

Public sector procurement and sustainability

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Public sector procurement and sustainability: a systematic literature review

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Abstract

Sustainability has gained an increasing amount of attention in the past ten years. The purpose of this paper is to examine extant literature on public procurement and sustainability. We performed a systematic literature review in a ten-year timeframe (2006-2016) culminating in 49 articles published in 26 journals. We focussed on strategy and procedures, objectives and criteria, drivers and barriers, and standards for reporting on sustainability. Based on our findings, we propose several directions for future exploration. The observed paucity of articles on the public health care sector is a promising avenue for future research.

Key words: public procurement, sustainability, systematic literature review

Submission category: competitive paper (IPSERA 2017)

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1 Introduction

Over the past ten years sustainable development has found its way onto many boardroom agendas, triggered by stakeholder pressure (Easley and Lenox, 2006), regulation (Zhu and Sarkis, 2007) and competition (Nikolaeva and Bicho, 2011). One of the most challenging aspects organizations face in developing sustainability is that the boundary of responsibility typically extends beyond the reach of a corporation's ownership and direct control. Public sector institutions are ever more concerned with sustainability development but all efforts can be brought to naught by contracting suppliers with poor sustainability performance (Oruezabala and Rico, 2012).

Public-sector executives are ever more concerned with sustainability development because they need to respond to societal pressures. Public authorities are in a leading position for the introduction, promotion and development of sustainable initiatives (Chiarini and Vagnoni, 2016; Walker and Brammer, 2009) since they are responsible for the wellbeing of their inhabitants. Public authorities are able to initiate laws and policies, develop initiatives with a singular focus on sustainable outcomes and are in a position to compel initiatives in all industries. The potential of public procurement in delivering sustainable outcomes through creating and stimulating initiatives is prominent (Bratt *et al.*, 2013). The public procurement function is able to contribute to more knowledge sharing (Thai, 2001) and comprehension in its own organization (Gelderman *et al.*, 2015) and can stimulate external sustainable development through contracting (Oruezabala and Rico, 2012). Public procurement can have a substantial impact on sustainability development in markets and society.

Sustainable development in public sector procurement contexts is under-represented in the extant literature, despite the considerable economic, financial and social consequences inherent in public procurement. The public sector can influence sustainable procurement both by designing suitable policies and by driving sustainable initiatives through the significant share of public purchases on GDP. There is very little research available that explores the context of sustainability development in public sector procurement. We argue the majority of studies are focussed on federal departments and municipalities. Which means, other public sector areas, with a substantial part of GDP as for instance healthcare, lag behind. A structured literature review will give more insight into the body of knowledge in public sector sustainability development. Specifically, *how is the subject of sustainability development addressed in the academic research on public sector procurement?*

For academics, we will summarise what is known and suggest some lines for further research. For professionals, we will provide some managerial guidelines regarding the impact of sustainability development and how it can be implemented.

2 Methodology

This research consists of a systematic literature review about public sector procurement and sustainability development. As defined by Tranfield *et al.* (2003), this research is carried out in the following stages: planning the review; conducting the review and reporting and dissemination. The research aims at a well recorded and thus replicable process to help achieve comprehensive coverage, relevance to practice and the removal of researcher bias. A research protocol is defined, search strings established, selection criteria defined and then selected papers assessed and outputs synthesised. In the first stage, a literature overview on the main related themes is conducted, such as public procurement, public sustainability, corporate sustainability and corporate responsibility. This first step is shaped in a non-

structured way to build an initial perception of the research field, to test combinations of keywords and filters. An important result of this stage is the preliminary version of the research question. Another result is the definition of criteria for the filters used for the paper sample.

The second stage pointed out by Tranfield *et al.* (2003) represents the review itself. This stage starts with the data collection. A sample of articles on public procurement sustainability development was obtained by querying data bases in July 2016. The databases chosen give access to a comprehensive amount of papers: Academic Search Elite (EBSCO), ACM Digital Library, Business Source Premier (EBSCO), Cambridge Journals, EBSCO Host, E-Journals (EBSCO), Emerald (management plus), ERIC (EBSCO), Google Scholar, IEEE Digital Library, Oxford Journals, SAGE Journals, ScienceDirect (Elsevier), SpringerLink, Taylor & Francis Online, Web of Science, Wiley Online Library, WorldCat. In order to broadly generate the potential list of studies that might be related to our research question, we used the following keywords: public sector, public procurement (procur*), and sustainable (sustainab*). The (*) sign was used at the end of some keywords to expand the range of possible studies, since researchers use different keywords for the same concept, e.g. “procurement” versus “procuring” or “sustainable” versus “sustainability”. The keywords were searched in all possible combinations in the title and whole text. In this study, we only considered peer-reviewed articles. The defined procedure restricted the search for papers in a ten-year timeframe (2006-2016) and only papers in the English language were selected. Excluded were papers with a pure technical focus like; carbon footprint, carbon dioxide emissions, etc. The selection criteria and keywords are displayed in table 1.

Selection criteria for papers	Keywords
Peer-reviewed	Public Sector
English	Public procurement
Time frame 2006 - 2016	Sustainability
Non-technical focus	

Table 1: Selection criteria for papers and keywords

The first step generated a total of 1955 articles All articles were submitted to a preliminary screening. Duplicated articles were eliminated as well as articles without managerial focus. After this execution 610 articles remained. Then we performed an abstract analysis, where we focussed on the simultaneous presence of public sector perspective and sustainability focus. This left us with 109 articles. Finally, we selected 49 articles after performing a full-paper analysis, examining if the papers contributed to the proposed research question. A schematic view of the screening methodology is displayed in Figure 1.

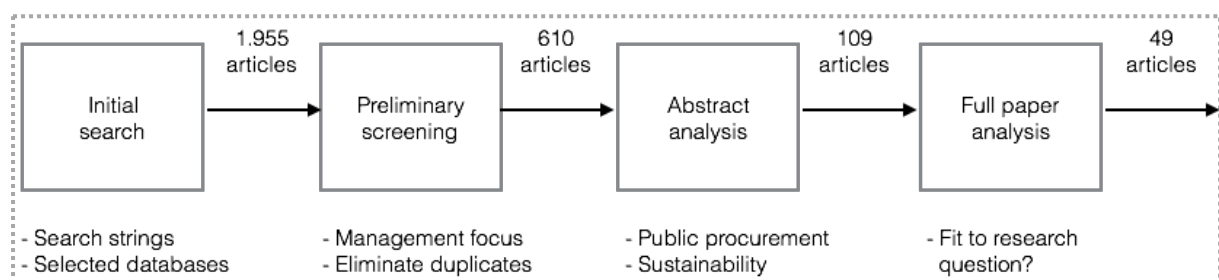


Figure 1: Screening methodology

3 Paper analysis

This section is dedicated to describing the data obtained in the selected papers. The review includes 49 papers covering the field of sustainability development in public procurement. Although sustainability is a global topic, the main research focus is located in the Europe region, 71,4%. Only a small amount (12,3%) of the studies is focussed on data collection in multiple continents. Eight papers are found with a research area other than Europe or multiple continents and represent 16,3% of the studies, see table 2.

Multiple continents	Europe	Asia	Australia	North-America
6	35	4	2	2

Table 2: Region of study

Sustainability development within the public sector should cover the three pillars of the triple bottom line. Quite a few papers focussed only on the environmental issue (21 out of 49) and only a few papers are focussed solely on the social perspective (3 out of 49). There is a great number of studies that actually take both perspectives into account (25 out of 49). Usually these studies combine the perspectives within the concept of sustainability. Within this sustainable perspective category studies are focussed on the internal and external effect of public sustainable procurement and drivers and barriers on the development of sustainability.

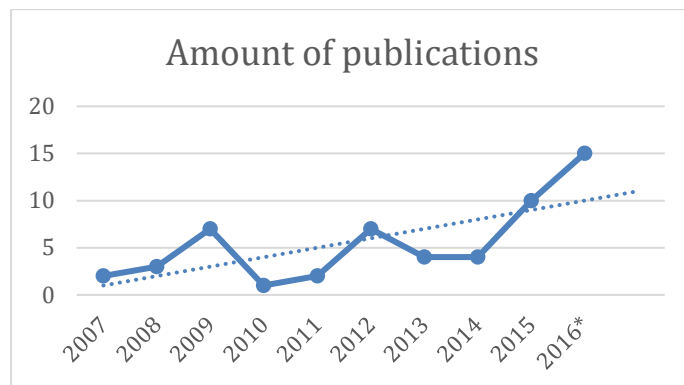


Figure 2: Publications in a year

*Note: 2016 data are based on publication until July 2016 and extrapolated

Figure 2 shows the annual evolution of publications over the last ten years (padded line) and the dotted line is the trend line for publication over the years. The trend line shows an increasing pattern in publications. The number of publications for 2016 is based on publications until July 2016 and extrapolated for the whole year. There is no logical pattern to discover in the amount publications over time. In the years 2007 – 2009 publications gradually increase. In 2010 and 2011 there are only a few publications. In 2012 publications are back on the 2009 level. In 2013 and 2014 again there is a downturn in publications. 2015 shows a significant increase and 2016 shows a promising amount of publications until July to at least equal 2015. The fifteen articles published in the first five years represent 30,6% of the articles in the whole period of ten years. The last five years the number of articles is increasing (69,4), specific the last two years represent a significant increase with a total amount of 19 articles (38,8%) so far.

Table 3 shows all journals that publish on public sector sustainable procurement development within our sample. A total of 26 different journals are part of the sample in this study. The Journal of Cleaner Production with eleven publications (22,4%), published the most articles on the subject. Other journals active in publishing on the subject are the Journal of Purchasing & Supply Management: five publications (10,2%) and Public Money & Management: four publications (8,16%). The Journal of Environmental Management and Supply Chain Management: An International Journal both with three publications represent 6,12% each. There are two journals with two publications, the International Journal of Operations & Production Management and the Journal of Environmental Planning and Management and represent 4,08% each of all publications. The majority of journals, a total of nineteen, only published one article on public sustainable procurement over the last ten years.

Journal	# of papers	Journal	# of papers
Architectural Engineering and Design Management	1	Journal of Planning and Management	2
Australasian Journal of Environmental Management	1	Journal of Public Procurement	1
Business Strategy and the Environment	1	Journal of integrative Environmental Sciences	1
Ecological Economics	1	Journal of Purchasing & Supply Management	5
Ecological Indicators	1	Landscape and Urban Planning	1
Industrial Marketing Management	1	Leadership in Health Services	1
Innovation: The European Journal of Social Science	1	Public Administration and Development	1
International Journal of Operations & Production Management	2	Public Management Review	1
International Journal of Production Economics	1	Public Money & Management	4
International Journal of Public Sector Management	1	Resources, Conservation and Recycling	1
International Journal of Sustainable Development & World Ecology	1	Renewable and Sustainable Energy Reviews	1
Journal of Cleaner Production	11	Social Enterprise Journal	1
Journal of Environmental Management	3	Supply Chain Management: An International Journal	3

Table 3: Number of papers per journal

All papers included in our review are presented in table 4a, 4b and 4c. Table 4a presents ten papers with a theoretical approach and their main findings. In this context, theoretical approach means these studies have no empirical base. These papers investigate public sector sustainability development in a theoretical or desk analysis manner, but this does not mean they are based on existing theories. Analysing these papers does provide a view on the status of sustainability development in public organizations. The research addresses public institutions do have sustainable programs and successful initiatives. However, it remains unclear how these programs are operationalized and what their impact is.

Study	Main findings	Theoretical base
Glemarec & Puppim de Olivera 2012	A new sustainable development paradigm will require a substantial transformation of the present economic development model. Public administrations need to translate government policies into action at different levels, negotiate conflicts and build trust among stakeholders.	Theoretical study
Grob & Benn 2014	Sustainable procurement adoption can be explained through the influence of regulation public procurement policies and programs, and supplier assessment programs.	Theoretical study
Igarashi et al. 2015	Purchasers use four approaches for simplifying the green supplier selection problem: ignore, incorporate, insist and integrate. Purchasers avoid a direct trade-off between green performance and other criteria.	Theoretical study
Leger et al. 2013	The emergence of green public procurement in France has an impact on the demand for new types of competencies and disciplinary collaborations but not on the results after the selection process.	Theoretical study
Mansi 2014	Product responsibility reporting is minimal and organizations hide information and are not prioritizing diversity related discretionary measures. Environmental weakness and hazards are underexposed.	Theoretical study
McMurray et al. 2014	The private sector registers significantly higher levels of sustainable procurement practices than their public counterparts. Lack of awareness posed the most significant barrier regardless the sector.	Theoretical study
Melissen & Reinders 2012	Focus on minimum requirements and strict distinction between environmental and social criteria. Absence of long-term ambitions and a systems perspective.	Theoretical study
Nijaki & Worrel 2012	Sustainable development can be achieved by melding together procurement programs instead of single focus. Economic and environmental goals are accessed through sustainable procurement.	Theoretical study
Salvia et al. 2015	Local governments can play a key role in moving towards a more resource efficient society by setting a smarter long-term vision, effectively moving towards it, bottom up and systems-based.	Theoretical study
Walker, 2015	The public sector needs to support government policy, demonstrate transparency, accountability and competition. PP research can have significant impact on individuals, organizations and nations.	Theoretical study

Table 4a: Papers with a theoretical perspective

Most research has a case study design. Table 4b shows these case studies which are used to explore the concept of sustainability development within public sector authorities. The case study is most often chosen as a design (20) to get familiar with underlying concepts of sustainability development. Researchers are looking for factors that influence the development in a positive or negative manner and actors that play a part in the process in a more or less compelling manner.

Study	Main findings	Theoretical base
Bala et al. 2008	Diverse set of factors influencing a successful implementation of greening programs and needed instruments for monitoring.	Case study
Bratt et al. 2013	Criteria development process is transparent, well-documented and has participation by group members. Barriers are: limited impact perspective and lack of clear objectives.	Case study
Chiarini & Vagnoni 2016	A limited implementation of standards such as Green Public Procurement criteria, Eco-Management and Audit Scheme and ISO 14001.	Case study

Domingues et al. 2015	Few criteria of a conceptual framework are accomplished. New practices and public policies need to be adopted through the application of assessment systems.	Case study
Gelderman et al. 2015	Party-political councillors, department heads and procurement professionals disagree on focus of stakeholders and budget spend. Sustainability initiatives appear input-based rather than result-based.	Case study
Gelderman et al. 2016	Top management assigns strategic importance to sustainable initiatives, while budget owners have the final say in the implementation. Procurement professionals have little influence.	Case study
Grandia 2015	Change agents play an important role in sustainable procurement projects and help project teams progress towards sustainable procurement.	Case study
Lundberg et al. 2009	Measurement on sustainability in the public sector is largely lacking.	Case study
Muñoz 2009	Public sector procurement requires high standards from the social enterprise sector. These standards raise barriers and challenges for social enterprises that wish to sell to the public sector.	Case study
Oruezabala & Rico 2012	Sustainability is growing more strategic in hospital management which challenges the purchasing function. Purchasers need to rely on trustworthy and benevolent providers to support sustainable objectives.	Case study
Preuss 2009	Important supporting factors for sustainable SCM are; transparency, strategy, culture and risk management. Sustainability development pushes local government along the road from purchasing tot SCM.	Case study
Ramos et al. 2007	Development of a conceptual framework to manage and assess environmental performance. There are drawbacks and limitations illustrated in the development of environmental performance.	Case study
Rivera-Lirio & Muñoz-Torres 2010	SMEs possess insufficient understanding of CSR. The owner-manager is de principal driving force for CSR implementation. There is a nascent state of CSR implementation in the private and public sector.	Case study
Smith et al. 2016	Legislation is enacted at the national level and interpreted at the local level is a key driver for sustainable procurement. Transition depends on political will and leadership and a balanced infrastructure.	Case study
Thomson & Jackson, 2007	Green procurement has been encouraged through legislation, providing new information and dismantling barriers to link up green procurement with organizational goals. This would expand GP's horizon.	Case study
Uttam & Le Lann Roos, 2015	Competitive dialogue strategy can facilitate sustainable public procurement by its key elements. Increasing the weight for environmental elements may not be the way to implement GPP/SPP.	Case study
Walker et al. 2008	There are more drivers than barriers to environmental SCM identified. Organizations seem to be more influenced by external rather than internal drivers. Barriers tend to be both internal and external.	Case study
Walker & Preuss, 2008	Sourcing from and supporting local small businesses makes a direct contribution to the economic and social aspects of sustainability. Cost-effectiveness is a threat to SME sourcing.	Case study
Witjes & Lozano, 2016	The collaboration between public sector procurers and suppliers can lead to reductions in raw material utilisation and waste generation, whilst promoting the development of new sustainable business models.	Case study
Young et al. 2016	Price consideration is a barrier to implementing SP. The institutional environment plays a significant role in creating organizational impetus for SP in terms of structures, funding pressures and regulation.	Case study

Table 4b: Papers with a case study design

Besides case study design also a substantial number of survey studies were conducted (19). In these studies, scholars try to determine the effect of having sustainable goals in procurement documents as well as to identify drivers and barriers to sustainable development.

Study	Main findings	Theoretical base
Amann <i>et al.</i> 2014	High influence on social goals by public institutions. Vendors are focussed on green operations.	Survey
Brammer & Walker 2011	Sustainable procurement practices vary across regions and has to some extent part in the public sector. Identification of main drivers and barriers.	Survey
Erridge & Hennigan 2012	Limited official guidance on sustainable public procurement projects. Sustainability procurement can achieve sustainability goals and also those relating to efficiency and economic recovery.	Survey
Grandia <i>et al.</i> 2015	Both affective commitment to implement sustainable procurement and procedural justice increase sustainable procurement behaviour.	Survey
Grandia 2016	Sustainable behaviour positively mediates the relationship between affective commitment to change, knowledge, the application compulsory and voluntary sustainable public procurement in projects.	Survey
Islam <i>et al.</i> 2016	The current state of sustainable procurement practices seems overly negative. Main barriers for implementation at all organizational levels are: attitudes of top management and cultural aspects of organizations.	Survey
Mansi & Pandey 2015	Demographic characteristics such as working tenure, qualification and position predict sustainable procurement practices. Gender can have an influence on environmental-friendly procurement activities.	Survey
Meehan & Bryde 2011	Building sustainability considerations into procurement decision-making requires the management of inter-organizational relationships and supplier engagement strategies.	Survey
Meehan & Bryde 2015	Sustainable procurement activities are delineated into three factors; direction setting, supplier-centric assurance and local socially oriented supply. The value of network collaboration is identified.	Survey
Michelsen & de Boer 2009	A strategic approach to purchasing is needed for better green purchasing and awareness among municipalities and counties as well as increased guidance form national authorities.	Survey
Pacheco-Blanco & Bastante-Ceca 2016	Sustainable initiatives are integrated within 20% of the institutions. 75% of the institutions have a department in charge of environmental subjects. Generally environmental criteria are included in public procurement contracts specifications.	Survey
Ramos <i>et al.</i> 2009	Most experience in public organizations is centred on environmental management system. It is important to measure and communicate organizational performance related to the mission and activities.	Survey
Snider <i>et al.</i> 2013	The configuration of a firm's CSR depends substantially on the extent to which it sells to the government. Selling to the government becomes profitable by winning contract, which means complying with the rule.	Survey
Sporrong & Bröchner 2009	A minority of the public organizations include sustainability-related criteria in tenders. A majority has a policy for services procurement, which not always includes sustainability. Better skills and provider-selection methods are needed for rewarding sustainable practices.	Survey
Testa <i>et al.</i> 2012	The level of awareness of existing tools for supporting Green Public Procurement have a positive effect on the adoption of GPP. Strategy creates awareness, competence and know-how at different levels.	Survey
Testa <i>et al.</i> 2016	Good GPP performance cannot be achieved through the mere adoption of a certified Environmental Management System (EMS), but rather	Survey

	through the level of maturity of the certified EMS.	
Walker & Brammer, 2009	Local authorities favour buying from local and small suppliers. Health sector underdeveloped in sustainability. Cost are the leading barrier to SP and top management support the leading facilitator.	Survey
Walker & Brammer, 2012	The links between social aspects of SP and e-procurement seem less well developed than the environmental aspects. More communication with suppliers gains greater impact on the aspects of SP.	Survey
Zhu <i>et al.</i> 2013	Regulations, rewards & incentive gains, stakeholders exert pressure to motivate adoption of GPP practices. Knowledge of GPP regulations, responsibilities and experiences in developed countries is limited.	Survey

Table 4c: Papers with a survey design

We classified the articles according to their focus on sectors. Most papers deal with issues on the level of national governments. A smaller number of papers relate to local public authorities. Notably, the health care sector procurement seems under-represented, see table 5.

	State /Federal government	Local government	Health care	Other sectors
# articles	17	14	4	14

Table 5: Number of articles classified according to sector

4 Discussion

Public sustainable development faces many challenges such as environmental degradation, resource depletion and social elements such as contracting small and medium local enterprises. Even though social and environmental awareness have increased and there are many good examples of sustainable development, the main focus remains on whether public institutions have become more sustainable and to what extent they can influence a more sustainable society. Public administrations have a fundamental role in supplementing markets, aimed at fostering long-term common interests. Integrating environmental, social and economic aspects by sustainable procurement is complex and challenging (Meehan and Bryde, 2011). Despite this complexity, the concept of sustainability is often seen as homogenized (Walker and Brammer, 2009), whilst in practice sustainability development is heterogeneous, which organizations need to handle with care.

We elaborate on different aspects of public sector sustainability development in the following paragraphs. The paragraphs are based on the themes that emerged from the analysis. Figure 3 shows these themes in a conceptual model. In most cases sustainability development starts with the development of strategy and procedures which are managed in programmes. Programme elements are operationalized by objectives and criteria, which makes it possible to report on progress. Based on the results strategy and procedures can be modified. In this circular process, the phase between strategy & procedures and objectives & criteria impersonates the implementation. In this phase actors and factors stimulate or obstruct the implementation process.

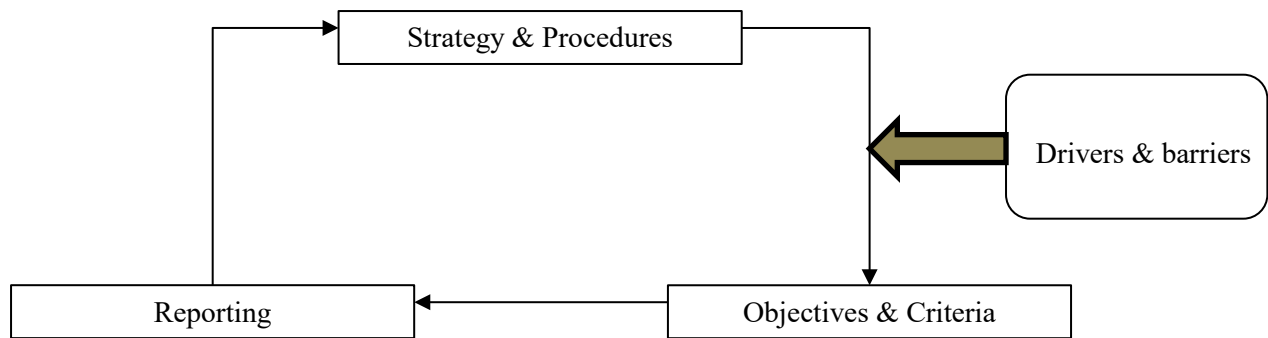


Figure 3: Conceptual model sustainability development

4.1 Strategy and procedures

The success of public institutions depends on whether they are adequately prepared to translate government policies into action at the different levels (Smith *et al.*, 2016) negotiate conflicts and build trust among stakeholders (Gelderman *et al.*, 2016). The strategic sustainability development process and its positive elements need great attention (Bratt *et al.*, 2013). It is unclear how organizations start sustainable development and how new practices are adopted. Grob and Benn (2014) identify a few propositions based on institutional theory, as they argue that institutional theory has the potential to explain the provenance and notification of sustainable public procurement. Introducing sustainability to procurement decision making potentially re-defines reliable and accountable, adding an additional dimension to the award phase of a public tender (Meehan and Bryde, 2011). Also, leaders responsible for embedding sustainability into organizations need to be encouraged to develop a strategy (Preuss, 2009) with clear objectives and guidelines (Gelderman *et al.*, 2016; Meehan and Bryde, 2011). Consistency and standardization in sustainable policy are a good support for authorities (Sporrong and Bröchner, 2009; Smith *et al.*, 2016)

Cultural change is needed within the public sector to involve more understanding of sustainable development and its opportunities (Muñoz, 2009; Glemarec *et al.*, 2012). Public authorities set sustainable strategies and procedures and with this declare to be sustainable. Research is focussed on whether there is a strategy and procedures but does not make clear what effect is. In most studies, research is focussed on successful cases but little is known about public organizations lagging behind. A way to generate greater focus on sustainability development may be to include social agents in government policy development (Rivera-Lirio and Muñoz-Torrez, 2010). To play a decisive role in sustainability development, public institutions must set a smarter long-term vision. Relevant for success is the definition of available instruments for overcoming barriers during the implementation of sustainable initiatives and the development of monitoring tools (Bala *et al.*, 2008). In operationalizing sustainability, the purchasing function is severely challenged by internal and external stakeholders because of the growing demand of a strategic position of sustainability (Oruezabala and Rico 2012; Zhu *et al.*, 2013). Stakeholders play a leading role in the development of sustainable programs. In that matter, more insight is needed on the role of stakeholders in sustainability development.

4.2 Sustainable objectives and criteria

After setting strategy and procedures, organizations implement objectives and criteria in order to operationalize the strategy. According to Meehan and Bryde (2015) interrelations and interdependence of the three aspects of sustainability, economic, social and

environmental are not addressed in the actual criteria used in objectives to assess sustainability. This means decisions based on those objectives do not give clear information about outcomes in other dimensions. The identification of sustainable criteria is crucial in understanding the development of sustainability as Melissen and Reinders (2012) also point out. The current knowledge is based on the use of criteria but does not include knowledge on the impact of using criteria. Purchasers use different strategies to incorporate sustainable criteria and typically define sustainable criteria as part of other existing criteria (Igarishi et al 2015). They need organizational support and accurate information (Oruezabala and Rico, 2012) incorporating those strategies because they are not in a leading role, nor as Gelderman *et al.* points out (2012) can they make definitive decisions in sustainable initiatives.

In terms of supplier readiness, vendors achieved greater progress in delivering green than socially responsible operations (Amann *et al.*, 2014). This may be a result of the priorities set by public organizations. Public organizations need to be aware of their position and carefully plan the leading role in sustainability development. A possibility for public organizations to create more social initiatives is to explicitly mention SME's as their direct beneficiary, to make it possible for this type of businesses to participate (Rivera-Lirio and Muñoz-Torres, 2010). Public organizations show substantial differences between each other, like focus, strategies, expertise and behaviour concerning sustainable procurement (Michelsen and de Boer, 2009). Besides these differences, public organizations must be aware of their position regarding suppliers. Suppliers will adapt to demands set by authorities so they can win contracts (Snider *et al.*, 2013). This means public organizations are able to influence suppliers in linking them to their sustainable programs and comply them with their sustainable objectives and criteria.

4.3 Standards for reporting on sustainability

Growing public pressure and increasing regulatory requirements have an impact on public organizations (Gelderman *et al.*, 2015). A way for public organizations to stakeholders their sustainable development, is by reporting on progress of the strategic program, initiatives and the degree to which objectives are achieved. Many organizations are increasing their efforts to assess sustainable performance and demonstrate actual improvements. With this development, research should be increasing as well, but only little literature is available on tools for assessing public sector sustainability performance (Ramos *et al.*, 2007). Measuring the performance of public organization performance is challenging because of the way these organizations are organized. Public organizations have more numerous, intangible and conflicting goals as well as a more rigid hierarchical structure compared to private sector organizations (Lundberg *et al.*, 2009). Mansi (2015) found a lack of mandatory sustainable procurement reporting and the reporting patterns are dissimilar, which means there are variations in the quality and quantity of sustainable procurement reporting. This is also found by Chiarini and Vagnoni (2016), who show there is limited implementation of standards in public healthcare organizations in the EU such as audit schemes and ISO 14001. Policing policies, such as auditing and ISO 14001, are not extant in many organizations (Meehand and Bryde, 2011). Nevertheless, general sustainable performance evaluation is a growing reality public sector organizations have to face.

As there is a growing need to develop assessment tools, we need to create comprehensive tools (Bala *et al.*, 2008) and techniques to deal with sustainable procurement situations (Dominques *et al.*, 2015). Studies also show that good performance cannot only be achieved through the mere adoption of a certified management system (Testa *et al.*, 2016). Besides the

adoption of a system, the level of maturity of a management system provides a growing “value added” to sustainable initiatives (Domingues *et al.*, 2015; Test *et al.*, 2016). These management systems are useful in reporting on sustainability development and benchmarking of targets and results (Thomson and Jackson, 2007) so progress can be better monitored.

4.4 Drivers and barriers for sustainable development

The model in figure 3 shows that in the strategy implementation, drivers and barriers influence the process. Organizations that are successful in implementing sustainability are able to address more drivers than barriers. Organizations lagging behind in sustainability development are not able to overcome barriers. Studies show that the degree of sustainable procurement development is not equal between public organizations and varies across projects within public organizations (Michelsen and de Boer, 2009; Gelderman *et al.*, 2016).

Drivers

Many studies identify several organizational factors that drive or hinder the implementation of sustainability (Brammer and Walker, 2011; Gelderman *et al.*, 2015; Chiarini and Vagnoni, 2016; Gelderman *et al.*, 2016) and focus on the content (Melissen and Reinders, 2012; Bratt *et al.*, 2013). As a result, several organizational factors have been identified as drivers or barriers of sustainability development such as supplier availability (Preuss, 2009), procurement commitment and training (Gelderman *et al.*, 2016), staff knowledge (Erridge and Hannigan, 2012), clear objectives (Gelderman *et al.*, 2016), top management commitment (Young *et al.*, 2016) and good leadership (Chiarini and Vagnoni, 2016).

Presence of both a purchasing department and a written purchasing strategy are success criteria and regarded as a premise that allows sustainable issues in procurement to be integrated into existing structures, rather than being something on its own (Michelsen and de Boer, 2009). Driving sustainability can also come from working in more multidisciplinary collaborations (Leger *et al.*, 2013; Witjes and Lozano 2016). For sustainable procurement, a key driving factor is the management of inter-organizational relationships. This requires supplier engagement strategies, moving from policing and compliance activities to developmental and collaborative activities with suppliers (Michelsen and de Boer, 2009; Meehan and Bryde, 2011). A key driver coming from policing is the interpretation of national legislation at the local level (Smtih *et al.*, 2016). Change agents can have a positive influence in sustainable procurement projects to progress towards sustainable procurement (Muñoz, 2009; Grandia, 2015). Organizations must be open to create additional formation and budget in order to work with change agents. Eventually commitment to implement sustainable procurement increases sustainable procurement behaviour, and determines the commitment to implement sustainable procurement (Grandia *et al.*, 2015).

Barriers

The implementation process can be hindered by actors and factors. The influence of these actors and factors makes sustainable initiatives unsuccessful and ensures that sustainable objectives are not achieved. A lack of guidance and awareness for sustainable procurement and a shortage of relevant resources (McMurray *et al.*, 2014) and financial issues (Young *et al.*, 2016) are barriers. Contract specifications, process implementation, market characteristics, supply chain profiles and supplier characteristics are also factors that must be taken into account (Bala *et al.*, 2008).

Sustainability issues are not incorporated on a regular basis in the majority of purchasing decisions (Islam et al. 2016; Gelderman et al., 2016). Procurement professionals need to be more aware of incorporating these issues, but also need the right organizational support.

To achieve a positive sustainability development a behavioural change is needed by procurement professionals and key organizational actors (Glemarec and Puppim de Oliveira, 2012). Maybe this is the main barrier for the implementation of sustainability in public organizations. They are not ready for a substantial change in the existing behaviour. On the other hand, collaborations forming around knowledge bases are increasing, emphasising the need to collaborate upstream and downstream (Meehan and Bryde, 2015). This also means purchasers need to be certain that they can rely on trustworthy and benevolent providers (Oruezabala and Rico, 2012). Knowledge and the sharing of knowledge are two elements influencing public procurement behaviour (Grandia, 2016) as are the qualifications of procurement professionals (Mansi and Pandey, 2016). Education could be a leading factor influencing the awareness of sustainable concerns (Muñoz, 2009) and changing organizational behaviour. The behaviour an organization embodies is also set by demographic characteristics and even gender (Mansi and Pandey, 2016). Also, individual values of procurement professionals influence sustainable implementation (Thomson and Jackson, 2007; Mansy and Pandey, 2016). New coordination must reverse internal institutional silos that impede the effective implementation of policies (Nijaki and Worrel, 2012).

5 Future research

We conducted a systematic literature review aiming at the existing knowledge on sustainability development in public sector procurement. The review revealed a to some extent disparate literature on the subject, with studies ranging from those that were purely conceptual to those that empirically measured sustainability and tested relationship between factors and sustainability outcomes. Based on a sample of 49 papers, the research identifies the main contributions of this body of knowledge.

Theoretical limitations and suggestions

The extant literature is mainly focussed on Europe, specific on European federal institutions and municipalities. Only a few studies investigate other public authorities like the public housing sector and the healthcare sector. Healthcare is a big spend area in a countries GDP (between 15 and 22%), and therefore could have an important impact on sustainable issues. Only 8% of the studies is concentrated on the healthcare sector. The observed paucity of articles on the public health care sector is a promising avenue for future research.

The findings show only 6% of the studies is focussed on the social element of sustainability. There is a predominance of environmental studies and studies focussed on all three sustainable elements, ecological, social and economic. These two disciplines divide the development of the concept into two areas. More insights in the concept of sustainability could be gained by incorporating the social element. The main focus of studies is on organizations with a successful sustainability program or successful sustainable cases. This means there is a lack of knowledge on authorities and cases with less-successful sustainability development. As the investigation of leading organizations is logical, because of their innovative and creative leading role, it is plausible studying lagging organizations could yield new knowledge. The many struggles of less-successful projects could give access to new valuable insights. A suggestion is to study both innovators and laggards on

sustainability development and compare these with each other. Also, it could be interesting to investigate whether there are leading edge sectors within the public industry and sectors that clearly lag behind. Reasons why sectors are in different stages of sustainability development could create a better understanding of innovators versus laggards.

Our analysis showed a lack of theoretical foundation in the studies, suggesting that future research would benefit from more carefully crafted lenses. Some studies tend to focus on a specific area and connect sustainability development to for example, agency theory (Gelderman *et al.*, 2015), institutional theory (Brob and Benn, 2014) or stakeholder theory (Gelderman *et al.*, 2016). Other studies build upon frameworks coming from SSCM (Bala *et al.*, 2008; Preuss, 2009; Snider *et al.*, 2013; Igarishi *et al.*, 2015). Studies are more theoretical when they refer to a shared and recognised theory. A broader application of theories would help bring new insight in the field. Theories that would generate a more grounded basis in studies could be, social exchange theory or stakeholder theory. Social exchange theory can be used to study an organizations relation of dependence, based on power, organizational justice, exchange rules such as reciprocity and psychological contracts. Interpersonal factors, might dominate over exchanges of money and goods, in the context of business to consumer relations and even in the context of business to business relations. Stakeholders do influence organizations in adopting certain practices, but do not always lead to successful outcomes. The role of uncertainty and the relationship between different pressures should be considered. Organizations operate on the pressure of stakeholders but they can try to shape them as well.

Empirical limitations and suggestions

Our study identifies four main perspectives of research areas; strategy and procedures, objectives and criteria, drivers and barriers, and reporting standards. A substantial part of the publications is concerned with all four perspectives, because they are closely related and even intertwined. Insights are provided whether organizations have strategy and procedures on sustainability development and what is needed to make implementation possible. Current research has difficulty to determine how public authorities start sustainable development and what is needed to gain deeper understanding of sustainable development and its opportunities. Since the demand for sustainability is becoming more strategic within organizations, the purchasing function is severely challenged by internal and external stakeholders (Oruezabala and Rico 2012; Zhu *et al.*, 2013). It is interesting to learn more about the strategic position of sustainability within public organizations and its effect on purchasing departments.

The development of sustainability requires objectives with sustainable criteria. Organizations need to be clear and transparent about the goals they pursue, to trigger internal and external actors. Nevertheless, purchasers use different strategies to incorporate sustainable criteria and do not see sustainability as independent criteria. Procurement programmes are not well aligned with organizational sustainable objectives. Public organizations must be aware of their position regarding suppliers. In this context, we need to learn more about the mechanisms influencing these matters. A great number of studies provide insights into drivers and barriers for sustainable development. It is clear some factors drive sustainable initiatives, however facilitating these factors does not guaranty success. With all knowledge on drivers and barriers it remains unclear which factors can be used as an accelerator for internal sustainable implementation as well as in the supply chain. Reporting on sustainable performance is crucial to generate insight on progress in sustainability development and benchmarking targets and results. The attention for the use of tools on sustainable

performance is growing. It remains unclear how performance measurement and certification influences sustainable development in the public sector.

The content of the studies is focussed on the effort of sustainability development within the public sector. It is recommended to concentrate research on the result of public sustainability development within the internal organization of public institutions, as well as for external actors, to supply chains, clients, inhabitants, citizens and customers. Research on public sector sustainability development has attention for the impact of individuals on the process, but should also focus on the role of functions and departments being part of the process. The unclear aspect of the results of various initiatives remain. Future research could help in gaining more insight in how public authorities accomplish results and the effects on society.

From a managerial perspective, this paper addresses issues facing public procurement sustainability development, for public leaders as well as public sector procurement professionals. Despite its contribution, this study has some limitations. It does not consider papers that are not in the databases mentioned in the methodology section and are not peer reviewed. Relevant knowledge concerning this topic may be found in conference papers or PhD theses. The problem statement we formulated generates a limitation of publications included in our study, because of the focus on procurement in public sector sustainability development. Further research should explore other public bodies than federal institutions and municipalities. Most notably, the observed paucity of papers on the public health care sector could be a fruitful possibility for future research. Healthcare is considered a specific sector within the public sector. Healthcare is a big spend area in a countries GDP (Gelderman et al., 2016), and therefore could have an important impact on sustainable issues. Most of the sector is financed with public resources and therefore must justify all financial and organizational developments. Governmental policy and legislation are crucial issues influencing the sector. Walker (2015) states that healthcare is one of the biggest spend areas in public procurement and we agree research is needed on the sectors role on sustainability development.

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