How do SMEs engage in Green Public Procurement?

An exploratory study of SMEs' barriers and enablers for Green Public Procurement in Scotland.

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Paola & Daria
Summary

This research explores how small and medium enterprises (SMEs) respond to green requirements embedded in Green Public Procurement (GPP) set forth by public authorities (PA). Being Scotland at the forefront of GPP implementation, this research selected one PA, the Scottish Environmental Protection Agency (SEPA) and five SMEs to explore the enablers and barriers SMEs face when responding to environmentally responsible requirements embedded within GPP. As such, main research question states: What enablers and barriers SMEs face when responding to GPP requirements set forth by PAs? Following sub question explores SMEs’ level of awareness and understanding of GPP tools, such as environmental management systems and life cycle assessments. Three main research objectives were included in this research: 1) To explore the enablers and barriers PAs face when formulating the green requirements within GPP; 2) To explore the relationship between SMEs and PAs within the GPP framework; and 3) To identify the benefits SMEs perceive from adopting green practices.

Throughout the study, choice of research questions, methodology, strategy, procedure for data collection and analysis were guided by the critical realist philosophical perspective, allowing for the use of direct interpretation when analysing data. To answer these research questions and objectives, qualitative research methodology with a single embedded case study was employed. Purposeful sampling was used to select SEPA and five SMEs, selecting key informants who were most knowledgeable about the phenomenon of GPP, public tendering, and organization’s adoption of green practices.

Answering the main research question, SMEs find management championing of the environment, employee commitment, strategic proactivity, and expertise as main internal enablers when responding to environmental requirements in GPP. External enablers were trainings, knowledge/information sharing, feedback, communication with PA, and e-procurement. Barriers were found to be less prominent than enablers, where cost of green technologies, certification costs, and lack of time were cited as internal barriers, while cost sensitivity of buyers, size of contracts, and conflicting experiences with GPP goals were external. The likelihood of better responding to requirements in GPP improves with the presence of enablers and the decrease of barriers.

This case study finds limited awareness of GPP and its tools among SMEs, where only two of five companies understood and participated in GPP. Transferability of GPP tools such as eco-labels from the product to the service based market was questioned. In regards to research objective 1, it was found that enablers within SEPA significantly outweigh the barriers, making it an example of best performing PA. In regards to research objective 2, the GPP legislative framework did not allow for formal relationships between PA and SMEs, relying only on external enablers such as trainings, knowledge/information sharing, and feedback to strengthen SMEs’ internal capacity to respond to the public tendering process and environmental requirements embedded in GPP. In regards to research objective 3, SMEs perceived competitiveness, improved company image, and cost savings as benefits derived from the adoption of green practices. Findings from this research inform PAs of the potential to increase awareness of GPP and the potential benefits for SMEs.

Keywords: green public procurement, small and medium enterprises, green supply chain, enablers, barriers, Scotland.
# Table of contents

1 Introduction ......................................................................................................................... 1
   1.1 Background of the study ................................................................................................. 1
   1.2 Research question and objectives ................................................................................. 3
   1.3 Thesis disposition ........................................................................................................... 4
   1.4 Research motivation ....................................................................................................... 5
2 Literature review .................................................................................................................. 6
   2.1 Literature search ............................................................................................................. 6
   2.2 Institutional and regulatory setting of Green Public Procurement (GPP)................. 6
      2.2.1 The role of GPP in Sustainable Development ....................................................... 6
      2.2.2 GPP policy in the European Union (EU) ................................................................. 8
      2.2.3 Legal framework for GPP ....................................................................................... 9
      2.2.4 Tools that facilitate GPP implementation ............................................................... 11
      2.2.5 Potential benefits of GPP ...................................................................................... 11
   2.3 Evidence of GPP uptake in the EU ............................................................................... 12
      2.3.1 Variability of GPP implementation in the EU ....................................................... 12
      2.3.2 Engagement of Public Authorities (PAs) in GPP .................................................. 13
      2.3.3 Engagement of suppliers in GPP ........................................................................... 15
      2.3.3.1 Large suppliers’ engagement in GPP ................................................................. 15
      2.3.3.2 Small and medium enterprises’ (SMEs) engagement in GPP ....................... 16
   2.4 The case for SMEs ......................................................................................................... 17
      2.4.1 Business case for SMEs ......................................................................................... 17
      2.4.2 SMEs in green supply chain .................................................................................. 17
   2.5 Theoretical framework for SMEs engagement in GPP ............................................. 18
      2.5.1 Theoretical lenses applied in the study ................................................................. 18
      2.5.1.1 Resource Based View (RBV) theory .................................................................. 18
      2.5.1.2 Institutional theory ........................................................................................... 19
      2.5.2 Enablers and barriers SMEs face when responding to GPP ............................. 20
      2.5.2.1 External enablers .............................................................................................. 20
      2.5.2.2 Internal enablers .............................................................................................. 21
      2.5.2.3 External barriers .............................................................................................. 22
      2.5.2.4 Internal barriers .............................................................................................. 23
      2.5.3 Theoretical framework .......................................................................................... 24
3 Context of the study ............................................................................................................. 27
4 Methodology ....................................................................................................................... 29
   4.1 Philosophical stance ...................................................................................................... 29
   4.2 Methodological stance .................................................................................................. 31
      4.2.1 Qualitative research methodology ....................................................................... 31
      4.2.2 Research strategy ................................................................................................. 32
      4.2.2.1 Defining the case study .................................................................................... 33
      4.2.2.2 Limitations of case study research strategy ...................................................... 34
      4.2.3 Research approach .............................................................................................. 35
5 Research design .................................................................................................................. 36
   5.1 Data Collection Method ............................................................................................... 36
      5.1.1 Interviews ............................................................................................................... 36
      5.1.2 Documentation ....................................................................................................... 38
5.2 Sampling ...................................................... 38
5.3 Data Analysis .................................................. 41
5.4 Qualitative research criteria .................................. 41
5.5 Ethical Considerations ........................................ 43
6 Data analysis and presentation of findings ...................... 45
  6.1 Empirical data and analysis procedure ..................... 45
  6.2 Presentation of findings .................................... 47
      6.2.1 Findings from SEPA .................................. 47
          6.2.1.1 Purchasing department .......................... 47
          6.2.1.2 Rationale for implementing GPP .................. 47
          6.2.1.3 GPP Tendering process .......................... 49
          6.2.1.4 Potential to trigger market demand ................ 51
      6.2.2 Findings from SMEs ................................. 51
          6.2.2.1 Public Tendering Experience ....................... 51
          6.2.2.2 Engagement in GPP .............................. 52
          6.2.2.3 Rationale for participating in GPP ............... 53
          6.2.2.4 Barriers for GPP engagement ..................... 54
          6.2.2.5 Enablers for GPP engagement ..................... 56
          6.2.2.6 Green Practices .................................. 60
7 Discussion ...................................................... 62
  7.1 GPP implementation in SEPA .................................. 62
      7.1.1 Government and top management leadership ......... 62
      7.1.2 Internal organisational capabilities ................... 62
      7.1.3 Procedural difficulties ................................ 63
      7.1.4 Competing objectives ................................ 64
  7.2 SMEs engagement in GPP .................................... 65
      7.2.1 Public tendering experience and awareness of GPP .... 65
      7.2.2 Rationale for SMEs participation in GPP .......... 66
      7.2.3 Barriers for participation in GPP ..................... 66
          7.2.3.1 Internal barriers .................................. 66
          7.2.3.2 External barriers .................................. 67
      7.2.4 Enablers for participation in GPP ..................... 68
          7.2.4.1 Internal enablers .................................. 68
          7.2.4.2 External enablers .................................. 69
      7.2.5 Green practices ...................................... 70
8 Concluding remarks ............................................ 72
  8.1 Key findings ................................................ 72
  8.2 Practical implications ...................................... 74
  8.3 Theoretical contribution ..................................... 75
  8.4 Limitations of the study .................................... 77
  8.5 Future research ............................................. 77
References .................................................................. 79
Appendices .......................................................... 93
Appendix A: Interview questions - SEPA ......................... 94
Appendix B: Interview questions - SMEs .......................... 96
Appendix C: Initial template for pattern and theme analysis - SEPA 97
Appendix D: Initial template for pattern and theme analysis – SMEs .......... 98
Lists of figures and tables

List of figures

Figure 1 Legal framework for GPP implementation.......................................................... 10
Figure 2 Implementation of GPP among EU member states .......................................... 13
Figure 3 Process of implementation of GPP within PAs................................................... 15
Figure 4 Theoretical framework for implementation of GPP through the relationship between PAs and SMEs. ......................................................................................... 26
Figure 5 Interview guide relationship for SEPA. ............................................................... 37
Figure 6 Interview guide relationship for SEPA’s SME suppliers..................................... 38

List of tables

Table 1 Potential enablers for SMEs engagement in GPP .................................................. 22
Table 2 Potential barriers for SMEs engagement in GPP. .................................................. 24
Table 3 Classification of the SMEs in Scotland. ................................................................. 28
Table 4 Summary of main research philosophies ............................................................... 29
Table 5 Main characteristics of qualitative research strategies ........................................ 32
Table 6 Presentation of respondents. ................................................................................ 45
Table 7 Documents used in the analysis. ......................................................................... 45
Table 8 Themes and patterns used for data analysis of SEPA........................................... 46
Table 9 Themes and patterns used for data analysis of SEPA’s suppliers ......................... 46
## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMAS</td>
<td>Environmental Management and Audit Scheme</td>
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<td>EMS</td>
<td>Environmental Management System</td>
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<td>EU</td>
<td>European Union</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GPP</td>
<td>Green Public Procurement</td>
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<td>GSCM</td>
<td>Green Supply Chain Management</td>
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<tr>
<td>LCA</td>
<td>Life Cycle Assessment</td>
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<tr>
<td>MEAT</td>
<td>Most Economically Advantageous Tender</td>
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<tr>
<td>NAP</td>
<td>National Action Plan</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
</tr>
<tr>
<td>OJEU</td>
<td>Official Journal of European Union</td>
</tr>
<tr>
<td>PA</td>
<td>Public Authority</td>
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<td>PP</td>
<td>Public Procurement</td>
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<tr>
<td>RBV</td>
<td>Resource Based View</td>
</tr>
<tr>
<td>SCM</td>
<td>Supply Chain Management</td>
</tr>
<tr>
<td>SEPA</td>
<td>Scottish Environment Protection Agency</td>
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<tr>
<td>SME</td>
<td>Small and Medium Enterprise</td>
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<tr>
<td>SSPAP</td>
<td>Scottish Sustainable Procurement Action Plan</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>VC</td>
<td>Video Conferencing</td>
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1 Introduction

The purpose of the introductory chapter is to provide the background and familiarise the reader with the phenomenon of Green Public Procurement (GPP). First section discusses the development of sustainability discourse on the global level and in the European market and introduces the case for involvement of small and medium enterprises (SMEs) in GPP, leading to the development of the framework through which barriers and enablers for their participation in GPP can be investigated. Second section presents the research questions and objectives of the study. Third section outlines the thesis disposition, followed with the fourth section in which researchers' motivation is presented.

1.1 Background of the study

Earth's limited capacity to sustain society's rate of depleting the non-renewable resources and absorbing the waste products of current economies has been recognised as sustainability challenge, which has in preceding decades received attention from scientists, policy makers, professionals and world citizens (European Commission, 2004; European Commission, 2008; Mont & Plepys, 2008, p.534; Röckstrom et al., 2009, p.474; United Nations, 1992; United Nations, 2000; United Nations, 2002). Efficiency and growth are still seen as imperative for global economies however the sustainability discourse is placing increasing requirements on monitoring and reducing the environmental impact of business activities (Bonedahl & Eriksson, 2011, p.167). This has led to pressures underpinning the development of environmentally responsible technologies, products and services which would lead to sustainable buyer and producer behaviour among market actors (European Commission, 2008a, p.12; Nash, 2009, p.496; Testa et al., 2012a, p.90). Additionally, methods and tools for operationalising sustainability have been developed. Examples include life cycle assessment (LCA), environmental management systems (EMS) and eco-labelling. LCA is a tool used to calculate the cost of the product, based on the costs of material and energy flows associated with every phase of its production, use and disposal together with ensuing external costs of environmental and health impacts (Srivastava, 2007, p.59). EMS constitutes formalised procedures for integrating environmental aspects, such as waste minimisation and energy efficiency, in company's management process to improve company's environmental performance (Hui et al., 2001, p.269). Eco-labelling, as a process of third party environmental certification of products through definition of their performance and compliance with environmental standards, facilitates communication between producers and consumers about the environmental impact of the certified products (Crespin-Mazet & Dontenwill, 2012, p.214).

With an annual spend equivalent to 19% of Gross Domestic Product (GDP) (European Commission, 2011, p.4) European Public Authorities have significant buyer power to influence the producers' behaviour in the market. Hereby, the Public Authority (PA) denotes the governments, or any other bodies and legal persons derived from the governments, which deal with public administration at national, regional and local levels and perform functions or duties falling under national laws (European Commission, 2003a, Article 3). Additionally, governments can utilise their legal powers to implement environmental policies and significantly contribute to sustainable development (OECD, 2008, p.5; Mont & Plepys, 2008, p.536; Tukker et al., 2008;
Green Public Procurement (GPP) has been recognised as a market-based policy by which governments can improve the environmental efficiency of their purchases and steer their suppliers toward similar practise, by procuring goods and services with minimised environmental impact (European Commission, 2001; European Commission, 2004; European Commission, 2008a, p.4). However GPP is a voluntary policy, therefore individual European Union (EU) governments decide based on the levels of sustainability awareness, economic development, and political goodwill to what extent to implement it (European Commission, 2011, p.4; Day, 2005, p.204). Although over 60% of European PAs engage in GPP, there is significant variability in levels of implementation among member countries. Extant research regarding GPP implementation in the public sector has revealed that majority of PAs face barriers preventing them to successfully engage in GPP. These barriers pertain to lack of government and top management leadership (Michelsen & de Boer, 2009, p.164; Thomson & Jackson, 2007, p.433); scarce technical, legal and purchasing skills among public procurement staff (Testa et al., 2012a, p.93); procedural difficulties associated with translation of the purchasing demand into the GPP legal framework (Michelsen & de Boer, 2009, p.164; van Asselt et al., 2006, p.226); and competing economic, social and environmental objectives which impinge on restricted PA’s budget (Michelsen & de Boer, 2009, p.165; Walker & Brammer, 2009, p.134). A best practising PA would therefore, with government leadership and managerial support, be able to develop staff's capabilities which would allow better understanding of the requirements embedded in procuring of green products and services, and through knowledgeable use of GPP framework be able to purchase environmentally preferable products and services for a lesser cost when compared to alternative non-green products and services. The research suggests that Belgium, the Netherlands, Sweden, Denmark, UK, Finland and Austria, as EU’s best performing countries in GPP adoption (Renda et al., 2012, p.49) might be a feasible context where PAs are able to perform on such a high-level and significantly involve suppliers in GPP tendering.

It has been argued that suppliers in the private sector can significantly contribute to the objectives of GPP (Brammer & Walker, 2011, p.453; Mosgaard et al., 2013, p.138; van Asselt et al., 2013, p.218), however early research has focused mainly on large private companies, which are able to devote more resources and managerial time to GPP tendering (Coffey et al., 2013, p.762; Mosgaard et al., 2013, p.145; Walker & Preuss, 2008, p.1604). At the same time opportunities for SMEs' involvement in GPP have not been sufficiently utilised (Brammer & Walker, 2011, p.470; Michelsen & de Boer, p.164). Policy makers have shown increased commitment to include SMEs in GPP, however, based on 2012 EU estimates only 24% of SMEs were engaging in some form of environmental protection practices (Miller et al., 2011, p.160). This might be due to SMEs perception of low environmental impact of their products and services, and perceived high costs associated with procuring and producing green technologies. At the same time SMEs make up 99% of all market enterprises in the EU making their impact on environmental degradation significant (Hoskin, 2011, p.16; Pimenova & van der Vorst, 2004, p.549; Vasilenko et al., 2011, p.57). Therefore, the need to further investigate the possibility of SMEs engagement in GPP, particularly focusing on SMEs perception and understanding of barriers and enablers is widely advocated (Appolloni et al., 2014, p.9; Brammer & Walker, 2011, p.459; Maziarz, 2013, p.283; Preuss, 2009, p.220; Rizzi et al., 2014, p.3; Testa et al., 2011, p.2143; Walker et al., 2008, p.82).

Parallel to research examining the effects of GPP and possibility of inclusion of SMEs in GPP tendering, research examining green supply chain suggests SMEs have a role in
promoting the adoption of green practices in their upstream and downstream supply chain (Coffey et al., 2013, p.771; Lee, 2008, p.186; Vachon & Klassen, 2006, p. 798).

Therefore, given the recent economic trends of GPP, the representativeness of SMEs in market, and the identified barriers and enablers SMEs face within green supply chains this study focuses on exploring the response of SMEs to requirements embedded in PAs' requests for green products and services. For this purpose a single case study, examining the relationship between a PA and five of its SME suppliers in Scotland, was selected. Scotland provides a feasible context for the study due to the advanced regulatory setting and the initiative for inclusion of SMEs in GPP, embedded in government's sustainable procurement plan.

1.2 Research question and objectives

This thesis aims at answering the following research question: "What enablers and barriers SMEs face when responding to GPP requirements set forth by PAs?"

Sub question: How SMEs understand the requirements and tools embedded in GPP?

The main research question explores how small and medium enterprises within Scotland respond to green public procurement (GPP), specifically what are the enablers and barriers SMEs face when adopting green practices as required by PAs. Sub question 1 explores the level of awareness and understanding SMEs have regarding GPP tenders, including the tools used within GPP. Additionally, this case study addresses the following research objectives:

1. To explore the enablers and barriers PAs face when formulating the green requirements within GPP.
2. To explore the relationship between SMEs and PAs within the GPP framework.
3. To identify the benefits SMEs perceive from adopting green practices.

The overall aim of this study is to contribute to the knowledge about SMEs role within GPP, where specific aims are to explore the enablers and barriers found when responding to GPP requirements. The SMEs ability to successfully respond to the requirements embedded within GPP is influenced by the ability of PA to clearly convey the green requirement and criteria within GPP framework. At the same time, this case study explores the level of awareness SMEs have regarding GPP and the potential for new bids arising from increased focus on sourcing environmentally responsible services. The latter influences the likelihood of SMEs adopting green practices due to perceived benefits of competitiveness and improved company image vis a vis other SMEs.

Due to the scarcity of empirical studies examining SMEs perspective within GPP we adopted qualitative research methodology, allowing us to adopt the perspective of the individual SMEs to uncover the barriers and enablers they face when responding to GPP requirements. Chosen case study research strategy enables us to reveal the complexity of the buyer-supplier interaction within the constraints of GPP legal framework, as well as influence of SMEs position in supply chains on their ability to participate in GPP.
1.3 Thesis disposition

Chapter 1: Introduction
Purpose of the introductory chapter was to familiarise the reader with the phenomenon of GPP by providing the overview of sustainability discourse on the global level and within the EU, to which GPP is related. Summary of the existing research on GPP implementation among PAs and SMEs, as well as position of SMEs within green supply chains was discussed to introduce the reader to the framework used to guide the research on barriers and enablers SMEs face when participating in GPP, and proposed research question and objectives.

Chapter 2: Literature review
In the Literature review chapter the theoretical references to previous research examining GPP will be presented to provide literature grounding of the study. Institutional and regulatory setting of GPP within the EU will be presented, followed by the discussion on the research examining PAs and SMEs' involvement in GPP. Business case for SMEs will be discussed to provide the rationale for undertaking the study, together with resource based view and institutional theories which serve as theoretical lenses. Finally, drawing on the literature on green supply management, theoretical framework for examining SMEs participation in GPP will be presented.

Chapter 3: Context of the study
Third chapter will introduce the Scottish context, whereby Scotland as a part of the United Kingdom is identified as one of the leading countries in the level of GPP engagement. Additionally, in this chapter Scottish Environmental Protection Agency will be introduced as a chosen PA for the study's inquiry, followed by the overview of the main characteristics of SMEs in Scotland.

Chapter 4: Methodology
This chapter will present philosophical and methodological underpinnings of the study. Discussion of ontological and epistemological assumptions, which are the background guiding the choice of research methods, will be presented, followed by the arguments supporting the choice of qualitative research methodology, single case study strategy and deductive approach employed in the study. Additionally, potential limitations of the chosen strategy will be discussed.

Chapter 5: Research design
In chapter 5, the phases of the research design will be outlined as follows: first semi-structured interviews supported by company documentations will be described as data collection methods; furthermore the sampling procedure employed will be discussed, as well as the description of the chosen sample provided. Analysis technique employed in the study will be described and the criteria for qualitative research will be presented in order to strengthen the validity of the study. Finally, ethical considerations will be discussed.

Chapter 6: Data analysis and presentation of the findings
This chapter will present the analysis of the data gathered in the data collection phase of the study. Interview proceedings and templates for data reduction and pattern identification will be presented, followed by the results of the analysis grouped in findings about PA's procurement department practises and findings regarding the SMEs engagement in GPP. Findings will be illustrated with direct quotations from the interviews and supporting company documentation.
Chapter 7: Discussion
In chapter 7, main findings from the studies will be elaborated and compared with previous studies upon which theoretical framework is based in order to develop the basis for conclusions. Discussion will center first on PA's experience with suppliers drawing on literature regarding the public side of GPP, secondly the experience of SMEs will be related to the literature pertaining to SMEs involvement in GPP and GSCM.

Chapter 8: Concluding remarks
Last chapter revisits the key findings of the study, relating them to the research questions presented in the introductory chapter together with the outlined research objectives. Implications for RBV and institutional theory are discussed. Managerial implications presented, as well as limitations of the study and possible avenues for future research.

1.4 Research motivation
Choice of the research problem is influenced directly by researchers' personal interest. Hereby, our own interest in sustainability stems from us being citizens of the world, directly impacted by the environmental degradation. Additionally, our motivation aligns with the worldwide efforts to reduce the environmental impact generated by business activities. As we come from two different educational backgrounds, engineering and health research, and with different prior work experiences, construction and non-governmental health sector, we found public procurement applicable within all fields. As future project managers we will work within institutional environments affected by demands from public authorities, whereby potential implications of GPP can influence the way work is done at strategic and operational levels. Since the research on GPP is nascent, we find the knowledge acquired from individuals experiencing the phenomena of GPP directly very valuable, as their perception provides the greatest source of knowledge within a complex and newly developing field.
2 Literature review

The purpose of this chapter is to provide the literature groundings with which we underpin the study regarding SMEs response to GPP. First section describes the process by which the literature search was conducted. Second section presents the regulatory setting for GPP in the EU. Third section explores the level of implementation of GPP within public and private sectors in EU member states. Fourth section presents the business case for SMEs. Fifth section uses RBV and institutional theories to provide the theoretical framework used to answer the research question, exploring the barriers and enablers faced by SMEs when engaging in GPP.

2.1 Literature search

The literature review discusses the evolution of research on Green Public Procurement (GPP) since its conception to the present state. The research explores the level of implementation of GPP within the public sector, and within the large, and small and medium enterprises (SMEs) in the private sector. The systematic literature review was aimed at peer-reviewed articles, utilising established online databases (e.g. EBSCO; Elsevier, and Google Scholar) and time parameters set between 2000 and 2014. This ensured that the review was both reliable and recent. Articles were selected from peer reviewed journals on law, procurement/purchasing, ecology, and supply chain management, as those disciplines are highly related to the researched concept. The search was conducted using multiple combinations of keywords within these fields: “purchasing”, “procurement”, “sourcing”, “green”, "sustainable", “small and medium enterprises”, “green public procurement”, and “supply chain management”. All the keywords were used to search both the abstract and the title of the papers. To further enrich this literature review, we conducted a manual search of the references of selected articles. Search criteria also included conference proceedings papers, published information from the European Commission, and relevant public entities. Articles were cross-checked for relevance by two thesis partners, thereby improving the reliability of the selected papers (Seuring & Müller, 2008, p.1701). For the purpose of this thesis approximately 80 articles of both conceptual and empirical nature were used to provide a general overview of the topic.

2.2 Institutional and regulatory setting of Green Public Procurement (GPP)

2.2.1 The role of GPP in Sustainable Development

Economic activity, which has long been the focus of regional development and research, is guided by the need for growth and improvement of the material wealth of humanity. While the growth of world Gross Domestic Product (GDP) of over 24 trillion between 1970s and 2008 has been reported (OECD, 2008, p.2), economic inequity between different regions and countries is still evident. Study of physical dimensions of global trade revealed that in the last 50 years total weight of traded goods increased by a factor of 3.5 (Dittrich & Bringezu, 2010, p.1842), whereby the material flows from producers to consumers were accompanied by even higher rates of environmental impact of traded

6
goods (Dittrich et al., 2012, p.33). Increase in the consumption therefore caused the shifting of the environmental burden from major importing countries-final consumers, to the major exporting countries-producers. Resulting environmental problems, and economic and social imbalance, were recognised as a challenge for sustainable development at the United Nations (UN) Rio Declaration on Environment and Development (United Nations, 1992). The overarching idea of sustainable development presupposes coupling of the financial wealth needs with the need to preserve limited natural resources and social cohesion. In this way the total capital of society can be estimated and taken into account for preservation for future generations (OECD, 2008, p.4).

Following the Rio Declaration, scientists, policy makers, and professionals devoted their attention to raising the awareness about negative effects of current resource use trends and approaches toward economic efficiency (Mont & Plepys, 2008, p.534). Despite the difficulty in assessing the impact of economic activities on ecosystems (OECD, 2008, p.4), Intergovernmental Panel on Climate Change (IPCC) reported that unsustainable production practises have led to unprecedented rates of increase of greenhouse gas emissions that will likely persist for centuries (Stocker et al., 2013, p.15). The legacy of resource mismanagement of previous generations may therefore jeopardize ecosystems' integrity and developmental needs of future generations. As a result, different strategies have been employed to implement technological solutions with improved environmental performance and increased resource efficiency. Furthermore, the commitment to sustainability agenda has been continuously reaffirmed on national and international levels (United Nations, 2000; United Nations, 2002; European Commission, 2004; European Commission, 2008). However, the millennium development targets for 2015, set by United Nations in 2000, have so far only partially been met. Question remains: how to steer away from the negative impact of economic activities, while improving the economic standards? For this reason, inclusive economic growth, social protection, and environmental sustainability need to be supported by political will and international collaboration for the post-2015 sustainable development agenda (United Nations Development Programme, 2014).

One possible vehicle for achievement of sustainability is public procurement (United Nations, 2002, p.17). Research suggests that sustainability goals within the procurement practises of the public sector may lead to achievement of resource-efficient economies, healthy environment, and wellbeing of society (Tukker et al., 2008; p.1222; United Nations Environment Programme, 2012, p.3). Global annual spending of Public Authorities (PAs) varies between an average of 20% of national GDP in OECD countries (United Nations Environment Programme, 2014; van Asselt et al., 2006, p.217), to an average of 19% of GDP within the European Union (EU) (European Commission, 2011, p.4), thus making PAs potentially strong market motivators. By requiring products and services which would minimise environmental degradation, and steering the private sector toward similar practises by regulation, governments could significantly contribute to sustainable development. National and local governments are therefore encouraged to become leaders in implementing GPP policies (OECD, 2002) which facilitate the synergy between economic, societal, and environmental goals (OECD, 2008, p.5; Mont & Plepys, 2008, p.536; Tukker et al., 2008, p.1220). To fully utilise the potential of GPP, it is of utmost importance to understand sustainable development as a process of change, where dissemination of knowledge and instilment of strategic perspectives between policy makers, private sectors, and individual
consumers are needed (OECD, 2008, p.71; Quist & Tukker, 2013, p.173; Sedlacek, 2013, p.83).

2.2.2 GPP policy in the European Union (EU)

Rational spending of tax-payers money is the primary objective of public procurement, which is embedded in the legal environment of every country (van Asselt et al., 2006, p.218). Furthermore, with the Treaty on the Functioning of the European Union, by which the EU is promoting a single market approach, award of public contracts in each member state is subject to interpretation according to EU law (Kunzlik, 2013, p.180; Walker & Brammer, 2009; p.129). The laws on public procurement do not specifically endorse environment protection, however PAs may incorporate measures necessary for environment and human health protection in the existing public procurement frameworks (European Commission, 2011, p.22), effectively making their procurement green.

Congruent with its commitment to sustainability agenda, EU as a signee of UN Climate Conventions established public procurement's role in raising the environmental awareness with Communication 274/2001 (European Commission, 2001). This document identified feasible initiatives PAs may undertake to reduce environmental degradation through their purchases, and presented guidelines PAs may utilise when implementing requirements for green products into the public purchasing process. These guidelines were complemented by the Integrated Product Policy (IPP) which encouraged PAs to commit to a responsible resource use principle by considering the environmental impact of products throughout their life-cycle before making a purchase (European Commission, 2003b, p.2). In 2004, these principles were operationalised in the European Commission Directive 2004/18/EC, which provided specific references to environmental preservation within public sector purchasing of goods, services, and works (European Commission, 2004). The Directive 2004/18/EC explicitly outlined the stages of contract award process and provided opportunities for inclusion of 'green' criteria throughout it. Additionally, the Directive legally binds PAs to comply with the principles of transparency, equal-treatment, non-discrimination, and mutual recognition in their purchasing, ensuing from European and international trade law (Day, 2005, p.203; European Commission, 2004, Article 2). Herein, the role of GPP was established in governments' attempt to reduce the environmental degradation through public purchases, while honouring the principles of free trade and ensuring the public funds are utilised for the good of the communities. The EU's Sustainable Development Strategy reinforced the importance of GPP by setting the target for its implementation within the Union at 50% by 2010 (Council of the European Union, 2006, p.12; Kunzlik, 2013, p.177; Nash, 2009, p.496). The target was based on the average level of GPP implementation of the best performing countries within the EU up to 2006. Germany, Sweden, Austria, and the UK included environmental criteria in over 50% of all public contracts, while Finland, the Netherlands, and Denmark had between 40% and 50% (Bouwer at al., 2006, p.8). These seven countries were thereafter labelled the "Green-7", and their performance served as benchmark for GPP adoption across other member states. The target for 2010 was reaffirmed and endorsed by the European Commission's Communication COM/2008/400, whereby the EU defined GPP 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” (European Commission, 2008a, p.4).

However, GPP is a voluntary policy, and EU member governments decide whether and to what extent to implement it, based on levels of sustainability awareness, economic development, and political goodwill (European Commission, 2011, p.4; Day, 2005, p.204). Article 16 of the Directive 2004/18/EC provides allowance for specific circumstances encountered by national authorities in member states, regarding the already established procedures for public contract awards (European Commission, 2004). European Commission additionally encouraged member states to develop National Action Plans (NAP), sustainable procurement plans tailored to their specific context, and to set targets for GPP adoption (Day, 2005, p.202; European Commission, 2003b, p.12) to assist the EU-wide implementation of GPP and support the wider agenda of sustainable development.

Following the global trends of comprehensive approaches toward sustainability (Kunzlik, 2013, p.173), in the EU environmental concerns are increasingly being balanced with promotion of social equity through market instruments such as GPP (Brammer & Walker, 2011, p.453; European Commission, 2008a, p.8; Preuss, 2009, p.220). Particularly, European 2020 strategy lists smart and inclusive growth as priorities, whereby GPP is one of the complementary instruments in its achievement (European Commission, 2010, p.8; Maziarz, 2013, p.280). However, sustainability agenda in EU is still predominantly expressed through environmental considerations (Maziarz, 2013, p.277), therefore, in this thesis, we will focus on GPP as a vehicle for achievement of environmental objectives, using the above mentioned definition by European Commission.

### 2.2.3 Legal framework for GPP

European Commission defined the contract values, over which the application of the legal framework, as defined in Directive 2004/18/EC, is mandatory, although its use is encouraged also for the purchases of lesser value (Day, 2005, p.204; Kunzlik, 2013, p.181). The threshold for procurement of works is set at 5.186.000,00 €; for supply of products at 134.000,00 €; and for procurement of services at 207.000,00 € (European Commission, 2013). Specific contexts of member states' legislation in relation to international laws, prevent the straightforward application of green criteria in public tendering (Nissinen et al., 2009, p.1845; van Asselt et al., 2006, p.221), however the PAs must follow the framework (see Figure 1) for purchases above the threshold value, within which they may voluntarily include a number of environmental criteria in any of the three phases of the public procurement process: i) Technical Specification; ii) Tender Evaluation, and iii) Contract Award.

In the initial phase, the Technical Specification, public procurers must specify the exact process of procuring, and the actual product or service which is being procured, i.e. formulate the subject matter. The process should allow for equal treatment of potential suppliers, and ensure the specification of the desired product does not discriminate potential bidders (Day, 2005, p.205; European Commission, 2011, p.22), and does not contravene the rules of free trade (van Asselt et al., 2006, p.222). Environmental criteria may be incorporated in the technical specification via performance requirements, rather than the request for 'off-the-shelf' product, which widens the scope for bidders and safeguards equal access to bids (Hettne, 2013, p.4; van Asselt et al., 2006, p.225). This
means that the focus should be on the functionality, rather than complex technical specification, for which public procurers might not have the necessary technical expertise (Maziarz, 2013, p.281; Testa et al., 2014, p.2).

In the second phase, the Tender Evaluation, criteria for selection of bidders' capabilities necessary for contract execution are developed. The criteria can be used as a way to exclude potential bidders from the process, if they do not comply with legal requirements, e.g. regular tax and social security payments, or have a proven history of professional misconduct (Day, 2005, p.206; European Commission, 2011, p.33). Potential bidders can only be excluded from the tendering process, based on environmental criteria, if their past performance repeatedly contravened environmental legislation, provided that 'environmental integrity' in this case is directly related to company's ability to execute the contract (van Asselt et al., 2006, p.226), and if PA explicitly states this exclusion criteria in the initial phase. Furthermore, qualification criteria in the case of procurement of services or works may be a requirement to demonstrate a specific environmental management capability. For evaluation purposes, EU's preference is toward Environmental Management and Audit Scheme (EMAS), however, under the rule of non-discrimination, other equivalents, such as ISO14001 should be recognised as sufficient proof of compliance (Day, 2005, p.206; van Asselt et al., 2006, p.223).

In the final phase, the Contract Award, environmental criteria can be incorporated through the definition of the basis of contract award, which can be either 'best value for money' or 'most economically advantageous offer' (MEAT). The former implies that the contract shall be awarded based on the lowest price, and does not offer any flexibility for incorporation of environmental criteria. The latter allows assigning weights to specific sub-criteria of environmental nature, if these are previously specified and published in the tender (Day, 2005, p.207; van Asselt et al., 2006, p.223). Hereby, criteria must be comparable, and objectively verifiable, and PAs are encouraged to evaluate the bid on the LCA basis, or other desirable characteristics of their choosing (European Commission, 2008a, Article 53; European Commission, 2011, p.42). During the Contract Award phase, PAs are allowed to negotiate with short-listed suppliers through the provision of Competitive Dialogue (European Commission, 2008a, Article 41), and familiarise themselves with the extent of available technologies in the market. This procedure circumvents potentially narrow technical definitions of the subject matter, and is also a way to introduce the possibility of innovation (van Asselt et al., 2006, p.226).

Figure 1 Legal framework for GPP implementation.
2.2.4 Tools that facilitate GPP implementation

In order to assist PAs in the preparation of the tenders, the European Commission developed several tools to facilitate GPP implementation (Day, 2005, p.209; Testa et al., 2012a, p.91). It is important to highlight that these tools are publically accessible also to the private sector, both to the public buyers who also wish to procure green goods or services, and to the potential suppliers who respond to the green demand.

The GPP core and comprehensive criteria are commonly developed at EU level for the sectors where PAs are significant buyers (Bouwer et al., 2006, p.26; European Commission, 2011, p.13). They represent scientifically obtained and verifiable data on environmentally preferable products, based on LCA and eco-label specifications, available for use in technical specification of desired products and services. There are at the moment available criteria for 23 different product groups, and their application across the EU promotes harmonisation of the standards and enables companies with lesser technical knowledge to equally participate in public tendering (European Commission, 2014a).

E-procurement is an efficient and transparent tool for public purchasing, which was endorsed by the Directive 2008/18 in order to facilitate the interaction among public buyers and their suppliers. This enables PAs to overcome the time constraint when dealing with large purchases, enables better decision making, and reduces the transaction-costs (Testa et al., 2012a, p.91; Walker & Brammer, 2012, p.261).

Expert knowledge on GPP is available for PAs and suppliers through national and international expert bodies (Testa et al., 2014, p.5), which assist with raising awareness about the benefits of GPP, and offer technical knowledge about many domains public purchasers must be familiarised with in order to be able to prepare and fairly evaluate the tenders (Day, 2005, p.203; International Institute for Sustainable Development, 2013). Knowledge is available also through the published guidebooks, that often contain an overview of best practises, and indicative approaches to the planning and implementation of GPP (European Commission, 2011, p.4). Additional training and workshop activities are made available at individual government levels, for in-depth education on strategic, economic, legal, and practical aspects of GPP implementation (European Commission, 2014b; Testa et al., 2014, p.5).

2.2.5 Potential benefits of GPP

GPP implementation serves as encouragement for market-wide use of technologies with lesser environmental impact, which may lead to a more sustainable buyer and supplier practises, and ultimately to a sustainable society (Nash, 2009, p.497). For governments, direct measurable benefit is the greenhouse gas and waste reduction, which can be achieved by large-scale demand of green products and services, recycling and re-use of materials (Day, 2005, p.202; Nissinen et al., 2009, p.1838; Rüdenauer et al., 2007, p.192; Testa et al., 2014, p.2). On the longer run, regardless of the general perception of greener technologies as being more expensive (Brammer & Walker, 2011, p.471; Michelsen & de Boer, 2009, p.165), governments can also save taxpayers' money by procuring energy-efficient products and ultimately saving on utility bills (European Commission, 2011, p.59).
Largest amount of public spending is done at the local level, therefore local PAs are able to create opportunities for economic development of local communities through their purchases (Thomson & Jackson, 2007, p.421). Local PAs tend to often procure under the threshold level, which enables them to be more flexible in the application of the purchasing framework and encourage local enterprises to engage in environmentally conscious behaviour, therefore bringing both environmental and social sustainability to the communities (Brammer & Walker, 2011, p.453; Preuss, 2009, p.220). Small size of local businesses may prevent them from engaging in GPP on a larger scale, however learning opportunities that present themselves through engagement in GPP supplier development programs sponsored by local PAs, may make them more competitive in their respective markets (Michelsen & de Boer, 2009, p.161).

Private sector can be incentivised by PAs' greener demand, whereby PAs' pressure on producers to conform to their desire for green products improves the market position of green products, and creates opportunities for private sector to engage in sustainable producer behaviour (Kunzlik, 2013, p.175). Furthermore, in the absence of green product alternatives, demand for environmentally responsible products may trigger innovation among the suppliers (European Commission, 2008b, p.6; Nijaki & Worrel, 2012, p.140; van Asselt et al., 2006, p.218). Hereby, the engagement of the private sector in GPP may lead to strong, knowledge-based economies able to compete globally (Day, 2005, p.209; Kunzlik, 2013, p.209; Nissinen et al., 2009, p.1838), leading to achievement of Europe's strategic goal of sustainable growth (European Commission, 2010, p.12).

2.3 Evidence of GPP uptake in the EU

2.3.1 Variability of GPP implementation in the EU

Following the development of GPP, there has been a gradual shift towards products and services with reduced environmental impact worldwide (Ho et al., 2010, p.25), exemplifying the leadership of the governments in their roles as both consumers and regulators (van Asselt et al., 2006, p.218). Comparative data on the state of public procurement in OECD countries showed that 72% of all OECD countries in 2012 had a strategy or developed policies for implementing green practises in public purchasing (OECD, 2013, p.18). Majority of these policies are preferential toward environmental purchasing, although they are sometimes used to avoid discrimination, by targeted procurement from minority or indigenous-owned businesses (Brammer & Walker, 2011, p.458; Bolton, 2008, p.2). The case of Japan, current world leader in GPP implementation, shows that mandatory government requirements and implementation of international eco-label criteria for products, yields considerable and quick results (Ho et al., 2010, p.30; Thomson & Jackson, 2007, p.452). On the European level, over 60% of PAs reported to be using some form of green criteria in the tendering process (Renda et al., 2012, p.35). However given the voluntary nature of the policies and their adaptation to each member state's existing legislation, level of implementation of GPP varies significantly, both across the member states and across product groups. Figure 2 illustrates the situation with GPP implementation across 27 EU member states in 2011. According to the number of signed public contracts which included all core green criteria, four top performing countries are Belgium, Denmark, the Netherlands and Sweden. However, overall level of implementation did not reach the desired target, because there were 12 countries performing below 20% (Renda et al., 2012, p.40; Testa
et al., 2014, p.2). Nevertheless, the implementation of GPP in EU is significant with an average of 26% of all contracts including all core green criteria (Renda et al., 2012, p.48). Additionally, an increase of 26% is evident in the number of contracts including at least one core criteria, when compared to the 2009. Variability in the results may partially be interpreted by the level of political will within member states toward GPP implementation, i.e. existence of clear strategy, specified targets for all product groups, and existence of compulsory elements in their NAPs (Renda et al., 2012, p.104). However, regardless of the central authorities' proactive efforts, there are still many implementation challenges on both national and local levels.

2.3.2 Engagement of Public Authorities (PAs) in GPP

Lack of government leadership, and support from managerial staff within PAs are found to be important barriers to GPP implementation (Kunzlik, 2013, p.179; Nijaki & Worrel, 2012, p.141; Thomson & Jackson, 2007, p.433). Norwegian survey finds that political leadership at the national government level positively influences the implementation of GPP practises also at the local municipality levels (Michelsen & de Boer, 2009, p.164). Additionally, policy analysis in the UK suggests that defined templates for GPP at the national level, as well as the government push for establishing systems to monitor GPP implementation, would lead to faster implementation of GPP among local PAs (Thomson & Jackson, 2007, p.433). However, Norwegian survey showed that many local authorities struggle with operationalization of GPP. The staff internalised the momentum for implementation, but no measurable targets were set on the senior level, and there were no clear guidelines on how to achieve proposed benefits. Without a clear government strategy, it was found that inclusion of green criteria in the tenders is primarily driven by staff's personal dedication to environmental sustainability (Testa et al., 2014, p.4), which is not sufficient to achieve market-wide benefits. This supports Renda et al. (2012, p.42) findings that EU member states which don't have well elaborated NAP tend to lag behind best performing countries in GPP implementation.
Small size of PAs entails the lack of purchasing competences which also affects the level of implementation of GPP (Testa et al., 2012a, p.93). It is argued that PAs are likely to put out more green tenders if they are larger, and have centralised purchasing department with environmental management system in place (Michelsen & de Boer, 2009, p.163). However, authorities at the local level tend to be small and geographically dispersed, preventing them to gather the necessary competences to successfully implement GPP (Kunzlik, 2013, p.178). Better collaboration might increase the professional capability of individual PAs, and enable public purchasers to decrease the total value of spending by pooling similar purchasing orders and jointly procuring green products, i.e. aggregating the demand. This aggregation of demand would be useful for PAs, but at the same time it might prevent local small suppliers to participate in GPP due to their lack of capacity to meet the volume of demand (Walker & Preuss, 2008, P.1605; Uyarra et al., 2014, p.637), thereby decreasing the implementation of GPP in the private sector.

Procedural difficulties and lack of technical knowledge might cause reluctance of PAs to adopt the necessary green practises (van Asselt et al., 2006, p.226), i.e. to translate the product requirements into performance specification. Variability of products and services being procured in the public sector entails the use of different and complex criteria in different stages of the procurement process. In the UK, it has been found that 41% of local PAs seek assistance from regional expert centres, however the provided training is focused on public purchasing process rather than technical environmental knowledge (Thomson & Jackson, 2007, p.428). Public purchasers generally lack the technical expertise to target green technologies (Day, 2005, p.205; Michelsen & de Boer, 2009, p.164), which adds to existing information barrier between the experts and purchasers (Brammer & Walker, 2011, p.467; Bratt et al., 2013, p.315). Such information barrier coupled with environmental illiteracy prevents purchasers to access and fully utilise the available tools for support and verification of green criteria (Brammer & Walker, 2011, p.466).

Cost of environmentally responsible products and services is perceived as an important barrier to GPP implementation in the public sector (Bratt et al., 2013, p.310; Michelsen & de Boer, 2009, p.165). Particularly, local PAs often have competing objectives, such as pursuit of economic, environmental, and social sustainability, which impinge on the available budget (Walker & Brammer, 2009, p.134). Given that in some countries the biggest percentage of public spending is done at the local level (Thomson & Jackson, p.421), instilling the MEAT criteria in decision making would assist in GPP implementation. Research within the local PAs in UK showed that it is possible for best practising authorities to achieve a win-win situation, i.e. reduce their costs through purchases of green products (Preuss, 2009, p.220). However, half of the authorities still perceive green technologies as more expensive and do not turn down the cheapest offer (Michelsen & de Boer, 2009, p.165). Therefore, regardless of the perceived benefits of GPP, cost differential is still the predominant criteria in supplier selection (Guenther et al., 2013, p.418).

Figure 3 shows the process of implementation of GPP, ensuing from adopted European Directives on green and public procurement, and International Trade Law. Implementation is facilitated by the existence of NAP and use of available tools that assist GPP implementation. Existence of political support and legal and technical capabilities act as enablers for GPP implementation, while their lack together with
procedural difficulties and competing objectives might hinder GPP implementation among PAs.

![Diagram of GPP implementation process]

Figure 3 Process of implementation of GPP within PAs.

2.3.3 Engagement of suppliers in GPP

2.3.3.1 Large suppliers' engagement in GPP

Suppliers within the private sector have a great potential to contribute to the objectives of GPP (Brammer & Walker, 2011, p.453; Mosgaard et al., 2013, p.138; van Asselt et al., 2013, p.218;), making it important to understand how the suppliers are able to meet the demands put forward by public purchasers. Public purchasing fair and transparent procedure and objectively verifiable criteria allow equal access to bids for all suppliers within the private sector (Tadelis, 2012, p.297), which greatly improves the possibility of suppliers' participation in GPP (Maziarz, 2013, p.283). Large companies in general have more experience in responding to GPP initiatives (Walker & Preuss, 2008, p.1604), due to increased human resource capacity and managerial time available to allocate towards practises associated with environmental regulation and GPP bidding (Mosgaard et al., 2013, p.145). However, there has been a partial response toward GPP implementation among the suppliers, because they do not perceive government commitment to GPP to be as high as suggested. Within the research on Norwegian municipalities approach to GPP, additional survey among their suppliers revealed that they are not requested to provide information on environmental performance of their products with every bid (Michelsen & de Boer, 2009, p.165). Furthermore, suppliers perceive the environmental criteria do not in all the cases influence the final evaluation of suppliers' bids during contract award phase (Michelsen & de Boer, 2009, p.16; Mosgaard et al., 2013, p.143), decreasing the incentive for their participation in GPP. In the UK private sector, suppliers that are awarded public contracts are encouraged to pass the environmental requirements down their supply chain (Preuss, 2009, p.220), however smaller businesses report administrative efforts related to GPP implementation are challenging (Michelsen & de Boer, 2009, p.427). Suppliers tend to be
environmentally focused specifically within their core business, where end-customers guide the implementation of green practises in the operations and products (Mosgaard et al., 2013, p.138), making industry sectors with significant environmental impact, such as construction and transport, more responsive to GPP. Therefore, there is a discrepancy between high focus on GPP as a market-wide instrument at the national level, and the actual impact of GPP policies within suppliers in the private sector.

Due to the limited research of GPP implementation among suppliers, we will expand our review to include complementary research on influence of environmental regulation policies on suppliers' financial and operational performance. Environmental regulation may be two-fold: direct 'command and control' policies are mandatory for all companies operating in a particular industry sector; and 'soft' policies which include voluntary agreements and environmental certification (Testa et al., 2011, p.2138). Literature on the impact of environmental policies supports the argument that such policies succeed in incentivising the private companies in both development of new, clean technologies and products, and use of readily available 'off-the-shelf' green product alternatives (Veugelers, 2012, p.1773). Findings in the Italian and Irish pharmaceuticals sector suggest that direct government regulation is a major driver of improved environmental and financial performance (Testa et al., 2012b, p.9), however also properly designed and implemented government voluntary policies are able to obtain positive results in terms of market share increase and new customers for the companies implementing them (Testa et al., 2011, p.2142). Initial costs associated with implementation of green practises are offset in the long run, which warrants their adoption (Horváthová, 2012, p.96; Ramanathan et al., 2010, p.1508). Furthermore, it was found that implementing environment management systems (EMS) leads to development of in-firm intangible resources, i.e. the know-how (Testa et al., 2012b, p.1), whereby the best performing companies might provide a stimuli for other companies within their supply chain to follow thereby creating a pool of companies sufficiently responsive to GPP (Testa et al., 2011, p.2143). Soft policies, such as GPP, when designed to be consistent over time, are key in reinforcing the mandatory regulation (Ramanathan et al., 2010, p.1555). Companies tend to respond better to environmental requirements through direct reduction of pollution and increased innovation when direct and soft policies are introduced in parallel (Veugelers, 2012, p.1777).

2.3.3.2 Small and medium enterprises' (SMEs) engagement in GPP

SMEs are normally restricted in their geographical scope, and lack of locally produced green products might constrain their production process, and prevent them from meeting the product-related criteria in public tenders. Additionally, small suppliers in the service sector are less motivated to engage in GPP because they believe they do not have high negative impact on environment (Mosgaard, 2013, p.143). It has been argued that local small suppliers may assist PAs in fostering the economic and social development of local communities (Brammer and Walker, 2011, p.470). However, PAs are legally obliged to allow equal treatment to all potential suppliers, and thereby unable to show preference towards sourcing from SMEs when implementing GPP for the purpose of procuring environmentally responsible products and services (Thomson & Jackson, p.434).

Development opportunities for SMEs are still not sufficiently utilised (Michelsen & de Boer, p.164), and a more cooperative effort between PAs and SMEs is still necessary to create a sufficient market pull. One of the forms of collaboration might be a joint
development of GPP criteria, but so far SMEs have rarely been involved in the process of criteria development, therefore their knowledge is not utilised (Bratt et al., 2013, p.314). Due to the PAs' restricted technical knowledge, they tend to request readily available green products, rather than engage in partnerships with SMEs to foster innovation. Additionally, SMEs' attitude that green products are more costly might hinder their engagement in GPP because of perceived reduction in profitability when supplying these products (Mosgaard et al., 2013, p.142). Therefore, a call for further research of SMEs-GPP relationship is widely suggested in the literature pertaining to GPP (Brammer and Walker, 2011, p.459; Maziarz, 2013, p.283; Preuss, 2009, p.220; Testa et al., 2011, p.2143).

2.4 The case for SMEs

2.4.1 Business case for SMEs

In 2012, 23 million SMEs existed within the European Union and accounted for 99% of all business, providing more than 90 million jobs and becoming the backbone of the European Union’s Initiative for Europe 2020, to achieve smart, sustainable, and inclusive business growth (European Commission, 2012). Due to their large numbers, SMEs impact on environmental degradation is significant (del Brío & Junquera, 2003, p.939; Hoskin, 2011, p.16; Pimenova & van der Vorst, 2004, p.549; Vasilenko et al., 2011, p.57). Roughly contributing to 64% of Europe’s total industrial pollution (Miller et al., 2011, p.7), SMEs have long been targeted as focal points for policy-making legislation targeting reduced environmental footprints, however only 24% were engaging in some form of environmental protection practices (ibid., p.160).

Despite alarming statistics of SMEs contribution to environmental degradation, research suggests SMEs rarely believe their operations negatively impact the environment (Pimenova & van der Vorst, 2004, p.552; Revell & Blackburn, 2007, p.416). Moreover, SMEs scepticism regarding the claims embedded within the eco-efficiency business case where energy and resource reduction lead to lower production costs and increased profitability is commonplace (Revell & Blackburn, 2007; p.416; Revell, 2007, p.412; Revell et al., 2008, p.9). On the other hand, Parker et al., (2009, p.8) suggest SMEs vary in their levels of commitment toward business performance and environmental protection, resulting in advantage driven SMEs recognizing profit increases through adoption of environmental practices. Studies empirically examining the effects of partnerships between suppliers and buyers when implementing environmental practices find that environmental collaboration does indeed lead to reduced environmental impact of these services and/or products while simultaneously accruing economic benefits for both parties (Bala et al., 2008, p.1617; Côté et al., 2008, p.1658). In this sense, empirical studies support the validity of the claims embedded within the eco-efficiency business case. In a follow up to earlier studies, Revell et al., (2008, p.9) find that SMEs in the UK are increasingly adopting green practices to reduce their company’s environmental impact.

2.4.2 SMEs in green supply chain

Given the nascent state of research examining the direct link between SMEs and GPP, and the fact that SMEs perspective on GPP implementation has been under-researched (Appolloni et al., 2014, p.9; Rizzi et al., 2014, p.3; Walker et al., 2008, p.82), calls are
made to examine how the SME - GPP relationship creates value, i.e. competitive advantage, derived from supply chain management (SCM) and green supply chain management (GSCM) literature (Rizzi et al., 2014, p.1). This study will examine the barriers and enablers SMEs face when engaging in GPP. Do SMEs understand the requirements embedded in GPP? What resources and capabilities do SMEs require to respond to tenders encompassing GPP? GPP becomes an integral part of GSCM at the point where PAs interact directly with SMEs as suppliers, or indirectly through large suppliers which in turn drive the greening of SMEs' supply chain (Appolloni et al., 2014, p.9; Miemczyk et al., 2012, p.479). The role of SMEs in the efforts of the private and public sector to green the supply chain is key as SMEs can become a bottleneck, i.e. SMEs may slow down the implementation of green initiatives within supply chains (Lee, 2008, p.186).

We will include in the literature review the barriers and enablers SMEs face when greening their supply chain, either directly due to the public sector's direct and soft policies, or indirectly when part of the supply chain of larger companies responding to the same policies. We will also include barriers and enablers SMEs face when engaging in public procurement tendering processes. We use the institutional and resource based view theories to explain the theoretical framework that guides our research. Finally, we set forth our propositions regarding the barriers and enablers SMEs might face when responding to GPP. Hereby, adopting the definition previously used by Lee & Klassen (2008, p.580), enablers are defied as factors that aid firms in adopting environmental practises. Barriers are defined as obstacles that hinder SMEs response to green demands and public purchasing. Striving for increased clarity, we will distinguish between the internal and external enablers and barriers that aid or hinder SMEs when adopting green practices, hereby being consistent with practices in extant research exploring this area (Appolloni et al., 2014, p.6; Hillary, 2004, p.565; Vasilenko et al., 2011, p.60).

2.5 Theoretical framework for SMEs engagement in GPP

2.5.1 Theoretical lenses applied in the study

2.5.1.1 Resource Based View (RBV) theory

Research has used Resource based view (RBV) as a theoretical framework from which to explain how the resource structure of large and small-medium size suppliers is used when complying with green supply management and green practices (Appolloni et al., 2014, p.9; Aragón-Correa, et al., 2008, p.91; Gavronskei et al., 2011, p.873; Lee et al., 2013, p.1756). As defined in the RBV, tangible and intangible resources include all the assets, capabilities, organizational processes, and knowledge within the firm (Barney, 1991, p.101), becoming valuable resources upon enabling the firm to implement strategies focused on improving efficiency and effectiveness (p.106). Similarly, Wernerfelt (1984, p.174) suggests these valuable and attractive resources enable firms to become first movers in new markets, e.g. government contacts. Using the basic premises advocated by RBV, it is plausible to suggest how SMEs can become first movers within GPP. Specifically, possessing valuable resources that enable SMEs to pursue innovative solutions that allow for efficiency improvements derived from the implementation of green practices may translate into first mover advantages in GPP. In
this light, Rizzi et al., (2014, p.2) suggests green SMEs have the potential to exploit new market opportunities within GPP.

Using the RBV framework, Gavronski et al., (2011, p.873) argue that external knowledge exchange, top management commitment, and environmental investments are positively associated with the development of green manufacturing capabilities and green supply management process, both positively related to supplier collaboration. While these authors focus on the development of capabilities within the large buyer, they suggest that green supply management is more complex than tradition supply management, requiring buyers to first develop a set of internal resources to then develop green manufacturing and green supply chain capabilities that allow them to foster supplier collaborations engaging their suppliers to implement green practices. Lee et al., (2013, p.1763) also find that increased collaboration between buyers and suppliers within GSCM can enhance enterprises’ competitive abilities to target continuous innovation within their products/and or services.

The proposed study also suggests the inclusion of dynamic capabilities to the RBV framework when analysing the buyer-supplier relationship and exploring the means by which GSCM practices trickle down to small and medium size supplier. Dynamic capabilities are defined as the competences and capabilities that cannot be bought (Teece & Pisano, 1994, p.541) but only developed through collaborative relationships between buyers and SME suppliers. For SMEs to develop these dynamic capabilities, extensive top management commitment to adapt, integrate, and reconfigure the resources and capabilities of the organization is required to respond to the demands imposed by the buyer in their efforts to green the supply chain.

Extant research found that supplier development programs enable SMEs to access knowledge transfer and build technical, financial, and human resource capabilities that allow for the adoption of green supply chain practices, hereby creating a unique mix of resources and capabilities that are hard to imitate and may lead to competitive advantage for both buyers and suppliers (Lee & Klassen, 2008, p.582; Walker & Preuss, 2008, p.1605; Parker et al., 2009, p.294). Given the focus on the development of valuable resources and capabilities that enable SMEs to adopt green practices as a response to buyers’ green requirements, this research will use the RBV theoretical framework as its foundation.

2.5.1.2 Institutional theory

At the national level, the adoption of the GPP framework is voluntary; however, once adopted by governments as part of their ongoing procurement process, the resulting pressures become part of the external suppliers' environment. Whether driven by regulation or by powerful buyers within suppliers' relational networks, the response to GPP implementation is accompanied by a degree of uncertainty and additional dependencies to manage (Meyer & Rowan, 1977, p.352). Institutional theory is able to provide explanations regarding the effect of external forces on organisational structure and decision-making (Clemens & Douglas, 2006, p.483), as well as the adoption of best practises from other organisations (Grob & Benn, 2014, p.13). In this sense, external forces motivated by the voluntary implementation of GPP at the national level will act on the organizational structures, decision-making, and adoption of best practices by both buyers and suppliers.
Main tenets of institutional theory include coercive, mimetic and normative mechanism existing in companies' environment, which drive them to adopt similar practices (Coffey et al, 2013, p.762; Grob & Benn, 2014, p.15; Meyer & Rowan, 1977, p.349). Coercion often takes the form of laws and policies which impinge on the efficiency of operational systems already established within companies (Meyer & Rowan, 1977, p.352). As put forward by Meyer & Rowan (p.349) the regulation inherently leads to companies adopting similar practices. To comply with the legislation, companies might implement green practices regardless of the perceived cost ineffectiveness (Guenther p.418; Mosgaard et al., 2013, p.142). As it is often argued by policy makers, GPP has great potential for innovation (Nijaki & Worrel, 2012, p.140; van Asselt et al., 2006, p.218) and can lead to strategic advantage of first movers (Rizzi et al, 2014, p.2). This may explain why SMEs choose to conform to external requirements, by adopting environmental criteria and environmental management practices to increase their competitiveness and survival chances in the market.

Another explanation for adoption of green practices might be mimetic isomorphism, defined as the modelling of organisational practices following the practices of others (Grob & Benn, p.15). Modelling may be done through the use of frameworks, agreements, or network participation. Given the identified low level of awareness about GPP (Maziarz, p.281; Testa et al., 2014, p.5), SMEs may rely on their immediate surroundings, i.e. their network, for credible experiences regarding the adoption of environmental practices (Hoevenagel et al, 2007, p.5). Hereby, through benchmarking, smaller companies within a supply chain may adopt practices from their peers, especially if they deem these practices desirable or profitable in the long run. Additionally, the similarity in the content of trainings aimed at increasing GPP awareness, delivered by professional networks and educational institutions, further contribute to companies implementing the same approaches within their organizations, hereby embodying the normative element found in institutional theory (Grob & Benn, 2014, p.16).

2.5.2 Enablers and barriers SMEs face when responding to GPP

2.5.2.1 External enablers

Tools that facilitate implementation of GPP (see chapter 2.2.4) can also be used by SMEs when adopting green practices. This section will include additional enablers found specifically within the literature on SMEs within GSCM. Research suggests collaborative relationships among SMEs, PAs, third sector, professional and industry specific sector associations prove helpful as they provide avenues for knowledge transfer and networking with different market actors and potential buyers, leading to innovative green solutions (Holt., et al., 2000, p.39; Lee & Klassen, 2008, p.582; Walker & Preuss, 2008, p.1605). Incorporating the above mentioned enablers, the study conducted by Bala et al., (2008, p.1617) exemplifies the process by which a large public buyer engaged in a major initiative with its SMEs to transform their operations into more environmentally responsible, by means of establishing ongoing relationships with suppliers, and providing training and education to increase their environmental awareness.

Governments have also established an array of options aimed at increasing the financial and human resource capabilities required by SMEs to implement environmental
practices. Extant literature finds government programs, in their efforts to promote adoption of green practices, provide SMEs with educational information regarding environmental concerns; technological and financial business advice; and to a lesser extent financial resources in the forms of tax concessions, grants, or loans (Holt., et al., 2000, p.34; Perez-Sanchez et al., 2003, p.73; Pickernell et al., 2011, p.654; Vasilenko et al., 2011, p.62; Walker & Preuss, 2008, p.1605). Increasing SMEs access to technical knowledge through employee training programs has been associated with higher levels of market innovations and adoption of green practices (Aschhoff & Sofka, 2009, p.1241; Holt., et al., 2000, p.34; Lee & Klassen, 2008, p.575; Vasilenko et al., 2011, p.64).

Addressing government funding, Lee (2008, p.193) finds that the greater the government involvement in support programs for SMEs, the greater their likelihood to participate in green initiatives. In a more recent study exploring financial enablers available to SMEs in Germany, Sweden, and Finland, Vasilenko et al., (2011, p.62) suggest that financial support from the government can be used by SMEs to access the required know how or technological resources required when adopting green practices. However, research examining the efficacy of financial support in increasing the likelihood of SMEs to participate and develop innovative green solutions is inconclusive (Aschhoff & Sofka, 2009, p.1241; Parker et al., 2009, p.292; Pickernell et al., 2011, p.654). Contrary to Lee (2008) and Vasilenko et al., (2011), Aschhoff and Sofka (2009, p.1241) find that direct public funding is not effectively supporting innovation among SMEs. A plausible explanation is the difference in context; Lee et al.'s (2008, p.193) study being conducted in South Korea, and Aschhoff and Sofka's (2009, p.1241) in Germany. Furthermore, financial support can be seen as a temporary measure only (Parker et al., 2009, p.292). In this sense, SMEs may revert back to old practices once the financial incentive is removed.

Winning of long term public contracts enables SMEs to accept large initial investments required to adopt green practices. Aschhoff and Sofka (2009, p.1244) find that SMEs holding long term public contracts are more likely to invest in green practices as immediate, reliable, and ongoing sales for the government are guaranteed. Similarly, Walker and Preuss (2008, p.1605) find that procurement departments of local authorities can support environmentally responsible efforts of SMEs through collaborating and sourcing, knowledge sharing, and promoting organizational networks among SMEs. Additional government efforts to increase the response of SMEs to public procurement and green practices is the use of one web portal where all procurement opportunities are published (Zheng et al., 2006, p.9). Having centralized calls for public tenders, as in public e-procurement, enables SMEs easier access to required bidding information.

2.5.2.2 Internal enablers

Internal enablers refer to the resources and capabilities internal to the firm that increase the likelihood of SMEs adopting environmental practices. SMEs that have a culture of innovation, high technological development, established e-procurement and quality systems are more likely to participate in public procurement and engage in environmental management (Perez et al., 2003, p.75; Pickernell et al., 2011, p.653). Previous studies suggest that managers' predisposition, mainly active commitment from senior management to invest required time and financial resources, coupled with employee involvement results in increased likelihood of SMEs adopting green practices.
Environmental awareness, technological slack, and availability of financial and human resources within the organization have also been found to be significant and positively related to the willingness/ability of SMEs to adopt environmental initiatives, being motivated by either direct buyers or legislation compliance (Lee, 2008, p.195; Vasilenko et al., 2011, p.63). Specific organizational characteristics such as closer staff interaction, commitment to founder’s vision, stakeholder management practise, and strategic vision have been found to be associated with increased adoption of green practices among SMEs (Aragón-Correa et al., 2008, p.98). In this sense, research suggests that SMEs can adopt small scale environmentally responsible practices that when applied systematically and continuously lead to reduced environmental impacts and costs. Aragón-Correa et al., (2008, p.98) suggest that a strategic plan with clear environmental objectives, where the mix of unique characteristics and capabilities facilitates the process of adopting green practices, overcomes barriers of size or lack of resources.

Table 1 summarises the potential enablers of SMEs when responding to GPP. Enablers are derived from the literature on SMEs engagement in GPP (see 2.3.3.2), literature on SMEs engagement public tendering process, and literature on SMEs engagement in greening their supply chain. Given the premises embedded within the institutional and RBV theories, we expect the same enablers found within green supply chain and public procurement (PP), to be applicable to the context of SMEs engagement in GPP.

<table>
<thead>
<tr>
<th>EXTERNAL ENABLERS</th>
<th>PP</th>
<th>SCM</th>
<th>GPP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborative relationships</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Knowledge transfer programs (trainings &amp; feedback)</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Financial support</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Technological business advice</td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Long term contracts</td>
<td>N/A</td>
<td>x</td>
<td>N/A</td>
</tr>
<tr>
<td>Centralised e-procurement</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERNAL ENABLERS</th>
<th>PP</th>
<th>SCM</th>
<th>GPP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management championing of environment</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Employee personal commitment</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Strategic proactivity toward environment</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Technological, financial and human resources slack</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Table 1 Potential enablers for SMEs engagement in GPP.

### 2.5.2.3 External barriers

External barriers affecting SMEs tend to be associated with the manner in which public procurement is undertaken and SMEs lack of knowledge about the public procurement process. PAs' underlying preference for cost differentials over MEAT result in decisions favouring larger suppliers. This hampers the ability of SMEs to compete for public contracts as they are not able to command lower prices when compared to large
suppliers (del Brio & Junquera, 2003, p.946; Loader, 2011, p.292). Furthermore, SMEs in highly competitive environments, such as the construction sector, are less likely to engage in green practices (Revell & Blackburn, 2007, p.410). Research suggests that adopting green practices leads to higher costs which translate into higher prices. In contrast to the literature on large suppliers (Horvathova 2004, p.96; Ramanathan et al, p.1508; Testa et al., 2011, p.2142), SMEs are not able to overcome the cost burden associated with the adoption of green practices, affecting SMEs profitability when buyers are cost sensitive (Loader, 2011, p.292).

Additional barriers hindering compliance with green demands include suppliers’ lack of trust regarding the buyer-supplier relationship, and their beliefs regarding the lack of legitimacy behind environmental concerns of large buyers (Walker et al., 2008, p.80). In this sense, Walker et al. (2008, p.80) find SMEs are fearful of exposing poor environmental performance. It is plausible to suggest that SMEs are reluctant to disclose environmental compliance data in fear of losing customers.

Extant research often finds favouring of large value contracts is another barrier that inhibits SMEs ability to supply public buyer needs. Breaking down the demand to smaller contracts results in SMEs facing less risk when investing in innovative green solutions, therefore they are more likely to respond to such demand (Bala et al., 2008, p.1617; Zheng et al., 2006, p.11). PAs aggregating their demand to maximize their purchasing power and increase their leverage over suppliers is counterintuitive to government’s claim of using public procurement to foster increased adoption of environmental practices by SMEs (Walker & Preuss, 2008, p.1605; Uyarra et al., 2014, p.637; Zheng et al., 2006, p.7). From the SMEs’ standpoint, the pre-qualification requirements within public procurement and the lack of useful feedback from PAs after participating in public tenders account for additional barriers for successful biddings (Uyarra et al., 2014, p.640). The aggregation of demand coupled with the complexity of public tendering may reduce the likelihood of SMEs partaking in public contracts, limiting the possibility of promoting greater adoption of green practices. The lesser the participation of SMEs in public contracts, the less able they are to learn through their organizational experience which environmental practices they can adopt. Del Brio and Junquera (2008, p.945) refer to this as the learning curve of SMEs in regards to their environmental awareness.

2.5.2.4 Internal barriers

Increasing costs and lack of time are the most cited reasons against adopting greener initiatives (Côté et al., 2008, p.1569; Pimenova & van der Vorst, 2004, p.553; Revell et al., 2008, p.10; Worthington & Patton, 2005; p.205). Research shows limited financial, technical, and human resource capabilities were widely recorded as barriers for increased environmental awareness and implementation of green practices. SMEs struggle with allocating human and financial resources to practices such as waste management, reuse, recycling, and environmental monitoring that fall outside their main businesses of the company (Côté et al., 2008, p.1569; del Brio & Junquera, 2003, p.943; Gadenne et. al., 2008, p.58; Lee & Klassen, 2008, p.582). In this sense, competing demands between environmental practices and operations as usual favor the allocation of limited financial and human resources to the latter.

Moreover, SMEs that perceived adoption of green practices as costly claimed these expenditures limited the financial resources of the company leading to a competitive
disadvantage (Parker et al., 2009; p.289; Worthington & Patton, 2005, p.208). Perceptions of rising product prices resulting from initial investments required for green products in addition to higher prices of green raw materials is seen as a barrier for implementing more sound environmental practices (Bala et al., 2008, p.1617). While some studies report increased willingness of SMEs to adopt environmental practices (Pimenova & van der Vorst, 2004, p.552; Revell et al., 2008, p.12), Bala et al.’s, (2008, p.1616) case study finds SMEs to have a neutral or in an extreme case a hostile attitude toward adopting green practices. In their studies, authors find that one of three SMEs refused to comply with green practices claiming resulting solutions were more expensive when compared to their current products. In other words, suppliers perceived that using green products within their inputs increased total costs which proved disadvantageous vis-a-vis their competitors.

In regards to lack of human resource capabilities, del Brío & Junquera (2003, p.943) find that low level of environmental awareness among employees and limited availability of environmental trainings translated into decreased likelihood of adoption of green practices. At the organizational level, SME attitude toward the environment also affects their likelihood of becoming environmentally responsible.

Table 2 summarises the potential barriers of SMEs when responding to GPP. Barriers are derived from the literature on SMEs engagement in GPP (see chapter 2.3.3.2), literature on SMEs engagement public tendering process, and literature on SMEs engagement in greening their supply chain. Given the premises embedded within the institutional and RBV theories, we expect the same barriers found within SCM and PP, to be applicable to the context of SMEs engagement in GPP.

<table>
<thead>
<tr>
<th>EXTERNAL BARRIERS</th>
<th>PP</th>
<th>SCM</th>
<th>GPP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of knowledge about tendering process</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aggregation of demand</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Cost sensitivity of buyers</td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Lack of trust</td>
<td></td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERNAL BARRIERS</th>
<th>PP</th>
<th>SCM</th>
<th>GPP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Lack of technical knowledge</td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Lack of top management support &amp; time</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Ambivalent org. attitude toward the environment</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Low levels of environmental awareness</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Table 2 Potential barriers for SMEs engagement in GPP.

2.5.3 Theoretical framework

The literature review discusses the present state of research on GPP, and particularly the level of implementation of GPP in public and private sectors within the EU. Extending the review on SMEs involvement in GPP, the literature review explores the relationship of SMEs as direct suppliers of PAs and as indirect suppliers when part of a greater supply chain, which ultimately conforms to green requirements of GPP.

Figure 4 summarises the process of implementation of GPP, starting from the formulation of demand by PAs, where tools developed to assist them in preparing the legal tenders might help them overcome the potential barriers to GPP implementation. GPP legal framework presents the point where PAs directly interact with potential
suppliers, which is constrained by international Trade Law and European Directives pertaining to public purchasing of green supply. Exact steps of procurement process have to be followed, while the extent of green criteria used in the tenders depends on PAs voluntary level of implementation of GPP. Therefore, the level of implementation of GPP in the market depends on PAs ability to clearly convey the environmental requirements within their purchases, and the GPP criteria by which the suppliers are being evaluated, which affects the suppliers’ ability to respond to the same. This corresponds directly to research objective 1, investigating the enablers and barriers PAs face as they formulate the demand for green products and services, embedded in GPP. Hereby, we presuppose that the ability of PAs to clearly convey the green requirements to SMEs directly influences the latters’ understanding and level of engagement in GPP.

RBV and institutional theories are used to extend the limited research by focusing on the barriers and enablers relevant for supply chains, which affect the likelihood of SMEs to respond to the green requirements embedded within GPP. Lack of financial, technical and human resources of SMEs reduces their ability to respond to GPP. Using RBV theory, inter-organizational knowledge transfer exemplifies how SMEs develop internal dynamic capabilities through their supply chains. Collaborative relationships among SMEs, PAs, and other large, small, and medium size suppliers provide avenues through which SMEs build capacity and experience to overcome barriers, and become more competitive when bidding for GPP contracts. Management’s proactivity is essential when fostering dynamic capabilities. When applied in the context of SMEs response to GPP, management’s strategic proactivity toward adopting green practices directly influences the extent to which these are adopted, in turn directly influencing the organization’s ability to bid for GPP. Similarly, high management proactivity of SMEs to adopt green practices can also lead to SMEs transferring to their suppliers the requirements for green products/services. Herein, the premises of institutional theory allow for an explanation of widespread similar practises within the supply chain. The requirement to comply with legal conditions of the GPP framework may cause companies within the supply chain to exhibit similar behaviour and develop similar competences. Additionally, collaborative relationships and transfer of knowledge would influence the uniform level of the adoption of green practices not only among direct suppliers but also within the suppliers of their supplier, ultimately causing a snowball effect of green practices among companies.
Figure 4 Theoretical framework for implementation of GPP through the relationship between PAs and SMEs.
3 Context of the study

The United Kingdom (UK) has been recognised as one of the countries in the EU outperforming the majority of member states in the level of implementation of GPP (Bouwer et al., 2006, p.1; Renda et al., 2012, p.34). In the UK, government procurement priorities are strongly associated with the delivery of wider sustainable development objectives by simultaneously pursuing strategic sustainable procurement plans both at the national and individual government levels. (Steurer et al., 2007, p.29). Devolution of power in 1998 (UK Government, 2013) allowed individual governments of Scotland, Wales and Northern Ireland to set their own priorities and design individual approaches for GPP implementation (Thomson & Jackson, 2007, p.426). Following the Review of Public Procurement in Scotland report (McClelland, 2006) the Public Procurement Reform Board was formed in Scotland with the aim to increase the level of collaboration among PAs and support the changes toward economic, social, and environmentally inclusive public procurement (The Scottish Government, 2014a). In June 2014, the Procurement Reform (Scotland) Act (UK Government, 2014) was introduced as the third stage of Scottish Sustainable Procurement Action Plan (SSPAP) and the main outcome of the reform (The Scottish Government, 2014b), promoting a 'Scottish model of procurement' strongly based on cost, quality, and sustainability (The Scottish Government, 2013). At the moment, Scotland is undertaking the phase three of the reform whereby emphasis is placed on green initiatives, social inclusion, and improving private companies' access to public contracts (The Scottish Government, 2014a).

The Scottish Environmental Protection Agency (SEPA) as a non-departmental government body, which promotes sustainable environmental policies at the national level, provides guidance to businesses on how to increase the efficient and sustainable use of resources, and regulates the implementation of environmental directives (SEPA 2014a). As a regulatory institution, SEPA fosters innovative partnerships with businesses and organizations to share knowledge regarding the most up to date green practices that lead to cost savings and reduced environmental impact. Having established working relationships with the government enables SEPA to play an active role in the development of environmental policies and regulatory frameworks. Holding itself accountable to the highest standards, SEPA is proactive in reducing its environmental footprint through implementation of sustainable procurement, reduction of greenhouse gas emissions, adoption of low carbon technologies and waste reduction practises. (SEPA, 2012, p.33). Relevant to this case study is SEPA’s active commitment toward implementing sustainable procurement (ibid). Cognizant of the potential to reduce environmental impact through its procurement strategy, SEPA has set targets by which 25% of all products purchased in 2017 will meet the organisation's green criteria. Target products/services for which green criteria is currently applicable include: waste management services, low carbon vehicles, building refurbishment, office supplies, renewable energy consumption, and use of timber products. Additionally, SEPA’s support for the government’s SSPAP results in the organization’s commitment to establish supplier development programs that enable these businesses to adopt more sustainable practices (The Scottish Government, 2009).

Promoting the adoption of GPP and particularly improving the SMEs involvement in public procurement is at the core of the SSPAP. Given the SMEs' share in the number of private businesses in Scotland they may strongly influence the level GPP
implementation in the market. In March 2014, SMEs accounted for 99.3% of all private sector enterprises operating in Scotland, delivering 37.9% of the total private sector turnover (The Scottish Government, 2014c). Of these 335,015 companies, 98.2% were small; 1.1% were medium size; 0.7% were large. Table 3 summarises the UK Government classification of the SMEs. SMEs provide approximately 1.1 million jobs, equivalent to 54.8% of employment within the private sector. In regards to partaking in public spending, 68% of awarded public contracts in 2012 were given to SMEs (BBC, 2013). This suggests a 12% increase since 2010 (ibid).

<table>
<thead>
<tr>
<th>Size of SME</th>
<th>Number of employees</th>
<th># of companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>0-49 employees</td>
<td>328,940</td>
</tr>
<tr>
<td>Medium</td>
<td>59 -249 employees</td>
<td>3780</td>
</tr>
<tr>
<td>Large</td>
<td>250+ employees</td>
<td>2295</td>
</tr>
</tbody>
</table>

Table 3 Classification of the SMEs in Scotland.

Since the establishment of the Scottish Government’s Economic Recovery Programme in 2009, proactive steps have been taken to promote greater inclusion of SMEs in public contracting: improve working relationships with suppliers, set up of an online procurement portal, revise contract award procedures to remove undue burden on suppliers, and monitor the spending with SMEs (The Scottish Government, 2009). As such, SEPA has responded to government calls to become more inclusive of SMEs in their calls for public tendering, through the use of online procurement portals. SEPA's commitment towards environment protection and sustainable procurement practises, exemplified by the existence of environmental policy, sustainable procurement strategy and targets for inclusion of green criteria in GPP tendering, may influence their ability to convey the requirements embedded in GPP through green criteria. Furthermore, the advanced regulatory environment in Scotland, and the advanced level of GPP implementation on the UK level provide excellent grounds for exploring the potential barriers and enablers SMEs might face when responding to the government initiative for GPP. In this setting we might expect greater awareness of environmental objectives embedded in public procurement among SMEs directly involved in tendering for SEPA. Therefore the context serves as a potential source of in-depth knowledge regarding the challenges SMEs face when responding to GPP requirements. Understanding of barriers/enablers which SMEs face when responding to GPP requirements in a context where the awareness and knowledge about GPP is high might indicate the minimum barriers that might be expected among other SMEs. However, the same cannot be expected in regards to enablers. Additionally, improving the understanding of the factors that enable or hinder SMEs in their participation in GPP might assist SEPA and other PAs in improving their practises and realising the government sustainability objectives.
4 Methodology

In this chapter, the philosophical and methodological stances which underpin this study are discussed. First section presents the overview of ontology and epistemology employed by the researchers, which provide the background guiding the choice of research methods. Second section presents the supporting arguments for chosen research strategy and approach. Additionally potential limitations of research strategy are discussed.

4.1 Philosophical stance

Any research is preceded by over-arching questions about the nature of reality, and the nature of the relationship between what can be known of that reality and the researcher, which are represented through a set of beliefs the researcher holds about the world (Guba & Lincoln, 1994, p.108; Saunders et al., 2009, p.108). Ontology questions whether the reality of the social world can be considered objective and external, beyond the influence of individuals, or subjective and established through interaction and interpretations of individuals inhabiting it (Long et al., 2000, p.190; Saunders et al., 2009, p.110). Epistemology questions what the appropriate way of developing and disseminating the knowledge about the reality is (Long et al., 2000, p.190; Saunders et al., 2009, p.112). Therefore, epistemology should be complementary to the ontological view of the world.

Ontological and epistemological distinction is not straightforward (Long et al., 2000, p.190), but rather the ideological perspectives of the researchers may be presented on a continuum between the two ontological extremes, objectivism and subjectivism (Morgan & Smircich, 1980, p.492). Saunders et al. (2009, p.119) and Guba & Lincoln (1994, p.109) summarise the continuum of alternative philosophical perspectives into three main categories: positivism, realism, and interpretivism. Table 4 presents the summary of main characteristics of these philosophies.

<table>
<thead>
<tr>
<th>Interpretivism</th>
<th>Realism</th>
<th>Positivism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjectivist ontology: Natural and social world cannot be presented with the same model. Reality is contextual, socially constructed and changing.</td>
<td>Objectivist ontology: reality is external to social actors, and observable. Reality does not constitute solely of material entities.</td>
<td>Objectivist ontology: reality is mind-independent, external to social actors, and apprehensible. Natural science model is applicable to social sciences.</td>
</tr>
<tr>
<td>Interpretivist epistemology: Reality is known through individuals’ interpretation of subjective meaning, which depends on the details of the situation.</td>
<td>Relativist epistemology: Observable phenomena provide credible, but imperfect data due to inaccuracies in sensations. Knowledge is value-mediated.</td>
<td>Empiricist epistemology: observable phenomena, i.e. data, facts, constitute true findings. Observable corresponds to reality.</td>
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</tbody>
</table>

Table 4 Summary of main research philosophies (adapted from Saunders et. al, 2009, p.119 and Guba & Lincoln, 1994, p.109).

Methodological implications for research follow from the assumptions embedded within different philosophies (Morgan & Smircich, 1980, p.497). However, Long et al. (2000, p.190) argue that it is difficult to fit the researchers’ assumptions neatly in the provided categories, and often research can be informed by different philosophical perspectives. Within realism, critical realist philosophy is permeable to influence from a variety of
perspectives akin to positivism and interpretivism. Hereby similarly to positivism, the existence of the reality external to the social actors is acknowledged, however this reality coexists with the unobservable social constructs which are consequences of human action (Bhaskar, 2008, p.60; Sousa, 2010, p.473). Critical realism presupposes a layered, relational view of the world, where social actors experience only a part of the actual events occurring in the real world (Bhaskar, 2008, p.67; Easton 2010, p.128; Smith, 2006, p.201; Sousa, 2010, p.482). Entities which exist within the real world are defined by structures, i.e. properties that make them unique and give them the capacity to act in a particular way, termed causal powers (Archer et al., 1998, p.xiii; Bhaskar, 2008, p.66). The aim of critical realism is to uncover the causality behind these structures (Bhaskar, 2008, p.66), whereby the single occurrence of the event does not limit the structure's causal power (ibid, p.68). This allows researchers to investigate the unique relationships between structures and make inferences without relying on statistical significance (Easton, 2010, p.119; Ryan et al., 2012, p.305). Hereby, some structures emerge as a result of relationship between other structures, and are irreducible to the original components (Smith, 2006, p.201; Sousa, 2010, p.476). This view equally applies to the individuals, social structures, and the observable reality (Smith, 2006, p.202). Therefore, relationships and practises resulting from the behaviour of the participant organisations and individuals (e.g. interpersonal relations, knowledge transfer, and commercial contracts) can also be conceptualised as structures with causal implications (Adamides et al., 2012, p.909; Ryan et al., 2012, p.303). Critical realist view of reality is therefore applicable in the context of GPP, where the observable reality corresponds to measurable environmental impacts of green products, while the personal values shaping individual's behaviour within green supply chains present the socially constructed, unobservable reality (Lang et al., 2012, p.27).

Congruent with the critical realism's layered ontological view is the relativistic epistemic stance, which purports that the knowledge about the world can only be arrived at through the interpretations of the social actors experiencing the events (Ryan et al., 2012, p.304; Sousa, 2010, p.481). Hereby critical realism accepts that experiences and knowledge can be misinterpreted and ascribes to tentative description of the world rather than maintaining that only what is observable constitutes reality (Adamides et al., 2012, p.910; Ryan et al., 2012, p.305). Fallibility of knowledge does not prevent the researcher from striving for the truth through judgemental rationality, whereby rational explanation and argumentation of the findings help generate the most accurate representation of the real world (Easton, 2010, p.124; Platenkamp & Botterill, 2013, p.112; Smith, 2006, p.200). Additionally, the individuals' understanding of events is constrained by the initial meaning they ascribe to phenomena and events (Easton, 2010, p.120; Adamides et al., 2012, p.913), and the social context where construing of the social world takes place (Archer et al., 1998, p.xii; Sousa, 2010, p.490). Hereby, the human agency and enduring structures are important mechanisms in transforming and maintaining business relationships (Ryan et al., 2012, p.303). Therefore critical realist epistemology accepts that knowledge of the business relationships is influenced by individuals' action, practises and language (Smith, 2006, p.202; Ryan et al., 2012, p.304). Hereby, business relationships can change over time through learning, process and practise improvements (Ryan et al., 2012, p.303). Applying critical realist philosophy within the study of GPP, we acknowledge that human activity and personal beliefs impinge on the relationships between SMEs and PAs and directly influence the development of green practises within the supply chain. Hereby, researchers' own preconceptions and values influence the way reality is interpreted (Easton, 2010, p.124), therefore we are cognizant of our interpretive role and make effort to remain objective.
Critical realist perspective allows us to treat the reality as partially socially constructed (Bhaskar, 2008, p.60; Easton, 2010, p.122; Sousa, 2010, p.473) and employ an interpretative stance within the investigation of individuals' perspective on GPP implementation among the SMEs.

4.2 Methodological stance

4.2.1 Qualitative research methodology

Main distinction is made between two clusters of research methodologies: quantitative and qualitative. This distinction justifies the different methods and issues associated with the practise of conducting the research (Bryman and Bell, 2003, p.25), although Denzin & Lincoln (2003, p.31) contend that "no single method can grasp all the subtle variations in ongoing human experience".

In quantitative research, emphasis is placed on the objectivist view of reality and applicability of the natural science model for social sciences (Bryman & Bell, 2003, p.68). It is mostly associated with the deductive mode of reasoning, i.e. formulation of hypotheses from what is already known in the theory (Saunders et al., 2009, p.124) and measurement and rigorous testing of the identified variables (Bryman & Bell, 2003, p.69; Denzin & Lincoln, 2003, p.13). This approach entails the collection and analysis of numerical data (Bryman & Bell, 2003, p.68) and concern with making probabilistic generalisations on the basis of representative and random cases (Denzin & Lincoln, 2003, p.16). Therefore, quantitative research seldom studies individuals' perspective within the context of daily life (ibid.), but rather its proponents assert their value-free orientation which enables them to abstract the findings directly from the social world through remote inferential techniques (Morgan & Smircich, 1980, p.498).

When moving along the continuum of philosophical perspectives, the relevance of qualitative approach increases with parting from the positivistic view of the world toward a more interpretivist stance (Morgan & Smircich, 1980, p.498). Qualitative research relies on the interpretation of the meaning social actors attach to the phenomena in the world (Bryman & Bell, 2003, p.25). Therefore, the researchers' role is to filter the individuals' verbal and written representation of the complexity of the social world through the lenses of his/her own preconceptions and values (Denzin & Lincoln, 2003, p.31). Emphasis is placed on words rather than quantifiable data (Bryman & Bell, 2003, p.279), and on the researchers own orientation toward the object of the research, as a part of the social world (ibid, p.25; Long et al., 2000, p.191). Qualitative methodology hereby allows direct immersion of the researcher in the particular context (Morgan and Smircich, 1980, p.498) and the adoption of the perspectives of individual actors studied (Denzin & Lincoln, 2003, p.30). Furthermore, qualitative approach stresses the necessity of viewing the social world as a process unfolding through time (Bryman & Bell, 2003, p.296; Denzin & Lincoln, 2003, p.16) within which the researcher interacts with its participants (Creswell, 2007, p.37). To better understand the object of the research, the researcher is encouraged to collect and study a variety of empirical evidence and employ multiple perspectives during the research process (Guba & Lincoln, 1994, p.110) in order to obtain a richer picture of the research object, add rigour to the research, and improve the understanding of the situation (Denzin & Lincoln, 2003, p.8).
Qualitative approach does not side with a particular discipline or advocate a particular set of techniques to be precisely employed in the research (Denzin & Lincoln, 2003, p.10; Morgan & Smircich, 1980, p.498). However, the accent on process and the preference for narratives about individuals' perception and experience blend well with the critical realist philosophy (Ryan et al., 2012, p.305). In line with this, adopting a qualitative methodological stance enables us to utilise the exploratory and explanatory potential of critical realist research (Adamides et al., 2012, p.925; Ryan et al., 2012, p.306; Sousa, 2010, p.494) when investigating the SMEs rationale for implementing GPP and the potential barriers and enablers they face during the process. Individuals' perception of the development of green practises obtained through interviews and the analysis of the companies' relevant policies and communication add to the richness of study and understanding of the process of GPP implementation. Although qualitative research is sometimes criticised because of the close relationship between the researcher and the object of the research (Bryman & Bell, 2003, p.300; Denzin & Lincoln, 2003, p.16), throughout this study efforts are made to provide detailed description of the research process and to maintain objectivity in selection of the case and respondents, as well as during the interpretation of the data.

4.2.2 Research strategy

Choice of research strategy is guided by its applicability to the proposed research question, namely by its ability to provide the information which helps answer the question and leads to accomplishment of the research objectives (Denzin & Lincoln, 2003, p.36; Saunders et al., 2009, p.141). Creswell (2007, p.9) offers a synthesis of the scholarly literature on types of qualitative research strategies, where he identifies narrative research, phenomenology, grounded theory, ethnography, and case study as five distinctive, rigorous and systematic inquiry procedures. The overview of their main characteristics is presented in Table 5.

<table>
<thead>
<tr>
<th>FOCUS</th>
<th>Narrative research</th>
<th>Phenomenology</th>
<th>Grounded theory</th>
<th>Ethnography</th>
<th>Case study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life of an individual</td>
<td>Essence of experienced phenomenon</td>
<td>Theory derived from individuals' experience</td>
<td>Description of a culture-sharing group</td>
<td>In-depth description of an issue within a bounded system</td>
<td></td>
</tr>
<tr>
<td>Chronological report/story of individual's experience</td>
<td>Interpretation of the lived experience of a phenomenon</td>
<td>Developing theory suitable for participants</td>
<td>Determining the workings of a culture (values, beliefs)</td>
<td>Providing an in-depth understanding of a particular issue</td>
<td></td>
</tr>
</tbody>
</table>

Table 5 Main characteristics of qualitative research strategies (adapted from Creswell, 2007, pp.53-81).

Choice of the strategy encompasses practises and skills that bridge researcher's assumptions with data collection and analysis (Denzin and Lincoln, 1994, p.14), and facilitates the choice of the sites and respondents (Denzin and Lincoln, 2003, p.36). Additional to the research question posed, the particular advantages or disadvantages of each strategy are dependent also on the level of the control the researcher can impose on the events investigated, and the focus on the present or the historical context of the events (Yin, 2003, p.1).

This study employs the case study strategy. Case studies are advocated research strategies particularly when in-depth understanding of the real-time events and their context is required; when the events are outside researcher's control; and the purpose of the study is to answer the 'how', 'what' or 'why' questions (Saunders et al., 2009, p.146;
Qualitative case studies focus on the specific complex phenomenon, a bounded system (Creswell, 2007, p.73), using the literal description of contextual events enclosing it to achieve a comprehensive understanding of the phenomenon (ibid., Merriam, 1988, p.12). The qualitative case might examine a person, social group, an event, an institution or a process (Bryman & Bell, 2003, pp.53-54; Merriam, 1988, pp.9-10). Regardless of the case, the researchers strive for elucidation of the expected patterns of behaviour, and the discovery of the unexpected (ibid., p.10; Stake, 1995; p.41). Rather than being experimental and focused on the outcome, the qualitative case study focuses on processual elaboration of the phenomena (Merriam, 1988, p.xii). Using case study strategy is applicable for exploring the complexity of the supply chain (Adamides et al., 2012, p.908) within GPP implementation among SMEs. Cultural aspects of the internal and external organisational context contribute to understanding of the phenomenon (ibid., p.911), which is one of the reasons why case-based research is widespread and proliferate in business and management studies (Bryman & Bell, 2003, p.53; Gumesson, 2000, p.83).

4.2.2.1 Defining the case study

This study explores the relationship between SEPA and its SME suppliers in the context of GPP implementation; therefore it can be classified as a single case study (Saunders et al., 2009, p.146; Yin, 2003, p.14). From the critical realists' perspective, case study of single or small number of organisations offers an opportunity to investigate the complexity of relationships and factors of relatively clearly bounded inter-organisational network (Easton, 2010, p.123). This view complements Adamides et al.'s (2012, p.205) point about the necessity of explaining the contextual uniqueness of green supply chains. Additionally, smaller case studies might provide a detailed view of the perception of market actors who are directly involved in the real-world of environmental-regulation effects (Testa et al., 2012b, p.3). For this purpose, embedded single-case study design was chosen, as opposed to the holistic design (Saunders et al., 2009, p.146; Yin, 2003, p.43). While holistic design of case study examines an organisation as a whole (Saunders et al., 2009, p.147) the embedded design of case study allows us to be attentive of the perspective of the procurement department of SEPA.

Stake (2003, p.136) distinguishes between a collective, intrinsic and instrumental case studies. Collective study corresponds to multiple-case study whereby more than one case is examined (Saunders et al., 2009, p.146; Yin, 2003, p.14). Intrinsic study is undertaken because of the researcher's personal interest in the particular phenomena (e.g. a particular organisation, or department) (Creswell, 2007, p.74; Stake, 1995, p.3; Stake, 2003, p.136). The instrumental study is utilised to improve the understanding of the external issue (e.g. GPP implementation) present in the case (e.g. relationship between a PA and its suppliers) (Stake, 1995, p.3; Stake, 2003, p.137). Our aim is to understand the process by which SMEs respond to requirements set forth by PA, where the case is the mean to understand the phenomenon of GPP, therefore this study can be labelled as instrumental.

According to Yin (2003, p.15) and Merriam (1988, p.29) case studies offer the researcher the ability to explain, describe, and explore the phenomena of interest. According to the proponents of this classification, improving the understanding of 'how' SMEs respond to GPP initiative would qualify this study as an exploratory one. Within the phenomena of GPP, it is vital to explore the engagement from both the PA and
SMEs' side, in order to examine how green requirements are translated from the PA to the SMEs. However, within the scope of the study we also aim to gain insight into the underlying reasons 'why' the SMEs respond to GPP initiative, as well as how well they are able to overcome the obstacles associated with the process, whereby this study partially fits with the explanatory type (Yin, 2003, p.6). Our intent is not to test hypotheses, but illustrate the theoretical assumptions derived from prior research on GPP and SCM with the findings from this study.

4.2.2.2 Limitations of case study research strategy

Case study research is often criticised for being anecdotal, biased, and inferior to research strategies based on more generalizable empirical evidence and statistical methods (Easton, 2010, p.126; Gumesson, 2000, p.87; Yin, 2003, p.10). First, criticism is aimed at the flexible case study design which allows emerging findings to shape the outcome of the research (Lukka & Kasanen, 1995, p.76), preventing the researchers to follow rigorous, systematic procedures (Yin, 2009, p.10). This limitation might not convince sceptical readers of the relevance of their conclusions (Siggelkow, 2007, p.20). Second, as majority of case studies are based on a one-point-in-time inquiry, regardless of the lengthy description, they are not an accurate presentation of the phenomena but merely offer a 'snapshot' of the whole (Stake, 1995, p.46) thereby offering little basis for statistical generalisation (Yin, 2009, p.10; Easton, 2010, p.119). Third, frequent limitation includes the lengthy and difficult task of analysing the massive data collected from documents and personal communication, requiring skilful interpretation and valuation of the research (Stake, 1995, p.45; Yin, 2003, p.11).

However, design flexibility also serves as an advantage, allowing the researchers to better address 'how' and 'why' questions by recognising the complexity embedded within a real life context, which cannot be controlled with rigorous and systematic procedure (Easton, 2010, p.119; Yin, 2003, p.1). Furthermore, as Eisenhardt & Graebner (2007, p.28) argue, appropriate selection of key informants relevant for the study enables the researchers to obtain valuable and multiple perspectives and minimise the potential bias. We follow this advice in our data collection phase, which is discussed in chapter 5.2. Lukka & Kasanen (1995, p.76) assert that the generalizability of qualitative case studies is possible by relating the researchers' interpretation of the findings to the theoretical propositions by means of 'analytical generalisation' (ibid., p.77; Yin, 2003, p.10), whereby analytical generalization is defined as the process by which theoretical framework serves as template against which empirical findings are evaluated (Yin, 2009, p.39). In these instances, theory development rather than statistical significance of the findings provides the rationale for the case study (Eisenhardt, 1989, p.535; Lukka & Kasanen, 1995, p.77; Yin, 2003, p.32). The case study should be conducted thoughtfully and in an in-depth way to justify the selection of the small number of cases (Easton, 2010, p.119). According to Dubois and Araujo (2007, p.175) number of cases selected is not crucial as the aim of the study is to understand the phenomenon in question and its underlying causalities within each case, rather than comparing and contrasting attributes of particular cases. Therefore, single case studies are useful for theory testing (ibid, p.177; Dul & Hak, 2007, p.209). Therefore, to minimise the potential for bias, embedded in the case study research, throughout this study we adhere to the advice of Eisenhardt & Graebner (2007), Lukka & Kasanen (1995) and Yin (2009).


4.2.3 Research approach

While case studies are usually associated with qualitative research strategies and inductive reasoning, this tradition does not preclude deductive reasoning from being applied in case study research design (Bryman & Bell, 2011, p.62; Creswell, 2007, p.42; Saunders et al., 2012, p.145). This case study uses a deductive approach to guide the formulation of the research questions, propositions, analysis, and analytical generalization. As defined by Saunders et al., (2012, p.144), a deductive approach suggests that research is driven by theory, where the researchers’ review of the academic literature leads to theoretical propositions that are then tested to prove or disprove the theory. Several authors suggest qualitative case studies are not restricted to theory creation but can also use theory as a guiding framework (Dubois & Araujo, 2007, p.177; Dul & Hak, 2007, p.204). Yin (2009, p.28) claims that using theoretical arguments is an essential step in case study research.

In deductive approach, research questions, research design, and theoretical framework are conceptualized from previous studies and theories included in the literature, which are used to guide the data collection (Saunders et al., 2012, p.74, Yin, 2009, p.29). Saunders et al. (2012, p.47) suggest that theory can enlighten the research questions by providing ideas for research as well as for the main concepts and variables of interest to be tested in the study. The main concepts identified in the relevant literature are used to formulate clear propositions and frameworks to answer the research questions, which are tested through the best suited research design. Conceptual relationships established in the theoretical framework inform the researcher of the data to be collected. To summarize the deductive approach, Bryman & Bell (2011, p.11) synthesize the process into six steps: 1) theory; 2) hypothesis; 3) data collection; 4) findings; 5) hypothesis supported or rejected; and 6) theory revision. Having defined the deductive approach, it is important to note that step 6, theory revision, is an inductive element (Bryman & Bell, 2011, p.11) whereby the researcher contributes to the original theory with the findings of the study.

Adopting a deductive approach, this case study uses the premises embedded within the RBV and institutional theories to inform the propositions derived from the literature of GPP and SCM. The proposed theoretical framework (see Figure 4, chapter 2.5.3) has been used to guide the nature of the data gathered as well as the analysis and analytical generalization of this study. This study adopts a managerial perspective, whereby the researchers use the points of view of managers of SMEs and the procurement department of SEPA to understand the phenomenon of SMEs response to GPP requirements. We do not attempt to generalise our findings to all SMEs within Scotland or further, however our aim is to interpret the findings in the light of the theoretical propositions and contribute to theory through analytical, rather than statistical generalisation (Easton, 2010, p.126).
5 Research design

This chapter presents the phases of the research design. First section describes the data collection methods: semi-structured interviews and documentation. Second section describes the sampling procedure employed, as well as the choice of sample. Third section describes the analysis technique used to evaluate the data. Fourth section presents the criteria, based on canons of best practices, used within qualitative research to strengthen the validity of the study. Fifth section discusses ethical considerations.

5.1 Data Collection Method

This case study uses two main types of data sources: interviews and documentation, more specifically value statements and environmental policies. Multiple sources of evidence were employed as extant literature suggests their use is complementary, becoming a strength of the data collection within case studies (Creswell, 2007, p.45; Yin, 2003, p.97), also referred to as data triangulation. Applying Yin’s (2003, p.99) concept of data triangulation, we used the documentation available to verify the information provided by key informants regarding the organization’s use of green practices as described in their environmental policies.

5.1.1 Interviews

When using interviews as data collection method for case studies, strengths include the ability to focus directly on the topic of interest while simultaneously providing insights into plausible causal inferences or linkages between relevant theoretical concepts (Stakes, 1995, p.65; Yin, 2003, p.86). Depending on the level of formality and structure, interviews are classified as structured, semi-structured, and unstructured interviews (Saunders et al., 2012, p.374). Semi structured interviews were used as one of the methods for data collection in this case study. Addressing more the context in which the interview takes place, semi-structured interviews tend to contain a general set of questions, perhaps open ended, where the researchers have a degree of flexibility to vary the order of the questions and probe further where necessary (Bryman & Bell, 2011, p.205; Saunders et al., 2012, p.374). According to Saunders et al. (2012, p.377), semi-structured interviews are essential in explanatory studies when aiming to understand the existing relationships between the concepts of interest.

Given the qualitative nature of this explanatory case study, face to face and video-conferencing via Skype semi-structured interviews were deemed most appropriate when answering the what, how, and why questions regarding SMEs response to GPP. Specifically, this case study aims to understand the relationship between PAs and SMEs, including how SMEs respond to PA’s call for GPP, what difficulties they have encountered, and how these have been overcome. Relevant to this case study is Saunders et al.’s (2012, p.379) claim that semi-structure interviews offer researchers greatest flexibility when addressing differences in context. Context differences among SMEs are present in regards to size and industry, exerting a direct influence on their ability to respond to the PA’s call for GPP. Researchers’ priority was to conduct face to face interviews, video-conferencing Skype interviews were conducted when the prior was not feasible.
Having motivated this case study on the relationship between PAs and SMEs, two sets of interview questions were formulated: 1) for the PA, hereby SEPA and the 2) for the SMEs, namely SEPA’s suppliers (see Appendix A and B respectively). Figure 5 shows the interview guide used for SEPA, where theoretical concepts focused on the implementation of GPP within SEPA and how these requirements are then transferred to their suppliers. Figure 6 shows the interview guide used for SMEs when responding to GPP calls exerted by SEPA. Based on Bryman and Bell’s (2012, p.477) road map for formulating interview guides, the first two questions for both sets were introductory aiming to become acquainted with the organization and our interviewee, subsequent questions were closely aligned with the theoretical propositions previously derived from the literature. Each central question had accompanying sub questions that were used to probe for additional information when required.

![Interview guide relationship for SEPA.](image)

Figure 5 Interview guide relationship for SEPA.
5.1.2 Documentation

The second method for data collection is documentation. Review of documents such as company reports, websites, company policies, and brochures can serve to confirm and increase evidence provided through other methods of data collection (Stakes, 1995, p.68; Yin, 2003, p. 87). This documentation refers to different sources of written data which have not been produced in response to requests made by the researchers (Saunders et al., 2012, p.544). According to Merriam (1988, p.108), documentary data can serve as objective sources of data, where plausible bias arising from the interaction between the researcher and the interviewee is less likely. Researchers requested SEPA and the SMEs access to company environmental policies, company reports and supporting company documentation (presented in Table 7, chapter 6.1). There was a high degree of variation in the documents that SMEs could provide, and specifically in regards to the level of detail included in their environmental policies. While literature extensively supports the use of documents as sources of data collection (Creswell, 2007, p.73; Saunders et al., 2012, p.544; Yin, 1981, p.104), Yin (2003, p.86) cautions researchers to be aware of the potential bias laden in these reports, suggesting instead to treat these documents as supporting evidence. Following Yin’s (2003, p.86) advice, documents analysed in this case study are used to support findings derived from semi-structured interviews.

5.2 Sampling

Non probability sampling, used commonly within qualitative research, suggests there is no way of estimating the probability that the element being sampled will be included in the analysis, at the same time, there is no certainty that each element has some
probability of being sampled (Merriam, 1988, p.47). Among types of non-probability sampling, purposeful sampling is most commonly used (ibid; Teddlie & Yu, 2007, p.80). Purposeful sampling is defined as a technique where the researcher strategically selects respondents deemed to have the greatest understanding and knowledge to inform the research problem and interest phenomenon (Creswell, 2007, p.125; Teddlie & Yu, 2007, p.77). Differing from convenient sampling, where easy access and willingness to participate in the study guide the selection of informants (Teddlie & Yu, 2007, p.78) while reducing the quality and credibility of information (Creswell, 2007, p.127), purposeful sampling requires researchers to establish criteria by which to select respondents (Bryman & Bell, 2011, p.442). Criteria used for respondent selection therefore define the type of purposeful sampling as: homogenous, intensity and maximum variation sampling. Homogenous sampling reduces variation, simplifies and facilitates group interviews, while intensity sampling refers to selecting the cases adept for rich information where the phenomenon explored is widespread but not extreme (Creswell, 2007, p.127). Maximum variation sampling refers to selection of the sample which increases the likelihood that differences within the data emerge, but at the same time identifying the underlying common patterns (ibid.; Teddlie & Yu, 2007, p.81). In this case study, in order to present the diverse perceptions from both SEPA procurement department and individual SMEs, we employ two types of sampling: intensity sampling for SEPA and maximum variation for SMEs.

1. **Organization selection.** Inferring from Creswell’s (2007, p.125) definition of intensity sampling, SEPA, being a forerunner of GPP implementation in Scotland, constitutes a rich source of information regarding the role of the PA in GPP. Prior to contacting SEPA to participate in this study, researchers conducted background research to assess the organization’s adequacy. Researchers found SEPA to be publicly committed to adopting GPP by establishing a target where 25% of all products procured in 2017 must meet their sustainability criteria. Cognizant that the choice of products purchased directly influences the environment, SEPA publicly acknowledges its commitment to transfer environmentally responsible requirements to their supply chain (SEPA, 2012, p.20).

**SEPA’s Procurement department description:** SEPA deals with all their purchases through centralised procurement department, located in the main administrative building in Stirling. The department employs four members of staff of which three are employed on a full-time basis, and one on a part-time basis. Purchasing function is professionalised, consisting of procurement specialists and procurement advisors. The department deals with procurement of a wide range of products and services for 24 offices across Scotland, with estimated annual spend of over 10 mil £. SEPA’s scientific activities require a wide range of highly specialised scientific instruments, i.e. scientific kits, used for sampling and analysis of air, soil and water environments, requiring purchasing from specialised, often international companies. Other types of procurement include construction works and building fit-out works, office supplies and a range of non-product related services. The procurement department advertises their purchase plans and publishes the tenders on Public Contracts Scotland website, thereby allowing full access to tenders to all suppliers in the national market. For direct invitation to tendering, SEPA’s procurement department utilises their personal Delta eSourcing Procurement Portal, where the registered suppliers have the option to receive notifications about upcoming tendering opportunities and receive evaluation of submitted bids under 20.000 £. For purchases above EU thresholds SEPA advertises the tenders in the Official Journal of the European Union (OJEU). The procurement
department's webpage allows easy and clear overview of SEPA's procurement documentation, including general terms and conditions applied to all SEPA's contracts, as well as reference to commitment to SSPAP, organisational sustainability targets and their achievement. The department has a procurement strategy and internal Sustainable Procurement Policy that set out the organisational aims on sustainable procurement. Additionally, SEPA has developed and launched Environmental Management Toolkit, which helps SMEs manage the environmental performance of their businesses through simple templates.

SEPA provided researchers with a list of seven potential SME interviewees which met the following criteria according to maximum variation sampling: company size (small and medium), identified use of green practices, and past or present working relationship with SEPA. While all SMEs pertain to the service sector, variability is achieved by selection of interviewees from the construction, health and safety, environmental consultancy, public relations (PR), and education business fields. Five SMEs responded positively. Company descriptions are listed below.

**Company A:** pertains to the construction sector, with 12 years in operation. Company A describes itself as leading specialists in design, fit out, construction, and maintenance of all commercial and workspace properties. Services provided include all general building works, such as new buildings, extensions, office refurbishments, and steel sheds. Company A describes its strength as complete management and delivery of construction packages, including design, planning, drawings, and control of costs, quality, manpower, and waste management. Based on UK classification of SMEs, having 38 employees classifies Company A as small. Official procurement department is established. Main clients include SEPA, Forestry Commission of Scotland, Carnegie Enterprise LTD, Scottish National Heritage, and Babcock Marine.

**Company B:** pertains to the occupational health and safety industry, with 16 years of operation. Provides services related to employee assistance program, focused on psychological health counselling, resilience and trouble management, illness rehabilitation, and stress management. Provide psychological counselling sessions and/or specific cognitive therapy behaviour sessions. Also provide 24/7 counselling line and clinical case management services. Total number of employees is 75, not all full-time, classified as medium size. Company has established procurement department. Organizational values include quality, service, value, integrity, and respect. Main clients include Zurich, Royal College of Nursing, Norfolk County Council, Amey, and SEPA.

**Company C:** environmental consulting agency, operating for 8 years. Provides specialised consultancy services in the fields of ecology, outdoor access, environmental communication, land manager advice, and project management. The company has 2 full-time employees, thus it is classified as small. Full time employees consist of upper management, where one is a chartered environmentalist and the other member of the Institute of Environmental Sciences. Company does not have an established procurement department. Main clients include Scottish National Heritage, SEPA, the Forestry Commission Scotland, and the National Trust of Scotland.

**Company D:** PR and digital marketing agency, operating for 14 years. Has 95 full-time employees, and thus is classified as medium size. Services focus on PR, social media, search engine optimisation, digital marketing, design, event management, stakeholder management, and video production. Prides itself in being the largest PR outside of London and has over 300 regular clients. No established procurement department.
Main clients include Glasgow Chamber of Commerce, Exxon, Ithaca Energy, Scottish Council for Development and Industry, and SEPA.

**Company E**: is an online learning company, focused on delivering services for online training, learning courses, management systems for learning, 360 degree assessments for individuals/groups, formative and informative testing, and high stakes assessments for banking and accounting exams. Company prides itself in constantly researching innovative methods for e-learning, developing expertise in specialist web services, tools for content creation, and advanced design concepts and instructional methodology. No established procurement department. Main clients include the NHS Education for Scotland, Scottish Water, University of Saint Andrews, and SEPA.

2. **Selection of key informants.** Based on Yin’s (2003, p.89) suggestion, key informants were selected based on their high familiarity to the central phenomenon being studied and their ability to provide supporting documentation. In the case of SEPA, the Head of the Procurement Department was interviewed. At the SME level, congruent with the managerial perspective adopted in the study, upper management staff was selected, including owners and account client specialists.

5.3 **Data Analysis**

This case study will be analysed following Stakes (1995, p.74) and Creswell’s (2007, p.79) approach. First, authors will develop a list of patterns organised in key themes derived from the literature (see theoretical framework, Figure 4, chapter 2.5.3). Following the interview transcription, collected data will be reduced according to the defined patterns, while simultaneously allowing new patterns to emerge (Creswell, 2007, p.152). Data reduction has been acknowledged as a general practice within qualitative data analysis (Creswell, 2007, p.152; Miles & Huberman, 1994, p.10). Hereby, Stakes (1995, p.78) states researchers should seek correspondence of patterns being elucidated from the data against those pre-identified in the theoretical framework, akin to a template analysis. Next, in-depth data analysis techniques (direct interpretation and pattern elucidation) will be pursued. Frequent among qualitative studies, direct interpretation allows researchers to draw meaning from the single pattern occurrences in the data (Stakes, 1995, p.74). In this sense, researchers are encouraged to search for corroborating and disconfirming evidence that provides greater understanding of the central phenomenon. Through direct interpretation, authors will make sense of the data gathered through semi-structured interviews and documentation. Existing research suggests no major difference in the approach toward analysis of interviews versus documents (ibid., 1995, p.68).

5.4 **Qualitative research criteria**

This case study uses the standards for quality set forth by Miles & Huberman (1994, p.277) and Bryman & Bell (2012, p.395) in an attempt to produce detailed and accurate descriptions, which most closely reflect the views of SEPA and its SMEs in regard to GPP implementation and response. The criteria set forth were originally stated in Guba and Lincoln’s (1981, as cited in Miles & Huberman, 1994, p.277) criteria of trustworthiness, where each of the following elements, with the exception of utilization/application, is described alongside its parallel term in quantitative research; e.g. confirmability within qualitative research is the equivalent of objectivity in
quantitative research. The element of utilization/application as criterion for qualitative
research was included herein as it was recommended by Miles & Huberman (1994, p.277).

1. **Objectivity/Confirmability.** Refers to the ability of the researchers to provide
neutral description of the information provided by the respondents, where their personal
values and theoretical understandings do not influence in any way the data collection,
analysis, and findings (Miles & Huberman, 1994, p.278; Bryman & Bell, 2012, p.398).
To ensure confirmability of the research, authors first clarified the purpose of the case
study to each interviewee. Additionally, authors disclose no conflict of interests in
regards to the PA and SMEs interviewed. A conscious effort has been made to provide
readers with a detailed record of the arguments behind the choice of general methods
and processes undertaken for this study. Interview transcripts, audio records, and
documentation can be provided upon request for reanalysis by other researchers.

2. **Reliability/Dependability.** Akin to reliability in quantitative research,
dependability refers to the consistent use of complete records that document all the
processes and decisions taken within each phase of the research, allowing for external or
internal audits at any time (Bryman & Bell, 2012, p.398). Lincoln and Guba (1985,
p.288) suggest that ‘dependability’ is more adept to qualitative studies and refers to the
way the data collected supports the findings in a consistent fashion. As such, authors of
this case study provide detailed explanations and supportive arguments derived from the
literature regarding the choice of processes and methods by which this case study has
been conducted.

To increase the dependability of this study, interview questions for suppliers were
adapted from prior research conducted in GSCM, PP, and the integration of GSCM
within an RBV framework (Gavronski et al., 2011, p.882; Vachon & Klassen, 2006,
p.819; Zheng et al., 2006, p.13). Interview questions for SEPA were adapted from
Defranceschi & Hidson’s (2007, pp.81-88) study on the costs and benefits of GPP and its
potential to spread new technologies in the market. Where original data collection
method from the above studies were questionnaires and structured interview questions,
these were adapted to suit a semi-structured interview context, where the goal of the
researchers was to explore the relationship between the PA and its SMEs in regards to
the barriers and enablers suppliers face when responding to GPP requirements
transferred by the PA. Interview questions were reviewed by thesis supervisor.
Multiple sources of data were used to support findings derived from semi-structured
interviews. The use of two sources of data allowed for parallelisms to be identified,
increasing the dependability of the case study, as suggested by Miles & Huberman
(1994, p.278). Face-to-face and video-conferencing semi-structured interviews were
audio recorded and transcribed which allowed for multiple reviews of the data.
Similarly, key informants were selected based on the high degree of familiarity with
organizational green practices, GPP, and public procurement. Data analysis was
conducted by two researchers, achieving high degree of inter-rater reliability, therefore
guarding against potential researcher/interpretation bias.

3. **Internal Validity/Credibility.** Paralleling the concept of internal validity in
qualitative research, credibility refers to the level by which the findings accurately
portray the central phenomenon of interest as suggested by the key informants (Miles &
Huberman, 1994, p.279). Following Miles & Huberman’s (1994, p.279) suggestion to
increase credibility, the theoretical propositions used to evaluate the data and generate
findings were closely linked to prior theory and relevant literature on topics of GPP, green SCM, green practices, and SMEs. Regarding credibility of case studies, Bryman & Bell (2012, p.396) and Merriam (1988, p.168) stress the importance of understanding and adequately presenting social actors’ perception of the reality. In this sense, the use of semi-structured interviews allowed for an environment where probing and clarification could be sought, ensuring the researchers’ understanding of the informant responses. Addressing the potential for a lack of understanding arising from language barriers, authors disclose no conflict as interviews were conducted in English. Researchers are fluent in written and spoken English discourse; as such, language barrier is not an issue hampering credibility of this case study.

4. **External validity/Transferability.** Within quantitative research, external validity refers to the extent in which the findings of the study can be generalized beyond the immediate context to a broader population, also known as statistical generalization. Not claiming statistical generalization, case studies better align with analytic generalization (Yin, 2003, p.38). This case study aims to address analytic generalization to the extent in which its findings support the use of RBV and institutional theory to explore the relationship between PA’s implementation of GPP and transfer of requirements to SMEs, as well as the latter’s ability to respond to such demands. The relevance of the unique context within qualitative research is a key to the issue of transferability (Bryman & Bell, 2012, p.398). The unique context of this case study exploring the relationship between a forerunner PA and SMEs in regards to GPP in Scotland, a country where strides are made at the national level to increase the adoption of green practices by its citizens, may not be transferable to other cases/countries. However, rich description and findings from this study align with the main purpose of a case study to understand the central phenomenon, GPP, in-depth, rather than to generalize to other cases (Merriam, 1988, p.173).

5. **Utilization/Application.** This criterion refers to the extent by which the study’s findings have practical implications on the sample studied (Miles & Huberman, 1994, p.280). Findings from this case study will be relevant to SEPA’s commitment to promoting environmentally responsible practices among its SME suppliers. By informing SEPA of the barriers faced by their SMEs suppliers when responding to the calls for GPP, it is plausible that SEPA might reconsider the level of the support towards SME suppliers, enabling better adoption of green practices. Findings from this case study may also be relevant for policy makers in their efforts to motivate increased adoption of green practices through supply chains.

5.5 **Ethical Considerations**

Bryman & Bell (2012, p.129) and Creswell’s (2007, p.141) ethical considerations for business research were used as guidance when conducting this case study. From the starting point, researches informed all respondents of how the information provided would be used and to whom it would be delivered. Permission to conduct research was obtained from SEPA, and further selection of the SME suppliers was done using SEPA as the main point of contact. Informed consent from each respondent was sought prior to conducting the interview; additionally, researchers asked for permission to disclose company names in the writing of this case study, clearly informing this master thesis would be published in university portals. In all cases the answers were positive; however, authors decided to adopt a more conservative approach and not use SME
company names to preserve their anonymity. Respondents were also asked for permission to use audio recording, whereby consent was granted in every occasion. Authors have identified no harm to respondents and/or companies participating in this case study. In efforts to increase trust and establish open and honest, face-to-face communication with research participants, researchers travelled to Scotland during November 17-26, 2014. During the interviewing process, researchers made efforts to provide a safe environment where respondents could answer freely. Collected data was securely stored. Researchers disclose no conflict of interest when conducting this case study.
6 Data analysis and presentation of findings

In this chapter the findings from the interviews and company documents are analysed and presented. The first section presents the interview proceedings and the template for data reduction and pattern identification. Second section displays the results of the analysis. The results are grouped in findings about SEPA’s procurement department practices regarding GPP implementation, followed by the findings regarding the SMEs response to the requirements of GPP. Findings from the interviews with the SME suppliers are complemented with the findings about the effect of interaction between SEPA’s procurement department and SMEs. Direct quotations from semi-structured interviews and documentation are used to illustrate and support of the findings.

6.1 Empirical data and analysis procedure

Table 6 provides a description of the sampled companies, with the position of the key informants, duration of interviews, and length of transcripts. Three interviews were held face to face and the remaining three were conducted via Skype video conference calls. Six interviews were held with one respondent, while interview with Company B included two respondents. On average interviews lasted 47 minutes, ranging from 16 minutes to 1 hr 6 minutes. Transcriptions were verbatim.

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Respondent</th>
<th>Position</th>
<th>Interview channel</th>
<th>Interview duration</th>
<th>Transcript length [pgs]</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEPA</td>
<td>Respondent 1</td>
<td>Head of Procurement</td>
<td>Face to face</td>
<td>01:04:24</td>
<td>12</td>
</tr>
<tr>
<td>Company A</td>
<td>Respondent 2</td>
<td>Company director</td>
<td>Face to face</td>
<td>01:06:39</td>
<td>10</td>
</tr>
<tr>
<td>Company B</td>
<td>Respondent 3</td>
<td>Account Manager</td>
<td>Face to face</td>
<td>01:01:49</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Respondent 4</td>
<td>Compliance Manager</td>
<td>Face to face</td>
<td>01:01:49</td>
<td>10</td>
</tr>
<tr>
<td>Company C</td>
<td>Respondent 5</td>
<td>Owner-partner</td>
<td>Skype</td>
<td>00:40:10</td>
<td>6</td>
</tr>
<tr>
<td>Company D</td>
<td>Respondent 6</td>
<td>Account Director</td>
<td>Skype</td>
<td>00:16:50</td>
<td>3</td>
</tr>
<tr>
<td>Company E</td>
<td>Respondent 7</td>
<td>Account Manager</td>
<td>Skype</td>
<td>00:36:14</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 6 Presentation of respondents.

Table 7 summarizes the documents used to verify information provided through semi-structured interviews. Environmental policies were available for three SMEs and SEPA. Purpose & Values statement was also provided by Company B, while Company E also provided Environmental consideration statement and the NetRegs brochure. Rather than providing organizational information of Company E, the NetRegs brochure promotes a SEPA sponsored online learning course aimed at providing SMEs with the capacity building skills required to improve their environmental performance. As such, the NetRegs brochure was used to corroborate the existence of knowledge sharing provided by PA, described within the section of external enablers.

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Analysed documents</th>
<th>Organisation</th>
<th>Analysed documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEPA</td>
<td>Sustainable Procurement Policy (SEPA, 2013a)</td>
<td>Company C</td>
<td>Environmental Policy</td>
</tr>
<tr>
<td></td>
<td>Corporate Plan 2012-2017 (SEPA, 2014c)</td>
<td>Company D</td>
<td>/</td>
</tr>
<tr>
<td></td>
<td>Environmental Policy Statement (SEPA, 2013b)</td>
<td>Company E</td>
<td>Environmental Policy</td>
</tr>
<tr>
<td></td>
<td>Sustainability Report 2013-2014 (SEPA,2014d)</td>
<td></td>
<td>Environmental Considerations</td>
</tr>
<tr>
<td>Company A</td>
<td>/</td>
<td></td>
<td>NetRegs eLearning Brochure</td>
</tr>
<tr>
<td>Company B</td>
<td>Environmental Policy</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Purpose &amp; Values Statement</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7 Documents used in the analysis.
Themes and patterns for data analysis were derived from the theoretical framework (see Figure 4, chapter 2.5.3). Table 8 displays the themes and patterns within each theme, used to conduct the analysis of SEPA. Through this process, new patterns emerged (marked in blue) and patterns that were not supported were dropped. The order of the themes was revised in order to present a coherent narrative. Same procedure was applied to conduct the SME analysis, where Table 9 shows the themes and patterns identified. Original patterns used for both analyses can be found in Appendices C and D.

<table>
<thead>
<tr>
<th># CODE</th>
<th>THEME/PATTERN</th>
<th># CODE</th>
<th>THEME/PATTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Purchasing department</td>
<td>3.2.</td>
<td>Technical capability development</td>
</tr>
<tr>
<td>1.1.</td>
<td>Yearly turnover</td>
<td>3.3.</td>
<td>Difference in approaches to tendering</td>
</tr>
<tr>
<td>1.2.</td>
<td>Request for green product/services</td>
<td>3.4.</td>
<td>Use of green criteria</td>
</tr>
<tr>
<td>2.</td>
<td>Rationale for implementing GPP</td>
<td>3.5.</td>
<td>Partnering with other PAs</td>
</tr>
<tr>
<td>2.1.</td>
<td>Govermenmt initiative</td>
<td>4.</td>
<td>GPP potential to trigger market demand</td>
</tr>
<tr>
<td>2.2.</td>
<td>Top-management support</td>
<td>4.1.</td>
<td>Competing objectives</td>
</tr>
<tr>
<td>2.3.</td>
<td>Strategic proactivity</td>
<td>4.2.</td>
<td>Cost of green technologies</td>
</tr>
<tr>
<td>2.4.</td>
<td>Setting of sustainability targets</td>
<td>4.3.</td>
<td>Product/service availability to comply</td>
</tr>
<tr>
<td>2.5.</td>
<td>Staff motivation</td>
<td>5.</td>
<td>Relationship with the suppliers</td>
</tr>
<tr>
<td>2.6.</td>
<td>Supporting practises</td>
<td>5.1.</td>
<td>Supplier involvement in tendering process</td>
</tr>
<tr>
<td>3.</td>
<td>GPP tendering process</td>
<td>5.2.</td>
<td>Supplier awareness</td>
</tr>
<tr>
<td>3.1.</td>
<td>Tendering process</td>
<td>5.3.</td>
<td>Requirements for proof of compliance</td>
</tr>
</tbody>
</table>

Table 8 Themes and patterns used for data analysis of SEPA.

<table>
<thead>
<tr>
<th># CODE</th>
<th>THEME/PATTERN</th>
<th># CODE</th>
<th>THEME/PATTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Public tendering experience</td>
<td>4.2.3</td>
<td>Conflicting experience with GPP goals</td>
</tr>
<tr>
<td>1.1.</td>
<td>Experience with public tenders</td>
<td>4.2.4</td>
<td>One-off contracts</td>
</tr>
<tr>
<td>1.2.</td>
<td>Direct invitation</td>
<td>5</td>
<td>Enablers for GPP response</td>
</tr>
<tr>
<td>2.</td>
<td>GPP awarenes and knowledge</td>
<td>5.1.</td>
<td>INTERNAL</td>
</tr>
<tr>
<td>2.1.</td>
<td>Awareness of GPP at organizational level</td>
<td>5.1.1.</td>
<td>Management championing the environment</td>
</tr>
<tr>
<td>2.2.</td>
<td>Knowledge of methods within GPP</td>
<td>5.1.2.</td>
<td>Employee personal commitment</td>
</tr>
<tr>
<td>2.3.</td>
<td>Proof of compliance with GPP requiremts</td>
<td>5.1.4.</td>
<td>Strategic Proactivity</td>
</tr>
<tr>
<td>3.</td>
<td>Rationale</td>
<td>5.1.5.</td>
<td>Expertise</td>
</tr>
<tr>
<td>3.1.</td>
<td>Cost reduction</td>
<td>5.2.</td>
<td>EXTERNAL</td>
</tr>
<tr>
<td>3.2.</td>
<td>Competition</td>
<td>5.2.1.</td>
<td>Training/workshops</td>
</tr>
<tr>
<td>3.3.</td>
<td>Reputation</td>
<td>5.2.2.</td>
<td>Access to knowledge/information</td>
</tr>
<tr>
<td>4.</td>
<td>Barriers for GPP response</td>
<td>5.2.3.</td>
<td>Feedback</td>
</tr>
<tr>
<td>4.1.</td>
<td>INTERNAL</td>
<td>5.2.4.</td>
<td>Communication with PAs</td>
</tr>
<tr>
<td>4.1.1.</td>
<td>Cost</td>
<td>5.2.5</td>
<td>E-procurement</td>
</tr>
<tr>
<td>4.1.2.</td>
<td>Time/HR availability</td>
<td>6</td>
<td>Green Practices</td>
</tr>
<tr>
<td>4.1.3.</td>
<td>Costs of certification</td>
<td>6.2.1.</td>
<td>Waste management</td>
</tr>
<tr>
<td>4.2.</td>
<td>EXTERNAL</td>
<td>6.2.2.</td>
<td>Sourcing green products</td>
</tr>
<tr>
<td>4.2.1.</td>
<td>Cost sensitivity</td>
<td>6.2.3.</td>
<td>Use public transport</td>
</tr>
<tr>
<td>4.2.2.</td>
<td>Size of contract</td>
<td>6.2.4.</td>
<td>IT Communication</td>
</tr>
</tbody>
</table>

Table 9 Themes and patterns used for data analysis of SEPA’s suppliers.
6.2 Presentation of findings

6.2.1 Findings from SEPA

In this section we will present the findings from the interview with Respondent 1 from SEPA, and complement them with SEPA's documents presented in Table 7. Findings will be organised around key themes used for analysis of the interview, whereby this section will present the first four themes, and final theme 'Relationship with suppliers' will be presented together with the findings from SMEs in the next section.

6.2.1.1 Purchasing department

SEPA's Procurement department is "very active due to the yearly very substantial spend of over 10mil £" (Respondent 1, SEPA, 2014b). Having an internal company threshold to differentiate between low-value and high-value purchasing, everything "under 10.000£ [...] is not within the purview of the procurement department" (Respondent 1, SEPA, 2014b), therefore it is possible to differentiate between "three or four main types of procurement" that the department engages in (ibid.). Respondent 1 (SEPA, 2014b) distinguishes between procurement of construction works, IT equipment, scientific kits, and the consumables. Products procured represent "more of an individual product procurement", due to the majority of product-related procurement being a 'one-off' purchase, while the services are usually procured from the "on-going suppliers [...] and tend to be consultancy based and people based rather than product based" (ibid.).

Previously within SEPA there were "a lot of people doing a lot of things and running in parallel" therefore one of the initiatives within the procurement department is to "bring them together" (Respondent 1, SEPA, 2014b). This means that "whoever the contract manager is, i.e. the person procuring the service or the goods for SEPA; they set the cost/quality ratio" (ibid.). The contract managers are employees within different departments in SEPA, however their direct involvement with companies' customers and suppliers brings them close to the procurement departments' activities whereby their sustainable thinking ensures that "sustainability is incorporated into all procurement activity throughout the organisation" (SEPA, 2013a). The procurement department of SEPA endeavours to include the sustainability element in every purchase, "normally through the tendering process, specifically through the MEAT criteria, which is a combination of cost and quality" (Respondent 1, SEPA, 2014b). Therefore, all of the SEPA's procurement can be regarded as green procurement because "there is always a quality assessment in what we [SEPA] do" (ibid.).

6.2.1.2 Rationale for implementing GPP

Development of policies and regulatory frameworks for sustainable procurement is embedded in SEPA's corporate plans (SEPA, 2014c, p.15). Additionally, SEPA's commitment to compliance with environmental regulation and voluntary requirements (e.g. GPP) is stated in the Environmental Policy (SEPA, 2013b). Hereby Respondent 1 (SEPA, 2014b) acknowledges that "the Scottish Government is encouraging" and that "there are the clear directions in a sense that they [the Government] want Scotland to become a much greener place". SEPA supports the Scottish Public Procurement Reform

1 'one-off' purchase refers to a single purchase, i.e. one-time buy, where the buyer is not expected to make additional purchase from the same supplier.
goals of environmental, social and economic growth (SEPA, 2014d, p.2), which requires SEPA's proactive engagement in procurement and "spreading the understanding of sustainability beyond the environmental sustainability" (Respondent 1, SEPA, 2014b). SEPA's Procurement Strategy was updated in 2013 to "more strongly reflect economic and social issues as well as environmental issues" (SEPA, 2014d, p.35). At the moment the procurement department is "effectively [...] looking at the environmental and social sustainability" (Respondent 1, SEPA, 2014b). Therefore, SEPA responds to Government call for inclusion of SMEs in public purchasing by "the use of a number of SMEs, and [...] looking to use the third sector whenever we can" (ibid.).

Endorsement of SEPA's Sustainable Procurement policy by the company's Chief Executive (SEPA, 2013a) demonstrates that "the driving force comes both from the government and within the company" (Respondent 1, SEPA, 2014b). Respondent 1 (SEPA, 2014b) acknowledges that Scotland is "forward looking when it comes to procurement" and that on the Government level there are "fairly ambitious targets set". The fact that SEPA is the environmental regulator plays a part in company's approach toward sustainable procurement, however "there also seems to be a very strong management sign-up to the whole way forward" (ibid.). Therefore Respondent 1 (SEPA, 2014b) affirms that "what the government is doing [...] is very supportive" but also "we [SEPA] want to do it ourselves [...] to be seen as exemplars for Scotland". This is corroborated by procurement department's commitment to continuous monitoring, reporting, and reviewing of the procurement activities (SEPA, 2013a).

SEPA's strategic proactivity toward GPP implementation is exemplified through "setting up a series of organisations [...] set up from a number of environmentally aware members of staff" (Respondent 1, SEPA, 2014b). These organisations include four Buildings Energy Management Groups and the organisational wide Greening SEPA Steering Group "which looks to green SEPA in all aspects of the organisation" (ibid.). The five groups feed into the Environmental Strategy Group that promotes organisation's strategic objectives, among which are "champion[ing] sustainable resource use" and "develop[ing] innovative partnerships" (SEPA, 2014c, p.10). Respondent 1 (SEPA, 2014b) also confirms that SEPA "look[s] to use collaborative contracts [...] [which] include working with other organisations". This may lead to reinforcing effects between soft regulation and strict regulation through "a more integrated approach [...] using an increasing range of regulatory tools" (SEPA, 2014c, p.6).

Describing the alignment of the intra-firm groups that feed into the Greening SEPA Steering Group, Respondent 1 (SEPA, 2014b) recognises that the "involvement is from bottom up and includes all levels". Additionally, SEPA's "staff engagement stands at 79% [...] well above the public sector benchmark of 69%" (SEPA, 2014d, p.3). This measure of the staff commitment and motivation is deemed essential for the implementation of sustainability in procurement because "it is very important that the driver is coming from the bottom up" because "an awareness [...] of the people who are managing contracts [...] is also beneficial to the procurement department so they can impart that knowledge" (Respondent 1, SEPA, 2014b). This view resonates with the

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2 Refers to voluntary and community organisations, such as registered charities, self-help groups, co-operatives and social enterprises, which are generally independent from government and value-driven (UK National Audit Office, n.d.)
Chief Executive's belief that "if an organisation gets that [staff engagement] right then [...] just about everything else follows on" (SEPA, 2014d, p.3).

SEPA environmental policy promotes setting and openly communicating sustainability targets because it helps to "motivate employees to conduct their operations in an environmentally responsible manner" (SEPA, 2013b). The first annual Sustainability report, presented SEPA's plan for 2014 to incorporate sustainability criteria in "minimum of 10% of the scored assessment criteria used to select eligible targeted goods and services" (SEPA, 2014, p.9). Respondent 1 (SEPA, 2014b) asserts that "within the technical assessment we [SEPA] have a minimum of 10% of the overall criteria being sustainability related" confirming that the "10% target was met" (SEPA, 2014d, p.9). The procurement department aims to "increase that up to 5% per annum until 2017, when we [SEPA] are looking to have a minimum of 25% of technical assessment criteria being based on sustainable issues" (Respondent 1, SEPA, 2014b).

Setting of organisational targets for carbon-reduction, buildings' energy efficiency, recycling and re-use of materials facilitates achievement of sustainability in procurement. Because these targets constrain the choice of materials, products and services procured, the procurement department is "going through another process, the checking order process" (Respondent 1, SEPA, 2014b) which aims to ensure life cycle costs, including waste disposal and recycling costs, are taken into account when calculating the value of the purchase. Therefore, in construction contracts "the clauses which will make it [the building] as green as possible" (ibid.) are included, and suppliers waste management practises are regularly checked because SEPA is "keen on waste so waste is something that we really look" (Respondent 1, SEPA, 2014b).

### 6.2.1.3 GPP Tendering process

SEPA's procurement process starts with the preparation of the "statement of requirements, that is, what they [contract managers] need the project to provide them with" (Respondent 1, SEPA, 2014b). In this way, Respondent 1 (SEPA, 2014b) encourages everyone involved in the projects where purchasing is required to "think about the environmental criteria before they actually formulate the product that they want ". Parallel to developing the statement of requirements "the technical criteria are put together [...] and issued with the tender document" (ibid.). In accordance with the Scottish regulation on public purchasing, the suppliers are assessed based on scores achieved for the criteria outlined in the tender in the technical assessment stage of the process, following the cost/quality ratio published in the tender document. Additionally, the quality assessment is complemented with the "records of carrying out the assessment criteria, so we keep tracks of the marks they [the suppliers] achieve" (Respondent 1, SEPA, 2014b).

Development of procurement capabilities is recognised as important to "keep the staff involved in the ethos of green procurement" (Respondent 1, SEPA, 2014b). Therefore "there are number of ad hoc procurement awareness sessions held" (ibid.) to make sure the procurement staff and contract managers understand the process of public tendering. This is corroborated with the organisation's Sustainable Procurement Policy through the provision of "delivering basic sustainable procurement training to all staff responsible for buying goods, services and works" (SEPA, 2013a). Respondent 1 (SEPA, 2014b) says that so far the procurement department did not use any of the training opportunities available through professional associations, however they did go "through what is
known as a procurement capability assessment with the Scottish Government" where "we [SEPA] got a score of over 80 which is quite high and my procurement colleagues like to think that we've gone from very good to superior".

SEPA's approach to public tendering is to "whenever we [SEPA] can, to use a Scottish Government or a national [UK] Government framework" (Respondent 1, SEPA, 2014b). Tenders advertised through the framework enable all potential suppliers to bid. Also the value of the purchase may influence the avenue which the procurement staff takes in reaching the suppliers. For smaller purchases under 20,000£ SEPA has the possibility to directly go "through our [SEPA's] 'Delta' [...] go out to three companies to get quotations" (ibid.). This type of direct invitation to participate in tendering also enables SEPA to reach the very small SMEs who might not have the resources to monitor the Government Procurement portal regularly. According to Respondent 1 (SEPA, 2014b), the procurement department rarely deals with the purchases above the EU threshold values, however "if we [SEPA] are going down the European Procurement route, we would probably issue prequalification questionnaire" as a form of a "shortlisting process [...] where we get to a point where everybody who is on the list we would be happy to work with". Additionally, for procurement of products like stationary, or services like occupational health assessment "which for a longer period won't change much" there is a possibility of using framework agreements, whereby SEPA has "the opportunity for three year contracts that you can extend by one if they are performing well" (Respondent 1, SEPA, 2014b). However, procuring specialised scientific equipment tends to be 'one-off' because between two purchases "technological advances are such [...] that you would be looking for a different specification" (ibid.).

Regardless of the tendering approach, or the type of purchase, SEPA's main green criteria for assessing the value of the purchase is life cycle costing (SEPA, 2013a), meaning that "we [SEPA] are looking at it [purchase] from birth to death actually, as well as what is done [...] in terms of recycling" (Respondent 1, SEPA, 2014b). When using the Government framework, the level of sustainability within the green criteria is outside of purchasers' control, therefore SEPA's procurement staff "will try to use elements from that [the framework] which are the most environmentally friendly" (ibid.). Hereby, procurement staff is not restricted from increasing the green requirements within the criteria if they deem necessary. SEPA's Sustainable Procurement Policy includes an appendix of "bullet-points for various criteria" which is "not a lengthy description against the criteria, because I want people [...] to have the ability to think themselves and be more creative in terms of sustainability" (Respondent 1, SEPA, 2014b). Among suggested criteria, the encouragement of innovation, the use of SMEs and third sector organisations, as well as assessing suppliers' ecological ethos demonstrate SEPA's initiative to broaden the green criteria within GPP (SEPA, 2013a). Although European core criteria are currently not used by SEPA's procurement staff, Respondent 1's view is that "we [SEPA] are at the moment moving to that level of maturity".

SEPA recognises that the development of sustainability demands in purchasing benefits from collaborating with other PAs in order to overcome the barriers of traditional structures and different disciplines (SEPA, 2014d, p.3), and to gain financial benefits through the optimum use of resources (ibid., p.23). Respondent 1 (SEPA, 2014b) confirms that "we [SEPA] have done a couple of collaborative things" but also finds that collaborations with other PA are constrained by "different organizations’ scale of needs [...] and sometimes there can be a tension between the groups". These tensions
influence SEPA's ability to realise cost savings from aggregated demand especially since "there is an internal cost; we [SEPA] would have a cost of liaising with other [PAs]" (ibid.). Therefore, success in partnering with other PAs depends on balancing of procurement requirements and internal costs associated with collaborative procurement practices.

6.2.1.4 Potential to trigger market demand

SEPA deals with procurement of a broad range of products and service whereby "we [SEPA] would always try to find the most sustainable we can" therefore "it is difficult to actually say the ease or difficulty of getting sustainable products" (Respondent 1, SEPA, 2014b). Specialised scientific instruments often need to be procured from abroad, while advertising through the Scottish Procurement Portal makes it "very difficult to know how many people have looked at it" (ibid.) in order to understand if SEPA's demand for greener products and services causes increase of green product availability in the local market. Respondent 1 (SEPA, 2014b) realises that for suppliers, delivering of environmentally preferable product or service entails more costs, however his opinion is that "additional cost is reducing over time and when it gets to the point where people understand that their kit or their service won't be used if it isn’t environmentally friendly, it is levelling". Therefore, compared to ten years back, the cost of green products has come much closer to the cost of non-green alternatives.

SEPA's core business, environmental regulation, makes the environmental aspect of sustainability requirements in procurement their primary objective. However, being a PA also includes emphasis on rational spending of money and inclination to be focused on local suppliers. Hereby SEPA's procurement department tries to use direct invitation for smaller purchases although "it is difficult, and we endeavour to try and keep the opportunity wherever we can [to reach local SMEs] and maybe it is going to help those smaller organizations to get bigger and then go through the procurement portal route" (Respondent 1, SEPA, 2014b).

6.2.2 Findings from SMEs

This section presents the findings derived from the data reduction and pattern analysis of documentation and semi-structured interviews conducted with key informants from five SMEs within SEPA’s supplier network. First, we will explore the experience of SMEs with public tendering. Second, we will address the level of awareness of SMEs regarding GPP. Third, we will explain the rationale for SMEs adopting green practices, if it is due to the legislative “push” for GPP or other factors. Fourth, we will explore the barriers and enablers SMEs have faced when responding to requirements embedded in GPP. Fifth, we will describe the green practices adopted thus far by SMEs actively involved in public tendering processes. Throughout the analysis of the SMEs we will highlight the relationship between SEPA and suppliers by including information derived from the interview with Respondent 1 from SEPA.

6.2.2.1 Public Tendering Experience

All SMEs interviewed had prior experience with public tendering and with the winning of contracts in the public sector. SMEs varied in the range of turnover derived from public versus private sectors, where companies A, C, and E approximate 50% of turnover is derived from public, whereas Respondent 2, from Company A, states that
“65% of turnover is from public works, where SEPA, the Forestry Commission, and National Heritage Scotland” are his three main clients. Given the nature of services from Company C, Respondent 5 states that “all the services are related to the public bodies”. Subsequently, we inquired on SMEs experience with direct invitation to participate in public tendering, where direct invitation includes ‘quick quotes’ where PAs request from a preselected list of suppliers competitive quotes for low-value requirements (Public Contract Scotland, 2013). In this regard, we expected quick quotes to be a valuable tool for SMEs, allowing them greater chances of successful bids within a smaller competitor pool. Referring to quick quotes, Respondent 1 (SEPA) explains “it is usually on the basis of having used the organization before […] criteria for selection is not necessarily sustainability it is knowing they can do the job, but it still requires the 10% of being green”. Respondent 7 from Company E states: “Quick quotes is where most of our work comes from, the value of our sales, the value of our products, means that we don’t go to full tender”, where the value of the contract does not exceed 20,000£. Similarly, Company C states that “one third of contracts we get that way (quick quote) and two thirds we see on the SPP portal” (Respondent 5).

Companies A and B mention their use of framework agreements where PA conduct public tendering processes selecting the highest scoring contracts and granting them with three year contracts and the possibility of a two year extension, not needing to undergo the public tendering process again. Company A effusively regards these contract extensions as “really good” given that while abiding to the legal requirements, their “relationship [with the PA] becomes much more solid” (Respondent 2). Efforts to make public tendering process objective and transparent in Scotland prevent PAs from considering prior work experiences with suppliers, sometimes generating conflicting points of view among SMEs. Company C finds “most frustrating that with the public sector it doesn't always feel that past work is taken into account” (Respondent 5) whereas Company A suggests that the use of framework agreements and frequent tendering “has got a lot of benefits […] where twenty years ago it was a closed shop”, leading to a new opportunity to bid for contracts vis a vis other competitors (Respondent 2).

6.2.2.2 Engagement in GPP

Findings suggest varying level of organizational awareness in regards to GPP. Respondent 2 of Company A suggests that “all [of the individuals] in the company have to actively be looking into [sustainability], otherwise we wouldn’t get any jobs”. Hereby, Respondent 2 suggested high level of general organizational awareness regarding GPP as the majority of the works received come from the public sector. Given Company C’s description as being an “environmental business”, Respondent 5 confirms high level of organizational awareness by stating “that is what we do and what we believe in”. Low to no levels of awareness of the term ‘GPP’ were found among Companies D and E. When asked about the familiarity with GPP, Respondent 6 (Company D) states not being aware of GPP as a distinct form of public purchasing: “I am just aware because you mentioned it”. Company E suggests that “environmental impact very rarely comes into [play]”, demonstrating low levels of awareness that suppliers are being assessed based on environmental criteria. Even to some extent, Company B suggests the uncertainty of whether they have actively participated in GPP. While not always aware of the changes in legislation surrounding SSPAP (2014) and the promotion of GPP, all five SMEs were aware to varying degrees of the importance of adopting green practices in the workplace.
Demonstrating the knowledge of the methods embedded within GPP, Company A and Company C acknowledged the use of life cycle assessment, eco-labels, and sourcing of green products. Respondent 2 (Company A) states that his purchasing officer is “doing life cycle assessment each time [they] buy green products”. Given Company’s A focus on construction, great emphasis was found on the sourcing of green products leading the company to pride itself as being “at the top of the list [of local SMEs] for using sustainable products” (Respondent 2). As an environmental consultancy headed by a Chartered Environmentalist and a member of the Institute of Environmental Sciences, Company C’s services are inherently green. Given the difficulty in transferring GPP practices from the manufacturing to the service sector, Respondent 5 (Company C) suggests the implausibility of applying eco-labels to the actions of the people delivering these services by saying that “there should be some improvement for the services”. Similarly, Company B also finds that “the general terms and conditions from a contract - a lot of that doesn’t apply to us because it is about goods and products – rather than around the services we provide” (Respondent 3).

When conducting the interviews, we also inquired on the companies’ experiences in complying with the requirement for evidence of the green practices in place as required by PAs in GPP. Within the construction sector, Company A suggests PAs conduct site visits to ensure the use of green products, “They will pick up a label of something and you can see them checking... They have their own people that check and make sure we comply all the time” (Respondent 2). Respondent 1 (SEPA) confirms that “if it is something like a construction contract, the relationship is very close [...] the contract manager is on the site on a regular, weekly basis [...] to check skips and all the things that are going out. Remaining SMEs were required to provide environmental policies, where Company B was also ISO 14001 certified (Respondent 3; Company Purpose & Values Statement). While not certified, Company E also submitted a comparative statement describing the environmental benefits derived from online learning versus traditional learning methods (Respondent 7; Company Environmental Considerations).

6.2.2.3 Rationale for participating in GPP

Findings suggest respondents that cost reduction is linked to SME’s motivation to reduce environmental footprint. Hereby, Respondent 2 (company A) states that “We are always looking at things [...] where we can improve. And it is not just about cost-effectiveness; it is also the environmental footprint that we are monitoring.” Referring to the use of public transport to replace driving, Respondent 3 (Company B) suggests that “we may be saving money but also being green”. Showing greater inclination toward cost reduction as main rationale for adoption of green practices, Respondent 7 (Company E) states that “is a mixture of initiatives [cost savings and being green] but it is basically keeping the costs down [...] much cheaper to go on the train than to take my car”.

Two SMEs (Companies B and C) state that competition may play an active role in adoption of green practices. More widespread among Company B, Respondent 4 explains that having an environmental accreditation “pays for itself”, meaning that “given the weight against the tender process, it is worth having. We are winning a lot of things because we are having that”. At the same time, Respondents 3 and 4 (Company B) relate having the accreditation with heightened reputation, stating the importance of having a “correct reputation” with current and potential customers. Summarizing, Respondent 3 (Company B) claims “the business advantage” outweighs the costs.
Regarding ISO 14001 certification, Respondent 1 (SEPA) states that “we don’t have it as a fail or pass criteria, but we will ask for any confirmation of the ISO14001 certification”.

To a lesser extent, Company C supports the element of competitiveness by stating that “When we first installed the solar panels on the roof, it was because we thought it was the right thing to do, but also because we were aware that feeds into our sustainability policy in a sense that we can say that this building produces as much electricity as it uses”. Respondent 5 views are supported when Respondent 1 (SEPA) claims that “we [SEPA] don’t say that they [the suppliers] are disqualified, but we would certainly give preference to those that provide us with environmental policy”.

6.2.2.4 Barriers for GPP engagement

Cost, time, and certification costs were main internal barriers cited by SMEs in their ability to adopt green practices to better respond to green requirements embedded in GPP. Respondent 5 from Company C states that “cost is the main barrier; we have done everything we can do, everything else would be moving to a different scale”, directly influencing the perception of size as an additional barrier for smaller companies when responding to GPP. In retrospective, Company A reported higher costs associated with the procurement of green products when compared to non-green alternatives. Respondent 2 (Company A) states that in the beginning: “Financially it wasn't good. We were finding that price for sustainable products [in the construction sector] was much higher, they were more expensive.” Similarly, Company B experienced cost-related difficulties when beginning to adopt green practices (Respondent 3).

Three of five SMEs interviewed find time and human resources to be a barrier when responding to calls for GPP tenders. When responding to tenders, Respondent 2 finds paperwork and difficulties staff has in locating the necessary materials to be a barrier (Company A). In regards to adopting green practices, Respondent 2 states that a “larger company will have people dedicated [to GPP tendering process]”, which is not necessarily the case within SMEs. Also stating lack of time as a barrier when tendering for public contracts, Respondent 5 (Company C) claims that “sometimes we can't tender for contracts because we just don't have the time. Longer deadlines would help, because a lot of tenders go out of really short deadlines, and they tend to all come out particularly towards the end of the financial year.” Replying to these deadlines is challenging in times of high workload (Respondent 5). When inquiring about the reasons behind not aiming for ISO 14001 certification, Respondent 7 suggests Company E is purely focused on furthering its core businesses, where allocating staff time to environmental certification is not particularly central to these efforts: “We don’t want to put processes in place that actually divert some of our staff from delivering projects for something that is not absolutely necessary.” Respondent 7 also states the accreditation to be “a very cumbersome process for something that actually is not really necessary for our business”.

In regards to adoption of ISO 14001, Company C also finds the costs of certification to not be appropriate for SMEs given the different organizational characteristics and micro and small sizes. Respondent 5 acknowledges the preference of PAs for companies being certified, however, at the same time states that “it seems the certifications are much about one-size-fits-all, so it is the same process whether you are a large company, employing a thousand people with massive premises, or whether you are two people
working in a spare room”. While still believing an accreditation “would not make the company any more green”, Respondent 5 states their willingness to cover certification costs if the process would be more applicable to smaller organizations (Company C).

Cost sensitivity of buyers, size of contract, conflicting experiences with GPP, and “one-off” contracts were cited as external barriers by SMEs. Cost sensitivity of buyers, meaning their preference for lower costs and unwillingness to pay higher prices associated with the use of green products/service, was mentioned by two of five SMEs (Company B and E). Company B states that cost sensitivity of buyers depends on who the client is, “where for some companies it comes into price” (Respondent 4). Also referring to costs, Company E states they would “never go for jobs where the price is the determinant factor... we offer very good quality services and that is not always the cheapest”. Only in contracts where price is not an issue, being environmentally and quality committed can act as a “swing factor” (Respondent 4). Company B’s focus on these issues is also stated within their Purpose & Value’s statement, claiming that “nobody ever regretted buying quality”. Addressing cost sensitivity of PAs, Respondent 2 (Company A) also confirms that “in the public sector green is good, they will spend money on green, convinced that that is the right way to be”, where private sector “green is bad because green costs money”. In this regard, Respondent 1 (SEPA) also states that “the private sector procurement [...] hasn’t really caught up”.

Cited by two SMEs in the sample, size of the contract may account as a difficulty in responding to GPP calls for tender. Company C affirms “we have looked at some of the contract above the threshold values but we haven’t tendered for those because we would have to be a part of a consortium of quite a few organizations, so that is less attractive from my point of view” (Respondent 5). Nonetheless, this rationale is driven by the company’s upper management’s preference to remain a micro SME. Company A also acknowledges contract size does impact tendering decisions. Given that their contracts range from a “few thousand pounds to a million pounds, not going for bigger contracts” Respondent 2 (Company A) and the fact that cost of tendering is equal for all contracts, Company A prefers to bid for contracts at the higher end of their range.

An additional pattern suggesting conflicting experiences when participating in GPP emerged from the data. In this regard, Company A finds an example within the construction sector where the PA is procuring “the wood-chip burners for the central heating systems” which are priced at approximately 50,000 £, leading to questions about the actual reduced environmental footprint and cost-efficiency. Since the timber required for the wood chip is exclusively imported from Germany, and "there are only three suppliers [of the woodchip] in Britain", this may lead to increased environmental footprint due to the transport involved, making some of the PA’s green initiatives "sound good on paper, but it doesn't always really work in reality". Additionally, Respondent 2 describes an example where “a big organisation within the private sector fitted a wood burning stove for 70,000 £ of installation costs, ran it 24 hours a day with the windows open. The money they were getting from the Government meant that they were being able to pay it back in 5 years and every year thereafter would be a profit”. Hereby, the Government’s efforts to influence the adoption of green products by private sector lead to misuse of public funds.

Referring to PAs’ use of one off contracts which do not necessarily take into account previous experience with the supplier, Respondent 5 (Company C) suggests increasing the flexibility in scope to incorporate prior work. Addressing the consistency of the
procurement process and criteria, Respondent 5 questions “how robustly this is implemented within the public sector because [...] what is the most important thing depends on a particular tender [...] sometimes I find that the interpretation goes one way for one tender and then for next it goes in another way”. Addressing the inclusion of prior work within ‘one-off’ contracts, Respondent 1 (SEPA) states that even though “a lot of small companies are reasonably sustainability aware but a lot of companies that answer the don’t realize that the way they are being marked is on the information they provide not on previous knowledge, it has to be as objective as possible”.

6.2.2.5 Enablers for GPP engagement

This case study finds upper management commitment, employee personal commitment, strategic proactivity and expertise as internal enablers allowing SMEs to better respond to green requirements of GPP. Four of five SMEs suggest upper management championing of the environment has influenced the adoption of green practices at the workplace (Companies B, C, D, and E). Given Company B’s frequent use of business travels, Respondent 3 (Company B) stated the shared concern between the directorate level and herself for pursuing ISO 140001, as a means to demonstrate the organization’s commitment to reducing its environmental footprint. Confirming the previous statement, Respondent 4 (Company B) claims their “managers and directors want to see us as the Marks & Spencers of the EAP world”, where Marks & Spencer has been recipient of the 2013 Environment and Energy Awards recognizing the company’s leadership in regards to its exceptional environmental and social performance. Within Company C, upper management championing of the environment defines the nature of the services provided, where the personal interests of its two founders and sole employees account for the increased adoption of environmental practices. Company D also finds “one of the directors specifically focuses on use of the recycling bins” (Respondent 6). Similarly, Company E finds the chief executive to heavily influence the use of low impact environmental products where available, making these practices visible to the staff (Respondent 7). As such, Respondent 7 states that while efforts are “led from the front, everyone accepts them as normal.”

Employee personal commitment was also found to positively relate to SMEs ability to respond to the environmental requirements embedded within GPP tenders. All SMEs indicated high employee commitment toward protecting the environment. As such, Company A finds individual employees within the company such as the purchasing officer who “does all the buying so he will always check if there are sustainable products when he is buying” (Respondent 2). Company B takes a more proactive approach toward making environmental awareness an inherent part in the day to day business, where Respondent 4 identifies which “processes, environmental activities and objectives targets are set, stating who is responsible for each”. Being in charge of compliance, Respondent 4 strives to continuously “raise awareness within team, identifying it as it is part of the role not something separate, but on the day by day”. Verifying proceedings from the respondents, the Environmental Policy from Company B states “environmental management procedures are subject to continual improvement and environmental impact management [where the company] operates a system of SMART management objectives and targets which include environmental aspects”. Given the size of Company C, where the employees constitute upper management, personal commitment toward environmental protection is implied given the background of these individuals. Company D suggests “all employees to be fairly into recycling, with few people cycling to work” (Respondent 6). Company E believes employees
would still be environmentally aware even if CEO was not leading by example (Respondent 7).

Strategic proactivity toward the environment also enables an organization to better comply with the green requirements embedded in GPP. According to Respondent 1 (SEPA), SEPA endeavours to set the example of getting the “private sector to be more aware [...] that environmental credential imposed on suppliers are carried down the length of their supply chain”. Findings suggest two SMEs made conscious efforts to pass on the need to reduce the environmental footprint to both their suppliers and customers, resulting in greening of the upstream and downstream supply chain. Respondent 2 suggests Company A emphasizes sourcing of green products as the main avenue by which to reduce its environmental footprint while simultaneously “greening” their upstream supply chain, thereby influencing wholesalers to increasingly offer green products. Referring to their suppliers, Respondent A suggests that “if they are clever they will know, so they will start buying green products and start stocking it”, indirectly promoting the use of green products by other contractors. Respondent also states that “if there is not a lot of change in the purchase prices, and the margins are good for the wholesalers they will use the green product anyway” (Company A). In this sense, Company A influences its direct wholesale suppliers but also indirectly creates a shift in the market toward green products. At the same time, Respondent 2 states the company’s willingness to “incorporate green products with our private clients”, suggesting the company’s efforts to “green” their downstream supply chain. Respondent 4 states that "in what we do we have the environmental accreditation, international standard 14001, so we are constantly setting objectives to improve our own environment”. Proactively engaging in internal/external stakeholder management, assessing the environmental impact of the company’s operations as well as the impact of their suppliers (Respondent 4), Company B recently began to question suppliers on concerns regarding social and environmental accountability. The information collected will be used to conduct risk assessments and subsequently elaborate recommendations where required. The company’s strategic proactivity was also visible through their Purpose & Values statement: “to be recognised as the leading, highest quality, most respected organisation in its industry”, where Company B “is the most accredited EAP, psychological and trauma services’ company worldwide, listing the ISO 9001, ISO 27001, ISO 14001, BS 25999, SA 8000 and Investors in People (Gold) standards amongst its quality accreditations”. SMEs constant focus on strategic proactivity responds to SEPA’s “focus on increasing the level of sustainability criteria [...] therefore the [suppliers] will have to increase their sustainability performance to get to the level where they can even tender for us” (Respondent 1).

While the remaining Companies C, D, and E were proactive in adopting green practises, either size or the nature of their services as inherently green limited the extent to which they could significantly influence the “greening” either upstream or downstream of their supply chain. As an environmental consultancy, services delivered by Company C are inherently green. Nonetheless, their micro size and low levels of procurement, as stated by Respondent 5, limits the company’s ability to influence their suppliers. Companies D and E have adopted green practices in house, where only Company E suggests trying to “actively encourage clients, national and international, to use Skype and use technologies [...] rather than traveling to have face to face meetings with them”.

Rather than slack of financial, technical, and human resources as suggested by literature (see Table 1 in chapter 2.5.2.2) findings suggest expertise derived through years of
undergoing public tendering process account as an enabler when tendering for GPP. In this regard, Respondent 2 (Company A) suggests that small companies can learn a lot from experience if they are involved with good clients that are actively promoting green products “you just learn because you cannot afford the professional training”. Respondent 3 (Company B) states: “we have our 'tender bible', we keep information when a particular expert has written something for us internally”. As such, the technical expertise is garnered in house and lessons learned are available for everyone to use through the company’s 'tender bible'. In regards to training for environmental awareness and adoption of green practices, Respondent 4 states that “training is done in house, so no real cost”, where Respondent 3 supported her colleague by stating they “use own experts in house to deliver training to others, as well as sharing of that information” (Company B). In terms of staff allocation toward environmental compliance, Company B was the only SME to have an employee dedicated to such initiatives.

Company D and E stated having staff allocated toward tendering processes, but not specifically toward environmental initiatives. Respondent 6 explains Company D is “set up to that, having received public tenders for a number of years”. Company E has three staff allocated exclusively toward tendering processes (Respondent 7). Hereby, SMEs built up own internal expertise through repeated engagement in public tendering processes, enabling them to better respond to the technical requirements embedded in GPP.

Trainings, knowledge/information sharing, feedback, communication with PAs and e-procurement to serve as external enablers. When asked on the use of external resources such as trainings and workshops, only two SMEs stated using or having used these resources. Respondent 7 (Company E) stated having participated in technical training, sponsored by a consortium of Scottish councils, where “the supplier development program built capacity within the supply chain”. Insights provided suggested the training was useful for the company in identifying possible sources of added value when tendering for contracts above the threshold value (Respondent 7). Similarly, Company B is enrolled in e-mail alerts for training courses aimed at improving SMEs environmental performance delivered by a private sector enterprise. While not having participated in these trainings, Respondent 2 (Company A) is aware that “we are going to have to train up some of the middle management in the next year because that sort of thing is being asked for more and more [by PAs]”. Specifically referring to the usefulness of the trainings provided by professional associations and based on another SME’s first-hand experience, Respondent 5 (Company C) “wasn’t terribly convinced it was a huge help so it wasn’t something that we ever looked at”.

Providing evidence to the active role of PAs in providing SMEs with access to information/knowledge on how to improve their environmental performance, Company E refers to their online learning course sponsored jointly by SEPA and the Northern Ireland Environment Agency. Respondent 7 describes the course as “aimed at supporting SMES with the skills within their business that they need to be environmentally aware of duty of things like waste, disposal of electronic and electrical equipment, pollution prevention, water use, and renewable energy”. Documentation regarding this online course further verified Respondent’s 7 description of the course (NetRegs, 2013). When inquired on information regarding SMEs’ use of this course, Respondent 7 states that 40% of registered users were SMEs. Company E also describes
a current project sponsored by SEPA to enable organizations to conduct online environmental assessments and access reports based on that (Respondent 7).

Respondent 1 (SEPA) states that SEPA offers the opportunity of feedback to all its suppliers where “feedback is an important element because [...] it is very difficult to know what you have done wrong in tenders unless somebody debriefs you”. Four of five SMEs cited the usefulness of feedback when responding to the GPP tendering process. Company A finds feedback from PAs to be useful: “They will actually say what was not good [...] they actively try and help you improve, which is good”. Moreover, Respondent 2 suggests PA’s feedback is useful by providing technical guidance on the specifics of the tender, what information/documentation must be included. In this sense, Respondent 2 states feedback will always include “a justifiable reason why, they will explain to you where you went wrong, there is no ambiguity [...] it makes us better, company becomes more comprehensive”. Companies B, D, and E find feedback to be useful and are content with the results, where Respondent 3 (Company B) finds PAs to be “really good at giving proper feedback”. This statement is supported by Respondent 7 (Company E) stating that in the last 18 months, feedback has become more accessible where PAs (mainly SEPA and National Health Service) have provided them with useful feedback regarding scores achieved. Respondent 5 (Company C) would also prefer to receive feedback regarding the company’s environmental performance, i.e. their sustainability policy, where the feedback provided can be implemented with lasting positive effects across the entire organization and not restricted to that specific tender.

Mixed reviews were found supporting access to communication with PAs as an enabler when responding to requirements embedded within GPP. Two of five SMEs suggest communication with PA is useful. Company A finds the willingness of experts such as architects and engineers to help when requiring technical advice on green products. As example, Respondent 2 suggests that “an architect might tell you that a particular product for an installation is better than the one that is being specified”. Respondent 3 (Company B) highlights the utility of the online portal for providing alerts regarding new contracts of interest. Respondent also finds useful the opportunity for questions regarding the tender, where questions are available up to a cut-off date. PA will also provide suppliers with a breakdown regarding the financial standing of the organization and policies required, where “you know that if you don’t have that policy you will be taken out of the process at that stage” (ibid). In contrast to Company B, Company E is sceptical about the usefulness of online questions accessible to all competitors, comparing this process to other countries where private communication with the PA is possible (Respondent 7).

Analysis suggests the use of e-procurement to be more predominant among health and safety services, consultancy, PR, and education sectors (Companies B, C, D, and E) when compared to the construction sector (Company A). Main advantages cited within e-procurement include alerts advising about new public tendering opportunities (Companies A, B, C) and online questions regarding open tenders (Company B). Contrary to the rest of SMEs, Company A is still required to submit physical tenders where Respondent 2 suggests the following example: “We had one of our guys yesterday coming here around 3 o’clock, picked the tender up, and drove to Perth, dropped it off to Perth. And on Monday, there is another one due to be turned it, and one of the guys will come in here, pick the package up and drive it to Perth”. The need to physically deliver tenders conflicts with aim of public authorities to reduce the environmental footprint caused by travels.
6.2.2.6 Green Practices

Usefulness of green practices for helping SMEs participate in GPP is seen from the analysis of their environmental policies. The adoption of green practices directly feeds into the environmental policies on which they are being evaluated in the tender assessment stage. Hereby, Respondent 1 (SEPA) states “we look for environmental policy statements and waste management statements if we can get them”.

All SMEs were engaged with recycling schemes, where Company A was also waste certified through SEPA. Hereby, Respondent 2 defines waste management as differentiating products such as wood, carpets, and construction scrap where each residual is disposed of by specialized companies (Company A). In regards to reverse logistics, where suppliers collect the products having reached their end of life, Company E stated having such practices in place. Respondent 7 suggests doing “lifecycle management where we cycle back out with their ICT service provider so they take everything away and recycle it back through their supply chain” (Company E).

Referring to sourcing of green products, most SMEs were applying such practice to varying degrees. Findings suggest Companies A, B and C to be at the forefront of purchasing green products. While Company A describes its construction services as non-green, they restrict their sourcing to green products from particular wholesalers whose products tend to have an environmental certification (Respondent 2). Companies B and C also emphasize sourcing of green products such as office stationary, light fixings, and purchasing of IT equipment. Findings suggest Company B to be very proactive in office refurbishment, where their Environmental Policy emphasizes improved use of resources and facilities management, including heating and power consumption. This was corroborated by Respondent 3’s detailed explanation of energy efficient practices such as low voltage light bulbs adopted in their older building in Glasgow, while their more modern building had automatic lighting. Unique in our sample, Company C has “installed solar panels on the roof [producing] as much electricity as [the office] uses” (Respondent 5). Similarly, Respondent 5 emphasizes their choice of green products when purchasing: “When there are things where we can make a choice, like buying paper or a new laptop, then we can go for the green element within that”. Company C’s commitment to balancing the carbon emission derived from their services is verified in the environmental policies where their “commitment to offset carbon emissions caused through business operations [is achieved by the] use of energy efficient equipment and responsible use of energy”, having recently installed solar panel to exceed the power requirements of the office. On a smaller scale, Company E also procures biodegradable products including paper and cleaning products for office use (Respondent 7).

Use of public transport was also cited as one of the main ways by which to reduce carbon emissions (Companies B, C, & E). Within Company B, Respondent 3 states their preference for “taking the train rather than driving” which feeds into the company’s accounting system which monitors the reduced car mileage and environmental footprint. Written within its environmental policy, Company C suggests the use of public transport as first choice. Similarly, Company E’s Environmental Policy emphasizes the use of alternative means of transportation, encouraging car sharing and public transportation; the organization’s Environmental Considerations statement also describes the use of online learning as means to decrease the commuting efforts from staff and learners, “thereby reducing the harmful emissions and pollutants created by
various methods of transportation”. Related to reduction in carbon emissions derived from transportation companies B and E capitalize on the use of video conferencing (VC) to deliver their services. Respondent 3 (Company B) states that “one of the early things we did was bring video conferencing rather than face to face. Most of the contact is on the telephone, we also do e-communications”. Respondents 3 and 4 from Company B emphasized the use of VC and telephone as alternative to visiting client premises, suggesting these visits reduced to one or less per year, relying on monthly emails. The use of IT Communications is reinforced by Company B’s Environmental Policy as a way of acting upon their environmental impact. Respondent 7 (Company E) states IT communication “is making use of technology that is already sitting in people’s desk, is delivering learning without the travel costs and reducing the carbon emission… we don’t have a greener option”. To a lesser degree, Company C also relies on IT communication such as Skype to communicate with clients in situations of dispersed geographic location. Also, the digitalization of documents increasingly replaced the use of hard paper copies (Company B and E). Respondent 4 (Company B) reports a 40% reduction in the use of paper since 2012, where past ordering of 550 rims of paper has been reduced to 324. Company E reports all marketing materials to be in digital form, self-accessed by customers through the organization’s website or by emails with soft copies attached (Respondent 7).
7 Discussion

Purpose of this section is to discuss the main findings discovered in the analysis of the results (chapter 5). In order to obtain deeper insight into the chosen topic, the findings are related to the prior literature (chapter 2). Discussion is organised in three parts. First section discusses findings from SEPA in relation to the previous studies about GPP implementation among PAs. In the second section we will focus the discussion of findings about SMEs response to GPP following the concepts presented in the theoretical framework (chapter 2.5.3) and relating them to theoretical propositions derived from the literature on GSCM and private companies' engagement in GPP.

7.1 GPP implementation in SEPA

7.1.1 Government and top management leadership

As evidenced from the interview with Respondent 1, Scotland Government's proactive efforts in implementation of policies and regulatory frameworks regarding environmental protection and implementation of sustainable procurement among PAs is seen as a positive influence on SEPA's efforts to include sustainability in their procurement. SEPA's view is in line with the research that suggests political support from the governments, in terms of legal guidance and setting the priorities, is facilitating implementation of green practices in procurement activities (Brammer & Walker, 2011, p.471; Nijaki and Worrell, 2012, p.141; Thomson & Jackson, 2007, p.433). Top-management support for organisation-wide engagement in GPP through establishment of operational guidelines and annual targets for the level of green criteria in SEPA purchases confirms that top-management's active role enables procurement department to successfully engage in GPP (Testa et al., 2014, p.5; Thomson & Jackson, 2007, p.433; Walker & Brammer, 2009, p.134). Additionally, in the case of SEPA, majority of the staff is environmentally driven therefore procurement department is able to use their intrinsic motivation, complemented with awareness training sessions, to support GPP efforts. This extends the cases of UK, Italian and Norwegian surveys where staff motivation was seen as important driver for GPP implementation (Testa et al., 2014, p.6; Thomson & Jackson, 2007, p.437).

7.1.2 Internal organisational capabilities

Level of implementation of green practises in procurement has been found to correlate with the size of the PA and the level of technical and legal competences (Michelsen & de Boer, 2009, p.163; Testa et al., 2012a, p.93). Without a comparable case, it is difficult to judge whether this applies to SEPA's purchasing department. Some research finds lack of internal capabilities (Testa et al., 2012a, p.93) to be an important barrier for GPP implementation, therefore SEPA's high score in Scottish Government procurement assessment indicates that the procurement staff's endowment in technical and legal capabilities fosters adoption of GPP practises.

Technical competences are the outcome of SEPA's core activities in environmental protection. Hereby involvement of contracting managers in development of statement of requirements, used to assemble the technical specification and green criteria within,
helps disseminate intra-firm knowledge on environmental aspects, deemed essential for successful uptake of GPP (Testa et al., 2012a, p.94; Testa et al., 2014, p.5; Thomson & Jackson, 2007, p.437; Walker & Brammer, 2009, p.134). Furthermore, absence of centralised purchasing which was found to be a barrier among UK and Italian PAs (Testa et al., 2012a, p.94; Thomson & Jackson, 2007, p.43), is overcome in SEPA by having centralised department with specialised personnel dealing with GPP challenges on a full-time basis.

Legal competences are fostered through in-house procurement workshops and awareness training sessions, where continuous dialogue between the procurement team and contract managers ensures SEPA's procurement department legal knowledge is communicated to the rest of the organisation, confirming the importance of training and 'pure' procurement skills (Michelsen & de Boer, 2009, p.164; Testa et al., 2014, p.5). Although some research suggests that collaboration with other PAs might additionally aid the development of necessary capabilities (Kunzlik, 2013, p.178; Walker & Preuss, 2008, p.1605), in their efforts to partner with other, SEPA's procurement department encountered difficulties in the form of internal cost associated with such practises and maintaining the alignment between green demands of different PAs. This finding suggests that, similarly to local PAs in Norway, lack of interest from other PAs may hinder collaborative efforts in the public sector (Thomson & Jackson, 2007, p.435).

### 7.1.3 Procedural difficulties

Translating the product or service requirements into performance specification to be incorporated in the green criteria has in previous research been associated with procedural difficulties that hinder the implementation of GPP (Michelsen & de Boer, 2009, p.164; Thomson & Jackson, 2007, p.437; Testa et al., 2014, p.5). To overcome the complexity of the process, SEPA employs the already mentioned procurement trainings, coupled with maintaining database of previous procurement requirements in Delta procurement portal and database on supplier scores in previous purchases. It can be argued these practices present SEPA’s internal tools for decision making that support purchasing staff in GPP implementation (Testa et al., 2014, p.5; Thomson & Jackson, 2007, p.437). Furthermore, in the last four years SEPA utilises its ISO 14001 certification to support administration efforts in monitoring and understanding of environmental requirements, thereby enabling procurement decisions (Testa et al., 2014, p.6; Thomson & Jackson, 2007, p.437) and stimulating suppliers compliance with the green requirements (Testa et al., 2012a, p.94) by favouring those certified in environmental management.

Previous research reveals that presence of procurement and environmental policies correlates with the frequency of incorporation of environmental demands in the tenders (Michelsen & de Boer, 2009, p.164). This study revealed the existence of clear environmental strategy and both environmental and procurement policies in SEPA, which may indicate that these act as facilitators for GPP given that SEPA incorporates 10% of sustainability criteria in technical specification of all its purchases, regardless of the nature of the product or service procured. Therefore, findings from SEPA corroborate evidence from Italian and Norwegian surveys which find that policies alone are not significant drivers (Michelsen & de Boer, 2009, p.164; Testa et al., 2014, p.6), but adherence to policies needs to be followed by incorporation of green criteria in the early stages of the procurement process (Testa et al., 2012a, p.94; Testa et al., 2014, p.5), followed by evaluation and supplier selection based on the green criteria and
monitoring of results (Michelsen & de Boer, 2009, p.164; Testa et al., 2012a, p.94; Thomson & Jackson, 2007, p.433). Contrary to the evidence from the UK, where policies rarely covered provision of works (Thomson & Jackson, 2007, p.434), in SEPA's case incorporation of green requirements in construction works indicates adherence to GPP in all purchases.

Findings about SEPA's requirements, on which green criteria is based, confirm previous evidence about environmental knowledge and EMS being most often sought from suppliers by PAs (Michelsen & de Boer, 2009, p.163), whereby environmental knowledge implies the knowledge about energy efficiency of products, waste management and transport-related emissions. Furthermore, the use of MEAT criteria for evaluation of suppliers' bids against the requirements, suggests that SEPA's purchasing department is able to develop effective green tenders (Testa et al., 2012a, p.94) demonstrating potential for increase of GPP practises (Testa et al., 2014, p.5). Successful achievement of 5% and 10% set targets level of green criteria embedded in SEPA's tenders might serve as a proof of the growth of GPP practises. Contrary to Michelsen & de Boer's (2009, p.164) findings, rather than preferring templates for green tenders and the use of European green criteria, SEPA's procurement department relies on individual thinking and creativity in formulation the criteria, thereby maximising the intrinsic motivation and technical competences of the individual staff members. Similarly to Testa et al.'s (2014, p.6) findings, we find that SEPA's approach to GPP is largely influenced by organisational efforts and strategic choices, made stronger by SEPA's recognition of interrelatedness of GPP with other policies regarding environment protection. This finding is in line with Preuss (2009, p.220) assertion that organisational culture and strategy play an important role in adoption of sustainability in procurement.

7.1.4 Competing objectives

Some studies emphasised PAs' focus on cost as the main criteria for supplier selection (Guenther et al., 2013, p.418; Michelsen & de Boer, 2009, p.165; Walker & Brammer, 2009, p.134) however in the case of SEPA focus is on sustainability rather than on the cheapest offer. By utilising LCA final contract award is based on consideration of expenses associated with end-of-life disposal or re-use of the products thereby considering the offset of cost on the long run. Certain specialised products or services, for which availability of the suppliers is limited, are procured based on core competences of the suppliers rather than on sustainability. However, even in those cases, SEPA requires mandatory 10% of criteria to be based on green requirements. Being the leading environmental regulator in Scotland, SEPA's priorities are environmental protection, and as such environmental considerations are primary concern. In this sense, although as a non-departmental government body SEPA needs to rationalise public spending, there does not seem to be competing objectives impinging on available procurement budget, as indicated in some previous studies (Brammer & Walker, 2011, p.471). Furthermore, Walker & Brammer's (2009, p.135) findings about modest pursuit of environmental requirements compared to social and economic aspects in the UK, do not apply in SEPA's case. SEPA's competence in regards to environmental knowledge coupled with flexible approach to criteria formulation enables the organisation to pursue the defined sustainability targets in procurement and at the same time target the subsector of SME's through direct invitation to participate in the tenders. Hereby, the use of e-procurement portal and developed environmental
management toolkit for SMEs facilitate the spread of information about GPP. Additionally, as SEPA annually compiles and publishes relevant information regarding their GPP targets and practises, has trained procurement personnel, developed procurement strategy and Sustainable Procurement Policy in place, according to Preuss (2009, p.219) it qualifies as a best practising organisation in the context of GPP.

7.2 SMEs engagement in GPP

7.2.1 Public tendering experience and awareness of GPP

All SMEs reported successful past experience with public tendering, where this can be explained by the use of SEPA as main point of contact by which to reach the SMEs. Direct invitation, i.e. quick quotes was often cited as one of the ways by which SMEs where directly contacted by PAs to participate in public bidding. The surfacing of direct invitation aligns with findings from Corsi et al., (2006, p.385) which suggest the use of direct procurement systems where PAs directly reach out to suppliers, enabling access to new suppliers, including SMEs while aligning to broader goals of sustainability. Within this study, direct invitation was found be used for values below the threshold where greater flexibility in applying green criteria is allowed (Nissinen et al., 2009, p.1845) therefore permitting negotiation and better opportunities for supplier development (Michelsen & de Boer, 2009, p.161).

Specifically referring to GPP, less than half of the SMEs were aware of what GPP entailed and reported having participated in GPP tenders. Among those aware (Companies A and C) agreement was found suggesting that the public sector is the leader behind GPP, where remaining competitive in this market entailed being compliant with requirements regarding green procurement and practices (SEPA, 2014b). Similarly, prior research corroborates the need for PAs to lead the movement toward GPP (Michelsen & de Boer, 2009, 164; Thomson & Jackson, 2007, p.433). Companies A and C also found the tendering process within GPP to offer the possibility of SMEs to bid for an increased number of contracts, contrary to the private sector where contracts may be awarded on the basis of prior work done. Case study findings’ align with Preuss (2007, p.359) who finds proactive local PAs within UK to promote increased inclusion of SMEs in public tendering. As such, the use of fair and transparent procedures coupled with verifiable criteria increases the likelihood of SMEs to participate in GPP (Maziarz, 2013, p.283). However, GPP methods such LCA, eco-labels, and sourcing of green products have been adopted only by Company A, while Company C questioned the transferability of tools such as eco-labels to the service sector. This finding supports Mosgaard et al.’s (2013, p.138) study on non-product procurement which finds that tools such as LCA and eco-labels rarely find application in the service industry. Regarding requirements of proof of compliance with green criteria, SMEs suggest environmental policies were often requested (Companies A, B, C, D, and E). Prior research also finds large buyers to frequently request proof of compliance in the form of EMS and environmental policies (Mosgaard et al., 2013, p.138). In the case of Company A, having waste management certification was more relevant for the construction industry, as previously suggested by Preuss (2007, p.362).
7.2.2 Rationale for SMEs participation in GPP

Companies A and C exhibited high awareness, understanding, and participation within GPP. These companies cite competitiveness and increased environmental requirements from the public sector as main reasons for engaging in GPP. Companies A and C emphasize the legislative “push” by PA as a main driver. As such, these SMEs are aware of PAs’ evaluation on green criteria measuring the extent to which they comply with GPP tools such as LCA, sourcing of green products, waste management practices, and EMS. Additionally, the fact that Company C is an environmental consultancy emphasizing green services as their line of business requires the organization to minimise reputational risk. Extant research (Brammer et al., 2012, p.432; Pimenova and van der Vorst, 2004, p.553; Revell et al., 2010, p.281) supports competitiveness and reputation as two out of three most important reasons for SMEs adopting green practices, where the third reason cited was cost savings. The adoption of green practices due to cost saving will be explored in more detail in green practices (chapter 7.2.5) as this underlying reason was not mentioned as rationale by companies A and C. Findings from Brammer et al. (2012, p.432) suggest becoming a leader in the industry and entry to new market as two top reasons why SMEs adopt green processes and practices. Similarity, in this case study SMEs emphasize their potential to become leaders in their sector (Company A) and attract new customers (Companies A and C). Revell (2010, p.281) also finds two thirds of SME business owners to be motivated by the potential to attract new customers. A third study (Pimenova and van der Vorst, 2004, p.553) finds improved image ranked first and competitiveness second. This case study finds Company C to prioritize company image as main reason for compliance with as much green practices as possible given financial constraints and micro size, while both Companies A and C cited winning more public tender contracts as additional reason to adopt green practices. Herein, companies A and C are aware of the direct relationship between increased adoption of green practices and improved sustainability score granted by PAs during public tendering processes.

7.2.3 Barriers for participation in GPP

7.2.3.1 Internal barriers

Comparing against the identified internal barriers in the literature (see Table 2 in chapter 2.5.2.4), this case study supports cost, time/scarcity of human resources, and certification costs as barriers when responding to green requirements embedded in GPP. Prior research (Cote et al., 2008, p.1568; del Brio & Junquera, 2003, p.943; Pimenova & van der Vorst, 2004, p.552; Vasilenko et al., 2011, p.60; Worthington & Patton, 2005, p.205) suggest time and financial expenses are main barriers when responding to “green” requirements. While companies A and B found cost barriers at the early stages of adoption of green practices, Company C finds certification costs as barrier. Similar to extant literature, SMEs in this study (Company A, C, and E) find time to be a barrier both when responding to public tendering and adopting green practices, as suggested by Cote et al. (2008, p.1568). Lacking the ability to allocate human resources to “become greener” was especially relevant to Company E. No support was found for upper management’s disregard of the environment (lack of upper management support), lack of capabilities (technical, logistical, and legal), low levels of environmental awareness, and ambivalent attitude toward the environment. Context of this study, high awareness of sustainability issues in Scotland and companies’ previous experience working with
SEPA serve as plausible explanations for the lack of support for these barriers. The Scottish Government (2012) is proactive in achieving a 'Greener Scotland' where efforts are made at the national level to reduce climate change and its environmental impact, improve waste management and increase the use of renewable energy. As such, citizens in general have a greater level of awareness emphasizing the importance of reduced environmental footprint. At the same time, government efforts are supported by SEPA, where the organization provides guidance to businesses on how to improve their environmental performance (SEPA, 2014a). In this sense, having worked with SEPA may have led to SMEs’ greater level of organizational awareness and reduced ambivalent attitudes toward the environment. This case study finds two SMEs suggest being influenced by SEPA in their uptake of green practices, either sourcing of green products and waste management certification by SEPA (Company A) and the use of recycling bins (Company E). Prior study conducted in the UK also suggests a general increase in environmental awareness and proactivity among SMEs can be due to heightened general citizenship awareness surrounding climate change and reduced environmental footprint (Revell et al., 2010, p.273).

7.2.3.2 External barriers

In regards to external barriers, this study finds cost sensitivity of buyers, size of contract, conflicting experience with GPP goals, and 'one-off' contracts to act as external barriers when responding to GPP. Cost sensitivity of buyers is relevant for SMEs that claim high quality, including environmental certifications, where some SMEs like Companies B and E would be less likely to participate in tenders where price is the determinant factor. At the same time Company A, operating in the construction sector, finds the PAs are willing to pay the 'green premium', meaning higher costs associated with the procuring of green products versus non-green alternatives when compared to private buyers who award contracts based on minimum cost and time (Revell, 2007, p.121; Revell & Blackburn, 2007, p.412).

Size of contracts, rather than aggregation of demand, was cited as barrier by Companies C and A, where the underlying reason to bid was lack of capacity to meet the buyer's demand. Prior research (Fee et al., 2002, p.328; Loader, 2005, p.23; Loader, 2011, p.292) finds smaller contracts more accessible for SMEs to participate in public tendering processes.

Mixed reviews were given regarding the use of one-off contracts, where Company A perceived them as beneficial given the opportunity to bid for more contracts, while Company C suggested the drawback of prior work not being taken into consideration. When compared to external barriers identified in the literature (see Table 2 in chapter 2.5.2.4), no support is found for lack of knowledge regarding the tendering process and lack of trust in the relationships between SMEs and public buyers. This may be explained by the fact that primary point of contact to the SMEs was SEPA, where these SMEs had been awarded a contract the last two years. Similarly, SMEs included in the sample had years of being in operation as well as years of experience in public tendering. This case study also finds SMEs have encountered conflicting experiences with GPP’s goal regarding reduced environmental footprint. This is evidenced by Company A’s experience within the construction sector, where installation of green products that require importing raw materials from abroad result in higher rather than reduced environmental impact given transportation costs. Hereby, the inability to source
green products locally becomes a barrier when responding to green efforts embedded within GPP.

7.2.4 Enablers for participation in GPP

7.2.4.1 Internal enablers

Management championing of the environment, employee personal commitment, strategic proactivity toward the environment, and empirical expertise from years of tendering for public contracts served as internal enablers for SMEs when responding to GPP calls. Absence of enablers may hinder or delay the adoption of green practices (Lee & Klassen, 2008, p.580), making it more difficult for SMEs to respond to green requirements. Findings from this study, regarding management championing of the environment and employee personal commitment acting as internal enablers to adopt green practices, have been widely supported by the literature (Coffey et al., 2013, p.769; Lee & Klassen, 2008, p.580; Parker et al., 2009, p.285; Worthington & Patton, 2005, p.202). Managers who are committed to reducing the environmental footprint lead by example, making it easier for employees who are not already committed to adopt environmentally responsible practices.

This study finds that SMEs who reported managerial and employee commitment to green practices, are more likely to be strategically proactive and influence their upstream and downstream supply chains (Companies A and B). By sourcing green products from wholesalers, Company A indirectly increased the supply of green products in the market. Similarly, efforts were stated by the company to influence private sector clients into purchasing green products. In addition to sourcing green products, Company B consistently demonstrated high levels of strategic proactivity by opting to review suppliers based on environmental performance and devising recommendations for improvements were necessary. Describing the mechanism by which Companies A and B convey these green efforts to suppliers, Vachon & Klassen (2006, p.798) label this as 'environmental monitoring', where companies assess suppliers by their ability to achieve environmental certification, comply with regulations, and provide environmental-related documentation. In this sense, Companies A and B are following examples of leading authority SEPA, which endorses environmental monitoring as means to persuade increases in environmental performance of their suppliers.

With the exception of Company C whose services are inherently green, Companies D and E find few to no ways by which they can influence their supplies or customers to adopt green practices. Akin to the findings from Companies D and E, Coffey et al. (2013, p.771) find limited evidence supporting SMEs’ belief that they can actively influence suppliers or customers. Similarity of findings may have arisen from the fact that in both cases the sampled companies were derived from the IT sector, where the companies rely on the use of technology to deliver their services.

Expertise in tendering, rather than technological, financial and human resources slack was more supported by our research. Contrary, Lee (2008, p.195) finds SMEs with resource slack to be more willing to participate in GSC initiatives. However, prior study derived its findings from the manufacturing sector, making it possible that type of financial, technological, and resources slack differs from the service sector. In this
sense, it may be possible for SMEs to adopt green practices that do not require changes in operations line or high end manufacturing equipment.

7.2.4.2 External enablers

Extant research emphasized collaborative relationships as means by which buyers can influence the adoption of green practices among suppliers, jointly developing green solutions (Bala et. al., 2008, p.1617; Lee & Klassen, 2008, p.582; Vachon & Klassen, 2006, p.810). Given this study’s context, public procurement legislation prevents formal collaborative relationships between PAs and SMEs. As such, original external enabler of collaborative relationships was replaced with trainings, suggesting that collaboration as an enabler in the private sector might not be applicable for the public sector. Hereby, training was supported by Company E’s access to supplier development programs which focused on building SME capacity to respond to changes in procurement legislation, mainly the SSPAP where GPP is addressed.

Regarding the importance of training, Loader (2005, p.22) finds SMEs identify lack of competence as barrier, where they state the need for trainings and qualifications to efficiently and effectively bid for public tenders. Complementing the importance of training, knowledge sharing was found useful in providing SMEs with information on how to better improve their environmental performance. Information provided by Company E suggests PAs are moving in this direction by providing free access to online training courses to provide SMEs with the skills and knowledge required to improve environmental performance, although Companies A, B, C and D have not, at this moment in time, taken part in them. The need for knowledge transfer has been previously supported (Lee & Klassen, 2008, p.194; Pimenova & van der Vorst, 2004, p.556), where SMEs find knowledge on how to improve environmental performance (environmental management consultancy, environmental knowledge and environmentally responsible best practices) coming from PAs and delivered free of charge particularly useful.

Findings from this study suggest that feedback and online communication, provided by PAs, focus on the technical specifications of the tendering process rather than providing additional information on how SMEs can proactively reduce their environmental footprint. Lesser environmental impact may result in improved sustainability scores allowing SMEs to be more successful when bidding within GPP. SMEs provided limited support for access to communication with PAs as an external enabler that allowed the organization to improve compliance with green requirements. Only Company A found access to communication with PAs in regards to environmental matters useful when accessing technical advice regarding specific green products. Nonetheless, feedback and communication access with PA when improving SMEs capacity to bid for public tenders facilitate contract award.

The use of E-procurement, particularly Scotland Procurement Portal, was cited by all SMEs where its use increased awareness of new public tendering opportunities, providing SMEs with email alerts of potential contracts in their field of interest. The widespread use of e-procurement by SMEs responds to previous research (Loader, 2005, p.21) where SMEs identified lack of awareness of opportunities and limited communication with PAs during tendering process as barriers to effectively tender for public bids. At the same time, this case study does not support Walker & Brammer's (2012, p.266) finding that lack of IT capabilities excludes SMEs from being aware of
new bidding opportunities through e-procurement. However, it is very possible that SMEs included in this case study differ in their IT capabilities when compared to prior research sample, having higher levels of IT technology which positively influenced their past ability to win awards through SEPA.

When compared to Table 1 in chapter 2.5.2.2, technological or financial support leading to increased likelihood in adoption of green practices could not be supported. This case study finds SMEs did not tap into any external sources of financial support that would improve their environmental performance and enable them to more successfully participate in GPP, as suggested by Lee & Klassen (2008, p.576) and Vasilenko et al. (2011, p.59). Scottish legislative framework, which allows three year contracts with the possibility of one or two years extension through framework agreements, is able to provide a form of financial security, however only Company A and B reported being involved in these. Overall, findings from this study partially support enablers identified from background literature review, while additional support emerged for expertise.

7.2.5 Green practices

Despite low levels of GPP awareness, general awareness of the importance of reducing the environmental footprint was widespread. A plausible explanation is the context of this case study, where Scottish government has established national efforts for a 'Greener Scotland', with the primary objectives of environment protection and reduction of the environmental impact of consumption and production patterns (Scottish Government, 2012). Findings from this case study suggest all SMEs had adopted green practices to varying degrees, ranging from only adopting the 'low hanging fruits' to engaging in more complex practices such as LCA and implementation of EMS. 'Low hanging fruits' refer to the practices that can be easily adopted with minimised organizational effort that tend to be associated with a reduction in operational costs (Orsato, 2006, p.133). As such, these findings support cost savings/advantages as a third reason leading to the adoption of green practices. Commonly adopted green practices cited as cost savers included use of public transport, digitalization of documentation, use IT communications such as VC and Skype, and online learning (Companies B, D, and E). Companies using public transportation, mini vans rather than individual cars, and pursuing VC rather than face to face communication reported being green through reduced carbon emissions while simultaneously achieving a reduction in costs (ibid). These findings are supported by the extant literature suggesting potential cost saving as additional reason for adopting green practices, besides competitiveness and improved image (Brammer et al., 2012, p.432; Pimenova and van der Vorst, 2004, p.553; Revell et al., 2010, p.281). Revell (2010, p.281) finds three quarters of SMEs motivated by the potential of future cost savings from increased efficiency in the use of energy and resources. In addition to cost saving, Company B states being EMS certified positively influences company image and their ability to attract new customers, supporting Pimenova and van der Vorst’s (2004, p.553) study where improved image and potential to attract new customers were cited as the first two of three reasons for adopting green practices, where cost savings were cited last.

SMEs’ self-perception of the organization’s environmental impact was minimal, where employees already viewed the companies' services as green (Companies B, D and E). This case study’s findings, regarding minimal perceived environmental impact from services delivered by SMEs, support prior research (Coffey et al., 2013, p.771; Pimenova & van der Vorst, Revell & Blackburn, 2007, p.418; Worthington & Patton,
2005, p.202). Similar to findings within sampled SMEs, cost savings derived from adoption of green practices were also found to be realised two years after initial investment among large suppliers (Horvathova, 2012, p.96; Testa et al., 2011, p.2142).
8 Concluding remarks

First section presents key findings explained in the scope of the main research question, sub research question, and research objectives. Second section addresses managerial implications of this research. Third section presents theoretical contribution. Fourth section presents limitations of this case study and fifth section identifies possible avenues for further research.

8.1 Key findings

This case study aimed to answer the research question: What enablers and barriers SMEs face when responding to GPP requirements set forth by PAs? Five SMEs and one PA, deemed at the forefront of GPP implementation were interviewed. During the process of data gathering and analysing, two main components influencing the ability of SMEs to respond to GPP requirements set forth by PAs were discovered: 1) Presence or lack of ability of SMEs to effectively bid in GPP tenders, and 2) Presence or lack of ability of SMEs to adopt green practices that increase the organization’s sustainability score evaluated within GPP tenders. Therefore, the enablers and barriers surfacing in the research were associated both to the capacity of SMEs to bid within GPP but also to become more environmentally responsible. When examining the barriers and enablers faced by SMEs when responding to green requirements within GPP, we find enablers particularly relevant to the likelihood of SMEs adopting green practices.

Management championing of the environment, employee commitment, strategic proactivity, and expertise are main internal enablers when adopting green practices but also when implementing EMS in the organization. Management championing of the environment was widespread in four of five SMEs and was found to positively associate with employee commitment present in all SMEs. Hereby, SMEs state upper management is leading by example providing inducement for employees in regards to adopting green practices. At the same time, SMEs cite high individual employee commitment toward reducing environmental impact. Regarding strategic proactivity, Company B proactively managed organizational activities to reduce environmental impact internally, as well as upstream and downstream in their supply chain. Similarly, Company A led efforts to procure green products within the SME construction sector, influencing wholesalers to increase supply of green products in the market. This demand pull may influence the overall shift in the market for more environmentally responsible products. Remaining SMEs exhibited varying levels of green commitment.

Surfacing in the analysis, internal expertise served as enabler insofar it positively influenced SMEs’ ability to bid for public tendering, an essential step toward PA’s implementation of GPP. These companies had staff with years of experience dedicated toward public tendering.

In regards to external enablers, trainings, knowledge/information sharing, feedback, communication with PA, and use of e-procurement were found to be applicable. One SME participated in public tendering training, while another participated in trainings delivered by the private sector aimed at improving environmentally responsible practices. In regards to knowledge sharing, evidence was provided indirectly through Company E’s mention of SEPA’s NetRegs program aimed at increasing SMEs environmental performance. While sampled SMEs did not participate in NetRegs,
Company E reported 40% of organizations enrolled in NetRegs were SMEs. Feedback and communication with PAs were predominantly associated with the public tendering process rather than green practices. Majority of SMEs cited usefulness of feedback in regards to general scores achieved in tendering process; however one SME mentioned its preference for receiving feedback on sustainability score and recommendations on how to improve it. Regarding communication with PAs, only one SME received expert advice on specifications of green products. Company B positively rated communication with PAs while Company E reported being more sceptical regarding the usefulness of general rather than one on one inquiries with PAs. All SMEs engaged in e-procurement, where e-procurement allowed increased awareness of new GPP tendering opportunities.

In general, in this case study fewer barriers than enablers were found. Internal barriers found were cost of green practices, certification costs, and time; main external barriers were cost sensitivity, size of contracts, and conflicting experience with GPP goals. Initial cost barriers to adopt green practise were mentioned by Companies A and B, while Company C cites certification costs for EMS to be a barrier. Time constraints were cited in regards to public tendering and adoption of green practices. Company E suggests their inability to divert resources to practices that are not directly related to core businesses. In regards to time constraints when responding to GPP deadlines, Company C finds short timeframes allowed to respond to GPP calls limiting. Size of contracts was mentioned in regards to established capacity of SMEs, where Companies such as B and C recruited additional personnel while Companies A and E preferred to bid for contracts which allow them to utilise existing human resource capacity. A barrier not previously identified in the literature was conflicting experience with GPP goals, were Company A questioned cost-effectiveness of installing green products when raw inputs accrued high environmental footprint due to transportation costs.

Sub research question 1 examined how SMEs understood the requirements and tools embedded in GPP. Findings from this case study suggested limited awareness of GPP among SMEs, where only two of five companies understood and actively participated in GPP. These companies had already implemented some of GPP methods: LCA and procurement of green products. One more SME, Company B, had implemented an EMS. However, main underlying reasons for Company B’s adoption of EMS were competitiveness and leadership in their industry while reduced environmental impact came second. Having held contracts with SEPA in the last two years indicated all SMEs had already participated in GPP, albeit unknowingly. Demonstrating high awareness and understanding of GPP methods, Company C questioned the transferability of eco-labels from the manufacturing to the service sector. While not stating awareness of GPP, Company B found the terms and conditions embedded in GPP contracts to be more relevant to product rather than service based sectors. Hereby, findings suggest SMEs have limited awareness and understanding of GPP requirements set forth by PAs.

In regards to research objective 1: To explore the enablers and barriers PAs face when formulating the green requirements within GPP, we find that SEPA exemplifies a best practising PA in regards to GPP implementation. Their ability to formulate the green requirements and translate them in the public tenders is facilitated by enablers identified as organisation-wide engagement in sustainable thinking, supported by the top-level management. Additionally, internal capabilities to implement processes and practises associated with GPP are being developed by inter-departmental coordination of purchasing and non-purchasing personnel, enabling the widespread understanding of legal and technical requirements. Additionally, procedural difficulties are overcome by
SEPA's purchasing department through centralisation, continuous training, EMS certification and the use of MEAT criteria, all which are supported by environmental and sustainable procurement policies. No competing objectives, impinging on the available budget, were disclosed by the PA. Therefore, this study finds that independently of PA's lack of barriers when implementing GPP, SMEs awareness of the increasing focus on green requirement in public purchasing is not achieved, hindering market-wide implementation of GPP.

Research objective 2 explores the relationship between SMEs and PAs within the GPP framework. Given the Scottish legislative context, no formal relationships are allowed within the GPP framework. However, in this study the PA pursues means by which to increase opportunities for SMEs to bid for GPP tenders. Three SMEs reported being directly invited to tender for the PA, and additionally two SMEs were involved in framework agreements with PAs. The use of e-procurement and automatic e-mail alerts about new tendering opportunities improves the communication between PAs and SMEs. This study also found that the PA invests financial resources by providing SMEs with knowledge/information sharing programs such as NetRegs and online assessments for environmental performance. The PA provides feedback aimed at increasing SME’s internal capacity and knowledge to improve the quality of tenders submitted.

Regarding research objective 3: to identify the benefits SMEs perceive from adopting green practices, three main benefits were found. Among SMEs aware of GPP (Companies A and C), competitiveness and improved company image were cited as main reasons for adopting green practices. Competitiveness, defined as the ability to attract new customers was cited as the first main reason. Similarly, improved company image through the adoption of green practices led to higher sustainability scores when bidding for GPP tenders. Not specific to the GPP context, green practices were adopted to varying degrees by all SMEs. Herein, cost savings derived from implementing the 'low hanging fruits' were being realized. Since SMEs had limited awareness of the potential of new customers resulting from the increased GPP requirements by PAs, they were less likely to proactively research into green practices that foster innovation in the services delivered, while simultaneously reducing environmental impact.

8.2 Practical implications

This case study informs policy makers and PAs of the potential for increased awareness efforts regarding GPP, both at the local and national levels. Given government’s focus for a 'Greener Scotland' accompanied by an increased push for GPP as embedded in SSPAP, the potential for inclusion of SMEs as suppliers of environmentally responsible services and products exists. As such, this research informs of the nascent state of evidence in regards to SMEs’ awareness, understanding, and response to the green requirements within GPP. Hereby, only two SMEs were found to actively know about the methods of GPP (LCA, sourcing of green products, and eco-labels, EMS) and three SMEs were found to implement these methods to a limited extent. Transferability of GPP methods from the manufacturing to the service sector was questioned therefore greater emphasis should be placed on developing more appropriate methods that address the characteristics of the service industry. This study informs SEPA about the barriers faced by SMEs when trying to comply with green requirements. As SEPA was identified as an exemplar PAs in the context of GPP it may be possible for their procurement department to devise innovative green practices that are more applicable to
SMEs in the service sector in their efforts to effectively reduce their environmental impact.

Green practices requiring the least efforts, the 'low hanging fruits', had already been adopted by SMEs, where the companies realized cost saving from such implementation. No significant efforts were translated into fostering innovation and efficiency gains from adoption of green practices within the service delivery industry. Nonetheless, the main barriers faced by SMEs (time, cost, and cost sensitivity) should be addressed first. In regards to cost sensitivity, greater efforts can be done by PAs to green their supply chain, where these direct suppliers pass down compliance requirements to their suppliers. As suggested by one SME in this study, greening of the wholesalers eventually creates a market pull for green products over traditional alternatives. Decreasing price differentials between products may lead to reduced cost sensitivity of buyers. Cost barriers can be particularly significant when referring to certification; however, different certification standards can be created to address the unique characteristics of SMEs when compared to large suppliers, making these certifications more accessible to SMEs. SMEs should be encouraged to take advantage of training possibilities provided free of charge by the PAs to increase their internal capabilities and adopt a greater range of green practices that significantly reduce their environmental impact. SMEs like Companies D and E can benefit from becoming more competitive when adopting a greater range of green practices that lead to higher sustainability scores when bidding in GPP. In regards to SMEs' role within society, the possibility of their increased participation in GPP may directly influence the environmental and economic development of local communities, through spread of sustainable buyer and producer behaviour. In this sense, this study contributes to raising the awareness about the importance of inclusion of local SMEs in government greening efforts as well as the potential of new market opportunities for SMEs.

8.3 Theoretical contribution

Referring to possible contributions to theory, this case study finds partial support for RBV and institutional theories. Findings from this research provide partial support to the applicability of RBV theory when exploring how SMEs respond to green requirements embedded in GPP. Prior research (Gavronski et al., 2011, p.873; Teece & Pisano, 1994, p.541; Wernerfelt, 1984, p.174) suggests collaborative relationships between suppliers and buyers lead to the acquisition of inimitable assets and development of capabilities, in-house knowledge and organizational processes that increase the efficiency and effectiveness of the organization, allowing for competitive advantage. Given the restrictions on formal relationships between SMEs and PAs established by the legislative context in Scotland, the premise of developing unique capabilities through relationship building is not applicable. Nonetheless, PAs provide SMEs with capacity building skills to improve their ability to tender for public bids as well as improve their environmental performance through the provision of feedback and training. However, these do not directly translate to a set of inimitable resources that are required to reach competitive advantage based on RBV premise, as trainings provided are open to all SMEs. The development of unique knowledge and skills is only acquired through years of experience in public tendering, as suggested by the internal enabler, expertise (see chapter 7.2.4.1). While no support was found for innovations due to the adoption of green practices, the opportunity to become first movers into sustainability driven market arising from GPP efforts, taken by Company A, aligns with Rizzi et al’s
suggestion that SMEs which adopt green practices have the potential to exploit new market opportunities. The external enablers identified in the study aid in the building of internal capabilities that allow SMEs to better bid for public contracts. While not inimitable, these identified internal capabilities support extant literature on RBV, exploring the ability of SMEs to adopt green practices and respond to increased demands from buyers for reduced environmental impact (Lee & Klassen, 2008, p.582; Parker et al., 2009, p.294; Walker & Preuss, 2008, p.1605).

Main tenets of institutional theory include coercive, mimetic and normative mechanisms existing in companies' environment, which drive them to adopt similar practises (Coffey et al., 2013, p.762; Grob & Benn, 2014, p.15; Meyer & Rowan, 1977, p.349). This study finds limited applicability of institutional theory in research of SMEs response to PAs' requests within GPP. Among companies selected for the research, only two companies were aware of GPP as a special form of public bidding they normally engage in. As such, PAs' green demands were reported as reason, in addition to personal motivation, for engaging in GPP. This is suggestive of coercive pressure by the buyer (PA) downstream in the SMEs' supply chain (Coffey et al., 2013, p.765). SMEs which were unaware of their participation in GPP, responded to the requirements embedded in GPP mainly drawing on green practises within the company, developed prior to PAs' green requirements. However, as all five sampled companies equally participated in tendering for the same PA (SEPA), to varying extent they were all subjected to the coercive pressure to comply with the requirements of the bidding procedure, and in turn developed similar practises, exemplified by the use of e-procurement portal, development of environmental policies, and adoption of improved waste management system. As these practises were found to be vital in order to comply with GPP requirements, and all five companies reported significant percentage of companies' turnover related to public contracts, it is confirmed that coercion from PA creates the environment where likelihood of SMEs participation in GPP is improved (Coffey et al., 2013, p.763). Mimetic pressure, whereby companies adopt the practises and behaviour of other organisations in their surrounding (Grob & Benn, 2014, p.15), was found to influence the behaviour of SMEs. The experiences of businesses in the companies' immediate surroundings were reported to influence the decisions to adopt green practises by two SMEs. As in the case of SMEs in the New Zealand IT industry (Coffey et al., 2013, p.763), mimetic pressures were effective due to the observed positive outcome of adopted practises. All companies were aware of the wider societal norms regarding environment protection, which also positively influenced their engagement with green practises. These mimetic pressures were particularly important for Companies D and E, as they induced them to implement practises that eventually made the companies eligible to participate in GPP. It was also found that three SMEs attempted to influence their wider business network by mimicking the requirements imposed on them by the PA, regarding the use of green products and improvement of environmental performance. Additionally, this study finds limited support for the normative element within institutional theory as professionalization and training associated with it were widely adopted by the SMEs.

Therefore, this study supports Coffey et al.'s (2013, p.776) finding that institutional pressures are a relevant influence on SMEs adoption of green practises, however to successfully respond to requirements of GPP, internal resources in the form of expertise, management leadership, and proactive engagement are also necessary, as suggested by the RBV premise. Therefore, neither institutional theory or RBV can explain the entirety of the complex situation of SMEs engagement in GPP, applying
both theories as theoretical lenses allows a more holistic view (Clemens & Douglas, 2006, p.483) to expand the limited research in these fields.

8.4 Limitations of the study

A limitation of this case study is the selection of SMEs through SEPA where all organizations have been recipients of public contracts awards and have prior tendering experience in the public sector. As such, it is possible the organizational capabilities and resources of interviewed SMEs are higher when compared to the rest of SMEs in Scotland. Nonetheless, the purpose of this study is not to achieve statistical generalization but rather to contribute to theory and extant research on SMEs’ ability to respond to green requirements embedded in GPP. Additional limitation of this case study is the use of semi structured interviews where the possibility of social desirability bias exists. Upper management of SMEs may want their organizations to be perceived as very environmentally responsible. In this regard, researchers sought to triangulate evidence provided through the interviews with company documentation. However, the varying level of adoption of green practices, awareness and conscious participation of two SMEs in GPP suggest social desirability did not affect our findings. While this case study can be argued to include best performing organizations both from the PA side, SEPA, and SMEs, value exists for other PAs and SMEs to learn what works and what is a barrier when global efforts are moving toward GPP and reduced environmental footprint. This study explored the dyad PA-SME, and as such factors within the wider organisational network influencing the SMEs ability to respond to GPP were not taken into consideration. Finally, researchers are aware that personal motivations and perceptions do influence the analysis of the data; however, inter-rater reliability was used to analyse findings from SEPA and SMEs.

8.5 Future research

Upon researching GPP, scant literature was found on SMEs’ role in GPP, suggesting a possible avenue for future research. At the same time, researchers found prior research within GPP to focus on manufacturing/product based industries, where few studies focused on service sector industries such as occupational health, public relations, and education. Future research should be conducted examining the transferability of GPP methods (LCA, eco-labels, EMS) from the product to the service sector, but also from large to SMEs suppliers. Similarly, future research may be conducted examining improvement of efficiency derived from innovative green practices more applicable to the service industry.

Furthermore, as our study investigated SMEs' barriers and enablers at a single point in time, which is indicative of the general tendencies in SMEs' experience, future research would benefit from a similar study employing a longitudinal analysis in order to extend the understanding of the continuous changing requirements within GPP and their effect on SME suppliers ability to successfully take part in GPP. Additionally, as it was found that SMEs react to the requirements both from upstream and downstream in their supply chains, as well as from the wider business network, future research on GPP should examine green initiatives within a network perspective.
References


Mont, O., & Pleyps, A. (2008). Sustainable consumption progress: should we be proud or alarmed? *Journal of Cleaner Production*, 16 (4), 531–537.


Appendices
## Appendix A: Interview questions - SEPA

### Interview guide SEPA

#### BACKGROUND INFORMATION

1. **Can you provide a short description about procurement department of SEPA?**  
   (i.e. What is the total procurement budget (estimate)? What types of products/services are usually procured/or make up the majority of procurement expenses? Number of employees? Is the procurement function/department centralised, or are purchases fragmented across SEPA offices in Scotland?)  
   (adapted from Defranceschi & Hidson, 2007, p.81)

2. **Can you explain your experience with Green Public procurement so far?**  
   (i.e. How long has the company been involved in GPP? Is the authority a member of a relevant (purchasing) network? What is the amount spending on green purchasing? (If not known please estimate)).  
   (adapted from Defranceschi & Hidson, 2007, p.81-82)

#### PRODUCT INFORMATION/AVAILABILITY

3. **Can you describe the availability and cost of desired green products/services?**  
   (Are the products easily available in the local, regional, or national markets? Have you had experiences with having to procure the products/services from other national markets? Do you keep comparative figures between green and non-green products (additional costs or savings)? Are differences in cost significant? When comparing the cost, do you use life cycle assessment?)  
   (adapted from Defranceschi & Hidson, 2007, p.82)

#### GPP IMPLEMENTATION - drivers, barriers, enablers

4. **What were/are the main reasons for tendering for green products/services?**  
   (Has this been influenced by the activity of the government? Is there any political (i.e. top-management) support for GPP implementation within your organisation? Does your organisation have a green procurement policy; and/or implementation strategy, and/or green procurement targets? Do these assist in GPP implementation?)  
   (adapted from Defranceschi & Hidson, 2007, p.82)

5. **How are green criteria for products/services developed and do you experience any difficulties in criteria development?**  
   (Who is involved in criteria development? Do you seek/receive advice from internal sources in developing the tender and criteria (e.g. environment department, environment expert, finance department, energy department)? Do you seek/receive advice from external sources (e.g. consultants, government expert bodies/departments)? Do you utilise government GPP implementation tools (GPP guidebooks, European green criteria for product and service groups, LCA tools, eco-labelling schemes, training)?)  
   (adapted from Defranceschi & Hidson, 2007, p.83; 85)

6. **Are the suppliers at any stage involved in criteria development or tendering process?**  
   (Do you seek advice from suppliers? Do you conduct consultation rounds with suppliers?)  
   (adapted from Defranceschi & Hidson, 2007, p.83)

7. **How do you incorporate green criteria in your tenders, and are there any difficulties in applying the criteria?**  
   (Have you had difficulties with EU or national procurement rules/directives? Do you aggregate the demand? Do you use prequalification criteria for suppliers, i.e. require specific technical capacity? Do you incorporate the criteria in some or all three procurement phases (e.g. technical specification, tender evaluation/selection, contract award)? Are there any references to eco-labels, EMS, or MEAT criteria in the tender?)  
   (adapted from Defranceschi & Hidson, 2007, p.84; 86)
8. What forms of evidence/proof do you usually require from the supplier to demonstrate compliance, and how well are they able to comply? (What are the perceived barriers that your company sees in the suppliers? Do you require/monitor compliance within the whole or a part of supply chain? Do you allow suppliers to modify their approach? If applicable, do you monitor their compliance throughout the contract execution?) (adapted from Defranceschi & Hidson, 2007, p.84)

9. Are there any other practices that facilitate or hinder GPP implementation? I.e. What programs do you have in place for greening of your supply chain? (Does your staff have sufficient competence to implement GPP criteria? Does their personal motivation influence the level of adoption? Do you conduct any training and/or workshop activities within the department or with the suppliers? Do you foster long-term supplier relationships?) (adapted from Defranceschi & Hidson, 2007, p.82; 110)

POTENTIAL FOR TRIGGERING MARKET DEMAND

10. Have you noticed any direct impact of GPP in the market? (i.e. Do you think that GPP triggered the offer of green products/services? Did you notice changes in supplier offerings, that may have resulted from green tenders? Did the suppliers maintain the changes? To your knowledge, has there been any impact down the supply chain (e.g. noticeable change in purchasing behaviour of suppliers (passing on the requirements) and/or other private or public organisations; change in level of competition among the suppliers?) Did you notice any change in cost of the offerings (i.e. increase of the cost)? Did the cost amortise over time?) (adapted from Defranceschi & Hidson, 2007, p.84)

11. Do you use a similar approach to tender preparation for purchases under the threshold value and/or different subject matter? (i.e. Are GPP efforts being expanded to procuring more 'green' over 'brown' products? (What part of purchasing process can be repeated elsewhere? How does GPP initiative interact with other procurement policies/demands? What can you recommend to other Public Authorities?) (adapted from Defranceschi & Hidson, 2007, p.88; 113)
### Appendix B: Interview questions - SMEs

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<th>Interview guide SMEs suppliers</th>
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<td><strong>CONTEXT</strong></td>
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| 1. Can you please tell us about your company?  
(Number of (full-time) employees; number of year operating)What has your experience been in public bidding? What is your yearly turnover? And of this how much goes to green practices? Do you hold environmental certifications?  
How many of your customers are from the public sector? How much of your revenues come from the public sector? |
| 2. Please tell us about the products or services. How much is green?  
Do you also manufacture or only supply products/services? |
| **PUBLIC TENDERING EXPERIENCE.** |
| 3. What kind of products/services did you offer?  
What are your experiences (preparation; percentage of won contracts)? |
| **GPP KNOWLEDGE/ SME BUSINESS CASE** |
| 4. What do you know of green public procurement (GPP)? Do you/ would you participate in GPP? How much does GPP (or public procurement) influence your production/delivery of services?  
Awareness of government’s e-procurement? (Adapted from Zheng et al., 2006, p. 11). What benefits do you expect (have realised) from implementing green practices in response to GPP? How do you perceive the financial investments required for green practices? |
| 5. Is there support from company’s management toward bidding for GPP? Management support for adopting green practices?  
Do you pursue a specific policy or have a strategy? Do you have set targets for GPP? Are you aware of competitors successful bidding for GPP? Is there a market push for adopting green practises/green supply? |
| **BARRIERS FOR GPP ENGAGEMENT** |
| 6. What were the most challenging aspects in responding to GPP? |
| 7. Do you have green practices in place?  
Rationale for implementing? What obstacles/ barriers did you overcome when implementing? How did you overcome them? Do these practises affect company’s competitiveness? |
| 8. What barriers have you faced when trying to adopt green initiatives (to comply with GPP)?  
Are these troubles due to lack of resources, knowledge, and benefits realization? What barriers do you face when ensuring compliance criteria? At what tendering stage do you encounter most difficulties? Do you have any experience regarding MEAT, LCA, EMS or eco-labels? |
| **ENABLERS FOR GPP ENGAGEMENT** |
| 9. What capabilities/resources have made the process of adopting green practices easier?  
Have you used any external support? Have your (public/private) customers supported you in any form? Government financial and technical programs; partnerships with public/private customers to develop joint capabilities and resources (Adapted from Gavronski et al., p.882). Do public entities provide you with information/training offerings to smooth the process? (Adapted from Vachon & Klassen, 2006, p.820). Would you say any of these would be beneficial for GPP engagement of SMEs? |
| 10. Have you integrated any operations/logistic processes with your customers as a way of reducing the environmental impact?  
How are these communicated and what is the result? Are you passing the requirements to your own suppliers? Do you implement these changes in other contracts? |
## Appendix C: Initial template for pattern and theme analysis - SEPA

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<td>Purchasing department</td>
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<td>Annual turnover</td>
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<td>1.2.</td>
<td>Request for green product/services</td>
<td>1.3.</td>
<td>E-procurement</td>
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<td>1.3.</td>
<td>E-procurement</td>
<td>2.</td>
<td>Rationale for implementing GPP</td>
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<td>Rationale for implementing GPP</td>
<td>2.1.</td>
<td>Government initiative</td>
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<td>2.1.</td>
<td>Government initiative</td>
<td>2.2.</td>
<td>Top-management support</td>
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<td>2.2.</td>
<td>Top-management support</td>
<td>2.3.</td>
<td>Strategic proactivity</td>
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<td>2.3.</td>
<td>Strategic proactivity</td>
<td>2.4.</td>
<td>Staff motivation</td>
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<tr>
<td>2.5.</td>
<td>Staff motivation</td>
<td></td>
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<tr>
<td>3.</td>
<td>GPP tendering process</td>
<td>3.1.</td>
<td>Use of green criteria</td>
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<td>3.1.</td>
<td>Use of green criteria</td>
<td>3.2.</td>
<td>Supplier involvement in tendering process</td>
</tr>
<tr>
<td>3.2.</td>
<td>Supplier involvement in tendering process</td>
<td>3.3.</td>
<td>Requirements for proof of compliance</td>
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<tr>
<td>3.3.</td>
<td>Requirements for proof of compliance</td>
<td>3.4.</td>
<td>Difference in approaches to tendering</td>
</tr>
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<td>3.4.</td>
<td>Difference in approaches to tendering</td>
<td>3.5.</td>
<td>GPP potential to trigger market demand</td>
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<tr>
<td>3.5.</td>
<td>GPP potential to trigger market demand</td>
<td>5.</td>
<td>Product/service availability to comply</td>
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<td>5.1.</td>
<td>Product/service availability to comply</td>
<td>5.2.</td>
<td>Partnering with suppliers</td>
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<td>Partnering with suppliers</td>
<td>2.5.</td>
<td>Supporting practices</td>
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<td>Public tendering experience</td>
<td>3.2.3.</td>
<td>One-time-bid approach</td>
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<tr>
<td>1.1.</td>
<td>Percentage of turnover</td>
<td>3.2.4.</td>
<td>Lack of trust</td>
</tr>
<tr>
<td>1.2.</td>
<td>How much for green?</td>
<td>3.2.5.</td>
<td>Lack of knowledge about tendering</td>
</tr>
<tr>
<td>1.3.</td>
<td>E-procurement</td>
<td>3.2.6.</td>
<td>Aggregation of demand</td>
</tr>
<tr>
<td>1.4.</td>
<td>Direct invitation</td>
<td>3.2.7.</td>
<td>Cost sensitivity of buyers (willingness to pay green premium)</td>
</tr>
<tr>
<td>1.5.</td>
<td>Success rate</td>
<td>4.</td>
<td>Enablers for GPP response</td>
</tr>
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<td>2.</td>
<td>GPP awareness and knowledge</td>
<td>4.1.</td>
<td>EXTERNAL</td>
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<td>Awareness at the organisational level</td>
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<td>Collaborative relationship with PA</td>
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<td>2.2.</td>
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<td>Utility of feedback</td>
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<td>Access to PA staff (technical inquiries)</td>
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<td>Barriers for GPP response</td>
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<td>E-procurement portal</td>
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<td>Management championing the environment</td>
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<td>HR availability</td>
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<td>Employee personal commitment</td>
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<td>Cost</td>
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<td>Proactivity</td>
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<td>Technological, financial, and HR slack</td>
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<td>Ambivalent attitude</td>
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<td>Low levels of environmental awareness</td>
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<td>EXTERNAL</td>
<td>5.2.</td>
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<td>Understanding of the requirements</td>
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<td>Quality focus</td>
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<td>Fluctuation in weighting of the criteria</td>
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<td>Reducing the footprint</td>
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