

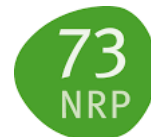
Monitoring sustainability performance in public procurement through life cycle thinking

**74th Discussion Forum on
Life Cycle Assessment**

**presenting insights on NRP73 project
«Sustainable Public Procurement»**

Tobias Welz and Matthias Stürmer

29 June 2020



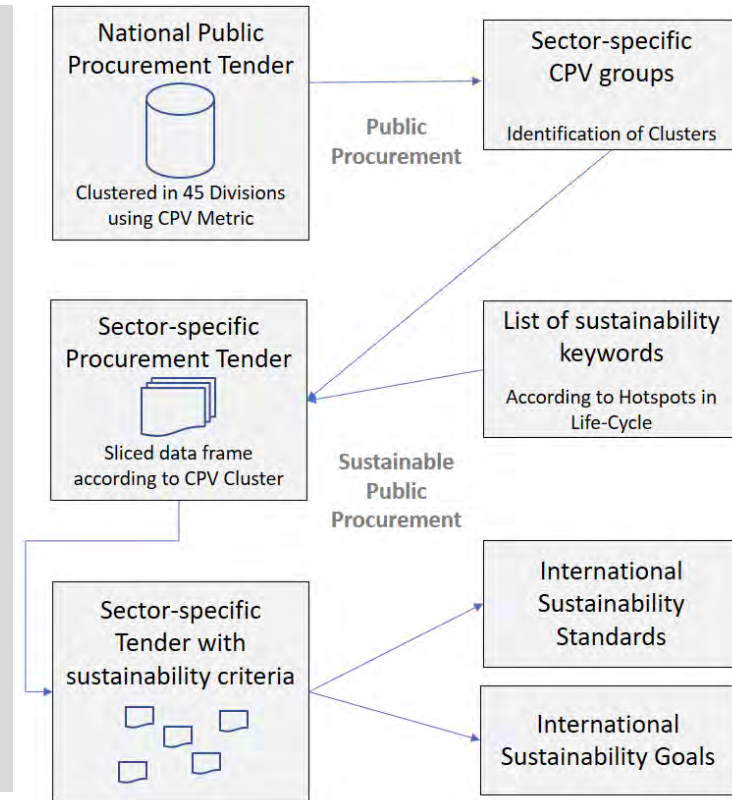
Sustainable Economy
National Research Programme

What to expect

Speaking the language of public procurement agencies.

Getting knowledge about public agencies and if they *walk the talk*.

Structure and refine data and extract sustainability criteria to monitor public agencies procurement activities.
(Presentation on the level of organisations)

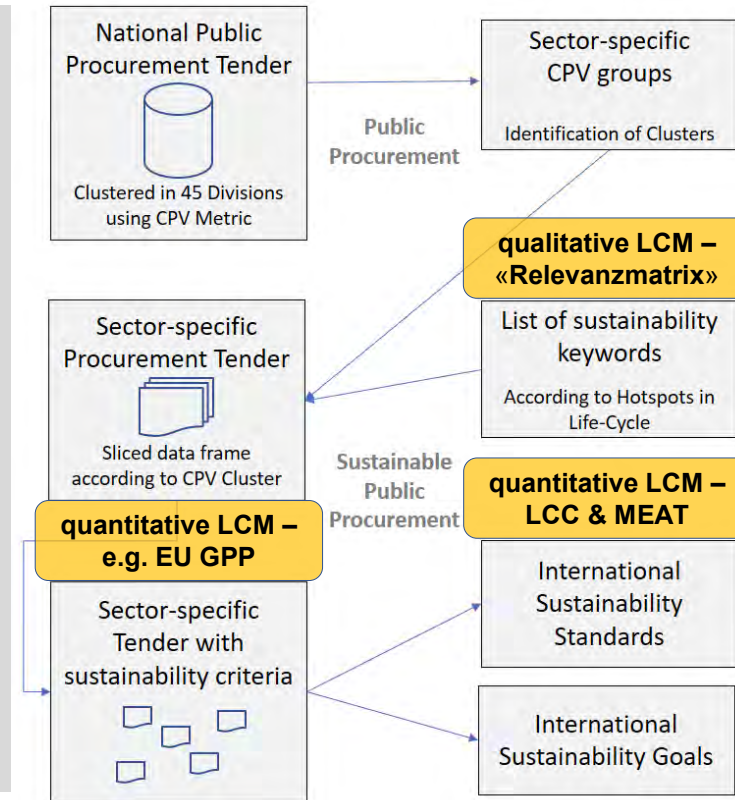


What to expect

Speaking the language of public procurement agencies.

Getting knowledge about public agencies and if they *walk the talk*.

Structure and refine data and extract sustainability criteria to monitor public agencies procurement activities using **Life Cycle Management**.



Agenda

1. Importance of public procurement for more sustainability
2. Extraction of sustainability actives in public procurement
3. Opportunities to monitor sustainable public procurement

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Leapfrogging for sustainability in public sector

Public procurement amounted to \$11 trillion out of global GDP of nearly \$90 trillion in 2018, share of 12% on global GDP (World Bank 2020).

In the European Union annual government expenditures amounted roughly \$2 trillion, 14% of EU GDP (European Commission 2016).

Swiss federal administration alone spent \$5.7 billion in 2018 (BBL 2019).

Expenditures reflect purchasing power of public procurement agencies and their obligation for important contributions towards local, regional, national and international sustainability goals.

*World Bank 2020 | How large is public procurement?
European Commission | Buying Green! A handbook on green public procurement
BBL 2019 | Beschaffungszahlen 2018. [Procurement payments 2018]*



BAFU: Relevanzmatrix – Orientierungshilfe für Beschaffende und Bedarfsstellen

Public procurement is the process by which governments purchase goods, services and works from the private sector (World Bank 2020).

Bring sustainability in day-to-day procurement

Certain barriers hinder the adoption in day-to-day procurement (Procura+ 2016) like

- *lack of clear definitions per product group.*
- *missing market intelligence to get to know about sustainable products.*
- *inflexible procedures and attitudes to opening-up to innovative approaches.*



Procura+ : The Procura+ Management Cycle

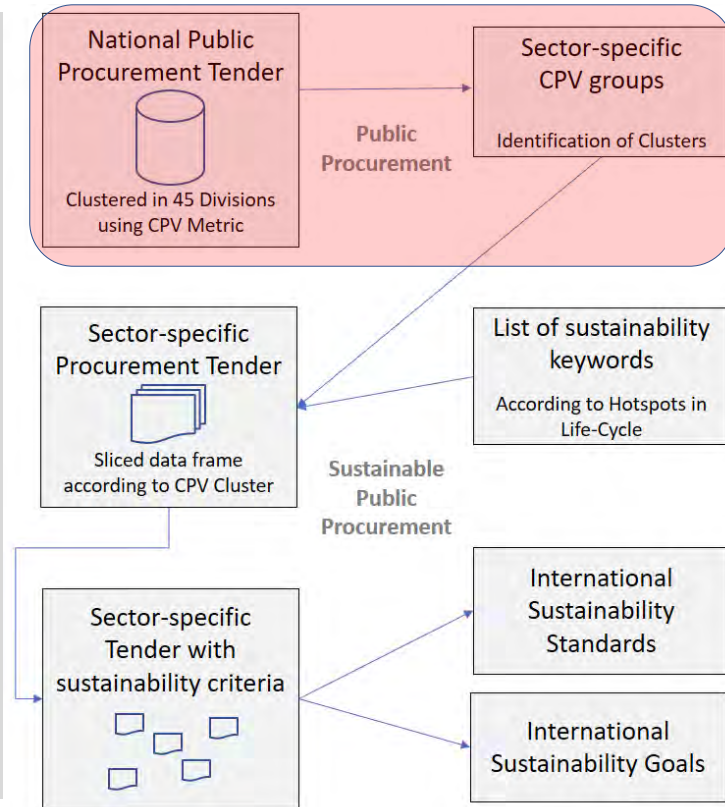
Project outline aims to support all four phases of the Procura+ Management Cycle to overcome barriers in day-to-day procurement.

Speaking the language of public agencies

Language in public procurement is the **Common Procurement Vocabulary (CPV)**.

Speaking with Swiss agencies we use the Swiss national procurement tender platform (**Simap**).

Finding **product categories** you need to identify the corresponding **CPV cluster**.

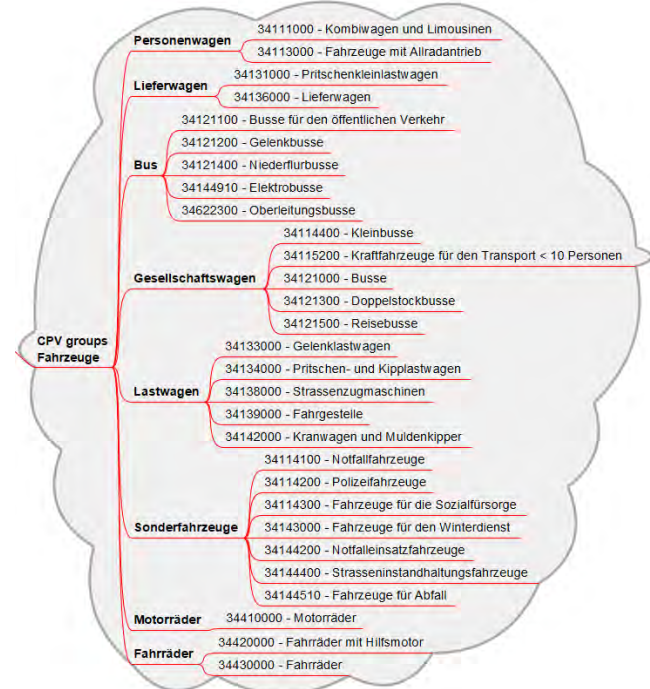


Speaking the language of public agencies

Slicing data according to **CPV cluster** (sector-specific).

Extraction of all relevant **CPV-codes** (8-digit number) for all product groups.

For proper communication you need to use the right **phrases** or **slang**.



CPV cluster road transport

Eight product categories represent public procurement activities

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Extraction of sustainability actives

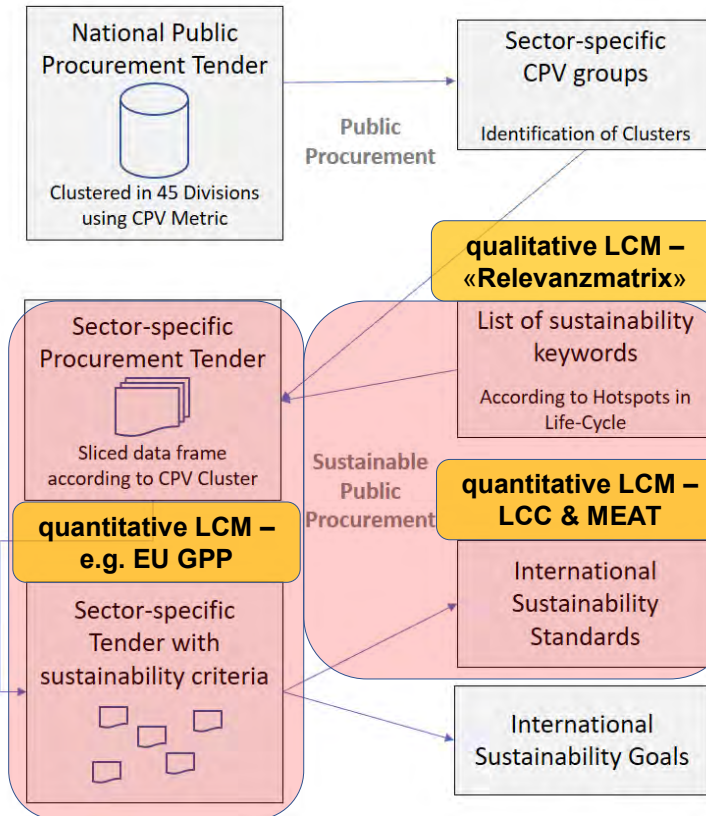
Qualitative LCM approach

Using **BAFU Relevanzmatrix** to describe ecological and social sustainability aspects for product categories (Supply Chain Sustainability Hotspots).

Quantitative LCM approach

Collection of sustainability criteria to build **MEAT** - Most Economically Advantageous Tender.

Life Cycle Costing - compare different scenarios.



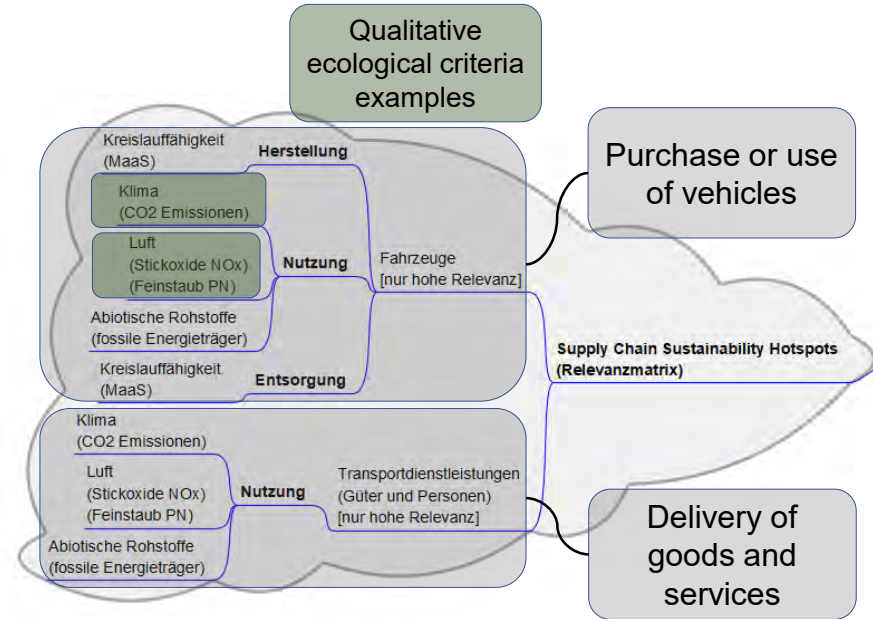
Supply Chain Sustainability Hotspots

Derivation of *ecological* and *social sustainability hotspots*.

For each sustainability sphere it is to be identified which sustainability challenges are incorporated in **manufacture | use | disposal** of the product life cycle.

Hotspots definition by using:

- BAFU Relevanzmatrix
- Sustainable procurement initiatives
- Best practice and best-in-class cases
- LCA case studies



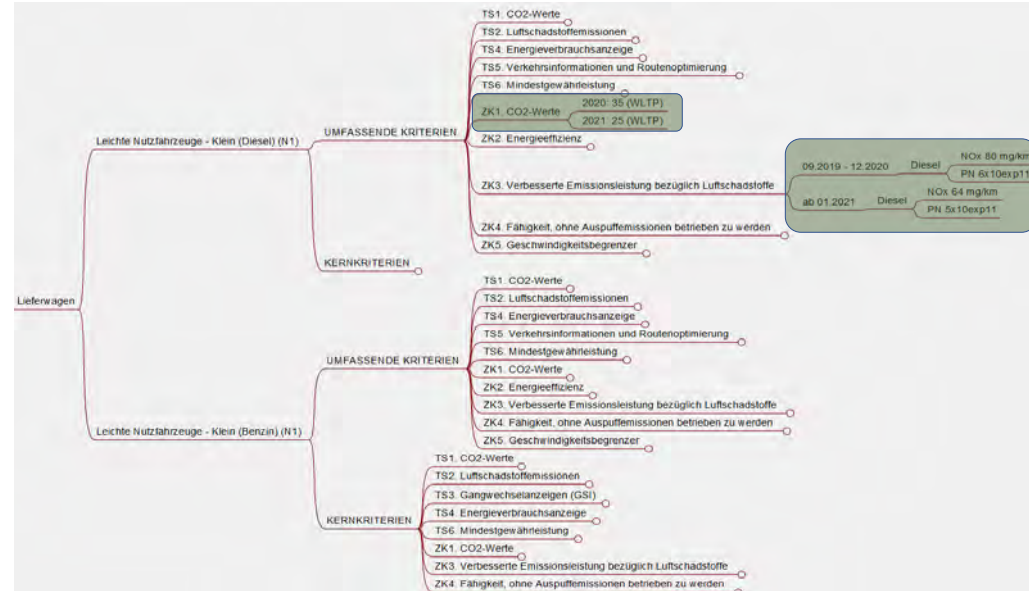
Based on the qualitative BAUF Relevanzmatrix approach hotspots are located in the supply chain, carried out for different areas of application.

Collection of sustainability criteria

Aim is to build MEAT for each sector/product category.

Distinguishing three levels

- Core sustainability
- Comprehensive sustainability
- Innovation (for road transport)
MaaS = Mobility-as-a-Service
BuyZET = Procuring zero emission delivery of goods and services



Transition of qualitative ecological criteria into comprehensive ecological procurement criteria, for product group vans.

Collection of sustainability criteria

Analysis of simap.ch **tender documents** (450'000 files, 1.4TB data) finding sustainability criteria in procurement requirements.

Currently using **fulltext search** (Elasticsearch) approach.

Found tenders are classified in **basic, core** and **comprehensive** sustainability approaches.



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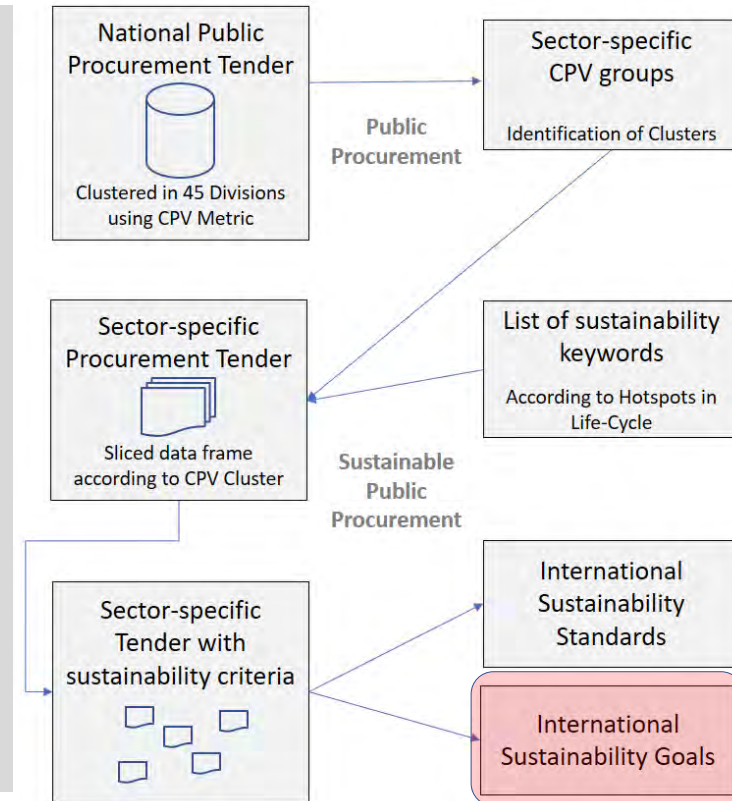
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Monitoring sustainable procurement activities

What is the overall performance of Swiss procurement agencies on *federal, cantonal* or *municipal* level?

What level of sustainability requirements is applied in Switzerland?

How do the procurement strategies contribute on international sustainability challenges (SDGs, Paris Agreement)?



Monitoring sustainable procurement activities

The project outline allows to overcome certain barriers in day-to-day procurement. So it is possible to

- *clearly define procurement sectors and product groups.*
- *show best practice and best-in-class approaches.*
- *support transition in organisations towards innovative procurement, implementing Life Cycle Costing or ISO 20400.*



Monitoring sustainable procurement activities

Reporting progress of sustainable development through public procurement, using the MONET framework (national level) as also the Cercle Indicateurs framework (cantonal and municipal level) to measure sustainable development.

Monitoring procurement activities on federal, cantonal and municipal level means to present the **penetration of sustainability** and the **applied level of sustainability** over time.

MONET
Principles for sustainable development

With the formulation of principles, "sustainable development" ultimately constitute the frame of reference which allows according to their sustainability. Each indicator must fit the principles are assigned by topic to the target dimension and "environmental responsibility" and divided in 20 areas.
* For the list of indicators see www.monet.admin.ch

| General principle | 19 | Ensuring human rights | Every member of development of the diversity are given individual development contemporary ones |
|---|----|--|---|
| Objective living conditions | 20 | Meeting needs | The basic needs of society be observed which extend beyond human health should as the of apply to the society benefits. |
| Subjective living conditions | 21 | Satisfaction and happiness | Possibilities for a good life should be realized. |
| Formers of justice, equity of opportunity | 42 | Development that takes into account the needs of all | Socioeconomic and well-being of all citizens. No one should be left behind. |
| | 49 | Equal opportunities and fair distribution of wealth | Each member of society should have the same opportunities to participate in the benefits of economic growth. |
| | 41 | Integration of all economic sectors | The integration of all economic sectors. |

Cercle Indicateurs:
Die nachhaltige Entwicklung in den Kantonen und Städten messen

Next research steps

Applying Natural Language Processing (NLP) to analyse tender documents (450'000 files, 1.4TB data) and to automatically label tenders.

Represent evolution of sustainability measures per sector over time.
Monitoring the percentage of tenders mentioning sustainability criteria and further the qualitative level of sustainability measures.

Analysis of further sectors in public procurement: **construction, road transport, ICT hardware, food and catering** and **textiles**.

Monitoring procurement activities on federal, cantonal and municipal level to report progress towards international sustainable goals, e.g. UN SDGs and Paris Climate treaty.

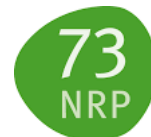
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NRP73 on Sustainable Procurement (SNSF)

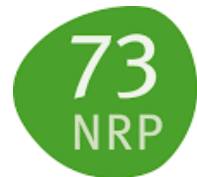
Research question:

«How can public procurement become more sustainable?»

- Public procurement accounts for CHF 41bn annual expenses.
- Adding ecological and social criteria in public procurement could foster needed significant change.
- New Swiss procurement law (2021) requires sustainability criteria.

Goal: measuring sustainability criteria in public tender documents for several sectors.

Data and method: crawling and refining of procurement data using Elasticsearch



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Research Center for Digital Sustainability

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Research Center for Digital Sustainability

Research center at the **Institute of Computer Science**, team of 20 employees.

Research (including 2 ongoing SNF projects) on digital sustainability, Open Source software, Blockchain and Smart Contracts, Open Data and Linked Data, Open Government and Smart City, as well as public procurement.

Lectures on Open Data, digital sustainability, requirements engineering, supervision of bachelor and master theses.

Offers for **ICT procurement practitioners**: CAS ICT Procurement, Swiss IT Procurement Conference, Training Days, Roundtables, Platforms www.beschaffungsstatistik.ch and www.intelliprocure.ch.

Services such as consulting, expert opinions, studies, prototyping etc. for universities, federal administration, cantons, cities, companies etc.

Cooperation with various organizations such as Smart Capital Region etc.