



# BIOREGIONS

Forest bioeconomy in action

## T1.1 Public Procurement

PART B: TYPES OF PUBLIC PROCUREMENT

European Forest Institute

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## BACKGROUND

Public procurement acts as a driver to advance considerations in purchasing. Public institutes and municipalities are among the major purchasing powers and thus have the potential to influence the market. The type of public procurement (green/sustainable/innovative) sets the focus of advancing strategies and fostering a certain kind of service or consideration. This background literature research will set the basis for informing about:

- Green procurement
- Sustainable procurement
- Innovative procurement
- Circular procurement

As well as for public procurement networks and programmes like:

- USDA BioPreferred
- Lead Market Initiative (LMI)
- OECD Going green: best practices for sustainable procurement.
- EC's Guidance on bio-based products in procurement

## 1. Public Procurement types

### 1.1 Green Public Procurement

#### 1.1.1 Definition

The common European definition of Green Public Procurement (GPP), included in the Communication from the European Commission on GPP is:

Green Public Procurement is a process by which public and semi-public authorities decide to purchase products, services, works, and contracts in the special sectors with a reduced environmental impact during its life cycle compared to products, services, works, and contracts in the special sectors with the same basic utility as if they had been acquired from another way (European Commission, 2008).

In a report from the EU from 2006 titled “Green public procurement in Europe,” the definition reads “GPP is the approach by which public authorities integrate environmental criteria into all stages of their procurement process, thus encouraging the spread of environmental technologies and the development of environmentally sound products, by seeking and choosing outcomes and solutions that have the least possible impact on the environment throughout their whole life-cycle” (Bouwer M, Jonk M, Berman T, Bersani R, Lusser H, Nappa V, Nissinen A, Parikka K, 2006).

#### 1.1.2 Drivers

GPP is a crucial mechanism for sustainability in environmental policy (Liu, Shi, Xue, & Wang, 2019), which intends to integrate green guidelines into public tenders as a tool to promote and encourage the production and use of sustainable products and services (Vidal & Sánchez-Pantoja, 2019).

A driver for the promotion of green, sustainable and innovative procurement are the Directives 2014/24/EU on public procurement, 2014/25/EU on procurement by entities operating in the water, energy, transport, and postal services sectors, and Directive 2014/23/EU on the award of concession contracts. These new rules seek to ensure greater inclusion of common societal goals in the procurement process. These goals include environmental protection, social responsibility, innovation, combating climate change, employment, public health, and other social and environmental considerations.

Directive 2014/24/EU on public procurement states in the recital and articles, that<sup>1</sup>:

(47) Research and innovation, including eco-innovation and social innovation, are among the main drivers of future growth and have been put at the center of the Europe 2020 strategy for smart, sustainable, and inclusive growth. Contracting entities should make the best strategic use of public procurement to spur innovation. Buying innovative products, works and services play a key role in improving the efficiency and quality of public services while addressing major societal challenges. It contributes to achieving the best value for money as well as wider economic, environmental, and societal benefits in terms of generating new ideas, translating them into innovative products and services, and thus promoting sustainable economic growth.

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<sup>1</sup> For further information on relevant paragraphs for GPP in these directives, see section 2 of the Part A public procurement report – regional profiles, challenges and ways forward.

(74) The technical specifications drawn up by purchasers need to allow public procurement to be open to competition as well as to achieve objectives of sustainability. To that end, it should be possible to submit tenders that reflect the diversity of technical solutions, standards, and technical specifications in the marketplace, including those drawn up based on performance criteria linked to the life cycle and the sustainability of the production process of the works, supplies, and services.

Consequently, technical specifications should be drafted in such a way as to avoid artificially narrowing down competition through requirements that favor a specific economic operator by mirroring key characteristics of the supplies, services, or works habitually offered by that economic operator. Drawing up the technical specifications in terms of functional and performance requirements generally allows that objective to be achieved in the best way possible. Functional and performance-related requirements are also appropriate means to favor innovation in public procurement and should be used as widely as possible. Where reference is made to a European standard or, in the absence thereof, to a national standard, tenders based on other equivalent arrangements that meet the requirements of the contracting entities and are equivalent in terms of safety should be considered by the contracting entities. It should be the responsibility of the economic operator to prove equivalence with the requested label.

(93) Where national provisions determine the remuneration of certain services or set out fixed prices for certain supplies, it should be clarified that it remains possible to assess value for money based on other factors than solely the price or remuneration. Depending on the service or product concerned, such factors could, for instance, include conditions of delivery and payment, aspects of after-sale service (e.g. extent of advisory and replacement services), or environmental or social aspects (e.g. whether books were stamped on recycled paper or paper from sustainable timber, the cost imputed to environmental externalities or whether the social integration of disadvantaged persons or members of vulnerable groups amongst the persons assigned to performing the contract has been furthered). Given the numerous possibilities of evaluating value for money based on substantive criteria, recourse to drawing of lots as the sole means of awarding the contract should be avoided.

§76 par. 2 - Member States shall ensure that contracting entities may take into account the need to ensure quality, continuity, accessibility, affordability, availability, and comprehensiveness of the services, the specific needs of different categories of users, including disadvantaged and vulnerable groups, the involvement and empowerment of users and innovation. Member States may also provide that the choice of the service provider shall be made based on the tender presenting the best price-quality ratio, taking into account quality and sustainability criteria for social services.

There are numerous drivers of GPP when considering its implementation into the public procurement sector. The majority of drivers today remain to be external drivers but this can change as external drivers can have a significant influence on individuals in organizations (Zhu, Geng, & Sarkis, 2013) who themselves can become the key drivers. Unlike the private sector, the public sector has always been under pressure to comply with government or EU regulations. It is this pressure that remains the key driver of GPP (Keaveney & Butler, 2014).

Regulation is a major external driver of green procurement (Keaveney & Butler, 2014). Environmental legislation is the backdrop for other drivers such as value champions' endeavors or risk minimization efforts. Other external drivers are customer pressure, competitive advantage, and pressure by NGO's. External barriers include regulation, as it also can inhibit sustainable practices, lack of supplier commitment, and industry-specific barriers (Walker, Di Sisto, & McBain, 2008).

Regional authorities are well-placed to deploy demand-side measures such as the Green Public Procurement (GPP) to contribute to the expansion of the market of sustainable goods and services. This is especially relevant having in mind that public procurement accounts for approximately 14% of European consumption.

The new EU Circular Economy Action Plan, released in March 2020, recognizes GPP as an instrument for boosting the sustainability aspect of products but acknowledges that GPP has a “limited impact due to the limitations of voluntary approaches.” Therefore, the European Commission will propose minimum mandatory GPP criteria and targets in sectoral legislation and phase in compulsory reporting to monitor the uptake of GPP.

Also, the Action Plan states that the Commission will continue to support capacity building with guidance, training, and dissemination of good practices and encouraging public buyers to take part in a “Public Buyers for Climate and Environment” initiative, which will facilitate exchanges among buyers committed to GPP implementation (Interreg Europe, 2020).

## 1.2 Sustainable Public Procurement

### 1.2.1 Definition

Sustainable Public Procurement (SPP) means the inclusion of all three pillars of sustainability (economic, environmental, and social). By EU definition SPP is a process by which public authorities seek to achieve the appropriate balance between the three pillars of sustainable development - economic, social, and environmental - when procuring goods, services, or works at all stages of a project (European Commission, 2020).

In so far, Green public procurement can be understood as the focus area of the environmental part of sustainable public procurement and sustainable public procurement as the umbrella-concept enveloping green public procurement.

### 1.2.2 Drivers

Government regulation – The importance of legislation as a driver for ecological responsiveness has been widely recognized. Sroufe (2003) identifies growing environmental regulations, government pressures, international certification standards as drivers for sustainability concerns. This also applies to public procurement. Furthermore, Lundqvist (2001) states, that governments need to provide clear legislative and regulatory support for sustainability in decentralized public sector organizations,

Ability – Both knowledge and skills have been identified as important drivers or conditions for the implementation of SPP and particularly GPP (Grandia & Voncken, 2019).

Financial viability of sustainable alternatives - Governments needs to provide sufficient budgetary flexibility to make investments in SPP that may be financially efficient only when viewed from a long-term perspective, which is challenging given governmental terms of office (Brammer & Walker, 2011). The broad establishment of Life-cycle costing (LCC) and Life-cycle analysis (LCA) can help to identify the long-term financial benefits of sustainable solutions, especially when it comes to GPP. From an economic perspective, SPP can generate income, reduce costs, support the transfer of skills and technology and promote innovation by domestic producers (United Nations, 2017).

Lead by example – Through SPP, governments can lead by example and deliver key policy objectives and send strong market signals (United Nations, 2017). Perera et al. (2007) state, that if governments want to

develop safer, prosperous, and equitable societies and reduced environmental and social risks, the public sector needs to lead by example. The onus is now on the public sector to “walk the talk”.

Motivation – Grandia (2015), showed that public procurers that are not effectively motivated to SPP, implement fewer SPP than public procurers that are affectively motivated(Grandia, 2015).

Reputation/ Social pressure - The risk of public embarrassment has been reported as a driver for sustainability since the image of public sector organizations can be harmed by suppliers’ poor environmental performance (Walker et al., 2008).

Visibility - Visibility of the initiative is a very important factor, especially from the perspective of party-political executives. Visibility affects the awareness and behavior of citizens, thereby supporting the local policy. Visibility is also important since it is an indicator for political progress and it sets an example in the area of sustainability (Cees J. Gelderman, Janjaap Semeijn, 2015).

## 1.3 Innovative Procurement

### 1.3.1 Definition

Innovative public procurement (IPP) happens when the public sector uses its purchasing power to act as an early adopter of innovative solutions that are not yet available on a large scale commercial basis (European Commission, 2020b). The OECD defines in their good practice guideline for innovation through public procurement the strategic use of public procurement for innovation as any kind of public procurement practice (pre-commercial or commercial) that is intended to stimulate innovation through research and development and the market uptake of innovative products and services (OECD, 2017).

Public procurement for innovation has the potential to improve productivity and inclusiveness if used strategically as targeted, demand-side innovation policies to meet societal needs. For example, it can anticipate future investments to address existing or future societal challenges; or it may allow potential vendors to enter the market with new, innovative goods and services, thus encouraging innovative solutions to pressing challenges.

### 1.3.2 Drivers

In the field of innovation policies, governments have traditionally directed their efforts towards the supply side, ensuring that the private sector operates in an environment conducive to innovation. In recent years, however, the role of “demand-side policies” to support innovation has gained prominence and has been receiving growing interest from many countries. Governments recognize that innovations materialize when there is a demand for innovation. Therefore, effective policies to support innovation have to focus on both, supply and demand conditions (OECD, 2011).

Among demand-side innovation policies, such as innovation-friendly regulations or lead market initiatives, public procurement is increasingly recognized as a potential strategic instrument and a policy lever for achieving government policy goals, such as innovation, the development of small and medium-sized enterprises (SMEs), sustainable green growth and social objectives like public health and greater inclusiveness. All of their goals are in line with the aims specified in the Agenda 2030 for Sustainable Development and the related Sustainable Development Goals (OECD, 2016).

The rationale for using PP to stimulate innovation is threefold:

(i) IPP is a major part of local demand and this affects decisions by multinational enterprises about where to locate and the dynamics of innovation in countries;

- (ii) IPP can help overcome market (information asymmetries) and system (poor interaction) failures relating to innovative products; and
- (iii) purchasing innovative solutions contributes to improving public infrastructure and services (Edler, Georghiou, Blind, & Uyarra, 2012).

Environmental innovations (EI) are of importance for both the policy and the business realm and have the potential to lead to win-win solutions whereby competitiveness and environmental sustainability are combined (Zoboli et al., 2014).

IPP can play a role in improving sustainability through the increased adoption of EI by firms. This would allow the discussion on the role of sustainable procurement in reaching sustainability targets to merge with that on the role of innovative procurement in stimulating innovation so that we can reach the final synthesis that IPP is a policy tool that can positively stimulate not only (standard) innovations but also the peculiar typology of EI.

The latter is capable of hitting environmental as well as economic sustainability targets, possibly leading to win-win outcomes (EEA, 2014) and helping the transition to a more sustainable society. Demand can affect the rate of adoption of EI and, more precisely, that IPP strongly stimulates EI adoption. This would call for including IPP in the array of innovation policy instruments as well as in the array of regulatory push-pull instruments for decarbonization, to allow us to meet the sustainability targets that have been set (Ghisetti, 2017).

Pre-Commercial Procurement: Public procurers can drive innovation from the demand side by acting as technologically demanding customers that buy the development and testing of new solutions. This enables European public authorities to modernize public services faster and to create opportunities for companies in Europe to take international leadership in new markets.<sup>2</sup>

Directive 2014/25 EU states in the preliminary notes (59) regarding innovations in public procurement:

Where a need for the development of an innovative product or service or innovative works and the subsequent purchase of the resulting supplies, services, or works cannot be met by solutions already available on the market, contracting entities should have access to a specific procurement procedure in respect of contracts falling within the scope of this Directive. This specific procedure should allow contracting entities to establish a long-term innovation partnership for the development and subsequent purchase of a new, innovative product, service, or works provided that such innovative product or service or innovative works can be delivered to agreed performance levels and costs, without the need for a separate procurement procedure for the purchase. The innovation partnership should be based on the procedural rules that apply to negotiated procedures with prior call for competition and contracts should be awarded on the sole basis of the best price-quality ratio, which is most suitable for comparing tenders for innovative solutions. Whether in respect of very large projects or smaller innovative projects, the innovation partnership should be structured in such a way that it can provide the necessary 'market-pull' incentivizing the development of an innovative solution without foreclosing the market. Contracting entities should therefore not use innovation partnerships in such a way as to prevent, restrict or distort

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<sup>2</sup> For more information: <https://ec.europa.eu/digital-single-market/pre-commercial-procurement>

competition. In certain cases, setting up innovation partnerships with several partners could contribute to avoiding such effects.

## 1.4 Circular Procurement

### 1.4.1 Definition

Circular public procurement is an approach to greening procurement that recognizes the role that public authorities can play in supporting the transition towards a circular economy. No standard description was found in the literature for circular procurement, but several definitions have been used (Table 1).

**Table 1 Definitions of circular procurement** (Alhola, Salmenperä, Ryding, & Busch, 2017)

Reference	Description	Focus
Van Geet, 2014 <sup>3</sup>	Circular Procurement = Circular Economy + Public Procurement.	Reuse Recycle Repair Refurbish Remanufacture Retrieve
Green Deal, Circular Procurement, 2013 <sup>4</sup>	Circular procurement stimulates and creates demand for goods that contribute to the circular economy.	Promoting a circular economy
MVO Netherlands <sup>5</sup>	The procurer ensures that the products are produced in accordance with the principles of the circular economy and will be further processed after use, i.e. are repairable and can be broken down into components and/or materials at the end of their life cycle, which can then be reused.	Recyclability and reuse of materials
NewForesight, 2014 <sup>6</sup>	The purchasing of products or services that follow the principles of the circular economy: there are no negative side effects of production, waste does not exist, a product or its elements are completely compostable or reused, and toxic materials are eliminated. Energy for production is from renewable sources.	Maximum closed loops

<sup>3</sup> Van Geet, C., 2014. Circular Economy + Green Public Procurement. Ministry of Infrastructure and the Environment, the Netherlands. Presentation in the EU GPP Advisory Group, 25.3.2014.

<sup>4</sup> Green Deal, 2013. Circular Procurement. <http://www.circle-economy.com/green-deal-circularprocurement/>

<sup>5</sup> MVO Nederland, 2015. Circular Procurement Guide. Available at <http://mvonederland.nl/circularprocurement-guide>

<sup>6</sup> NewForesight, 2014. Circular Procurement: First working group meeting. Available at: <http://www.newforesight.com/news/circular-procurement-first-working-group-meeting/>

Definitions vary from general descriptions to a very strict demand of closed loops. Several focus areas can be found:

- Design of products that enable dismantling.
- Increase in the cycling of products and raw materials.
- Minimization of value destruction.
- Promotion of new business models.
- Elimination of hazardous chemicals and harmful substances.

Based on the above descriptions the following definition of circular procurement can be made:

“The procurement of competitively priced products, services or systems that lead to extended lifespan, value retention and/or remarkably improved and non-risky cycling of biological or technical materials, compared to other solutions for a similar purpose on the market.”

Circular procurement is part of the green and/or sustainable procurement aiming at value creation, social well-being, and environmental improvements through closed and safe material loops (Alhola et al., 2017).

Circular procurement can be defined as the process by which public authorities purchase works, goods, or services that seek to contribute to closed energy and material loops within supply chains, whilst minimizing, and in the best case avoiding, negative environmental impacts and waste creation across their whole life-cycle (European Union, 2017).

#### Differentiation “circular procurement” and “sustainable procurement”

As the use of circular economy initiatives grows, we must remember that circularity itself is not an objective – it is a means for achieving sustainability. To take an example of a piece of furniture: purchasing a chair, for instance, which has a circular design (i.e. can be easily repaired or its components easily separated for recycling) is not in itself sustainable if the chair ends up in a landfill anyway after 5 years, maybe because the user did not know it could be repaired, or the company was not required in the contract to provide repair or take-back services. Circular does not automatically equal sustainability, but with sustainability as its guiding principle, circular procurement has the power to radically reshape markets and finally break us out of our past patterns (McLennan, 2019).

#### 1.4.2 Drivers

The principles of the circular economy can be promoted through public procurement in several ways. At least four different approaches were recognized that facilitate closed loops. This chapter will introduce these approaches, in which the focus will shift from better quality products to new and innovative products, new business concepts, and finally to the creation of circular ecosystems.

##### *1. Procurement of improved products and services by adding GPP-based “circular criteria”*

Circular procurement can be promoted by adding “circular criteria”, i.e. criteria for recyclability, reuse of materials, use of recycled materials, etc. This means buying improved products and services, such as paper made from 100% recycled material. Some of these criteria that support circular elements can be found in the GPP criteria palettes or eco-labels. This may be considered the simplest way or the first phase of buying circularly.

##### *2. Procurement of new and innovative products, services, and materials promoting circular economy-based business*

Following the principles of the circular economy, public procurement could provide conditions that stimulate innovative solutions and create new business and markets for new products. This means products that are

considerably better in terms of recyclability, recycled materials, disassembly, long lifespan, and so on. These are products that are commercialized but have not been on the market for a long time or products that would be developed as a result of the procurement process. This approach highlights the procurer’s ability to conduct an innovative procurement process. Examples of such products are textiles with 100% recycled content or building components made of recycled plastic.

### 3. Procurement of services and new business concepts

The focus of procurement could be on the process of procuring or on the business concept that responds to the procurer’s need, rather than on the product itself. These include product-service systems, leasing concept, shared use, buy-per-use, and buying and selling back. More traditional examples include furniture leasing and car hire. New thinking is needed for buying services instead of products, e.g. lighting for the next 30 years instead of lamps.

### 4. Procurement promoting industrial symbiosis and circular ecosystems

This approach addresses large investments and the creation of ecosystems that call for commitment from different stakeholders. Circular ecosystems could be efficient platforms in supporting closed loops and creating networks in which the waste from one actor would be used as a raw material for another. Examples include buses running by locally produced bioenergy (e.g. wastewater treatment), or construction sites that utilize materials effectively.

Procurement including GPP based "circular" criteria	Procurement of new "circular" products and materials	Procurement of services and new business concepts	Procurement promoting circular ecosystems
<p><b>Improved products and services are procured by adding more GPP and circular criteria to the tender competition:</b></p> <ul style="list-style-type: none"> <li>- Recyclability</li> <li>- Share of recycled materials</li> <li>- Reuse</li> <li>- Packaging material</li> <li>- Etc.</li> </ul>	<p><b>New products are procured and/or developed by innovative public procurement:</b></p> <ul style="list-style-type: none"> <li>- Products that are significantly better in terms of recyclability, share of recycled materials, long lifespan, disassembly, etc.</li> </ul>	<p><b>Product - service systems are procured and new approaches are applied that promote circular aspects:</b></p> <ul style="list-style-type: none"> <li>- Leasing concept</li> <li>- Buy per use</li> <li>- Shared use</li> <li>- Buying and selling back</li> </ul>	<p><b>Investments are made that stimulate the development of "circular ecosystems"</b></p> <ul style="list-style-type: none"> <li>- Develop or support closed loops</li> <li>- Create new networks and alliances</li> <li>- "Waste as material"</li> </ul>
<p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>- Paper products</li> <li>- ICT devices</li> <li>- Packages</li> <li>- Furniture</li> </ul>	<p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>- Building components of recycled material</li> <li>- Textiles made of recycled material</li> </ul>	<p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>- Buying light instead of lamps</li> <li>- Leasing furniture instead of buying it</li> </ul>	<p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>- Buses running by locally produced biogas</li> <li>- Construction projects with closed material loops</li> </ul>
<p><b>Better quality products</b> ➡ <b>New products</b> ➡ <b>New business concepts</b> ➡ <b>Circular ecosystems</b></p>			

Figure 1 Four approaches to circular procurement (Katriina Alhola, Hanna Salmenperä, Sven-Olof Ryding, 2017)

## 2. Approaches and Examples

### 2.1 Projects and Guidance on biobased products in procurement

The EU has financed and enforced several projects and programs that promote different concepts of public procurement, such as bio-based related products in public procurement. Selective projects and programs focusing on these aspects can be found in this section.

### 2.1.1 LMI – Lead Market Initiative

The Commission's Lead Market Initiative between 2008 and 2011 fostered the development of the bio-based products sector by exploring demand-side innovation policy tools such as standardization, labelling, and public procurement. The main outcomes of this initiative were an interim report "Taking Bio-based from Promise to Market"; policy papers on financing and communications; and a list of priority recommendations for enabling the market uptake of bio-based products. In the framework of the Lead Market Initiative, the Commission issued several standardisation mandates to the European Committee for Standardisation (CEN):

- M/429 for the elaboration of a standardisation programme for bio-based products
- M/430 on bio-polymers and bio-lubricants
- M/491 on bio-solvents and bio-surfactants
- M/492 for the development of horizontal standards for bio-based products

Contact: Check below 'Guidance for bio-based products in Procurement'

More information here: [Bio-based products | Internal Market, Industry, Entrepreneurship and SMEs \(europa.eu\)](#)

### 2.1.2 Guidance for bio-based products in procurement

Published in 2018, this guidance aims to inform the interested actors about bio-based products and to promote them alongside other products when making buying decisions. It entails the main guidance available in 12 languages, training material available for the interested parties, and factsheets on the innovation potential of bio-based product groups. The guidance and supporting material can be obtained from the following website: [www.biobasedinprocurement.eu](http://www.biobasedinprocurement.eu)

Contact: [Karolina.Euler-van.Hulst@rhdhv.com](mailto:Karolina.Euler-van.Hulst@rhdhv.com)

More information here:

[https://ec.europa.eu/growth/content/guidance-bio-based-products-procurement\\_en](https://ec.europa.eu/growth/content/guidance-bio-based-products-procurement_en)

### 2.1.3 USDA's BioPreferred Program

The BioPreferred Program is a USDA-led project aimed at helping to build and broaden the markets of biobased products. The program was created by the Farm Bill of 2002 (legislation) and strengthened as part of the Farm Bill of 2014. The aim of the program is the increased increase development, acquisition, and use of bioproducts, while the goal is to reduce the dependence on petroleum and increase the use of renewable agricultural materials. Biopreferred program aims to achieve this with two main initiatives: (i) mandatory purchasing requirements for Federal agencies and Federal contractors, (ii) voluntary product certification and labeling. As of December 2015, USDA has certified 2,500 biobased products in more than 100 product categories. More info [here](#).

Contacts: <https://www.worldbiomarkets.com/speaker/kate-lewis/>,  
<https://www.biopreferred.gov/BioPreferred/faces/news/TwitChat.xhtml>

More information here: <https://www.biopreferred.gov>

### 2.1.4 InnProBio – Forum for Bio-based Innovation in Public Procurement

InnProBio was an EU funded three-year-long project, which run from March 2015 to March 2018 and aimed to build a community of public procurement practitioners interested in Public Procurement of Innovation (PPI) of Bio-Based Products and Services (BBPS). Multiple materials on bio-based products can be found on the web page, and a [database](#) showcasing different categories of good biobased practices and products.

Contact: Moritz Westkämper, The Agency for Renewable Resources (FNR), email: [innprobio@fnr.de](mailto:innprobio@fnr.de)

More information here: <https://innprobio.innovation-procurement.org/about-innprobio/>

### 2.1.5 Open-Bio: Opening bio-based markets via standards, labelling, and procurement

Open-Bio was the follow-up project to KBBPPS (Knowledge-Based Bio-based Products' Pre-Standardization), initiated in November 2013 and finished in October 2016. Open-Bio investigated how markets can be opened for bio-based products through standardization, labelling, and procurement. Therefore, one focus is on the sustainability of the bio-based resources and potential testing methods for this criterion.

Contact: [Contact about public procurement of bio-based products \(biobasedconsultancy.com\)](#)

More information and publicly available material can be found here: [Open-Bio: Opening bio-based markets via standards, labelling and procurement - Biobasedeconomy](#)

## 2.2 Public Procurement networks and programs

### 2.2.1 ICLEI – Local Governments for Sustainability

ICLEI (ICLEI – Local Governments for Sustainability is a global network of more than 1,500 cities, towns, and regions committed to building a sustainable future. Founded in 1990 as the International Council for Local Environmental Initiatives, is the world's leading network of local and regional governments committed to sustainable development.

ICLEI has been working on procurement since 1996, assisting cities, regions, and public authorities to embed sustainable, circular, and innovation criteria into public tenders directly and through collaboration projects.

Contact: <https://iclei-europe.org/contact/>

More information here: <https://iclei-europe.org/topics/procurement-economy/>

### 2.2.2 PROCURA+ European Sustainable Procurement network

Procura+ is a network of European public authorities that *connect, exchange and act* on sustainable and innovative procurement. The Procura+ Network has been developed by and for procurers and staff dealing with sustainability and innovation issues in public authorities. The network entails several activities such as seminars, webinars, and EcoProcure conferences. According to the webpage, the participants (e.g. Tampere, Turku, Helsinki, Ithobe, Government of Catalonia) of the Procura+ Network have been able to increase the number and effectiveness of their sustainable procurement.

Contact: [procurement@iclei.org](mailto:procurement@iclei.org)

More information here: <https://procuraplus.org/home/>

### 2.2.3 One Planet Sustainable Public Procurement program

Established in 2014, the One Planet Sustainable Public Procurement Network (SPP) program is a voluntary global multi-stakeholder collaboration in which multiple parties - government, non-governmental, public, and private - agree to work systematically together to facilitate and accelerate the global adoption of sustainable consumption and production patterns through the adoption of sustainable public procurement.

More information here: <https://www.oneplanetnetwork.org/sustainable-public-procurement/actors>

### 2.2.4 OECD - Directorate for Public Governance

Under the Directorate for Public Procurement, OECD works on the topic of Public Procurement. The OECD advises governments to reform their public procurement processes to ensure sustainable and inclusive long-term growth and government trust, including:

- Providing international standards on public procurement
- Carrying out hands-on peer reviews that analyze public procurement processes and include recommendations for changes
- Bringing together several procurement practice groups to shape directions for future reforms
- Collecting useful and credible data across and outside the OECD countries on the effectiveness of public procurement activities and the effect of procurement on wider public policy goals
- Creation of frameworks and metrics for evaluating public procurement processes, such as the Methodology for Assessing Procurement Systems

Contacts: Head of Public Procurement <https://oecd-events.org/ipp-week/attendee/06ef50a2-3c14-eb11-9fb4-0003ff1d36cc>

More information here:

<http://www.oecd.org/gov/public-procurement/>,

<http://www.oecd.org/gov/public-procurement/infrastructure-and-public-procurement-webinar-series.htm>

### 2.2.5 Global Lead City Network on Sustainable Procurement

The Global Lead City Network (GLCN) on Sustainable Procurement is a group of 14 cities committed to drive a transition to sustainable consumption and production by implementing sustainable and innovative procurement.

Contact: ICLEI - Local Governments for Sustainability, Mr. Simon Clement, email: [simon.clement@iclei.org](mailto:simon.clement@iclei.org)

More information here: <https://glcn-on-sp.org/home/>

## 2.3 Sustainable Public Procurement

Sustainable procurement may involve aspects of sustainability and sustainable development. Research projects will usually seek to address specific aspects of public procurement, but governments can initiate public procurement guidance more holistically - below is such an example.

### 2.3.1 Sustainable Procurement in Denmark

The Ministry of the Environment has for more than 15 years encouraged sustainable procurement through various focus areas.

The Ministry has three main initiatives to promote green purchasing in Denmark:

- The [Forum on Sustainable Procurement](#) - a national network which is a knowledge-sharing forum where procurers from both public and private organizations can keep updated on best practices, methods, and tools for green procurement, through a website, newsletters, and various events.
- The [Partnership for Green Public Procurement](#) - a collaboration between frontrunner municipalities, regions, and other public organizations who are committed to making extra efforts in partnership with other organizations to reduce their environmental impact from their procurement actions and drive the market in a greener direction.
- The [Responsible Procurer](#) - a webpage where procurers can find green criteria ready to copy-paste into tender documents for several product areas and Total Cost of Ownership tools for selected product areas.

In addition to the three key initiatives referred to above, the Ministry has also launched a National Green Public Procurement Task Force (GPP) to assist public authorities in implementing the GPP; has developed tools to measure the Total Cost of Ownership (TCO) of public procurement; has set up an annual Green Procurement Event called the Green Procurement Week; and continues to introduce more initiatives by the Ministry.

More information here:

<https://eng.mst.dk/sustainability/sustainable-consumption-and-production/sustainable-procurement/>

## 2.4 Innovative Procurement

Innovative procurement is a procurement practice that has been highlighted in recent decades. In this section, you will find selected projects dealing with the subject, but also a table that presents platforms and web pages with guidance and information on innovation procurement.

Table 1 List of platforms and webpages for Innovative Procurement

Platform	Webpage
National (EU countries) innovation procurement competence centers	<a href="https://innovation-procurement.org/national-competence-centres/">https://innovation-procurement.org/national-competence-centres/</a>
EU's Commission advises public buyers on how to capitalize innovation	<a href="https://ec.europa.eu/growth/content/commission-advises-public-buyers-how-capitalise-innovation_en">https://ec.europa.eu/growth/content/commission-advises-public-buyers-how-capitalise-innovation_en</a>
EU's Guidance on public procurement of innovation	<a href="https://ec.europa.eu/info/policies/public-procurement/support-tools-public-buyers/innovation-procurement_en">https://ec.europa.eu/info/policies/public-procurement/support-tools-public-buyers/innovation-procurement_en</a>
EU's Innovation Procurement	<a href="https://ec.europa.eu/growth/single-market/public-procurement/innovative_en">https://ec.europa.eu/growth/single-market/public-procurement/innovative_en</a>
UNOPS Procurement and innovation report	<a href="https://content.unops.org/publications/ASR/ASR-supplement-2013_EN.pdf?mtime=20171214185112">https://content.unops.org/publications/ASR/ASR-supplement-2013_EN.pdf?mtime=20171214185112</a>
KOINNO's Public procurement of innovation	<a href="https://procure2innovate.eu/fileadmin/user_upload/Documents/KOINNO_PublicProcurementofInnovation.pdf">https://procure2innovate.eu/fileadmin/user_upload/Documents/KOINNO_PublicProcurementofInnovation.pdf</a>
OECD's Public Procurement for Innovation	<a href="https://innovation-procurement.org/resources/">https://innovation-procurement.org/resources/</a>

#### 2.4.1 ECOPOL

ECOPOL was a European public partnership (2011-2013) that aimed to accelerate the implementation of eco-innovation policies by identifying and testing efficient tools for implementing eco-innovation policies on a European, national and regional levels. Main focus areas include Green Public Procurement as a powerful demand-side instrument; Waste and Recycling as a sector with a high CO<sub>2</sub>-footprint and high potential for business creation and Internationalisation as a means to boost the growth of eco-innovators. The ECOPOL project identified eco-innovation policy practices and tools, the practices are described in the database [here](#).

Contact: Lahti Science and Business Park Ltd (Coordinator), email: [tomi.tura@lahtisbp.fi](mailto:tomi.tura@lahtisbp.fi).

More information here : [Ecologie et environnement - Ecopol \(ecopol-project.eu\)](http://ecologie-et-environnement-ecopol.ecopol-project.eu)

#### 2.4.2 Procure2Innovate

The objective of the project is to improve institutional support for public procurers purchasing information and communication technologies (ICT) as well as the acquisition of products and services from a range of sectors implementing innovation procurement. It also aims to establish or expand centers of competence for innovation procurement in 10 countries of the European Union: five are already established in Austria, Germany, the Netherlands, Spain, and Sweden; and five new centers of competence will be established in Estonia, Greece, Ireland, Italy, and Portugal.

Contact: [info@procure2innovate.eu](mailto:info@procure2innovate.eu)

More information here: <https://procure2innovate.eu/project/>, <http://www.innovation-procurement.eu/>

#### 2.4.3 Procurement of Innovation Platform and Procurement Forum

As part of the Procurement of Innovation Platform project funded by DG Enterprise and Industry-European Commission, the Procurement Forum is managed by the European Secretariat of ICLEI- Local Governments for Sustainability. An online hub of everything related to public procurement of innovation, the Procurement of Innovation Platform is the starting point for public authorities, prosecutors, policymakers, researchers and other stakeholders working in the field to discover the specificities of PPI. This Procurement Forum is the part of that platform that provides an opportunity for stakeholders to exchange, connect and collaborate.

Contact: Marlene Grauer (Project coordinator): [bme.international@bme.de](mailto:bme.international@bme.de),  
or ICLEI: [info@procure2innovate.eu](mailto:info@procure2innovate.eu)

More information here: <https://procurement-forum.eu/>, <https://innovation-procurement.org/>,

#### 2.4.4 Swedish regions for a bioeconomy

The Swedish regions for a bioeconomy project are not directly connected to the IPP, but it is identified as an action to boost innovation and to increase investments in biobased products and services. The initiative, known as Sweden's Regional Bioeconomic Development Communication Network, was launched in the summer of 2007 and will continue until 2020. It is funded by the regions and by the Swedish Economic and Regional Development Agency, with a total budget of 3,6 million SEK. Primary initiators for improved cooperation have been the regions. The purpose is to involve every Swedish region that wishes to achieve its energy and climate objectives through bioeconomy, thereby fostering regional growth.

The goal is to increase regional and public awareness of the bioeconomy as a means of promoting regional growth activities and thus strengthening related industries through cooperation, to be heard, and to engage in the political processes underway both in Sweden and in the EU to help Swedish bioeconomy companies achieve the greater potential for continued profitability and a faster pace of innovation.

Contact: [magnus.matisons@biofuelregion.se](mailto:magnus.matisons@biofuelregion.se)

More information here: <https://biofuelregion.se/en/>

## 2.5 Circular Procurement

Circular systems have been the focus of attention at global, regional, and institutional levels to achieve climate change targets. With that effect, the circularity of public procurement has been also studied intensively in the last few years. This section provides a table that summarizes important literature on the subject but also projects that facilitate the integration of circular procurement into the traditional public procurement.

Table 2 List of platforms and webpages for Circular Procurement

Platform	Webpage
EU's Circular Procurement	<a href="https://ec.europa.eu/euro-portal/circular-economy/">Circular Procurement - GPP - Environment - European Commission (europa.eu)</a>
CIPS' Circular Economy in Procurement	<a href="https://www.cips.org/knowledge/procurement-topics-and-skills/sustainability/circular-economy/">https://www.cips.org/knowledge/procurement-topics-and-skills/sustainability/circular-economy/</a>
CIPRON project PPT in Circular Procurement	<a href="https://www.diva-portal.org/smash/get/diva2:1092366/ATTACHMENT01.pdf">https://www.diva-portal.org/smash/get/diva2:1092366/ATTACHMENT01.pdf</a>
Ellen Mac Arthur Foundation, Circular economy procurement framework	<a href="https://www.ellenmacarthurfoundation.org/resources/apply/circular-economy-procurement-framework">https://www.ellenmacarthurfoundation.org/resources/apply/circular-economy-procurement-framework</a>
Climate-KIC's Circular Procurement report	<a href="https://www.climate-kic.org/en/news/new-report-on-circular-procurement-in-public-construction-projects-shows-how-targeted-action-can-drive-system-level-impact">New Report on Circular Procurement in public construction projects shows how targeted action can drive system-level impact - Climate-KIC (climate-kic.org)</a>
Nordic Council of Ministers' report on the Circular Public Procurement in the Nordic Countries	<a href="https://www.diva-portal.org/diva2:1092366/ATTACHMENT01.pdf">Circular Public Procurement in the Nordic Countries (diva-portal.org)</a>

### 2.5.1 CircPro

CircPro's main objective is to increase the implementation of circular procurement under the targeted policy instruments so that the circular economy principles and criteria are incorporated into them or considered as a horizontal principle. CircPro targets circular procurement from different approaches that have different complexity: all of which facilitate closed loops, but where the focus shifts from better quality products to new and innovative products and new business concepts.

Contact: <https://www.interregeurope.eu/circpro/contacts/>

More information here: <https://www.interregeurope.eu/circpro/news/>

### 2.5.2 Circular PP

Circular Public Procurement is a three-year project funded by the Interreg program for the Baltic Sea region.

The goal is to resolve the societal challenge of resource efficiency by approaching innovation from a multidimensional viewpoint, including the participation of goods, processes, and new business models, and by taking advantage of synergies in this area between public authorities, research agencies, SMEs, and non-profit organizations. To do so, the project developed a framework for circular procurement in the countries of the Baltic Sea Region.

Contact: [Contacts - CircularPP](#)

More information here: <http://circularpp.eu/>

## 2.6 Good practice examples and guidance on public procurement

### 2.6.1 ProcurCompEU– the European competency framework for public procurement professionals

ProcurComp<sup>EU</sup> is a tool designed by the European Commission to support the professionalization of public procurement. By defining 30 key competencies, provides a common reference for public procurement professionals in the European Union and beyond. It recognizes and supports public procurement as a strategic function that delivers public investment for sustainable growth. The ProcurCompEU toolbox contains the files and supporting tools necessary to implement the ProcurCompEU framework.

More information here: [ProcurCompEU– the European competency framework for public procurement professionals | European Commission \(europa.eu\)](#)

### 2.6.2 GPP Advisory Group

The European Commission and several European countries have developed guidance on the area of Green Public Procurement (GPP). Under this initiative, there is the GPP Advisory Group composed of representatives of the EU Member States and the following stakeholders: Business Europe, UEAPME (Small and Medium Enterprise Association), the European Environment Bureau/BEUC (European Consumer Organization), ICLEI. The Group's role is to provide advice to the European Commission on the development and implementation of GPP policies.

More information here: [GPP Advisory Group - Environment - European Commission \(europa.eu\)](#)

### 2.6.3 Platforms for bio-based procurement, best practices, and national portals

Instead of highlighting examples, we summarized below platforms that include and give instruction and guidelines on the purchasing of sustainable biobased products.

Table 3 Listing of platforms for bio-based procurement, best practices, and national portals. Adapted from <https://www.biobasedeconomy.eu/app/uploads/sites/2/2017/07/Product-Information-List-available-tools-and-best-practices.pdf>. Copyright 2021 by Open-Bio project.

Platform	Webpage	Best Practice
Environmentally Preferable Purchasing	<a href="http://www.epa.gov/epp/pubs/guidance/standards.htm">http://www.epa.gov/epp/pubs/guidance/standards.htm</a>	
GGP Homepage	<a href="http://ec.europa.eu/environment/gpp/index_en.htm">http://ec.europa.eu/environment/gpp/index_en.htm</a>	X
Compass for sustainability	<a href="http://www.kompass-nachhaltigkeit.de/">http://www.kompass-nachhaltigkeit.de/</a>	X
Sustainable Procurement and Resource Center	<a href="http://www.sustainable-procurement.org/">http://www.sustainable-procurement.org/</a>	X
Eco-Innovation Policies for Green public procurement	<a href="http://www.ecopol-project.eu/en/green_public_procurement">http://www.ecopol-project.eu/en/green_public_procurement</a>	
Kompetenzstelle für nachhaltige Beschaffung	<a href="http://www.nachhaltige-beschaffung.info/DE/Home/home_node.html">http://www.nachhaltige-beschaffung.info/DE/Home/home_node.html</a>	
Umweltfreundliche Beschaffung	<a href="http://www.beschaffung-info.de/">http://www.beschaffung-info.de/</a>	
Biopreferred	<a href="http://www.biopreferred.gov/">http://www.biopreferred.gov/</a>	X
WRAP Sustainable Procurement	<a href="http://www.wrap.org.uk/content/sustainable-procurement">http://www.wrap.org.uk/content/sustainable-procurement</a>	X
International Green Purchasing Network	<a href="http://www.igpn.org/">http://www.igpn.org/</a>	
Center for Sustainable Procurement	<a href="http://www.bsr.org/en/our-work/working-groups/center-for-sustainable-procurement">http://www.bsr.org/en/our-work/working-groups/center-for-sustainable-procurement</a>	
Sustainable Forest Products	<a href="http://www.sustainableforestprods.org/">http://www.sustainableforestprods.org/</a>	
Soy Biobased Products	<a href="https://www.soybiobased.org/resources/">https://www.soybiobased.org/resources/</a>	
KEINO	<a href="http://www.hankintakeino.fi">Procurement Example Browser (hankintakeino.fi)</a>	X
Memo AG	<a href="http://www.memo.de/">http://www.memo.de/</a>	
Austrian sustainable procurement	<a href="http://www.nachhaltigebeschaffung.at/">http://www.nachhaltigebeschaffung.at/</a>	
Ihobe	<a href="http://www.ihobe.com">IhIhobe - Buenas prácticas</a>	X
Sustainable Construction and Innovation through Procurement	<a href="http://www.sci-network.eu/about/">http://www.sci-network.eu/about/</a>	
PIANOO, the Dutch Public Procurement Expertise Centre	<a href="https://www.pianoo.nl/en">https://www.pianoo.nl/en</a>	

OECD	<a href="http://www.oecd.org/gov/public-procurement/">http://www.oecd.org/gov/public-procurement/</a>	X
National Portals on public procurement	<a href="#">Public procurement in EU countries   European Commission (europa.eu)</a>	
EU's Legal rules and implementation	<a href="#">Legal rules and implementation   Internal Market, Industry, Entrepreneurship and SMEs (europa.eu)</a>	

## 2.7 Relevant actors and contacts related to Public Procurement

Table 4 Contacts related to Public Procurement

Name	Affiliation	Email	Comments
Kate Lewis (@BioPreferred) - USDA BioPreferred Program	BiopREFERRED		<a href="https://www.biopREFERRED.gov">https://www.biopREFERRED.gov</a> <a href="https://www.worldbiomarkets.com/speaker/kate-lewis/">https://www.worldbiomarkets.com/speaker/kate-lewis/</a> <a href="https://www.biopREFERRED.gov/BioPreferred/faces/news/TwitChat.xhtml">https://www.biopREFERRED.gov/BioPreferred/faces/news/TwitChat.xhtml</a>
Marina Sorokina	CircPro, Kouvola Innovation Ltd., Finland	marina.sorokina@kinno.fi	<a href="https://www.interregeurope.eu/circpro/">https://www.interregeurope.eu/circpro/</a> She presented this: <a href="#">Item   Interreg Europe</a>
<a href="https://www.fnr.de/fnr-struktur-aufgaben-lage/fachagentur-nachwachsende-rohstoffe-fnr/organisationsplan-der-fnr-check-contacts-here">https://www.fnr.de/fnr-struktur-aufgaben-lage/fachagentur-nachwachsende-rohstoffe-fnr/organisationsplan-der-fnr-check-contacts-here</a>	InnProBio	innprobio@fnr.de	<a href="https://innprobio.innovation-procurement.org/home/">https://innprobio.innovation-procurement.org/home/</a>
Paulo Magina	OECD, Head of PP Unit	Paulo.Magina@oecd.org	<a href="http://www.oecd.org/gov/public-procurement/ppforum-draft-agenda-2019.pdf">http://www.oecd.org/gov/public-procurement/ppforum-draft-agenda-2019.pdf</a> <a href="https://fr.linkedin.com/in/paulo-magina-ba92965">https://fr.linkedin.com/in/paulo-magina-ba92965</a>
Mark Hidson Global Director, ICLEI's Sustainable Procurement Centre Ashleigh McLennan	ICLEI ICLEI Procurement	<a href="mailto:procurement@iclei.org">procurement@iclei.org</a> <a href="mailto:Mark.hidson@iclei.org">Mark.hidson@iclei.org</a>	<a href="https://www.linkedin.com/in/mvanstaden/?originalSubdomain=de">https://www.linkedin.com/in/mvanstaden/?originalSubdomain=de</a> <a href="https://resilientcities2018.iclei.org/speaker/maryke-van-staden/">https://resilientcities2018.iclei.org/speaker/maryke-van-staden/</a> <a href="https://twitter.com/iclei_procure?lang=en">https://twitter.com/iclei_procure?lang=en</a> <a href="https://twitter.com/iclei_procure?lang=en">https://twitter.com/iclei_procure?lang=en</a> <a href="https://de.linkedin.com/in/ashleighmclennan">https://de.linkedin.com/in/ashleighmclennan</a>
The European network of competence	Procure2innovate project	<a href="mailto:info@procure2innovate.eu">info@procure2innovate.eu</a>	<a href="https://procure2innovate.eu/project/">https://procure2innovate.eu/project/</a> , <a href="http://www.innovation-procurement.eu/">http://www.innovation-procurement.eu/</a>

centers for innovation procurement			
GPP Advisory Group (Dig names from here)			<a href="https://ec.europa.eu/environment/gpp/expert_meeting_en.htm">https://ec.europa.eu/environment/gpp/expert_meeting_en.htm</a>
Aziza AKHMOUCH,	OECD, Head of Cities, Urban Policies, and Sustainable Development Division; OECD Centre for Entrepreneurship, SMEs, Regions & Cities		
Nicolo Tudorov	GPP-stream project	nicolo.tudorov@regione.fvg.it	<a href="https://www.interregeurope.eu/policylearning/event/3465/webinar-on-innovative-approaches-to-green-public-procurement/">https://www.interregeurope.eu/policylearning/event/3465/webinar-on-innovative-approaches-to-green-public-procurement/</a>
Rene de Klerk	Procurement Adviser for the City of Wageningen		<a href="https://twitter.com/rendemint?lang=de">https://twitter.com/rendemint?lang=de</a> <a href="https://nl.linkedin.com/in/rendemint">nl.linkedin.com/in/rendemint</a>
Enzo de Laurentiis	Chief Procurement Officer, world Bal		<a href="https://blogs.worldbank.org/team/enzo-de-laurentiis">https://blogs.worldbank.org/team/enzo-de-laurentiis</a> <a href="https://www.linkedin.com/in/enzo-de-laurentiis-17901990/">https://www.linkedin.com/in/enzo-de-laurentiis-17901990/</a>
Marlene Grauer	Procure2Innovate	bme.international@bme.de +49 (0) 6196 / 5828 - 129	<a href="https://procure2innovate.eu/contact/">https://procure2innovate.eu/contact/</a>
Lidia Capparelli	Consip (the central purchasing body of Italy)	lidia.capparelli@consip.it	<a href="https://procure2innovate.eu/italy/">https://procure2innovate.eu/italy/</a> <a href="https://www.wto.org/english/tratop_e/gproc_e/gp220217/bios_gp220217.pdf">https://www.wto.org/english/tratop_e/gproc_e/gp220217/bios_gp220217.pdf</a>
Jason Pearson	Sustainable Purchasing Leadership Council		<a href="https://www.linkedin.com/in/jasoncpearson/">https://www.linkedin.com/in/jasoncpearson/</a>
Farid Yaker	United Nations Environment Programme (UNEP) Leadership of program: Sustainable		<a href="https://www.oneplanetnetwork.org/users/farid-yaker">https://www.oneplanetnetwork.org/users/farid-yaker</a> <a href="https://www.linkedin.com/in/farid-yaker-00a62a16/?locale=de_DE">https://www.linkedin.com/in/farid-yaker-00a62a16/?locale=de_DE</a>

	Public Procurement		
Emmanuelle Maire	European Commission: Environment Directorate-General/ Sustainable production, products and consumption	+32-229-91586	<a href="https://op.europa.eu/en/web/who-is-who/person/-/person/ENV/COM-CRF_2860-000037A22D-0000307720--">https://op.europa.eu/en/web/who-is-who/person/-/person/ENV/COM-CRF_2860-000037A22D-0000307720--</a> (Website also includes sublevel contacts) <a href="https://ec.europa.eu/environment/gpp/pdf/2.%20Update%20from%20the%20Commission.pdf">https://ec.europa.eu/environment/gpp/pdf/2.%20Update%20from%20the%20Commission.pdf</a>
Angelika Tisch	LCA/Environmental Footprint criteria in tenders	angelika.tisch@ifz.at	Angelika Tisch   IFZ   Interdisziplinäres Forschungszentrum für Technik, Arbeit und Kultur Slide 1 (europa.eu)
Aline De Cokere	Procurer, City of Ghent		The power of sustainable procurement   European Week of Regions and Cities (europa.eu)
Anna Lupi	Policy Officer, DG Grow Internal Market, Industry, Entrepreneurship and SMEs		
Rafael Hirt	Sustainable Economy and Procurement officer, ICLEI - Local Governments for Sustainability		One of the authors here: <a href="https://op.europa.eu/en/publication-detail/-/publication/69fc6007-a970-11ea-bb7a-01aa75ed71a1">https://op.europa.eu/en/publication-detail/-/publication/69fc6007-a970-11ea-bb7a-01aa75ed71a1</a>

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