizations or within collaboration networks such as HU.

Each of the sections inspired by four levels of the FSSD have a valuable function as part of the tool for the procurer to enable better consideration of sustainability in the procurement process. First, at the Systems section, the purpose of the set of questions is to guide purchasers to better understand the systems in which the client organization functions. This is intended to address one of the key issues arising in the analysis phase, namely the lack of systemic understanding. The systemic perspective is intended to enrich the understanding of where the procurement needs are coming from and why they are important to fulfill. Additionally, this perspective supports understanding interrelations between sustainability impacts as well as between various stakeholders. This might also support defining the important stakeholders to include in the procurement project and it thus holds potential to address the identified issue of a narrow understanding of stakeholders. Moreover, the tool is also intended to support a more holistic understanding of interests and requirements held by various stakeholders by inviting considerations of the systems which the given procurement project and client organization play a part in.

Secondly, at the Success section, the set of questions focuses on defining the desired outcome of the given procurement project. A better perception of the desired outcome supports a more fundamental understanding of the underlying need that is aimed to be met with the given procurement project. This insight is intended to guide the procurer towards a performance-based needs definition instead of the more conventionally used product/service-based specification, as proposed in Chapter 1.2. In addition, it is important to start building an understanding of the sustainability impacts of the potential solutions and how to meet the need in a way that to a larger degree complies with the SPs. Regarding sustainability impacts, it is important to note that since the tool is recommended to be used in the beginning of the procurement project, initial information suffices. Deeper analyses should be conducted after the procurement needs are understood and when the requirements for the

tender are set. However, it is important to start the discussions that an SP-based definition of sustainability could function as a shared and agreeable definition as described in Chapter 1.3.

Finally, even though the content of the Strategic Guidelines and Actions sections may seem obvious steps to take early in the procurement process and are already being actively used by the practitioners, the tool is intended to add value to the existing practices by gathering otherwise dispersed information while highlighting how the different sections inform each other. In the Strategic Guidelines section, the purpose of the set of questions is to gather a list of strategic guidelines that need to be followed in the procurement process. These include legal requirements like the principles of value for money and fairness stemming from the EU directives, as well as political focal areas and/or organizational strategies and guidelines. This is to ensure that the project will be aligned with existing policies and strategies, thus contributing to achieving the set goals. Finally, the purpose of the set of questions in the Actions section is simply to define the actions that support the analysis of the procurement needs by proposing actions that support answering the questions of other levels with focus on involving relevant stakeholders to the process.

In addition to some of the key issues mentioned above, the tool holds potential to address some general issues regarding analyzing procurement needs that were identified in Chapter 3.1. Firstly, as the tool supports overall compilation of necessary information from the get-go, it aims to simplify the communication by pinpointing the given needs, even while being limited on time ahead of the procurement project. Secondly, it also supports the procurer in asking the most relevant questions from various stakeholders in order to obtain the necessary information efficiently. This simultaneously helps uncover necessary data that may be otherwise unavailable. Improved communication between the parties and jointly setting goals as well as defining critical aspects early in the project hold potential to save time and resources later, namely by helping to more effectively address the needs in question. Thus, while the usage of this tool might require devoting more time than the existing practices, the time investment is likely to be compensated for along the process, as critical aspects of the given project are explicitly described and agreed upon earlier.

5 Evaluation

In the final phase of our research, we evaluated the prototype of the tool that aims to support procurement needs analysis that was developed in the previous phase. The aim of this evaluation was to further assess our second research question: what might an applicable FSSD-informed tool that supports analyzing procurement needs look like? In the final section of this chapter, we propose some improvements for the tool and create a second version of the prototype based on the received feedback.

5.1 Results

We interviewed five PP experts with different roles (see Table 5.1.) to get feedback on the proposed tool. The prototype was delivered to all of the interviewees before the actual interviews. However, most of the interviewees (4 out of 5) had not familiarized themselves with the tool before the interviews and thus we provided a brief walkthrough of the key features of the tool in the beginning of these interviews.

Table 5.1. Interviewees.

Role	***Number of interviewee***
Procurement Manager	1
Procurement Director	2
National Coordinator	3
Procurement Consultant, Environment & Sustainability	4
Environmental Strategist	5

This section is organized with a slight variation to the original order of the coding system we utilized when going through the transcripts (Appendix E). The following results cover: useful aspects of the prototype, what should be improved, sustainability considerations, and overall applicability of the tool.

5.1.1 Useful Aspects of the Prototype

Generally, the feedback received during the evaluation interviews was confirming the relevance of the tool. As we went through the prototype together with the interviewees, using the levels and structure of the FSSD seemed to generally make sense to the participants in regards to offering a practical basis for the analysis work. For example, the overall design was described to be *"very, very good"* (#2), with *"a lot of relevant questions [providing] a good way to structure the way you do your needs analysis"* (#3) and *"[having] captured the most important things"* (#2). The design was also praised by Participant #5:

> *"I like how you built this with the purpose first, and so you can understand what you are aiming for. And then the tools you may have to help you in that. And then the specific questions."* (#5).

All participants pointed out that the aspects covered on the System and Success sections of the tool e.g. understanding the fundamental need and considering the wider systems perspective were the most important parts of the tool. For example, the System section was considered *"really good to understand where you are, so in which system you work"* (#2) and to further *"understand which impact [you] have in a lot of areas in procurement"* (#5).

Having the definition for the success for the procurement project written down was considered fundamentally important by two interviewees, as exemplified by Participant #2: "*building a common understanding of the need"* is essential because "*it is very common that [...] there are many people [involved] who have different views of what was supposed to be achieved"*. Besides providing a basis for common understanding, having the definition of success explicitly defined in a written format was also said to help to address the risk of losing tacit knowledge that might result from e.g. changes within the respective organizations.

> *"[A written definition of success] is something we have been asked for years, we also tried to do more together with the project team to really also have it in writing instead of just agreeing on something and then two years later, no one remembers that."* (#2).

The questions under the Strategic Guidelines section pointing to various organizational and political goals, agreements, and strategies were considered relevant by all the participants. Participant #4 noted that it is the very nature of PP to *"keep in mind what other people [and organizations] in the public sector do"*. Four participants described the political nature of PP, with Participant #3 noting *"most regions and municipalities have political sustainability goals"* (#3). Participant #5 described that these are often taken from the national level and then adapted to the regional level. It is therefore important to *"understand what are the long terms goals"* (#1) and have the projects *"aligned with the overall strategies"* (#2). Participant #1 further argued that this understanding helps to *"move procurement into a more strategic [direction]"*. Participant #3 also gave positive feedback on inquiry about the trade-offs between different goals and requirements to the tool, exemplifying the issue with contradictions: *"So you want something which is more sustainable, but is that going to cost more? And whose budget is that going to be taken [from]?"*

The Action section did not receive that many comments – out of four participants who made remarks specifically on this section, only two provided positive feedback. For example, Participant #2 saw the connection between the Action sections and other sections, as *"it's very good to identify what actions you really need to do to ensure [inquiry into] above [sections]"*.

5.1.2 Suggestions for Improvements

All participants saw the list of questions provided in the tool to be extensive for practical use. This was seen as a challenge as *"[the] procurers are swamped with work and different requirements"* (#3) and "*to implement [the tool] in total would be quite a lot of work for each [project]* (#2). One participant voiced a wish for the tool to be "*a bit more compressed"* (#2) due to these time constraints. However, when asked about questions that could potentially be excluded from the tool, none of the participants could point to any unnecessary queries.

On the contrary, three participants put forth differing ideas on how to address the issue. Participant #1 proposed having the tool with *"two perspectives"* in mind*:* First to provide ground for considering "*more complex questions and work from that"*, and second with "*more specific questions"* to present a more straight-forward approach especially aimed for those

practitioners with less capabilities or resources. Participant #2 in turn suggested to split the tool in two parts, with *"one where you have discussions and topics to think about [...] or something to just discuss, and then you can mutually agree on that"* and another with "*topics that you really need also to have documented for the future"*. Similar to the above two ideas, Participant #5 proposed dividing the tool into two segments. First, a *"strategy level"*, aimed for the management to work on complex issues on the overall level, and *"then another level with questions that the procurers can handle [...] in their work."* He reasoned this divide by noting that *"the higher level [issues are] not for the procurer, they have not the knowledge [n]or the time"*.

We also received other improvement ideas in relation to the lack of time in the organizations. Participant #2 suggested considering the order of the questions per importance. For example, to move the question on the necessity of the procurement earlier (on Success section), as "*it is back to the first question, what is the overall purpose, and do we really need it?"*. For the Strategic Guidelines section, he suggested focusing more on *"the internal processes and the strategies and the political decisions"* by moving the related questions higher. "*[These] things [are] more often where you end up going the wrong way versus not following the laws that you often do"* (#2).

The need of specifying some of the questions arose from the answers. For example, for Participant #3, *"the first question is kind of tricky to understand – what are the underlying boundary conditions for success?"*. She further suggested supplementing the questions on the fundamental procurement needs with stronger inquiries as follows: "*Are these our real needs? Or are we just doing as we did in our last procurements? [...] Can those needs be fulfilled in any other way?"*. She exemplified by asking if there were multi-purpose or reusable products that could replace their single-use and disposable counterparts – with a life-cycle perspective in mind. Participant #2 in turn noted that the definition of success should also be supplemented with a description of boundary conditions i.e. what should not be covered with the specific procurement, as *"it quite rapidly gets bigger [so one loses sense of] what was the objective in the beginning?"*. According to him, there could also be a defined timeline for the procurement project i.e. *when should the solution be in place?* Relating to the question if the procurement needs has been addressed before, Participant #4 considered it important to encourage checking with other procurement organizations if they have done similar projects in the past – *"and then you can build on that"*.

When asked about what was completely missing from the tool, the interviewees prompted a few novel points to be considered. First, the tool should come with clear guidance for the user on each question, as suggested by Participant #3. She further suggested making sense of how the tool fits in the different stages of the procurement process, for example by visualizing the application point in relation to the process. This view was shared by Participant #1, who also emphasized the need of clearly stating what are the advantages of the tool for the user: *"[the tool] needs to kind of summarize what did [it] give me [as a procurer]? And what is the next step? And then you will choose some [supporting] tools to deep dive [into the questions]"*.

Sense-making was considered relevant also with some of the proposed support tools and questions, with two participants asking to explain what tools such as nested TBL and PESTLE (Political, Economic, Social, Technological, Legal, Environmental) analysis meant. Two other participants argued that the sustainability-related questions that were partly framed around the SPs might be hard for the users of the tool to understand. Participant #3 saw a "*need [for] some cross reference"*, namely by having the inquiries into sustainability impacts

connected to existing legislation on e.g. human rights, and wider political agreements and targets, which would be readily or more likely understood by the users. Whereas Participant #1 felt like the questions should be more directly linked to the SPs, instead of asking more generally *"[if] the potential solution fit within the boundaries set by the [SPs]"*.

5.1.3 Sustainability Considerations

Our questionnaire results indicated differences in the understanding of the term 'sustainability', both on an organizational and individual level. Participant #1 highlighted that *"everyone has a different or their own definition of sustainability in Sweden"*. While three participants acknowledged the importance of considering social, economic and environmental aspects together, one of them argued the focus being on the latter – *"sustainability [often] equals environment"* (#1). Another admitted that environmental aspects can overshadow social and financial sustainability issues, as the sustainability expertise commonly stems from the environmental department. He added *"I would not say that we have any defined people working on [social sustainability]"* (#2). Instead, these issues are often informed by mere guidelines.

Participant #2 further pointed this unbalanced approach to different aspects of sustainability to be caused by individual competencies: *"[with] things that are closer to you as a private person [...] it is easier to have the understanding in the organization also"*, indicating that the sustainability issues that are not in the center of the awareness of the public might be ignored. This lack of public awareness on certain aspects of sustainability was also noted by by Participant #1: *"[while] the end users are involved in setting the specifications [...] on what they need as a product, they do not care that much if there are conflict minerals in it"*.

The sustainability expertise was described to be often siloed in different working groups specialized in certain procurement categories within the procuring organizations. This was for example described by Participant #1: "*the experience and the knowledge lies within the employees [working with the specific procurement] categories "*. Being a sustainability expert himself, Participant #4 noted that he is consulted when "*the procurement [is deemed] to involve enough sustainability risks*", to which he further added: "*sometimes they contact me, sometimes they do not, depending on the procurement*". Participant #3 pointed out if there is *"[a] need to [more systematically] bring in some expertise already at [the needs analysis] stage, to know which sustainability challenges are [relevant]?"* Consulting sustainability professionals in the early procurement phase was deemed ideal by Participant #2 as well, who further implied that the current reality is still different:

> *"In the best of worlds, and what we are working towards in [our] organization is, of course, that the environmental department would like to be involved much earlier. [...] Well, as soon as the need is identified in [the client] organization, they should actually contact the environmental department."* (#2).

Participant #1 identified practical applicability as a potential limiting factor for sustainability considerations, as with too strict requirements, *"you will probably end up with having no supplies"*. Instead, he suggested gradually strengthening the requirements in different areas at a necessary pace that is acceptable to suppliers, to "*develop the supplier market over time"*. Similarly, Participant #3 also brought up the importance of supplier hearings as *"[procurers] need to know exactly [...] where the markets are in terms of providing sustainable solutions"*. However, she further problematized this viewpoint as "*the market wants to sell more*

products", meaning that in cases where the need is questioned or found unnecessary, or where it can be addressed with other means, "*[suppliers] would not come to that [same] conclusion"*. Questioning the need for the procurement was seen important also by Participant #2: *"The best procurement is the one you don't really need to do because you have another solution"*.

5.1.4 Overall Applicability of the Tool

In regards to applicability of the tool, we received generally positive feedback. Participant #3 stated that *"this is a very, extremely practical tool"*. Practical value was also seen by two other participants, with Participant #2 noting that "*most likely [he] can find something from [the tool] that could be good for [them]"*. Participant #5 had shown the tool to his colleagues, saying *"these are the [kinds of] questions we have to go through to have a good strategic work with procurement"*. Participant #3 saw it potentially strengthening sustainability considerations in the early procurement phase, as *"[the tool] includes sustainability aspects in an easy way"*. These views were contrasted by Participant #4, who noted that by outlook, the tool is not seemingly better or worse than their existing *"check-lists"*. He clarified that he does not work as a procurer, and is therefore not directly working with "*all these questions"*, but he could still see his colleagues using the tool.

Three participants noted that some of the basic questions in the prototype were already covered by existing practices. Participant #2 exemplified this with their Procurement Assignment document (contents of which were described in Chapter 3.1.1). The same trio of participants identified the novel and more detailed questions proposed in the tool to allow for deeper exploration into those areas. In comparison to their existing practices, Participant #4 noted the proposed tool to be broader, *"and that is good [so] you can have a broader perspective the whole way through"*. Participant #2 further added that implementing *"something like this"* would be "*quite comprehensive and cover a lot for the organizations"*. The tool was considered important from a strategic point of view by Participant #1, *"[as] it will be more and more important to [ask those questions] and to combine all those things [together in the same place]"*.

The extensiveness of the question list presented in the prototype was also a point of criticism as outlined above. All participants saw a challenge with the time investment needed to go through all the questions. *"The more you ask and get the input, the better it gets. But it also takes more time."* (#1). Participant #4 added that *"in a perfect world [...] if you have this much time",* the tool would be useful. Based on previous experience with comparable tools, Participant #1 further specified that if the procurers were too busy to systematically use the tool, then *"those documents [gradually end up] not being used [at all]"*.

The importance of being easy to use was brought up in most of the conversations (3 out of 5). For example, Participant #3 stated: "*so a tool there really needs to be, you know, easy to use and understandable"*. Participant #5 considered it important to *"understand the organization when you make a tool like this"*, as that would make it easier to identify benefits of the proposed tool in comparison to existing practices. That is, to *"make your tool more obvious for those who are going to use it"* (#5). This view was share by Participant #1, who added that the staff members need to agree on the importance of using it i.e. seeing value in the tool for their work.

To address the issue related to time pressure, all participants not only proposed various ideas to improve the tool (as outlined in Chapter 5.1.2), but also divergent ways of how to use the tool in the first place. Two participants suggested to utilize it only in bigger procurement projects, and to segment the tool in a way that the level of analysis would depend on the specific project – in terms of size and the subject matter. This was contrasted by Participant #2, who saw the provided questions important to be asked in all cases, regardless of the size of the procurement. He argued that the user's focus should be directed towards the most important questions to provide "*the inbetween solution [balancing between] not having anything [and] not overdoing it"*.

Improvements for stakeholder engagement by encouraging their involvement was considered important by two of the participants. Participant #2 said there is no existing guidance for this within their organization*, "that is [instead] something we [have] talked about and strive to do better – and we have a long, long way to go."* Similarly, Participant #1 suggested using the tool as a checklist when meeting with stakeholders, providing guiding questions for the sessions. Using the tool as a checklist was also suggested by Participant #4, but more in relation to the general procurement process itself. *"It is always good to have this [kind of] checklist or tool to get a better understanding [and] to make sure you do not miss out on the most important stuff, to make it successful"*.

Instead of using the tool for its originally intended purpose, two participants saw further potential if used as a basis for staff training, to build understanding within the procuring organizations. For example, Participant #1 described that *"if you bind [the questions] to specific areas [of interest], then you also train people to think in those areas"*. This view was backed up by Participant #5, who noted that from a strategic point of view, it is currently a *"more overall issue [to build relevant] knowledge and information"* within the organization. Training was also considered fundamentally important by Participant #3, but in relation to the tool itself – "*in order for this tool to be useful [in the first place]"*.

Nevertheless, all participants were interested in obtaining the revised prototype and/or this paper. Two participants even indicated willingness to try the tool as "*it is a tool that is quite easy to adopt immediately […], I would be able to leave [it] to my buyers to work with."* (#2). Participant #5 was eager to try the tool in a smaller scale pilot project. *"It would be very interesting to see what we can get out of it, and if we manage to hit the important issues that we really need to focus on."* Trial was considered necessary by Participant #4 as well, noting that it is difficult to assess the tool itself unless it is tested in practice first. *"You never know until it is tested – and then you can go back and fix minor things"* (#4). When it comes to disseminating the results, Participant #3 advised targeting specific audiences: *"if you want it to be used by [...] procurers in the regions, I would then probably address [...] the networks of procurers and chief procurement officers"*. Participant #4 advised to target as many practitioners and related networks as possible *"[because] that is basically how you get the tool to be used – you need someone to try it first"*.

5.2 Discussion

In this chapter, we discuss the feedback received in the evaluation interviews. First we consider the relevance of the prototype in terms of sustainability, after which we continue with some of the identified challenges. We end the section by considering the limitations of the evaluation phase.

5.2.1 Relevance in Terms of Sustainability

We based our prototype of a procurement needs analysis tool on the FSSD, which has sustainability built into it in the form of building a systemic understanding of the world (see nested TBL in Figure 1.3.) as well as the SPs as the definition for sustainability. As identified in the results, using the levels and structure of the FSSD seemed to generally make sense to the participants in regards to offering a practical basis for the analysis work. An easily understandable structure supports the intention behind the tool to provoke thinking of the wider sustainability impacts related to the procurements in the early stages of the respective processes.

Some limitations for the applicability of the SPs were identified during the interviews including unfamiliarity, as the underlying concepts of the FSSD are not currently being used in the field. The problem of not being known by practitioners, however, seems to apply also to other definitions of sustainability as argued in Chapter 1.2, and thus there is a clear need for a higher level of shared understanding. To address this problem of lacking knowledge, it was suggested to include more specific questions around e.g. each of the eight SPs. However, introducing supplementary questions has both potentially positive and negative consequences.

Going deeper in the inquiry, especially with more guiding questions on sustainability, could potentially address the issue of differences in individuals' interests and competences, further influencing the sustainability considerations in the procurement processes. This outcome could be achieved both by standardizing the process of the considerations, and by improving the relevant competence of procurers. The idea for standardizing the process is based on the interview insights, according to which the extent of sustainability impact considerations are proportional to the level of awareness of individual procurers. Furthermore, it was proposed that the aspects and concepts within the tool might hold additional value especially when used as a staff training method, namely by pointing the procurers' attention to relevant issues to learn from. Considering this, pinpointing sustainability-related questions could help building procurers' knowledge around the respective issues. This knowledge contribution holds the further potential to address the seeming lack of sustainability considerations on the first stages of the procurement process, which was indicated by results from both the interviews and the questionnaire (in Chapter 3).

Yet, adding more questions might go counter to the arguments to compress the extensity of the questions already included in the tool. Furthermore, very specific questions related to sustainability impacts might not be applicable in all of the procurement cases, which is contrary to the intended general nature of the tool. This issue could be solved by providing supplementary staff training alongside the implementation of the tool. The introduction of the nested TBL model and questions that are framed around the SPs necessitates a basic level of understanding of these concepts. As implied in the interviews, these concepts can be expected to be novel to most of the professionals in procurement departments, due to which further training specifically focusing on these concepts is likely necessary. Additionally, there might be potential in familiarizing the concepts of SSD in general to build larger context and operational competence related to sustainability among PP practitioners.

Moreover, the deeper sustainability impact analysis linked to the product or service to be procured still needs to be done in the later stages of the process e.g. in setting the requirements for the procurement. This necessitates inquiries on specific areas of interest, and amplifies the importance of including sustainability experts already in the needs analysis

process, which was also admitted in the interviews. Also, a more comprehensive analysis taking place later in the procurement process requires consulting various stakeholders along the process, which is already encouraged by the tool, as it suggests identifying who the relevant stakeholders to be considered are. Thus, we argue that keeping sustainability considerations at a general level is enough at this early stage of the procurement process, while acknowledging the need for competence building among practitioners as well as access to sustainability experts for support to enable the considerations in the first place.

Finally, the tool has potential relevance for sustainability by inviting users to look for alternative ways to meet specific procurement needs. However, it was mentioned in the interviews that this also taps into a "chicken-egg" problem – in this case with a need for more sustainable solutions on the one hand, but relying on existing market offerings on the other. Also, users might be so familiar with utilizing certain products that they see no need to "reinvent the wheel" i.e. to thoroughly reconsider the impacts, especially in the case of recurring procurements. This contrasts the life-cycle perspective (as argued in Chapter 1.2), for example as in the case of single-use products, whose replaceability with reusable variants is not necessarily considered then. Similarly, suppliers are likely to not proactively question the situation, especially if there is no clear demand from the clientele. Besides tightening sustainability requirements for existing products and services, rethinking the very solutions could act as another driving force to develop the markets. However, perhaps more fundamental is the encouragement to question the necessity of the very need in the first place. Indeed, as phrased by one of the interviewees, similarly to a number of policy documents on PP, the best procurement is one never done.

5.2.2 Challenges of the Evaluated Prototype

Multiple challenges related to the proposed prototype were identified during the evaluation interviews. First, there are general challenges related to introducing new practices such as the proposed tool. New tools might be hard to introduce in organizations because of the resistance for change, which was indicated by our evaluation participants. This is especially the case when new tools are considered by users to not deliver clearly visible additional value, or are too clumsy or difficult to use. In addition, past negative experiences of attempts to introduce similar tools might further increase the opposition.

We acknowledge these challenges related to introducing new tools and practices in the organizations. However, we argue for the importance of developing better SPP practices in order to achieve real progress related to the set sustainability goals of the organizations and of wider national and international policies. As all interviewees considered the questions included in the tool important while simultaneously highlighting the lack of time to devote for these considerations in current practices, we believe that public organizations are also recognizing potential for further developing their own SPP practices. This implies that introducing new tools or practices as proposed in this paper would be beneficial for public organizations.

The second identified challenge relates to the extensiveness of the tool. As indicated in the interviews, there needs to be a balance between the extent of the content and practical applicability of the tool. The more one goes into details, the more effective might the outcome be, but to the detriment of the required time investment. This view is further amplified by having time constraints as the main barrier in gathering relevant information for procurement

needs analysis, as indicated in both our results from the analysis and evaluation phases (see Chapters 3.1 and 5.1). To address the issue, it was suggested either to pinpoint to the users which questions were more relevant than others, or to divide the tool into strategic and operational levels, with the procurers working on the latter. This straight-forward guidance goes counter to our initial assumption that the procurers as the users of the tool would hold the responsibility and have the capability to assess when it is important to go deeper in the inquiry and when less exploration is enough. In other words, the procurer should be responsible for considering this prioritization while using the tool. Also, decoupling strategic aspects from the operational level risks the user losing sight on how the procurement project at hand relates to overall strategic goals, while further reinforcing a siloing effect within the organizations. Nevertheless, there is clearly a need of including more guidance on prioritization, which could be relevant also when considering the differences in the individuals' levels of competence.

The tool is also faced with a risk of being considered irrelevant by the users. As it was pointed out in the interviews, some of the proposed questions in the prototype are already asked along the current process. This might lead to the tool being perceived as a duplicate by the users. Irrelevance might also rise from the SSD likely being a completely novel concept to the users, especially when lacking a clear connection to better known sustainability concepts and frameworks. This challenge could be tackled by punctual introduction to the tool, and by coaching practitioners about the core elements of SSD. Alternatively, there could be more built-in sense-making content around the SPs in the tool itself, which would however make the tool even more extensive and is therefore questionable if mere explanations would be enough to sufficiently overcome the competence issue. On the contrary, we argue that introducing this tool into practice would necessitate some kind of staff training program. Due to limitations set by our research focus and overall time constraints, these elements are not covered in this project.

A final challenge was related to the difficulty of developing a tool that would be general enough to be fit for all. Considering the large variance in existing practices between different organizations and procurement projects, this is likely a difficult quest. This dilemma was visible in our evaluation results as all of the experts made some specific suggestions related to the processes and project types that they were mostly working with. At the same time, it was argued that all the proposed questions are important to be asked before any purchase project is about to start. Therefore, we believe that there is demand for this kind of tool with really general nature that could be applied as such, or function as inspiration for other tools to be developed to match a specific organization or type of process. This was also reflected in the interviewees' interests in receiving the revised prototype version, suggestions for how to disseminate the results, and openness for a trial.

5.2.3 Constraints of the Evaluation

Due to the limited number of participants taking part in the evaluation, the attitudes of individual participants based on their previous experiences, together with their different roles, can all be considered to have been relatively influential in the assessment of the prototype. However, the variance in the interviewees' respective roles also enabled the prototype to be considered from multiple different viewpoints.

All participants mentioned the limitations of the time that they had been able to devote to familiarize themselves with the prototype before the interviews, with only one interviewee having had sufficient time to read through the document prior to the session. In addition, the participants were limited in their access to information prior to the interviews, as the prototype was shared approximately a week before the interviews, and only in writing without further introduction. This shortcoming was due to our considerations and assumptions of their limitations to prepare. Thus, the evaluations were done based on the short briefings carried out in the beginning of the interviews. As multiple researchers were conducting the interviews, these briefings varied slightly in their content and key points. The briefings also varied per interest of the interviewees. This might have led to our evaluation results not being sufficiently comparable.

Finally, as the experts were giving face to face feedback to students who had developed the prototype, the feedback might have been relatively polite and supportive. They also might have already had a more open and positive approach to our work as most of them (4 out of 5) were contacted based on their own volunteering and indication of interest in our work. Having conducted the interviews in English, a non-native language to both the interviewees and to the interviewers, might have limited the richness of the answers. Nevertheless, the ideas for further developing the tool were successfully proposed within these constraints.

5.3 Tool Improvement

The evaluation of the proposed prototype of the tool gave way to various ideas for developing it in order to improve its capacity for supporting procurers in incorporating sustainability considerations in the needs assessment. As there was genuine interest and potential for being applied in organizations, we were encouraged to iterate the initial design, based on the feedback, to increase its relevance and applicability. This iteration yielded a second prototype of the tool, which can be found in Appendix F. The changes that were made are highlighted in yellow. This proposes one possible version of iterating the first prototype, as it is based on ideas for development that were directly related to the first prototype. Simultaneously, with this iteration, we aim to further strengthen the elements of the previous version that were highlighted in the evaluation as being of value.

For the iteration of the prototype, we considered especially feedback around the user-friendliness. As pointed out above, interviewed experts saw the questions lists being too extensive and guidance for the user insufficient. To address the problem of extensiveness and lacking priorities, the questions were divided into two categories of foundational and additional questions in the new version of the prototype. The questions with higher relevance being highlighted aims to allow the PP practitioners to prioritize where to focus on in case they are facing time constraints. Additionally, we suggest that these questions should be the ones to consider first. Further guidance for the user was also improved by adding general guidelines in the beginning of the prototype aiming to simplify the navigation through the tool.

In addition to these two larger changes, some minor edits were done including adjusting wordings to be more common language and merging some questions to compress and simplify the tool. We also introduced some additional questions, based on the suggestions of the interviewees. For example, a few questions were added to include the life cycle perspective and to strengthen the questioning of the fundamental need. We also strengthened

the relation of the proposed tool with the overall procurement process, by asking into future steps that should be taken in the Actions section. All these changes are marked with yellow highlight color in the Appendix F.

6 Final Discussion

This chapter concludes all the three phases of the DRM presented in the previous chapters, including the proposed improved prototype of the tool. First, the selected methodology of our research is discussed. Secondly, the overall intentions behind the tool are discussed. Finally, potential pathways for further developments are considered.

6.1 Methodological Considerations

Overall, applying the DRM worked well in our development of the proposed tool. The analysis phase was necessary before jumping into the development phase since actual practices in place in various organizations would not have been covered by merely reviewing academic literature and the organizations' online resources such as webpages. However, we faced a challenge in data collection as we relied on busy experts who were often unable to take the necessary time to devote to contributing to our research. This challenged both the results of our questionnaire which did not receive as many answers as anticipated, and limited the number of participants for the evaluation interviews.

One possible reason for the relatively low number of responses and participants in our study could be our choice of language. Because of our limited local language capabilities, all communication was done exclusively in English, sometimes using terms specific to the field of SSD. Many responses to the questionnaire were made in Swedish, and only respondents confident in English were willing to participate in the following evaluation interviews.

The data also revealed an unclarity of the exact steps of the procurement process that we were addressing. While this might have been due to the language barrier, it might also have been caused by a lack of a definition of the steps comprising the procurement process in the procuring organizations. Another possible explanation could be the variety in the positions of the questionnaire receivers. This variety might also be the reason for the deviance in the specificity of the answers, and even for unanswered questions in some of the responses. After sending the questionnaire, we also figured out that some of the respondents might not have been ideal participants of our research, since their responsibilities diverged too much from that of a procurer. Some of the receivers and respondents pointed this out by themselves. Finally, our authority or credibility might not have been strong enough in the eyes of the receivers, and thus getting back to our request was not being prioritized.

In the design phase, we chose to develop the prototype ourselves within the research team. As outsiders to the procuring organizations and the practice of procurement itself, we could propose potentially novel ideas to be taken into consideration, as we are less constrained by existing habits or experiences of unhelpful tools. However, the practical expertise is crucial in assessing the overall applicability of the tool. In the evaluation phase, we received useful feedback leading to many ideas that might in addition to aspects of the second prototype support the further development of the tool. This speaks to the necessity of more iterations of prototyping and developing before achieving a practical work procedure that can be operationalized by procuring organizations. Due to time constraints, our research was limited to only include a single round of evaluation.

The participants of our evaluation interviews were mainly volunteers identified via the questionnaire, but also other contacts were used to increase the number of interviewees. Since the questions on our analysis phase only addressed the process, and as we did not include expert contributions to the development phase, the interviewed experts were assumed to bring fresh perspectives in the evaluation phase. The constraints of this evaluation are discussed more in detail in Chapter 5.2.3.

In retrospect, to tackle the above-mentioned challenges, alternative research approaches could have been chosen. For example, a case study would have been a potentially suitable approach, especially since working closely with a designated partner organization could have increased the accuracy of the procurement process description and practices. Also, with increased ownership of the prototype, practitioners might be more committed to improve their own working routines and thus be more committed to the research. Another option could have been to consider compensation in order to increase the number of participants. In this study, the participants were not compensated directly for their contributions except for the promised access to the final results. This might have had positive impacts e.g. on the level of honesty of the feedback we received in the evaluation phase, but also resulted in possible negative impacts in terms of overall validity of our results, namely due to the relatively small number of experts who prioritized their participation.

6.2 Contributions to Sustainability

Our proposed tool ultimately aims to help realize the existing potential of PP to contribute to a more sustainable society that would to a larger degree comply with the boundary conditions of sustainability as defined by the SPs. The tool aims to help procurers analyze potential sustainability impacts and related risks as early in a given procurement project as possible. Meanwhile, the tool is also an example of a practical application inspired by the academic field of sustainability science. We believe this to be a key in actualizing positive impacts with the most leverage, ultimately enabling the potential to contribute to a more efficient use of resources during the procurement project as well as regarding the subject being procured. Additionally, the tool aims to support procurers in making informed decisions about trade-offs related to sustainability impacts by helping them consider a wider perspective of sustainability related to the given procurement project.

A potentially high leverage in regards to sustainability is opening the procurement project up to a wider range of possible ways to meet the given need, as the tool is intended to encourage such considerations. This might help public organizations to achieve more sustainable outcomes by means of product or service solutions that are alternative to those commonly or previously procured. Another and arguably even higher leveraged impact of taking the tool into use is the possibility of not procuring a product or service altogether, since the relative importance or even existence of the given need might be called into question. Improving these considerations and making informed decisions based on these considerations could be one way of increasing the strategic approach and long-term thinking in PP.

In addition to its direct impact potential, the tool also supports developing a shared understanding of sustainability, necessary for effective cooperation both between a procurer and a client, as well as with suppliers and other stakeholders. The need for common understanding was indicated by both our results from the questionnaire and the interviews as well as findings from literature, indicating that the perception and understanding of

sustainability varies between organizations and individuals involved in the procurement process. The science-based definition of sustainability provided in the FSSD accompanied by systems thinking provides the potential for building a common understanding around various sustainability issues, while highlighting their interconnectedness. This would address the identified challenges of insufficient competence and lack of understanding sustainability among PP practitioners, which would in turn support procuring organizations' capability to act more strategically.

We believe that the potential sustainability benefits of the usage of the tool are greater the earlier in the process it is applied. Our results indicate that the first potential leverage point for sustainability within the procurement process, i.e. the needs analysis, is largely neglected in current practices – meaning that the procurement needs are being analyzed in this phase, but in a more general manner, and without introducing sustainability considerations. Nevertheless, the experts that have been part of our research acknowledge the importance of pursuing this leverage more.

Though the proposed tool might bring various potential benefits for sustainability, it is crucial that it is being used in order for such benefits to be actualized. We however identified multiple challenges related to this. First, it is important to acknowledge the potential risks and challenges related to introducing new tools to existing working practices. The tool might not be considered relevant by the users or it might ultimately negatively impact the overall aim of the given practices due to unforeseen interrelations. However, based on the insights gathered through the analysis of current PP practices and the evaluation of the first prototype, the proposed tool seems to comply with and contribute to existing practices in place. These were indeed the intentions behind our relatively practical research methodology to answer to the needs that exist within PP practices. Yet, since the proposed tool is intended to be used by procurers who were found to generally be under pressure by their daily work routines and tasks, it is crucial that it is not perceived as adding to their workload, while clearly displaying direct benefits to them for the tool to be taken into use.

We also acknowledge that the generic nature of the proposed tool poses a risk that it does not necessarily bring new insights to the table in every use case, and therefore its benefits being unclear. Variances in procurement practices both across and within procuring organizations might also pose a risk to the perceived benefit of the tool, since it might not fit well with existing practices in all contexts. This invites considering the appropriate level of detail of the tool: an overly detailed version might be perceived as being irrelevant for certain procurement projects while on the other hand a version with little detail might be perceived as being insignificant. For the tool to achieve the intended applicability, we therefore believe that it needs to be introduced with an educational component which supports the individual user to appropriate it to their needs and practices. This would simultaneously help assimilate the understanding of sustainability promoted by the FSSD.

Even with such considerations reflected in the design, there is still a risk of users having resistance to changing their existing routines. To make the adoption by procurers as easy as possible, the design of the tool should be considered to reflect a degree of familiarity and similarity to other tools already in use. Even though we managed to make our prototype similar to other currently used tools, it still introduces elements that might be novel or lesser known to the procurers. In the implementation process, it is thus crucial that the users gain or have access to relevant expertise. This may help them achieve the necessary level of literacy

in sustainability, systemic thinking, and related concepts so that the barrier of using the tool is regarded as low as possible.

Even though we have aimed to avoid major risks through engaging the practitioners in the development process, the above-mentioned risks should be considered and monitored moving towards an eventual implementation.

6.3 Further Work

Based on our experience of the evaluation process of the first prototype, one key consideration for evaluating the tool in its further development is the extent of the evaluation. Having a larger number of participants as well as systematically inviting those who would be involved with various roles in the eventual use of the tool such as i) procurers as primary users, ii) people in positions with likelihood to participate in working groups, and iii) other key stakeholders such as clients and suppliers. Simultaneously, a more extensive and systematically composed participation base would support understanding the most relevant content and use cases of the tool, for instance related to the scope of the procurement process, procuring or client organization, or procurement needs.

In addition to having appropriate participants taking part in the evaluation, the terms of their participation should be considered. In further evaluations, differences in familiarity of potential participants with the language and vocabulary used, and their general availability should be considered in order to take appropriate measures and adjust the planning of the evaluation accordingly.

An eventual validation and implementation of the proposed tool would follow possible future evaluations and iterations. Based on the theoretical evaluation of the first prototype of the tool conducted in this research, there is interest in including the proposed discussions and considerations into existing PP practices. However, it seems crucial to conduct a practical validation such as by testing the proposed tool and its impact throughout a whole procurement project by e.g. means of a case study. Upon validating the general relevance and applicability of the tool, it could be contextualized to for instance fit to the strategic efforts of the given procuring organization and eventually implemented together with necessary complementary activities such as training programs for core users.

7 Conclusion

In light of the pressing sustainability challenges that humanity faces today, new solutions are needed in all aspects of society. SPP plays a crucial role in order to align public organizations' own actions with the political goals and ambitions, which signals that governments are walking the talk by taking sustainability seriously. Additionally, SPP holds the potential to influence market availability of more sustainable solutions and to challenge overconsumption which continues to contribute to various sustainability challenges. The ultimate purpose of this research was to support realizing the existing potential of SPP to contribute to a more sustainable society by applying the SSD approach to existing PP practices.

In this paper, we argue that focusing on the first stages of PP has a high leverage potential in order to realize the above-mentioned contributions to a more sustainable society. We also acknowledge the potential advantages of the SSD approach for PP, including a common definition for sustainability, promotion of a more holistic understanding as well as these together enabling organizations to act more strategically. To realize these advantages in practice, we propose an applicable tool for analyzing procurement needs through an SSD lens.

The decision to develop the proposed tool was based on our analysis of current undertaken sustainability practices in the early steps of the PP processes. Our results suggested that the fundamental need for a purchase is not much questioned nor is the purchaser necessarily helping the client to consider their fundamental need. Besides this, sustainability aspects seemed to mostly be considered later in the PP process when defining the criteria for the purchase. We also identified a lack of systemic understanding and limited consideration of potential stakeholders. In addition, it was evident that there is a lack of shared understanding of sustainability among practitioners. A main barrier for improvement was identified to be the insufficient resources in procurement organizations to implement sustainability.

Based on these identified gaps in current practices, a first prototype of the needs analysis tool was developed. As the tool aims to help create clarity around complex considerations in procurement projects, the FSSD was chosen to be the foundation of the tool. The tool guides the procurer to consider sustainability aspects, and to apply strategic and systems thinking early on in the procurement project. We argue this to be beneficial in terms of more efficient use of resources, including not only the benefits of increased sustainability considerations, but also more efficient use of public funds.

The tool was planned to be general enough so that it could be applied in different types of procurements. This general nature of the tool was seen as necessary, as laying the foundational understanding of the purchase right in the beginning of the process is argued to be both impactful in terms of sustainability but also beneficial for the overall success of the project. We further argue that despite the current challenges of lacking resources for proper SPP considerations, it is essential to include foundational considerations such as what the need is and what different options there are to meet the given need in all procurement projects.

During our evaluation interviews, PP practitioners seemed to show genuine interest towards the tool and saw potential for applying it in practice. Thus, we continued our research by developing a second prototype that takes into account the received feedback. For example, in the iteration we made it easier to prioritize aspects based on the relevance to the given procurement project and simplified the use of the tool for the proccurer by adding general

guidelines and explanations for some of the questions which might otherwise have been hard to understand. This prototype is aimed to support the further development of the proposed tool, which was discussed in detail in Chapter 6.3.

In order to be able to introduce the proposed tool in PP organizations, practical validation is required. Having a study directly linked to practice and to (a) specific organization(s) could potentially improve the participants' devotion to the research, as they would have more ownership of the process when the project is specifically intended to improve their own work procedures. In addition, the proposed tool could be strengthened by developing alternative or complementary interventions contributing to the same aim. Such interventions could include i) other tools for procurers to support their sustainability considerations in analyzing the procurement needs, ii) developing other SSD-based interventions for other steps of the procurement process as discussed in Chapter 1.2.1, or iii) initiatives going beyond the procurement process itself such as by means of capacity building or stakeholder involvement. Future research sharing its aim with this study would benefit from considering and selecting the most impactful contributions based on the respective leverages of such various possible contributions.

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Appendices

Appendix A - Questionnaire questions

1. What is your role and which region do you work for?

2. In our research, we are interested in the first steps of the procurement process: preparing the procurement (förbered upphandlingen: planera, kartlägga och analysera), and specifying the need as well as the product/service to be procured (utforma upphandlingsdokument). What does the steps of specifying needs and decision making of what is procured look like in practice?

3. Are there general guidelines for how to specify needs and what information is gathered?

4. Are there any challenges in gathering this information?

5. Is there a specific document that is always filled? If yes, what elements are part of this standard form?

6. How often do you use need-based definitions when procuring something that has been traditionally procured as products? For example stating that lighting is needed to an office instead of asking tenders for lightbulb supply.
   Scale from 1-10 (0 = Strongly Disagree; 3 = Disagree; 5 = Neither agree nor disagree; 8 = Agree; 10 = Strongly Agree)
   0 3 5 8 10

7. Who (what roles) are involved in defining and specifying procurement needs? And who is in charge/ responsible for that process?

8. How much are stakeholders involved in the first steps of the procurement process?
   Scale from 0-10 (0 = none at all; 3 = a little; 5 = a moderate amount; 7 = a lot; 10 = a great deal)
   0 1 2 3 4 5 6 8 9 10

End Users

Suppliers

Others, who?

9. How are these stakeholders involved? What are their roles?

10. Are there any processes that question if a given product/service is actually needed? If yes, please describe the processes shortly.

11. In your opinion, how important are sustainability aspects in specifying needs?
    Scale from 0-10 (0 = Not important at all; 10 = Extremely important)
    0 1 2 3 4 5 6 8 9 10

12. Why does sustainability carry this level of importance?

13. Which sustainability impacts are considered in current need identification/specification processes? And, how are they considered?

14. Are you interested in getting a look at and together with other experts improve a tool that aims to make sustainability considerations easier when identifying and specifying procurement needs? Please leave your name and contact information below and we will be in touch to see if it can fit your schedule.

Appendix B - Questionnaire Analysis Codes

Appendix C - First Prototype of Tool for Needs Analysis in Public Procurement

1. System	
Purpose: *Building understanding of the system in which the client organization operates, where the need comes from, and why it is important to meet this need.*	
Tools (choose which to be applied): ☐ system mapping ☐ stakeholder mapping ☐ nested triple bottom line ☐ PESTLE analysis	
What is the client organization?	
What is the role of the client organization in the larger society?	
What specific function or business unit is the final user?	
What is the sector the client organization operates in?	
What sustainability (environmental and social) challenges are related to the sector?	
What are the key stakeholders?[3] How are they affected?	

[3] Stakeholders include e.g. individuals, groups or subgroups of the client(s), customers/users or other parties (e.g. utility companies affected) that have an interest in the contract. Also, the biosphere should be considered among the stakeholders.

2. Success	
Purpose: *Building a common understanding of the fundamental need and how to best meet it in a way that does not disadvantage the biosphere and the society at large.*	
Tools (choose which to be applied): ☐ Needs inquiry form ☐ Sustainability Principles analysis ☐ Sustainability Impact analysis ☐ Sustainability Principles analysis ☐ Life-Cycle Costing ☐ Risk Analysis ☐ RFI (Request for Information from suppliers) ☐ Data analysis on feedback from previous procurements	
What is the overall purpose of the procurement? What is the underlying performance-based need?	
How does fulfilling the need to support the client organization succeed in its role?	
How is the success of the solution measured? Which factors are essential and which are optional?	
Has this need been addressed in previous procurements? How successfully/unsuccessfully?	
Is this procurement necessary? If yes, what options are there to meet the need?[4]	
What are the potential unintended consequences and risks when meeting this need?	
Could the solution be somehow restorative?[5]	
What might the (positive/negative) sustainability impacts of potential /optional solutions be?	
Can the potential solution fit within the boundaries set by the Sustainability Principles?[6]	

[4] Could a solution be found with the already existing goods/supplies? What solutions are available in the market? Are there alternatives to buying a physical product, e.g. renting/leasing a product-service system instead? Could new solutions be developed by forming innovation partnerships?

[5] A restorative solution refers to a solution that has positive impacts on the natural environment and/or social system, meaning that it helps to bring the environment back to its original state, instead of just aiming not to have a negative impact. For example, carbon neutrality alone is neutral, not a restorative objective.

[6] The Sustainability Principles create boundary conditions for sustainability, based on 8 (eight) sustainability science-informed minimum requirements on different environmental and social aspects of sustainability. More information and description of the principles (in Swedish)

3. Strategic Guidelines	
Purpose: *Defining the requirements and guidelines that should be followed in the process.*	
Tools (choose which to be applied): ☐ Legislative and regulative documents (UN, EU, Sweden, Region, applicable organizations) ☐ Strategy and guideline documents (National, regional and organizational)	
What are the underlying boundary conditions for success (e.g. sustainability) as defined on the Success level?	
What legislative regulations need to be followed?	
Is there specific legislation/ regulation applicable to this particular case?	
What existing political agreements are potentially applicable when addressing this need?	
Are there strategies, guidelines or performance goals that should be taken into account?	
Are there guidelines for prioritization or for tradeoffs between different requirements? What things are prioritized in decision making? How do you make decisions if you need to make tradeoffs?	

4. Actions	
Purpose: *Suggesting actions that support identifying, analyzing, and understanding the fundamental procurement needs.*	
Tools (choose which to be applied): ☐ Procurement project plan ☐ Stakeholder mapping ☐ Communication tools	
Is there a need for an expert group? If yes, who should be invited to the expert group?	
Are there other stakeholders who should be informed about the procurement?	
How should the communication between the parties be established?	
What other actions should be taken to build this understanding?	

Appendix D - Interview Guideline

Set up (15 min)

- Short introductions, 1 hour
- Consent to record
- Before moving the official interview questions: Did you understand the tool / the questions within it? Is something unclear? *(Offering possibility to clarifications, potentially finding out parts that need to be clarified)* → Briefly going through the tool or parts of it if needed

Design (20 min)

- What aspects of the tool do you think are good or useful and why?
    - Can you share an example/story of something similar that turned out to work well or be of use to you or your colleagues' work?
- What aspects could use improvement and why?
    - How could you imagine making the improvements?
- Did you feel something was missing and why?
- How do you find the interface design / user-friendliness?
    - Clarity of language?
    - Does the grouping of tools and questions in the 4 levels make sense?
    - *Number of steps/clicks per task?*
    - *Information architecture? Customer journey map walk through? Is training or user support required? Accessibility?*

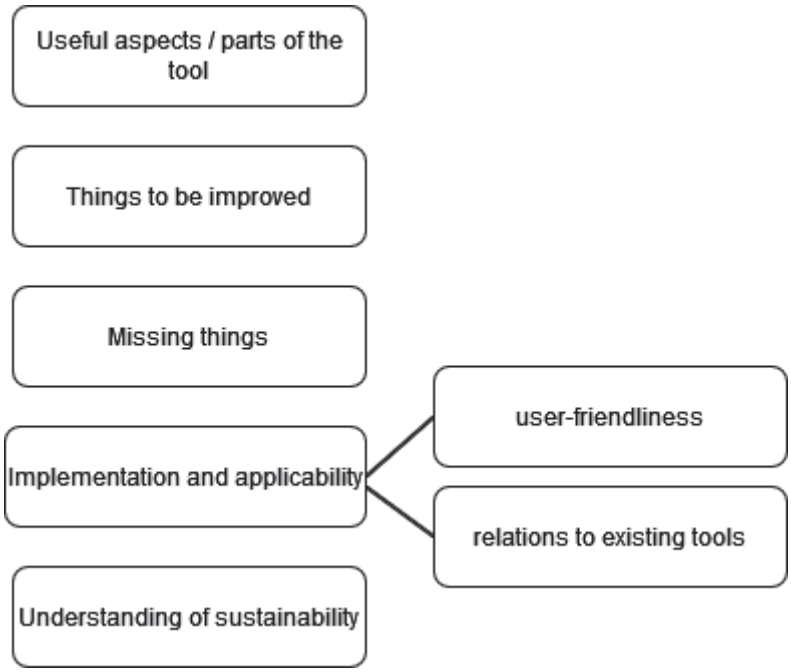
Applicability (20 min)

- Relevance and practical applicability of the tool in your work?
    - Conformance and/or compatibility with existing tools or processes?
    - In what contexts is it most relevant and who should be involved in the use?
- Does this tool resemble any existing tools you use and how does it compare?
    - Are there any overlaps with existing guidelines/documents/practices?
    - What are the strengths and weaknesses of those tools in terms of integration with your processes?
    - Does this tool potentially share any of those strengths or weaknesses?
- If you were pressed for time, which of the elements in this prototype would you still keep and why?
- Do you think that it fulfills the purpose that we mentioned/intended?
- Could you consider trying out this tool? Why/why not?

Ending (5 min)

- Any other general comments/suggestions?
- Is there any other feedback on your mind about this tool?
- Tackar!

Appendix E - Interview Analysis Codes



Appendix F - Second Prototype of Tool for Needs Analysis in Public Procurement

All changes compared to the prototype version one are highlighted with yellow.

General Guidelines

- This tool is intended to be used early in the procurement process, to understand the underlying procurement needs.
- The tool is divided into 4 sections: Underlying system, Defining Success, Identifying Strategic Guidelines, and Actions to move forward. Each section has a set of questions to build relevant understanding.
- When using the tool first address the foundational questions. Then consider what other information is needed, which tools are useful to achieve this knowledge, and when the further questions should be addressed.
- If something is unclear, consult relevant experts within your organization or networks.

Structure of the tool:

<table>
<tr><td colspan="2">1. Section name</td></tr>
<tr><td colspan="2">2. Purpose – describes why this level is relevant</td></tr>
<tr><td colspan="2">3. Tools – complementary tools that can help you answer the questions below. Contact experts / source of information</td></tr>
<tr><td colspan="2">4. Foundational questions – questions that are most important to build the necessary understanding</td></tr>
<tr><td>5. Questions</td><td>6. Space for notes / written answers</td></tr>
<tr><td colspan="2">1. Additional questions - questions that help you deepen your understanding</td></tr>
<tr><td>2. Questions</td><td>3. Space for notes / written answers</td></tr>
</table>

1. Underlying system	
Purpose: *Building understanding of the system where the client organization operates in, where the need comes from, and why it is important to meet this need.*	
Tools (choose which to be applied): ☐ nested triple bottom line ☐ system mapping ☐ stakeholder mapping ☐ PESTLE analysis	
Foundational questions	
What is the client organization?	
What are the key stakeholders?[7] How are they affected?	
What is the sector the client organization operates in? What are the main sustainability challenges related to this sector?	
Other questions to consider to deepen the knowledge	
What is the role of the client organization in the larger society?	
What specific function or business unit is the final user?	
Which other sustainability impacts[8] related to this sector should be considered?	

[7] Stakeholders include e.g. individuals, groups or subgroups of the client(s), customers/users or other parties who can affect or are affected by the contract.
[8] Impacts can be positive or negative

2. Defining Success	
Purpose: *Building common understanding of the fundamental need and how to best meet it in a way that does not disadvantage the biosphere and the society at large.*	
Tools (choose which to be applied): ☐ Needs inquiry form ☐ Sustainability Principles analysis ☐ Sustainability Impact analysis	☐ Life-Cycle Analysis ☐ Risk Analysis ☐ RFI (Request for Information) / Supplier hearing ☐ Learnings from previous procurements
Foundational questions	
What is the overall purpose of the procurement? What is the underlying performance-based need?	
How is the success of the solution measured? Clarify, which factors are essential, optional and unnecessary	
Is this procurement necessary? Is this the real need or is it just procured as in the past? If yes, can those needs be fulfilled in any other way?[9]	
Other questions to consider to deepen the knowledge	
How does fulfilling the need support the client organization succeed in its role?	
Has this need been addressed in previous procurements? How successfully/unsuccessfully?[10]	
What are the potential unintended consequences and risks when meeting this need?	
What might the (positive/negative) sustainability impacts of potential /optional solutions be?[11]	
Can the potential solution fit within the boundaries set by the SPs?[12]	

[9] Could a solution be found with the already existing goods/supplies? What solutions are available in the market? Are there alternatives to buying a physical product, e.g. renting/leasing a product-service system instead? Could new solutions be developed by forming innovation partnerships? Are there multi-purpose, reusable or circular alternatives available to replace disposable products?

[10] If this need has not been addressed in your organization, check if other regions have done similar projects to learn from their experiences and build upon that.

[11] The impacts can be both negative or positive. Consider if the solution can be somehow restorative? Meaning that it has positive impacts on the natural environment and/or social system, meaning that it helps to bring the environment back to its original state, instead of just aiming not to have a negative impact. For example, carbon neutrality alone is neutral, not a restorative objective.

[12] The Sustainability Principles create boundary conditions for sustainability, based on 8 (eight) sustainability science-informed minimum requirements on different environmental and social aspects of sustainability. More information and description of the principles (in Swedish)

3. Identifying Strategic Guidelines	
Purpose: *Defining the requirements and guidelines that should be followed in the process.*	
Tools (choose which to be applied): ☐ Legislative and regulative documents (UN, EU, Sweden, Region, applicable organizations) ☐ Strategy and guideline documents (National, regional and organizational)	
Foundational questions	
What legislative regulations need to be followed?[13]	
What existing political agreements are potentially applicable when addressing this need?[14]	
Other questions to consider to deepen the knowledge	
What is the underlying understanding of success (e.g. sustainability principles) as defined in the Success section?	
Are there organizational strategies, guidelines or performance goals that should be taken into account?	
What things are prioritized in decision making? Are there guidelines for prioritization or for tradeoffs between different requirements? How do you make decisions if you need to make tradeoffs?	

[13] Is there specific legislation or regulation applicable to this particular case?
[14] Are there political agreements or objectives that are linked to the sustainability challenges?

4. Actions to move forward	
Purpose: *Suggesting actions that support identifying, analyzing and understanding the fundamental procurement needs.*	
Tools (choose which to be applied): ☐ Procurement project plan ☐ Stakeholder mapping ☐ Communication tools	
Foundational questions	
Is there a need for an expert group? If yes, who should be invited to the expert group?[15]	
Are there other stakeholders who should be informed about the procurement?	
What other resources are needed in this project? Which tools might be helpful moving forward?	
Other questions to consider to deepen the knowledge	
How should the communication between the parties be established?	
What other actions should be taken to build this shared understanding?	

[15] If the expert group is readily proposed or established, think if all relevant functions are really represented in it.

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