DOI: 10.3217/978-3-85125-842-4-20

179 Monitoring Sustainable Public Procurement Behaviour – Demand-side Analysis of public tenders in Switzerland

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Abstract

Sustainable procurement requires organizations to align their purchasing behaviour with regard to broader goals linked to resource efficiency, climate change mitigation, social responsibility and other sustainability criteria. As for public procurement activities this means to detect sustainability criteria covered in the awarding stage of a public tender. The main reasons that hinder the inclusion of sustainability in awarding criteria vary from inflexible procedures and attitudes as barriers for innovative approaches, to missing market intelligence about sustainable products. To overcome such obstacles an in-depth-analysis is performed that assesses all procurement sector activities and further monitors sustainable procurement practices within a sector. In a next step, a performance reporting on the level of public authorities is proposed, e.g. to reach targeted ambition level for own procurement strategies or report progress of national sustainable development through public procurement. Doing so, hot-spot supply chain analysis is used to evaluate ecological and social sustainability criteria within a procurement sector as well as to identify corresponding hot spots. For this study the overall sustainability performance is monitored for Swiss public procurement actives in ICT, Construction, Road Transport, Food and Catering as well as for the procurement of Textiles. To this end, more than 102’000 tender data sets are retrieved from the Swiss national procurement platform simap.ch and screened for sustainability criteria using the Common Procurement Vocabulary (CPV) nomenclature to identify relevant procurement projects within a sector. The results reveal to which extent such public tenders include sustainability criteria. Thus, it is possible to monitor procurement behaviour, by identifying market-available sustainability standards and labels, best-practice as well as innovative procurement approaches. This is done by screening tender criteria such as selection criteria (SC), technical specifications (TS) and award criteria (AC). Moreover, it becomes possible to measure sustainability using the MEAT approach, a framework that provides substantial inputs to incorporate sustainability issues for decision-making based on the best price-quality ratio principle. The examination of sustainability performance for public agencies on federal, cantonal or municipal level shows huge differences. This is because as federal agencies usually

procure large volumes managed by professional procurement teams. In contrast, municipal procurement offices tend to issue tenders with fewer employees with less know-how regarding sustainability. So, most ambitious and innovative approaches are found by federal and cantonal agencies. In addition, most ecologically comprehensive approaches were found in the German-speaking part while most comprehensive social approaches were found in the French-speaking part. With these results at hand, best-practice approaches help to overcome the gap on sustainable product knowledge, as the mentioned sustainability measurements provide support with regard to inflexible procedures. Thus, this study provides novel insights on how public agencies from 2010 till June 2021 take sustainability into account when procuring goods or services. As governments spend 12% global GDP to purchase goods and services from the private sector, in Europe even more than 14% GDP, comprehensive sustainable decision-making in public procurement can leapfrog to the urgently needed contributions towards local, regional, national and international sustainability goals.

Keywords: Sustainable Public Procurement, Hot-spot Supply Chain Analysis, EU GPP framework, Most Economically Advantageous Tender (MEAT), Common Procurement Vocabulary (CPV)

Introduction

Promoting more progressive sustainable decision-making in public procurement (UN Environment, 2017) means to identify sustainability challenges throughout all product categories as well as to incorporate those as specifications in day-to-day procurement, such that the sustainability level of procurement activities of public agencies can be monitored (ARE, 2018). As for the purpose of this article, decision-making advice is provided to procurement professionals by an analysis of five of the most important sectors in public procurement (ICT, Construction, Road transport, Food and Catering, and Textiles) (Clement et al., 2016) to investigate to what extent environmental and social sustainability aspects are integrated into public tenders. In addition, also economical concepts and innovative procurement approaches are considered to provide advice for strategic procurement as well as for procurement practice.

International agreements like the UN 2030 Agenda for Sustainable Development encompasses 17 sustainable development goals (SDG) (United Nations General Assembly, 2015a) of which two directly address sustainable procurement. SDG 12 (Ensure sustainable consumption and production patterns) as well as SDG 8 (Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all) explicitly mention the relevance of sustainable procurement activities by the public sector. The need for progress towards Goal 12 was emphasized by data in the report of the Secretary General of the UN (United Nations Economic and Social Council, 2019): worldwide material consumption had reached 92.1 billion tons

in 2017, up from 87 billion in 2015 when the goal was formulated, with the rate of extraction accelerating every year since 2000. Without urgent and concerted political action, as e.g. setting up sustainable public procurement strategies, global resource extraction could grow to 190 billion tons by 2060.

Building upon the above intended political actions UN Environment initiated a 10 Year Framework of Programmes on Sustainable Consumption and Production Patterns (10 YFP) in 2015 (United Nations General Assembly, 2015) explicitly addressing sustainable procurement. One of the major goals of 10 YFP aims to foster national action plans. As of today it is recognized that especially European countries are working to embed sustainable procurement within environmental, social, and innovative policies providing some of the best examples of good sustainable public procurement (SPP) practices (UN Environment, 2017). As governments spend 12% global GDP to purchase goods and services from private sector (World Bank, 2020), in Europe even more than 14% GDP (European Commission, 2016a), it becomes obvious that sustainable decision-making in public procurement is key to fulfil local, regional, national and international sustainability goals (United Nations Economic and Social Council, 2019).

State of the Art

Enacting in line with the purpose of 10 YFP, most member states of the European Union (EU) have approved national sustainable public procurement action plans that follow policy recommendations from the European Commission as stated in the global review of SPP by UN Environment (UN Environment, 2017). Mostly those national action plans were built upon the 7th Environment Action Programme (EAP) in 2013 (European Parliament and Council, 2013), further stated in the corresponding EU public procurement directives. Those three new directives 2014/23, 2014/24, and 2014/25 intend to ensure the inclusion of environmental protection, social responsibility, innovation, combating climate change, employment, public health and other social and environmental considerations. Analysing current obstacles, needs and trends implementing the above postulated political actions, scientific literature as also SPP key actors' statements are studied.

Therefore, the scientific works of Sönnichsen and Clement (Sönnichsen and Clement, 2020), Marrucci, Daddi and Iraldo (Marrucci et al., 2019), as well as Cheng, Appolloni, D'Amato and Zhu (Cheng et al., 2018) were examined as well as the statements by UN Environment (UN Environment, 2017), EU Green Public Procurement (European Commission, 2016a), and ICLEI – Local Governments for Sustainability (Clement et al., 2016). In conclusion, it appears that public agencies lack the capabilities to embrace exemplarity and responsibility to enact change towards SPP, despite increased flexibility allowed by national action plans. This results in a reluctant integration of social and environmental criteria of product functionalities in procurement

projects, evident on the strategic procurement as well as the procurement practice level.

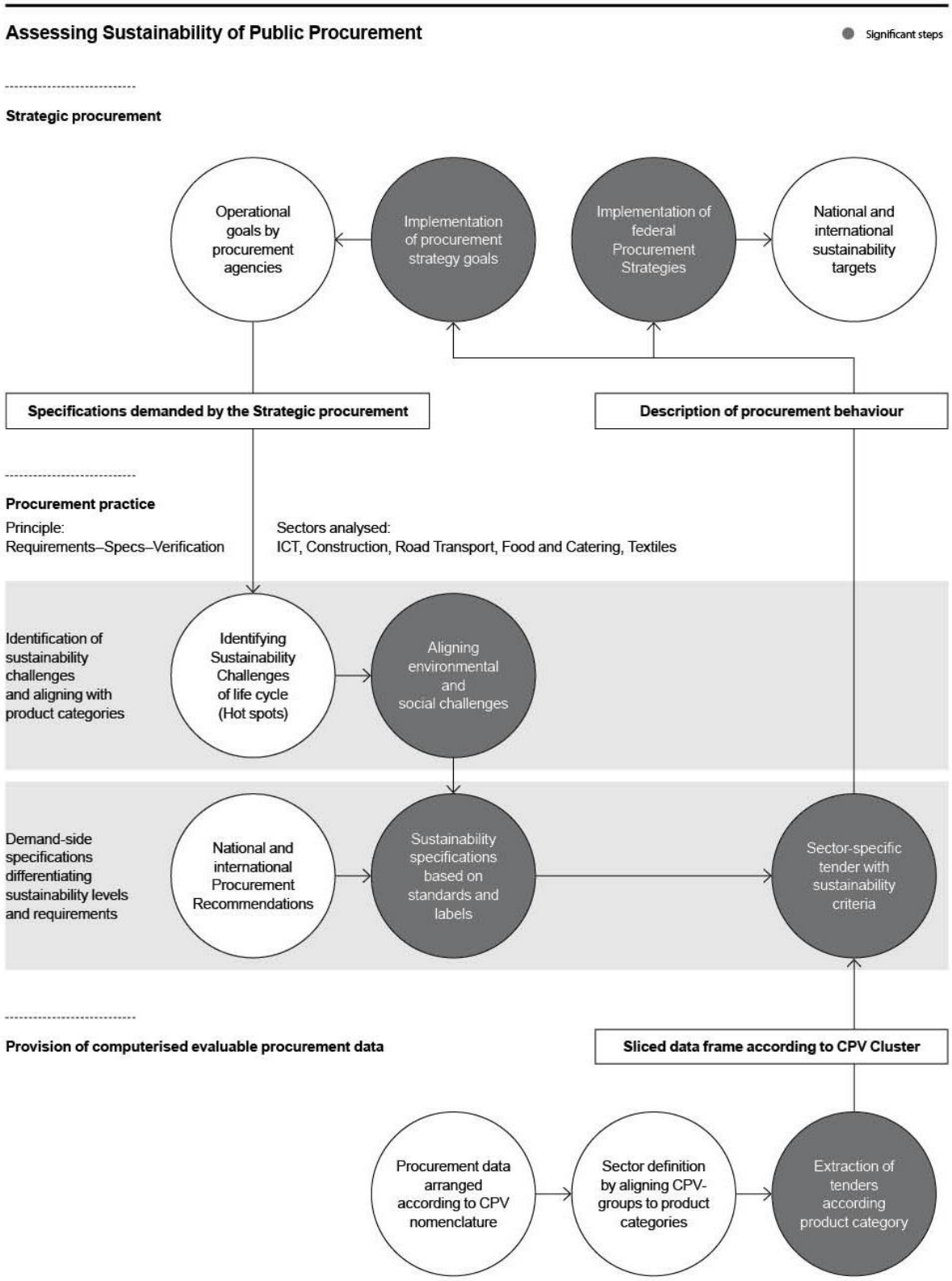

Figure 1. Structure to monitor sustainable public procurement activities.

To enact change that serves pledged national actions plans, like federal procurement strategies or sub-federal procurement strategy goals, it is crucial to recognize the entire product life-cycle and look deeper into the supply chain to consider environmental, ethical and fair business practices. Preconditions to enable SPP are political mandates, a professional procurement team as well as knowledge of the financial efficiency of sustainable alternatives. To encompass the above stated challenges in SPP in the following analysis, Figure 1 presents an analytical approach that enables monitoring sustainable procurement activities at federal, cantonal and municipal level. As such, the approach consists of four steps: provision of computerised evaluable procurement data according to the Common Procurement Vocabulary (CPV), extraction of sector-specific tenders, description of sustainability criteria focussing on ecological and social hot spots, concluding in a sustainability analysis of identified tenders that hold sustainability criteria to determine the sustainable procurement behaviour in the context of sector-specific standards. To ensure the implication of sustainability criteria in procurement activities, the principle: requirements – specifications – verification, is fundamental.

Actions towards Implementation

As the implementation of political action depends on national actions plans, the following analysis is conducted for the conditions in Switzerland, on federal legislative level. Doing so, the Swiss federal administration has adopted the Agenda 2030, which led to the commitment of different roles taken by central and decentralized federal agencies with regard to responsible entrepreneurial behaviour as employer, investor, and procurer (ARE, 2018). Thus the federal administration has accepted the duty of exemplarity and is perceived in this role by cantons and municipalities. The revision of the federal public procurement law in 2019 explicitly requires the integration of sustainability criteria in public procurement. In addition, in 2020 the so-called “Beschaffungsstrategie der Bundesverwaltung 2021-2030” which can be considered as Swiss national action plan on SPP was published. This directive contains specific federal and sub-federal procurement strategies that are fundamental for the policy requirements outlined above. With regard to the implementation of sustainability criteria into day-to-day procurement a guide for procurers (FOEN, 2019) containing 19 procurement sectors for goods and services has been published.

Based on Figure 1, that covers the overall structure monitoring sustainable procurement activities, Figure 2 describes in detail the strategic procurement level and the political actions like federal procurement strategies and sub-federal procurement strategies to foster sustainable procurement activities. Thus, it is essential that the strategic procurement level expresses the particularly demanded requirements to be executed on the procurement practice level. In detail those specifications are designation of sustainable ambition levels, definition of sourcing scenarios, approval of procurement approaches, as well as applicable economic valuation tools.

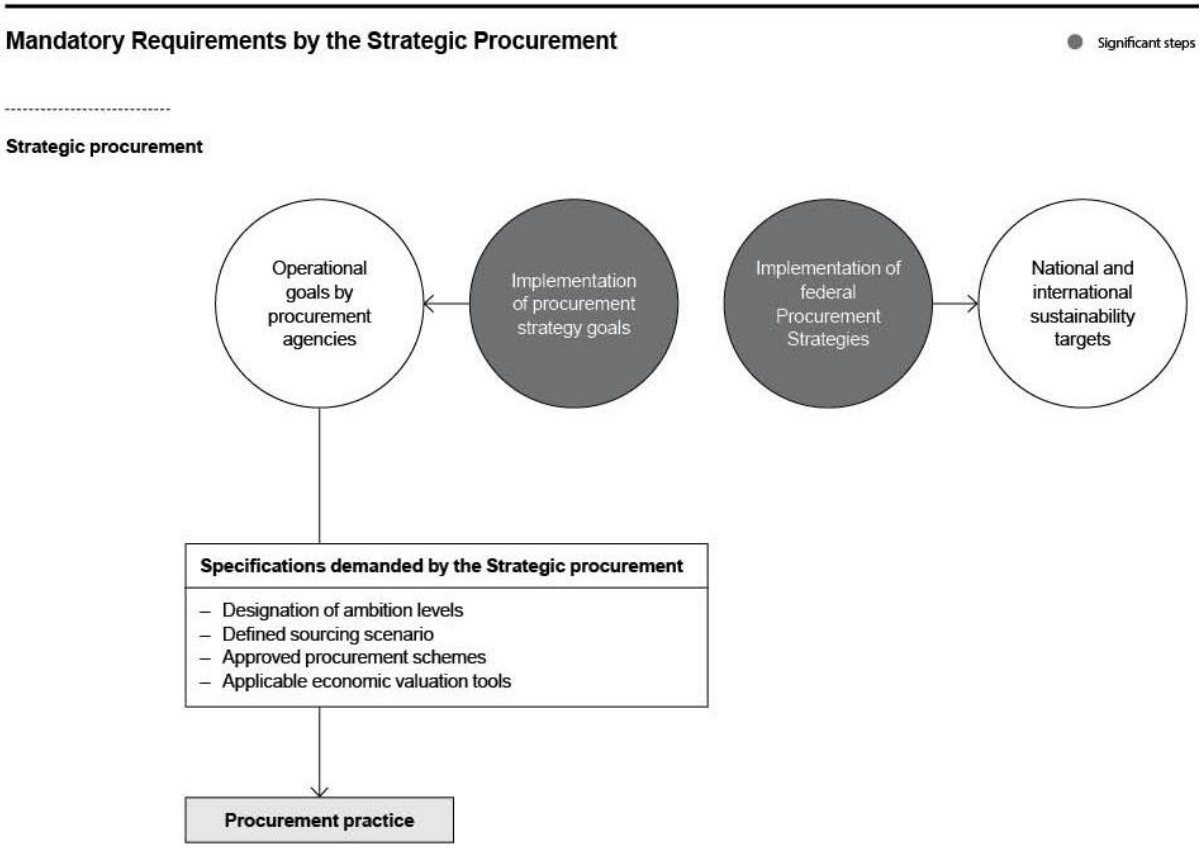

Figure 2. Requirements to be set by the strategic procurement.

Methods

Much research in the field of SPP has been devoted to understand the motivation and determinants driving the adoption of SPP practices, with some research additionally attempting to measure the efficacy of this adoption. Upon closer inspection, this field is dominated by two approaches categorized as “holistic” and “sectoral”. In the former case, researchers seek to understand how SPP is generally implemented across public procurement sectors (Fet et al., 2020; Lintukangas, 2016; Rosell, 2021; Zhu, 2013). In the latter case, researchers focus on individual public procurement sectors to better understand specific SPP implementation processes (Ahsan, 2017; Cerutti et al., 2016). In a systematic review of GPP-related research literature published between 2000 and 2016, Cheng et al. seek to identify conceptual gaps in a research field which, according to the authors, has focused mainly on the implementation of GPP as an environmental policy tool without considering in more detail its efficacy and innovativeness in comparison to other such tools. Of the many gaps identified by Cheng et al., one is of special interest with respect to the sustainability analysis developed in this paper. In their discussion, Cheng et al. conclude that the “effectiveness of GPP […] lacks a comprehensive analysis in terms of environmental performance tracking and measurement. This identifies one of the scientific and policy challenges to GPP related research, as the evaluation of the actual performance of green public purchases is crucial to achieve a better understanding of GPP potential

in the context of the environmental policies toolbox." (p. 782, emphasis added). In a recently published article, Jolien Grandia and Peter Kruyen (Grandia and Kruyen, 2020) assess the implementation of SPP by using text-mining techniques to analyse over 140'000 Belgian public procurement notices between 2011 and 2016. This approach is "holistic" because it seeks to address how SPP practices are implemented across the entire spectrum of public procurement sectors rather than in specific sectors. It is also innovative in that it employs text-mining techniques rather than self-report measures (e.g. interviews and questionnaires).

Based on the before-hand noted challenges in SPP, and alongside the structure monitoring SPP activities in Figure 1, the focus lies on the procurement practice level where all demand-side recommendations are communicated as specifications to the supply-side or in other words to the market. Text-mining techniques are also used in this analysis with a more comprehensive and structured approach to detect tender with sustainability criteria on sectoral level. This is done by identification of sustainability challenges as well as extraction of demand-side specifications in the tender invitation and the tender award notice. Figure 2 shows the additionally required steps like the specifications demanded by the strategic procurement as well as a prepared data set holding all relevant procurement projects to monitor sustainable procurement activities on sectoral level.

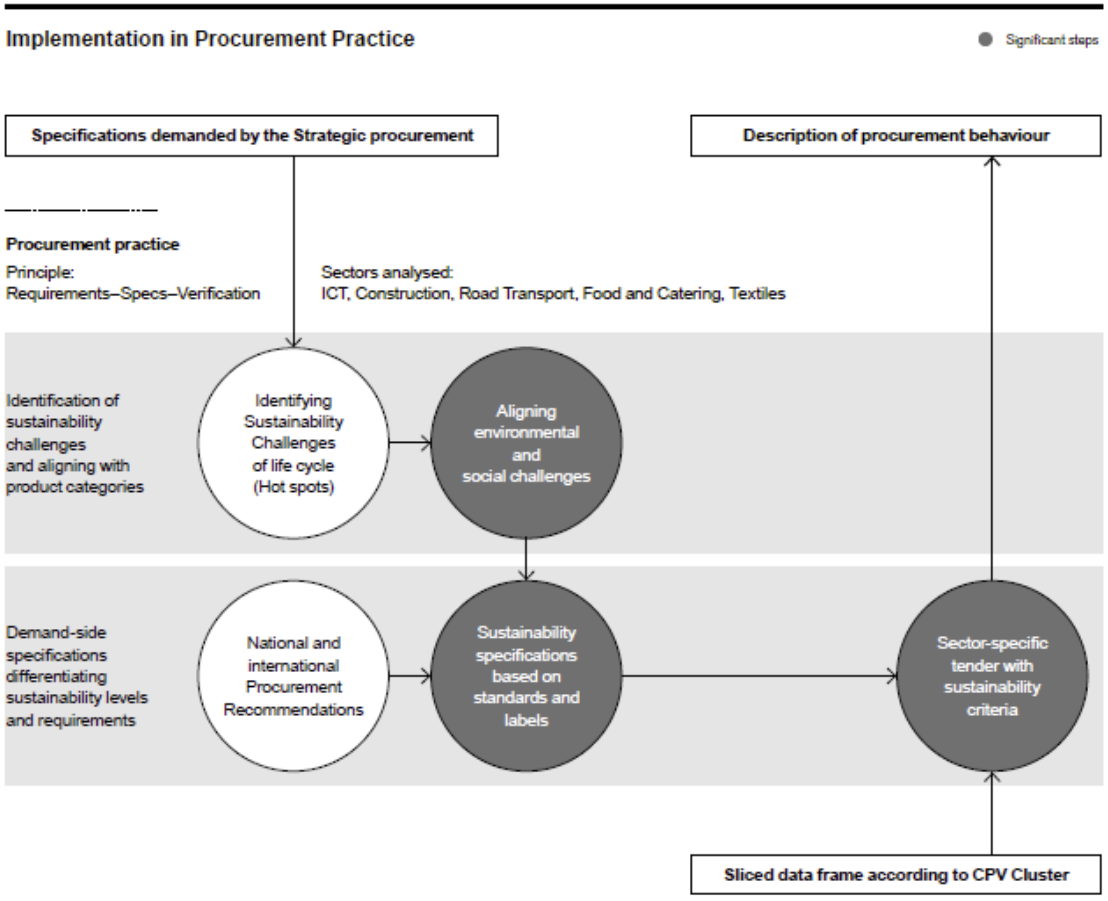

Figure 3. Implementation of sustainability specifications in procurement practice.

From Theory to Procurement Practice

In our research, the lack of performance evaluation is addressed by monitoring sustainability in public procurement adopting the concept of life cycle thinking as formulated in (Stucki et al., 2021). The general idea of this approach relies on the fact that public agencies use the concept of Common Procurement Vocabulary (CPV) (European Commission, 2007) to comprise all kinds of goods and services to describe the subjects of any procurement project. It is therefore essential to incorporate sustainability issues to this given concept using qualitative and quantitative Life Cycle Management methods (Jensen and Remmen, 2006). Thus, it is key to derive ecological and social hot spots using sustainable Hotspot Analysis (FOEN, 2019) along the supply chain on sector level (qualitative approach). Further, these hot spots must be converted into quantitative approaches like the concept of the Most Economically Advantageous Tender (MEAT) (European Commission, 2015) or Life Cycle Costing (LCC) (Estevan and Schaefer, 2017), to be accounted for in public procurement activities. Both steps reveal to which extent sustainability criteria are included in public tenders. This allows to monitor the penetration of sustainability and the applied level of sustainability over time in public agencies on federal, cantonal and municipal level.

In order to assess sustainability at all, it is necessary to describe at first the procurement sector as such. This means to list all processes that rely on the respective product categories to cover the procurement sector as such. For example, starting with the extraction of raw materials and ending with the disposal of materials after usage. For this purpose, the concept of Life Cycle Management (Jensen and Remmen, 2006) (p. 90) is used to clearly define specific product or service life cycles. Such a life cycle includes all processes form cradle to grave, subdivided into three phases of manufacture, use, and disposal, as outlined in Figure 4. This analysis allows to locate environmental and social sustainability challenges within each life cycle phase of a procurement sector. To ensure all such challenges have been identified, the consultation of sector-specific Supply Chain Sustainability Analyses is recommended where available. In the context of Switzerland, sector-specific Supply Chain Sustainability Analyses are carried out and published by the Swiss Federal Office for the Environment (FOEN) in the form of so-called “Relevanzmatrix” (FOEN, 2019). To measure the extent of particular harm it is customary to assess ecological challenges using midpoint impact assessment methods as used in Life Cycle Assessment (LCA), e.g. Global Warming Potential (GWP). Whenever possible the environmental hot spots are assigned to the corresponding midpoint impact category by the ReCiPe2016 assessment method (Huijbregts et al., 2017). Social challenges have to adhere to the core conventions of the International Labour Organization (ILO) and can thus be considered very reliable.

Measuring sustainable consumption behaviour

This section describes a six-step procedure, Figure 4, converting the structure as shown in Figure 3 to assess a procurement sector. In order to foster sustainable decision-making in public procurement (UN Environment, 2017), it is crucial to both identify the sustainability challenges related to each specific product category and to monitor the sustainability performance of public agencies such as contracting authorities or contracting entities.

Discussing explicitly the ability to measure the extent of specific sustainability challenges, is viable to consider the overall market-available sustainable solutions. Thereby it is crucial to identify the most relevant sustainability challenges (Step 1 – alignment of sustainability challenges with life cycle). To do so, the so-called hot spots are introduced to explicitly extricate the urgency to act within a demand type or product category. Sustainability hot spots are those challenges with the most potential for improvement to lever sustainability. Known supply chain sustainability analyses only take into account the life cycle as such, while the concept of EU green public procurement (GPP) distinguishes sustainability challenges on product category level.

Sustainability Assessment of Public Procurement Sectors

Alignment of Sustainability Challenges with Life Cycle (Hot Spots)		
Manufacture	**Use**	**Disposal**

Procurement Guidance and Sustainability Standards		
Description of sector scope	Compulsory directives	Eligible standards

Market-available Sustainability Standards	
Ecological label schemes	Social label schemes

Product Category Identification by CPV-Code
Enumeration of CPV-groups per product category

Sustainability Keywords		
General	Technic-specific	Verification-general
Sector-specific	Product category-specific	Verification-specific

Results	2010–2013			2014–2017			2018–2021		
	federal	cantonal	municipal	federal	cantonal	municipal	federal	cantonal	municipal
Technical Specifications									
Selection Criteria									
MEAT									

Figure 4. Procedure to implement sustainability specifications.

Step 2 – procurement guidance and sustainability standards, describes the overall procurement sector as well as the compulsory sustainability directives binding for a procurement agency and further eligible standards, means guidance schemes, that provide additional criteria to formulate sustainability requirements for a certain procurement project.

As to verify market-available sustainability criteria, step 3 represent relevant ecological and social label. As by now sustainability requirements are clearly defined by public authorities describing the demand-side. Vice versa the supply-side needs to communicate their offered work, goods and services according to these requirements in a transparent and comparable manner. For this purpose, label schemes are well suited. In the context of public procurement, a certain label has to meet at least the stated requirements as defined by the respective procurement agency. Label schemes can even overachieve certain requirements. This can happen on the one hand because public authorities have low expectations on sustainability or the requirements are somewhat outdated.

Product category identification by CPV-Code is performed in step 4. This is done for two reasons, first to use procurement practice terminology and second to gather all product categories that represent a procurement sector. This is an important step, as from now on all call for tender are allocated in a consistent classification system and to gather sufficient information with regard to the demanded sustainability specifications.

In step 5 sustainability keywords are used to extend the work of Grandia and Kruyen by the retrieval of sustainability criteria on sector level or more differentiated “general”, “technique-specific”, “sector-specific”, and “product-specific” criteria. Understanding current sustainability challenges in a sector is key to further describe potential sustainability levels, the basis to define the demand of sustainability obliged by public authorities. As done before, public procurement terminology is used to incorporate sustainability challenges into tender criteria, namely award criteria (AC), selection criteria (SC) as well as technical specifications (TS). Doing so, sustainability is accounted for in tender criteria in the award stage of a call for tender.

Finally, step 6 holds a comprehensive representation of sustainable procurement activities on ecological, social and economic level considering tender criteria and in addition use the so-called MEAT concept (Most Economically Advantageous Tender) (European Commission, 2015) to represent the included aspects such as quality, technical merits and functional characteristics, as well as criteria relating to environmental and/or social issues and operating costs (Parikka-Alhola et al., n.d.). This makes it possible to analyse public tender, as done here, for three different time periods, on federal, cantonal, and municipal procurement level.

Technical Realisation

In Switzerland public procurement tenders are usually published on the Swiss electronic tendering platform simap.ch, established in 2009. In addition, our research centre has developed a unique data platform, IntelliProcure, based on simap.ch for consulting large-scale public procurement notices from 2009 as well as tender documents from 2017 on enabling market intelligence for Swiss public procurement for these time spans. As of July 2021, the data platform IntelliProcure provides access to more than 129'000 tenders, 680'000 documents (2.2 TB), 4'000 public procurement agencies, and 15'000 suppliers. To access the simap.ch data in the sense of this study, all data sets are indexed and transferred to an SQL database. As by this step not all necessary information re retrievable, an additional date conversion is done to identify the tender criteria (AC/TS/SC) for the invitation as well as the award notice. Both of these data sets are further merged to create one data set that provides all information with regard to the invitation notices and an additional data set that holds all award notices. So the fundamental data is provided to do further preliminary preparations.

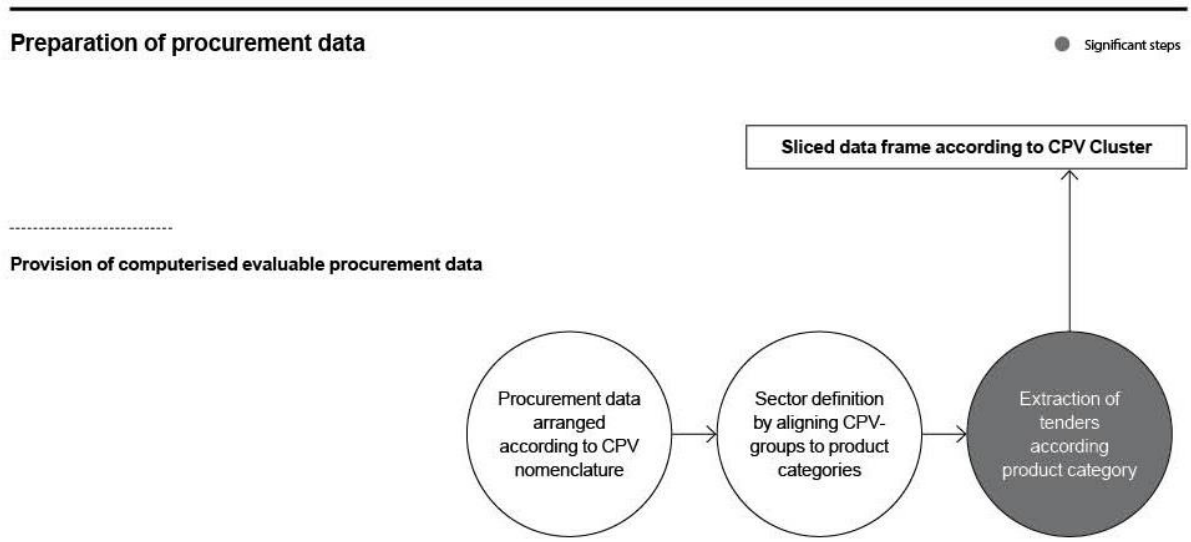

Figure 5. Provision of evaluable procurement data sets.

In order to comprise all kinds of goods and services all tenders are assigned to appropriate product categories. For this classification the Common Procurement Vocabulary (CPV) in its latest version of 2008 (European Commission, 2007) is used. The purpose of CPV is to standardize the terms used by contracting authorities to describe the subjects of contracts. These standard codes promote transparency and also set up an information system for public procurement. The CPV code is structured as an 8-digit number representing a hierarchy of categories. For the purpose of the present analysis the level of CPV-Class (e.g. 30210000 - Data-processing machines and CPV-Category (e.g. 30213000 - Personal computers) is examined. A computerised evaluable procurement data set thus available, to be used for the purpose of examining sustainable public procurement practice as shown in Figure 3.

Results and Discussion

In this chapter five procurement sectors, ICT, Construction, Road Transport, Food and Catering, and Textile are analysed regarding their specific sustainable procurement behaviour. For this purpose, Swiss public procurement data from the period of 2010 till June 2021 is examined. Around 102'000 tender notices are available, of which more than 83'500 are suited for this analysis. As mentioned above, text-mining techniques are used to handle this vast amount of data in order to create a reliable and reproducible result deducted by an automated code analysis. This is done in comparison to an earlier analysis by Welz and Stuermer (Welz and Stuermer, 2020), where only the ICT sector was examined manually for a period of two years, 116 tenders examined. According to the general principle: requirements – specifications – verification, to imply sustainable criteria in public procurement, the strategic procurement level has to specify the preliminary requirements on how sustainability has to be adopted on procurement practice level. It is the challenge for the procurement practice to define certain requirements per product-category respectively procurement sector asking for verification provided by the supply-side. One of the most comprehensive schemes (UN Environment, 2017) that holds sustainability criteria is the EU GPP (European Commission, 2016a) chosen for this study. Complemented by national guidance frameworks form the Netherlands and Austria which turn out to be the most innovative while also providing the latest sustainability knowledge. These three schemes hold the baseline on sustainability criteria retrieved form the following web platforms (European Commission, 2021a), (Pianoo, 2021), (BBG, 2021). To address identified hot spots, valid label schemes as for example for ICT and Textiles that are globally-sourced or Construction and Food and Catering that underlie mostly national directives have to be chosen. The time periods for investigating public tender have been selected based on the following criteria. In 2010 simap.ch was established, in 2014 WTO GPA became effective in Switzerland providing some regulatory options to demand sustainability criteria and EU GPP directives became effective providing first procurement guidance documents. From 2018 on for almost all procurement sectors guidance documents are available by EU GPP. The sustainability level of tender criteria (AC/ SC/ TS) is assessed using ecological and social keywords of unspecific nature (“general” and “technique-specific” keywords) as well as of more specific nature using “sector-specific” and “product-specific” keywords. Overall 415 keywords are identified, the unspecified group holds 90 general keywords and 36 keywords for verification. Considering AC using the MEAT concept to assess tender based on the best price-quality ratio (BPQR) rather than price alone does address a wider range of sustainability issues as performed in the following sector observations. To distinguish substantial sustainability challenges among product categories within a procurement sector the LCA-based approach of the Functional Unit (FU) is used to identify and to treat each of the challenges appropriately.

ICT Sector

In this chapter the ICT sector is monitored regarding its specific sustainable procurement behaviour. First the most relevant sustainability challenges are identified, followed by a general sustainability assessment is performed.

Most relevant Sustainability Challenges per Product Category

Hot spots in a Life Cycle: Manufacture Use

Product Category	Sustainability Scope	Key Sustainability Challenges	
		Ecological	Social
Product lifetime extension (FU 1)			
– Computers – Notebooks – Tablets – Peripheral equipment – Monitors – Smartphones – Fixe line devices	– Extending a product's life at the end of its service life (recircle) – Extended services and warranty – Design for durability, upgradability and reparability – Maximisethe recovery of resources	Fossil resources Global warming Particulate matter Mineral resources	Occupational safety Child labour
Optimisation of energyconsumption (FU 2)			
– Server	– Purchase of energy-efficient models – reduced potential for hazardous emissions upon disposal	Global warming Particulate matter	Occupational safety Child labour

Sources: EU GPP Criteria – Personal Computer, Server, Printer (European Commission 2021, 2020a, 2020b)/ BAFU Relevanzmatrix (FOEN 2019)/ Make ICT Fair (Watt et. al.,2020)

(FU) Functional Unit – Subject matter that defines the overall sustainability aim

Figure 6. Key sustainability challenges – ICT sector.

For the ICT sector two FU have to be served, namely product lifetime extension (FU 1) and optimisation of energy consumption (FU 2), differentiated according to the sustainability scope in Figure 6. The key sustainability challenges in form of ecological hot spots for (FU 1) are located in the manufacture-phase and for (FU 2) in the use-phase. Overall, the social hot spots occur to be the same for all product categories.

As all product categories in the ICT sector are sourced globally, any guidance scheme covering the above mentioned hot spots is eligible to serve the Swiss conditions. For ICT several Swiss directives are effective on the federal level. Investigating keywords that represent sustainability criteria was done by considering the following procurement schemes: EU GPP – Personal Computer (European Commission, 2021b), EU GPP – Server (European Commission, 2020a), EU GPP – Printer (European Commission, 2020b), and Make ICT Fair (Watt et al., 2020). Based on this guidance documents 17 specific keywords and 10 keywords for verification were identified. In result, Figure 7, 95 tenders are identified for the ICT sector. The amount of ecological and social keywords found in TS turns out to be low. The same holds for sustainability in SC. Looking for the composition of the MEAT, it was found that only a few entries on this category are available.

Alignment of Sustainability Challenges with Life Cycle (Hot spots)			
Manufacture		**Use**	
Fossil resources (eco) FU 1 Global warming (eco) FU 1 Particulate matter (eco) FU 1	Occupational safety (soc) FU 1+2 Child labour (soc) FU 1+2 Mineral resources (eco) FU 1	Global warming (eco) FU 1 Particulate matter (eco) FU 2	

Procurement Guidance and Sustainability Standards		
Description of sector scope	Compulsory directives	Eligible standards
Utilise hardware efficiently/ Analyse and monitor total energy consumption Considered criteria schemes: EU GPP, Pianoo(NL), NaBe(AT)	AGB Bund (soc) EC P025, P026 (eco) TS/AC	EU GPP (eco) TS/AC Make ICT fair (soc) TS/AC

Market-available Sustainability Standards	
Ecological label schemes	Social label schemes
TCO Certified, Blue Angel, Energy Star, Nordic Ecolabel, EPEAT, EU Ecolabel	Responsible Business Alliance, BSCI, Electronics Watch, SA 8000, Fair Labour Association, Responsible Minerals Iniative

Product Category Identification by CPV-Code (Selection)		
Computers, Notebooks, Tablets	Monitors	Smartphone
30212000 Minicomputer hardware 30213000 Personal computers	30231000 Computer screens 38652000 Cinematographic projectors	32252000 GSM telephones 64212000 Mobile-telephone services
Server	Fixed line device	Peripheral equipment
30211000 Mainframe computer 48820000 Servers	32552000 Electrical apparatus 64215000 IP telephone services	30232000 Peripheral equipment

Sustainability Keywords		
General	Technic-specific	Verification-general
environnem*, durable*, sociale*, Nachhaltig*, ecologie*,	Umweltmanagement, Energieeffizienz, Contribution de l'entreprise au développement durable	No Hot-Spot: ISO 14001, Eco-entreprise Hot-Spot: --
Sector-specific	Product category-specific	Verification-specific
Total Costs of Ownership, Lifecycle Costing, Green IT	Energy star, power usage effectivenss	No Hot-Spot: ILO Convention Hot Spot: Energy Star

Results	2010–2013 (22 Tender)			2014–2017 (33 Tender)			2018–2021 (40 Tender)		
	federal	cantonal	municipal	federal	cantonal	municipal	federal	cantonal	municipal
Technical Specifications									
Ecological	0	0	0	0	3	0	0	2	0
Social	1	0	2	1	0	0	0	0	0
Ecological + social	3	0	0	0	0	0	1	0	0
Hot Spot %	25	0	0	0	0	0	100	0	0
Selection Criteria									
Sustainability – general	0	1	1	1	6	0	6	5	0
Sustainability – specific	0	0	0	0	0	0	4	0	0
MEAT									
Price %	nan	90-100	50-50	nan	50-85	60-60	50-60	25-60	60-70
Sustainability – general %	nan	10-10	nan	35-35	nan	nan	5-5	6-6	nan
Sustainability – specific %	nan	nan	nan	nan	nan	nan	6-6	nan	nan

Figure 7. Sustainability assessment – ICT sector.

Construction Sector

In this chapter the Construction sector is monitored regarding its specific sustainable procurement behaviour. First the most relevant sustainability challenges are identified, followed by a general sustainability assessment.

Most relevant Sustainability Challenges per Product Category

Hot spots in a Life Cycle: Manufacture Use

Product Category	Sustainability Scope	Key Sustainability Challenges	
		Ecological	Social
Minimum energy performance (FU 1)			
– election of the design team and contractors – Detailed design and performance requirements – Completion and handover – Facilities management	– Low or zero carbon energy sources – Building energy management system – Incorporation of the recycled content – Quality of the office environment	Fossil resources Global warming Mineral resources	
Resource efficient construction (FU 2)			
– Strip-out, demolition and site preparation works – Construction of the building/ Major renovation works – Installation of energy systems/ Supply of energy services	– Installation and commissioning of building energy systems – Site waste management plan	Land use/ transformation Terrestrial Acidification Terrestrial ecotoxicity Freshwater eutrophication Human toxicity Water use	

Source: EU GPP Criteria – Office buildings (European Commission 2016b)

(FU) Functional Unit – Subject matter that defines the overall sustainability aim

Figure 8. Key sustainability challenges – Construction sector.

For the Construction sector two FU have to be served, namely minimum energy performance (FU 1) and resource efficient construction (FU 2), differentiated according to the sustainability scope in Figure 8. The key sustainability challenges in form of ecological hot spots for (FU 1) are located in the use-phase as (FU 2) in the manufacture-phase. Overall, no social hot spots are recognized for this sector.

As all product categories in the Construction sector are sourced based on national directives, suited guidance schemes for Swiss conditions have to be identified beside the general guidance for the sector based on EU GPP – Office buildings (European Commission, 2016b). In this case SNBS (CH) (NNBS, 2021) is chosen for national guidance, as this framework represents all essential building label. Based on this guidance documents 12 specific keywords and 34 keywords for verification were identified. In result, Figure 9, 1’020 tenders are identified for the Construction sector. The amount of ecological and social keywords found in TS turns out to be low. The same holds for sustainability in SC. Looking for the composition of the MEAT it was found that only a few entries on this category are available.

Alignment of Sustainability Challenges with Life Cycle (Hot spots)			
Manufacture		**Use**	
Land use/ transformation (eco) FU 2 Terrestrial acidification (eco) FU 2 Terrestrial ecotoxicity (eco) FU 2	Freshwater eutrophication (eco) FU 2 Human toxicity (eco) FU 2 Water use (eco) FU 2	Fossil resources (eco) FU 1 Global warming (eco) FU 1 Mineral resources (eco) FU 1	

Procurement Guidance and Sustainability Standards		
Description of sector scope	Compulsory directives	Eligible standards
Specifics of adaptive capacity/ Ask tenderer on env. measures (BEMS) Considered criteria schemes: EU GPP, Pianoo(NL), NaBe(AT), SNBS(CH)	AGB Bund (soc) EC	EU GPP (eco) TS/AC KBOB Guide (eco) TS/AC

Market-available Sustainability Standards	
Ecological label schemes	Social label schemes
SNBS, MINERGIE, SIA 112/1, LEED, GEAK, SGNI, BREAM, Gebäudestandard Energiestadt, Natur im Siedlungsraum	Gutes Innenraumklima, WELL, SméO

Product Category Identification by CPV-Code (Selection)		
Selection of the design team and contractors	Construction of the building	Detailed design/performance requirements
71210000 Advisory architectural services 71220000 Architectural design services	45210000 Building construction work 45262690 Refurbishment of run-down	71240000 Engineering services 71311100 Civil engineering support
Facilities management	Completion and handover	Installation of energy systems
71631300 Technical building-inspection 71730000 Industrial inspection services	71247000 Supervision of building work 71315400 Building-inspection services	39715000 Water heaters and heating 65200000 Gas distribution

Sustainability Keywords		
General	Technic-specific	Verification-general
durable*, environnem*, sociale*, Nachhaltig*, ökologi*, oekologi*, Equité sociale	Contribution de l'entreprise au développement	No Hot-Spot: -- Hot-Spot: --
Sector-specific	Product category-specific	Verification-specific
--	--	No Hot-Spot: FSC Hot Spot: Minergie

Results	2010–2013 (459 Tender)			2014–2017 (561 Tender)			2018–2021 (635 Tender)		
	federal	cantonal	municipal	federal	cantonal	municipal	federal	cantonal	municipal
Technical Specifications									
Ecological	2	1	0	2	4	0	0	0	0
Social	7	1	10	5	3	4	3	1	1
Ecological + social	14	0	2	4	0	0	14	0	10
Hot Spot %	0	50	0	0	29	0	6	0	0
Selection Criteria									
Sustainability – general	17	5	4	4	11	27	5	48	33
Sustainability – specific	1	1	0	0	0	1	0	2	2
MEAT									
Price %	30-60	10-100	10-80	30-70	20-100	25-100	10-100	20-100	20-85
Sustainability – general %	5-10	5-10	10-15	10-10	15-15	5-35	7-10	5-30	5-20
Sustainability – specific %	nan	nan	15-15	nan	nan	10-10	nan	30-30	5-5

Figure 9. Sustainability assessment – Construction Sector.

Road Transport Sector

In this chapter the Road transport sector is monitored regarding its specific sustainable procurement behaviour. First the most relevant sustainability challenges are identified, followed by a general sustainability assessment.

Most relevant Sustainability Challenges per Product Category

Hot spots in a Life Cycle: Manufacture Use

Product Category	Sustainability Scope	Key Sustainability Challenges	
		Ecological	Social
Using vehicles with low environmental impact (FU 1)			
– Passenger cars – Delivery trucks – Lorries – Buses – Coaches – Sweepers – Specialist vehicles – Motorcycles – Bicycles	– Greenhouse gas and air pollutant emissions produced by energy consumption during the use phase – Environmental impacts of batteries of electric vehicles – Noise emissions produced by the vehicle and tyres	Fossil resources Global warming Particulate matter Noise	Occupational safety Freedom of association

Sources: BAFU Relevanzmatrix (FOEN 2019)/ EU GPP Criteria – Road Transport (European Commission, 2019a)

(FU) Functional Unit – Subject matter that defines the overall sustainability aim

Figure 10. Key sustainability challenges – Road Transport sector.

For the Road transport sector one FU has to be served, namely using vehicles with low environmental impact (FU 1) differentiated according to the sustainability scope in Figure 10. The key sustainability challenges in form of ecological hot spots relate to the use-phase, while all social hot spots occur in the manufacture-phase.

As all product categories in the Road transport sector are sourced globally, any guidance scheme covering the above mentioned hot spots is eligible to serve the Swiss conditions. Investigating keywords that represent sustainability criteria was done by considering the following procurement schemes: EU GPP – Road Transport (European Commission, 2019a) as well as the national guidance documents by VCS (CH) (VCS, 2021) as this framework lists the market-available sustainable solutions for several product categories. Based on this guidance documents 43 specific keywords and 16 keywords for verification were identified.

In result, Figure 11, 351 tenders are identified for the Road Transport sector. The amount of ecological and social keywords found in TS turns out to be low. The same holds for sustainability in SC. Looking for the composition of the MEAT it was found that only a few entries on this category are available.

Alignment of Sustainability Challenges with Life Cycle (Hot spots)		
Manufacture	**Use**	
Occupational safety (soc) FU 1 Freedom of association (soc) FU 1	Fossil resources (eco) FU 1 Global warming (eco) FU 1	Particulate matter (eco) FU 1 Noise (eco) FU 1

Procurement Guidance and Sustainability Standards		
Description of sector scope	Compulsory directives	Eligible standards
Consider alternatives/ Select the right cars/ Sustainability as consideration Considered criteria schemes: EU GPP, Pianoo(NL), NaBe(AT), VCS(CH)	AGB Bund (soc) EC VBS Directive (eco) --	EU GPP (eco) TS/AC

Market-available Sustainability Standards	
Ecological label schemes	Social label schemes
Clean Vehicles Directive, Eco-Drive, ECOSTARS, EURO-6	INOBAT, Global Battery Alliance

Product Category Identification by CPV-Code (Selection)		
Passenger cars	Buses	Specialist vehicles
34111000 Estate and saloon cars 34113000 4-wheel-drive vehicles	34121100 Public-service buses 34622300 Trolleybuses	34114100 Emergency vehicles 34144500 Vehicles for refuse and sewage
Delivery trucks	Lorries	Sweepers
34131000 Pick-ups 34136000 Vans	34134000 Flatbed and Tipper trucks 34138000 Road tractor units	34144430 Road-sweeping vehicles 34921100 Road sweepers

Sustainability Keywords		
General	Technic-specific	Verification-general
environnem*, durable*, sociale *, Umweltver-träglichkeit, ökologi *, lifecycle	Contribution de l'entreprise au développement durable	No Hot-Spot: -- Hot-Spot: --
Sector-specific	Product category-specific	Verification-specific
--	--	No Hot-Spot: -- Hot Spot: --

Results	2010–2013 (72 Tender)			2014–2017 (114 Tender)			2018–2021 (165 Tender)		
	federal	cantonal	municipal	federal	cantonal	municipal	federal	cantonal	municipal
Technical Specifications									
Ecological	0	7	0	0	0	0	0	6	0
Social	1	0	2	0	0	1	0	0	3
Ecological + social	0	0	0	2	0	0	1	0	0
Hot Spot %	100	0	0	0	0	0	0	0	0
Selection Criteria									
Sustainability – general	0	22	2	0	0	3	0	21	4
Sustainability – specific	0	2	0	0	0	0	0	0	0
MEAT									
Price %	nan	10-100	20-40	50-50	nan	30-80	50-70	25-100	35-70
Sustainability – general %	nan	5-10	35-35	nan	nan	5-15	nan	5-10	5-15
Sustainability – specific %	nan	nan	nan	nan	nan	nan	nan	nan	nan

Figure 11. Sustainability assessment - Road Transport sector.

Food and Catering Sector

In this chapter the Food and Catering sector is monitored regarding its specific sustainable procurement behaviour. First the most relevant sustainability challenges are identified, followed by a general sustainability assessment.

Most relevant Sustainability Challenges per Product Category

Hot spots in a Life Cycle: Manufacture Use

Product Category	Sustainability Scope	Key Sustainability Challenges	
		Ecological	Social
Consumption of food products with low environmental impact (FU 1)			
– Fish and seafood – Meat, Milk and Cheese, Eggs – Fruit and vegetables, Bread and cereals – Oils and fats – Hot drinks – Cold drinks – Transportation	– Increase offer of plant-based menus – Select organic food products – Prevention of food waste – Select responsible-sourced vegetable fats	Global warming Water use Terrestrial acidification Land use/ transformation Freshwater eutrophication Human toxicity	Occupational safety Freedom of association Gender inequality
Optimisation of energy and resource consumption (FU 2)			
– Operational support – Food storage and preparation – Processing of products – Transportation	– Prevention of food waste and other waste – Reduction of energy and water consumption in kitchen – Use of products and consumables with lower environmental impact	Fossil resources	

Source: BAFU Relevanzmatrix (FOEN 2019)/ EU GPP Criteria – Food and Catering (European Commission, 2019b)

(FU) Functional Unit – Subject matter that defines the overall sustainability aim

Figure 12. Key sustainability challenges – Food and Catering sector.

For the Food and Catering sector two FU have to be served, namely consumption of food products with low environmental impact (FU 1) and optimisation of energy and resource consumption (FU 2), differentiated according to the sustainability scope in Figure 12. The key sustainability challenges in form of ecological hot spots for (FU 1) are located in the manufacture-phase and for (FU 2) in the use-phase. All social hot spots occur in the manufacture-phase.

As all product categories in the Food and Catering sector are sourced based on national directives, suited guidance schemes for Swiss conditions have to be identified beside the general guidance for the sector based on EU GPP – Food and catering (European Commission, 2019b). For this purpose the labelinfo.ch scheme (PUSCH, 2021) is chosen for national guidance, as this framework represents all essential food label. Based on this guidance documents 17 specific keywords and 34 keywords for verification were identified. In result, Figure 13, 60 tenders are identified for the Food and Catering. The amount of ecological and social keywords found in TS turns out to be low. The same holds for sustainability in SC. Looking for the composition of the MEAT it was found that only a few entries on this category are available.

Sustainability Assessment of Public Procurement Sector

Alignment of Sustainability Challenges with Life Cycle (Hot spots)			
Manufacture			**Use**
Global warming (eco) FU 1 Wateruse (eco) FU 1 Terrestrial acidification (eco) FU 1	Land use/transformation (eco) FU 1 Freshwater eutrophication (eco) FU 1 Human toxicity (eco) FU 1	Occupational safety (soc) FU 1 Freedom of association (soc) FU 1 Gender inequality (soc) FU 1	Fossil resources (eco) FU 2

Procurement Guidance and Sustainability Standards		
Description of sector scope	Compulsory directives	Eligible standards
Survey actual food use/ Fewer animal and more vegetable proteins Considered criteria schemes: EU GPP, Pianoo(NL), NaBe(AT)	AGB Bund (soc) EC	EU GPP (eco) TS/AC FOEN Guide (eco) EC/TS/AC

Market-available Sustainability Standards	
Ecological label schemes	Social label schemes
Knospe Bio Suisse, Natura Beef, fidelio, KAGfreiland, Delinat, EU Bio Label, Demeter, Naturland, Bioland, MSC, ASC, Rainforest Aliance Certified	Claro, Fairtrade Max Havelaar, UTZ

Product Category Identification by CPV-Code (Selection)		
Food procurement		
03142500 Eggs 03200000 Cereals, potatoes, vegetables	03300000 Farming, hunting, fishing products 15100000 Animal products and meat	15300000 Fruit, vegetables 15500000 Dairy products
Catering services (CPV-Code alignment not possible)		
– Operational support – Food storage and preparation	– Processing of products – Transportation	

Sustainability Keywords		
General	Technic-specific	Verification-general
ökologi*, Nachhaltig*, environnem *, Equité sociale, sociale *	--	No Hot-Spot: -- Hot-Spot: --
Sector-specific	Product category-specific	Verification-specific
--	--	No Hot-Spot: -- Hot Spot: --

Results	2010–2013 (19 Tender)			2014–2017 (17 Tender)			2018–2021 (24 Tender)		
	federal	cantonal	municipal	federal	cantonal	municipal	federal	cantonal	municipal
Technical Specifications									
Ecological	0	0	0	0	0	0	0	0	0
Social	0	0	0	8	0	0	0	0	0
Ecological + social	0	0	0	0	0	0	0	0	0
Hot Spot %	0	0	0	0	0	0	0	0	0
Selection Criteria									
Sustainability – general	2	0	1	0	0	2	16	1	2
Sustainability – specific	0	0	0	0	0	0	0	0	0
MEAT									
Price %	nan	nan	nan	nan	60-60	70-80	nan	40-40	35-35
Sustainability – general %	nan	nan	nan	nan	nan	nan	30-30	30-30	5-5
Sustainability – specific %	nan	nan	nan	nan	nan	nan	nan	nan	nan

Figure 13. Sustainability assessment – Food and Catering sector.

Textile sector

In this chapter the Textile sector is monitored regarding its specific sustainable procurement behaviour. First the most relevant sustainability challenges are identified, followed by a general sustainability assessment.

Most relevant Sustainability Challenges per Product Category

Hot spots in a Life Cycle: Manufacture Use

Product Category	Sustainability Scope	Key Sustainability Challenges	
		Ecological	Social
Product lifetime extension (FU 1)			
– Uniforms and presentational workwear – Heavy duty workwear and personal protective equipment – Functional outerwear – Towels and bed linen	– Purchase fibres produced using fewer fertilisers, hazardous pesticides and production chemicals – Purchase textiles that contain recycled materials and fibres – Contract services that maintain textiles in order to extend their lifetime – Contract services that minimise the energy used to wash, dry and iron textiles	Fossil resources Global warming Water use Freshwater ecotoxicity Land use/ transformation Freshwater eutrophication	Child abour Forced labour Occupational safety Gender inequality

Sources: BAFU Relevanzmatrix (FOEN 2019), EU GPP Criteria – Textiles (European Commission, 2017)

(FU) Functional Unit – Subject matter that defines the overall sustainability aim

Figure 14. Key sustainability challenges – Textile sector.

For the Textile sector one FU has to be served, namely product lifetime extension (FU 1) differentiated according to the sustainability scope in Figure 14. The key sustainability challenges in form of ecological hot spots for (FU 1) are located in the manufacture-phase with exception of one hot spot that occurs in the use-phase. All social hot spots occur in the manufacture-phase.

As all product categories in the Textile sector are sourced globally, any guidance scheme covering the above mentioned hot spots is eligible to serve the Swiss conditions. Investigating keywords that represent sustainability criteria was done by considering the following procurement schemes: EU GPP – Textiles (European Commission, 2017). Based on this guidance documents 42 specific keywords and 64 keywords for verification were identified.

In result, Figure 15, 62 tenders are identified for the Textile sector. The amount of ecological and social keywords found in TS turns out to be low. The same holds for sustainability in SC. Looking for the composition of the MEAT it was found that only a few entries on this category are available.

Alignment of Sustainability Challenges with Life Cycle (Hot spots)			
Manufacture			**Use**
Fossil resources (eco) FU 1 Global warming (eco) FU 1 Water use (eco) FU 1	Land use/transformation (eco) FU 1 Freshwater eutrophication (eco) FU 1 Child labour (soc) FU 1	Occupational safety (soc) FU 1 Forced labour (soc) FU 1 Gender inequality (soc) FU 1	Freshwater eutrophication(eco) FU 1

Procurement Guidance and Sustainability Standards		
Description of sector scope	Compulsory directives	Eligible standards
Avoid unnecessary purchasing/ Sustainable design Considered criteria schemes: EU GPP, Pianoo(NL), NaBe(AT)	AGB Bund (soc) EC	EU GPP (eco) TS/AC

Market-available Sustainability Standards	
Ecological label schemes	Social label schemes
GOTS, bioRe, Öko-Tex 100, bluesign, STeP, Blue Angel, ecocert, Cotton made in Africa, demeter	Fair Wear Foundation, Claro, Naturtextil IVN BEST, Maya, Fair Trade, fair for Life, Fairtrade Max Havlaar, SA 8000

Product Category Identification by CPV-Code (Selection)		
Uniforms and presentational workwear	Heavy duty workwearand personal protective equipment	
18110000 Occupational clothing 18400000 Special clothing and accessories	18130000 Special workwear 18143000 Protective gear	18141000 Work gloves 18830000 Protective footwear
Towels and bed linen		Functional outerwear
39512000 Bed linen 39514000 Toilet and kitchen linen	39518000 Hospital linen 39511000 Blankets and travelling rugs	18200000 Outerwear

Sustainability Keywords		
General	Technic-specific	Verification-general
Nachhaltig*, environnem*, sociale*, durable*, ökologi*, Umweltschutz	composante environnementale au développement durable	No Hot-Spot: -- Hot-Spot: --
Sector-specific	Product category-specific	Verification-specific
--	--	No Hot-Spot: -- Hot Spot: --

Results	2010–2013 (10 Tender)			2014–2017 (25 Tender)			2018–2021 (27 Tender)		
	federal	cantonal	municipal	federal	cantonal	municipal	federal	cantonal	municipal
Technical specifications									
Ecological	0	1	0	0	2	0	0	1	0
Social	1	0	0	2	0	1	2	0	0
Ecological + social	1	0	0	5	0	0	4	1	0
Hot Spot %	100	0	0	100	0	0	100	0	0
Selection criteria									
Sustainability – general	0	0	0	0	4	0	1	3	0
Sustainability – specific	0	0	0	0	0	0	0	0	0
MEAT									
Price %	nan	50-50	nan	nan	30-40	45-45	30-80	30-70	50-50
Sustainability – general %	nan	nan	nan	nan	nan	nan	10-10	15-30	nan
Sustainability – specific %	nan	nan	nan	nan	nan	nan	nan	nan	nan

Figure 15. Sustainability assessment – Textile sector.

Discussion on Sustainable Procurement Behaviour

For the purpose of monitoring sustainable procurement activities on sectoral level an assessment approach is defined as shown in Figure 4. This approach includes a sophisticated description on how public tender are structured, for example the CPV structure and tendering criteria (AC/ TS/ SC). Based on the 415 identified sustainability keywords that are used to address un-specific and specific sustainability criteria, the response rate of found tender is astonishingly lower than expected. With the obtained results monitoring a procurement sector using an automated coding procedure is yet not possible. So far, it is at least possible to report a certain increase of found tender for all observed procurement sectors over time. As this analysis was performed by a code-generated procedure, the fundamentally different results will further be compared to the manually performed study by Welz and Stuermer in 2020. A reasonable explanation for the current results is the structure of the data set, as the simap.ch data convention allows a more or less unstructured notice submission. The structure of how invitation and award notices are completed varies substantially. Additional problems occur with regard on how CPV codes are applied by practitioners. Obviously, the identification of more sustainability keywords or characteristic phrases could deliver better results.

Discussion on automated versus manual Analysis

To further evaluate the not yet representative results of the analysis of five procurement sectors the results of the manually performed analysis by Welz and Stuermer 2020 are consulted. As stated in this study the assumption by Welz and Stuermer, that “it should be possible to use the procedure for the sectoral sustainability analysis as defined […] to assess the level of sustainability for other sectors, like buildings, transport and agriculture” cannot be confirmed. As the manually performed analysis retrieves reliable and reproducible results monitoring sustainable procurement activities, these results represent the benchmark for all forthcoming code-based approaches. In total 116 ICT tenders were identified for the period of 2018-2019 for three product categories, of which 17 contain sustainability criteria corresponding to a quota of 15%. Looking at the product groups individually 5 of 61 tenders (8%) for Personal Computers, 10 of 43 (23%) for Server, and 2 of 12 (17%) for Smartphones. Analysing the behaviour of procurement agencies, cantonal authorities used sustainability criteria in 9 of 66 (14%) projects while municipal authorities did so in 6 of 43 (14%). Agencies on central and decentralized federal level appear quantitatively negligible due to the small number of tenders found. So it is mandatory that for all future automated coding procedures at least the results by the manually performed analysis have to be met. If this is the case, monitoring a procurement sector using an automated coding procedure is justified.

Discussion on Procurement Practice

To create a comprehensive excerpt of the sustainability performance of any procurement project, Figure 16 presents an example on how such a summary could look like. Based on the procurement of server in the ICT sector (simap, 2021) it is shown, which parts of the tender notices have to be screened, namely “specific sustainability criteria”, “contracted sustainability”, “economic sustainability criteria” and MEAT. Thus this summary contains at least all necessary categories as suggested in our approach in Figure 4.

Sustainability Assessment of a Public Procurement Tender - ICT

General Characteristics	
Procurement agency:	Bundesamt für Informatik
Project-ID:	203535
Product Category:	ICT - Server
Value:	280.5 Mio. CHF
Sustainable award criteria:	AC / TS / EC
Sustainability level:	comprehensive

MEAT		
	(Sum of award criteria)	100%
Price:		70.0%
Quality:		12.6%
Service:		9.1%
General sustainability:		4.0%
Specific sustainability:		4.3%

Procurement Concept	
Linear:	Product-specific criteria
Make-solution:	Minimum hardware requirement

Specific Sustainability Criteria	
Ecological:	P_{idle} ERF
Social:	…

Contracted Sustainability	
Label:	Energy Star
Characteristics:	P_{idle} E_{FF}active (PUE alternative)

Economic Sustainability Criteria	
Cost structure:	Price / ~~TCO~~ / ~~LCC~~
Contract performance:	~~CPC~~ / ~~LCC~~ / …

Figure 16. Example of procurement tender assessment.

The manually performed analysis of the ICT sector shows that for the Swiss context, most retrieved tenders satisfy many unspecific sustainability criteria but perform low on specific criteria. Most ecologically comprehensive approaches were found in the German-speaking part of Switzerland while most comprehensive social approaches were found in the French-speaking part. Neither comprehensive nor basic sustainability approaches were found in the Italian-speaking part. With regard to the level of know-how of professional procurement teams, federal agencies perform best and municipal agencies worst. Closing this particular pre-procurement performance gap is important in order to achieve substantial progress meeting operational sustainability goals. Apparently some agencies are pioneers with regard to sustainable procurement leading to high numbers of sustainability criteria being satisfied.

Discussion on Strategic Procurement

Based on the findings of the key actors mentioned in the state of the art section, it appears unfortunately not so easy for public agencies to embrace their duties of exemplarity and responsibility to enact change, even despite the existence of national public procurement action plans. The procurement data found by Welz and Stuermer in 2020 confirm this impression. Especially in this case it is crucial to report feedback

on the strategic procurement level. The MEAT approach as well as the award criteria and the technical specifications reflect the existence of sustainability criteria in a specific tender. With this insight it becomes possible to enact as promised, as it is possible to report considered environmental and social hot spots, fulfilment of operational and strategic target and the awareness of market-available sustainable solutions, see Figure 17. Further this knowledge allows a profound re-evaluation of procurement strategies with regard to enacting real change.

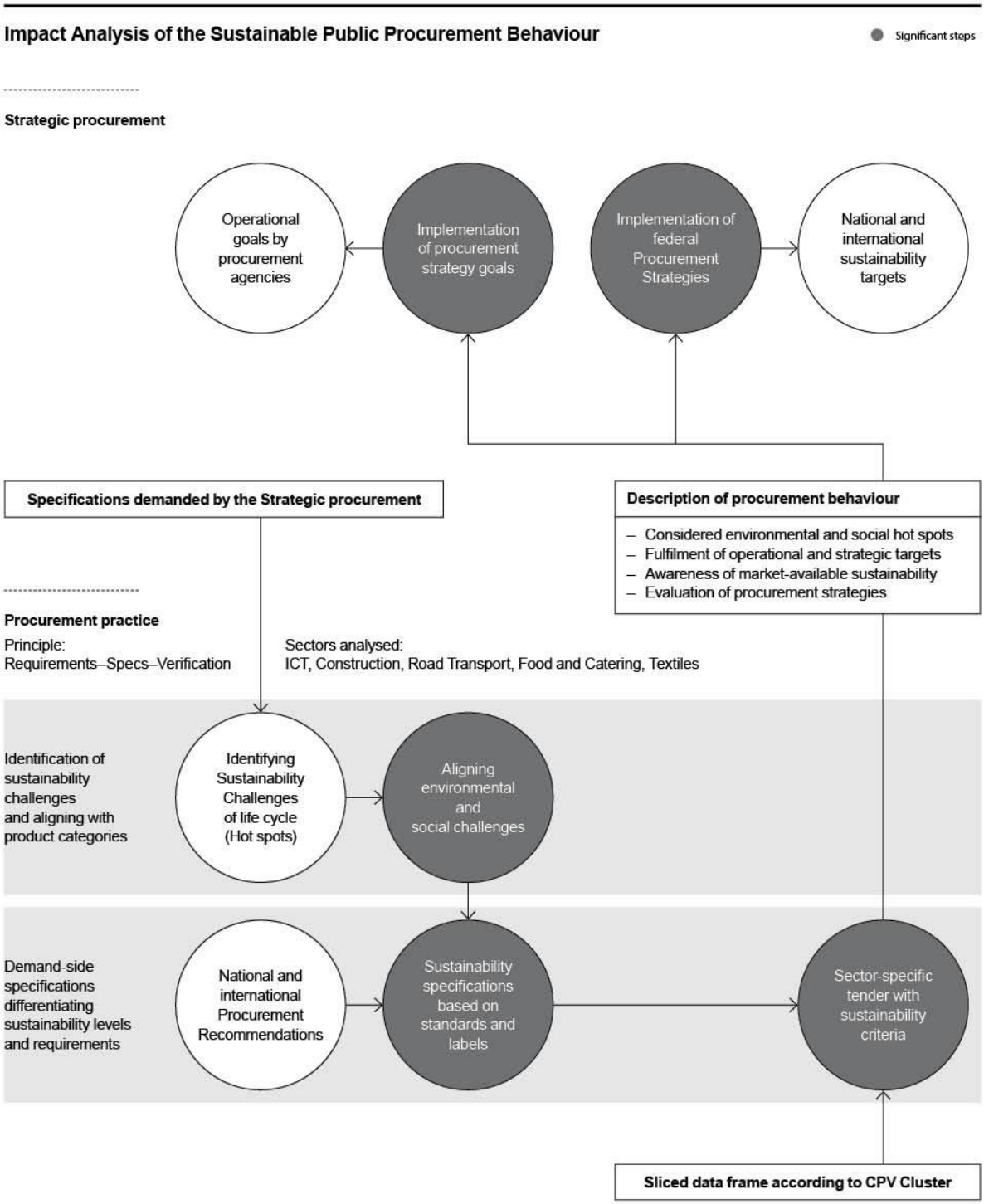

Figure 17. Impact of procurement behaviour.

Conclusions

The particular study-design used to monitor sustainable public procurement behaviour allows retrieving sector-specific tenders from the Swiss national data set for a specified amount of procurement sectors and several types of public procurement authorities. It is thus possible to retrieve tenders with distinguishable “general” and “technic-specific”, “sector-specific”, and “product-specific” properties as well as sustainability criteria (ecological and social). Furthermore, in agreement with national and international sustainability standards a list of keywords is obtained defining sustainability with respect to ICT, construction, road transport, food and catering, and textile tenders encountered in day-to-day procurement. These keywords allow assessing sustainability criteria at the overall sector level, resulting in the level of demanded sustainability in public procurement activities. With the approach at hand, additional classifications such as distinguishing ecological and social challenges and hot spots per product category are possible. Furthermore, additional insights are gained by performing such an analysis as a three step process of firstly describing a sector, secondly crystallising a provisional result as a starting point and thirdly analysing a procurement sector. The results of the intended analysis for the mentioned five procurement sectors show that the used automated coding procedure is not yet reliable enough to monitor sustainable procurement activities for the given data set. Due to this fact, the results of an earlier performed manual analysis are proposed as a minimal benchmark to be achieved by an approved coding procedure in order to be classified as reliable. The assessment approach used in this study shows that technical specifications, award criteria and the MEAT approach are most crucial regarding the overall sustainable tender performance. As observed in the manual performed analysis, most retrieved tenders fulfil general sustainability criteria but perform poorly on specific criteria, in particular meeting international standards. With regard to the level of know-how of professional procurement teams’ federal agencies perform best and municipal agencies worst. This low performance may be explained partly by the need for incorporation of such concepts in the organisations’ sustainable procurement strategy which is usually a rather complex undertaking. Apparently some agencies are pioneers with regard to sustainable procurement leading to high numbers of sustainability criteria being satisfied. The study highlights the need to further overcome several previously identified gaps. Most obviously, a reliable development of the automated code procedure is necessary. This should be accompanied by a newly performed assessment with the data set at hand to monitor the sustainable sector procurement activities reliably. More generally, the need for a holistic sustainability framework is formulated, that explicitly discusses all necessary assessment steps. In addition, this would help to get in the positon to further perform an impact analysis on national level to illustrate how to better imbed SPP on the strategic procurement level. This particular further research is intended to foster the adoption of SPP in day-to-day procurement as well as to consult decision-makers with regard to future calls for tender.

Acknowledgements

This research is part of the National Research Project NRP 73 Sustainable Economy, Grant Number 407340_172351, and funded by the Swiss National Science Foundation. Special thanks is expressed to Noémi Blanchard with her data science skills to perform the comprehensive data analysis in order to ensure the procurement practice behaviour.

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