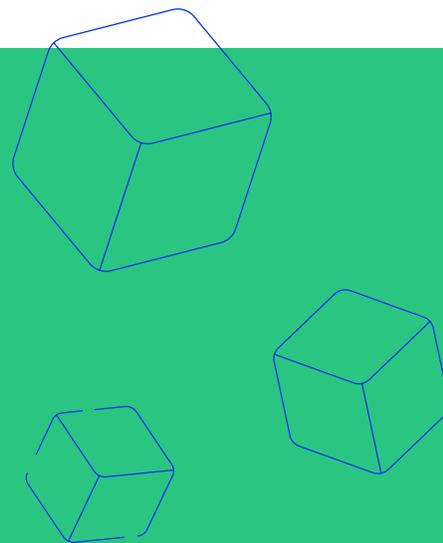


CIRCULAR AND SUSTAINABLE PUBLIC PROCUREMENT

ICT Equipment Guide



2023



ABOUT THIS GUIDE

This is a guide for governments and other public sector organizations that procure information and communications technology (ICT) equipment, systems and services. It sets out the systems and process requirements for ICT procurement in a way that supports the transition to circular and sustainable system solutions. It considers the need for policy and strategy, setting the conditions for and building circular and sustainable design into procurement processes. The guide draws on consultations with governments, suppliers and experts. A validation workshop, attended by 250 participants from 82 countries was held on 14 February, 2023, also contributed to the guide's contents and themes. More information and the recording of the workshop are available [here](#).

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How to use this toolkit

Governments and other public organizations are invited to use this guide as a tool to formulate and strengthen circular and sustainable procurement of ICT equipment, systems and services. The guide can serve as a reference for an entire approach, or for individual actions: policy and strategy development; creating the conditions; or embedding circularity and sustainability into procurement processes. The toolkit is designed to support governments and members of the GovStack initiative. ITU has developed this toolkit as part of its work within the GovStack initiative.



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EXECUTIVE SUMMARY

Public procurement is a powerful tool for improving the circularity and sustainability of information and communications technology (ICT) equipment, systems and services required for a successful green and digital transition. ICT procurement can support public sector digital transformation in line with the [ITU goals of growth, inclusiveness, sustainability, innovation, and partnership](#).

This guide on circular and sustainable ICT procurement helps public sector procurement planners and professionals to improve the circular and sustainable outcomes of ICT buying decisions and to avoid adverse impacts on social and environmental systems. It covers three levels of circular and sustainable ICT procurement necessary for getting started or improving: policy and strategy; creating the conditions; and procurement processes.

Foundations



Procurement practitioners now require a working knowledge of sustainability to monitor the environmental, social, and other positive outcomes of ICT procurement and define the concepts so that all the affected stakeholders know the direction of the policy.

Combining the circular and sustainable elements of public procurement can result in ICTs with closed energy and material loops within supply chains while minimizing, and in the best case avoiding, negative environmental impacts and waste creation across the whole product or service life cycle. A circular system should use **circular resources**, comprise **circular design** and deliver **recovery** of materials at the end-of-life of ICTs. Public procurement can also support the formalization of the e-waste management sector, the creation of jobs and the stimulation of a market for compensation schemes.

Drivers of circular and sustainable ICT procurement include reducing supply chain risks, contributing to sustainable digital government services, stimulating circular and sustainable innovation, and supporting new approaches to reusable software and hardware components for e-government, such as GovStack.

Policy and strategy



Governments can set the agenda for sustainable and circular ICTs, from general compliance with international sustainability to deploying good practices. Recommendations [ITU-T L.1061](#) and [ITU-T L Suppl. 20 \(10/2015\)](#) advise governments to have or set organizational, governmental, or national targets for sustainable public procurement.

Leadership

Circular and sustainable ICT procurement needs a vision and a strategy that identifies and brings together people with the required expertise, commitment and influence to develop policy and define organizational principles and priorities for a circular economy and sustainable development concerning ICT procurement. The drivers of circular and sustainable ICTs need to be shared with decision-makers, policy-makers, procurement managers, procurement staff, and other stakeholders, including suppliers and citizens. Finally, consider assessing procurement capacity using openly available tools or methods.

Aligning policies and strategies

Connecting circular and sustainable procurement plans to related goals and policies can provide legislative and policy backing, motivate procurers and reduce the perceived risk of the new approaches. Assessing procurement capacity using openly available tools or methods will help to create tangible policies, strategies, priorities, and targets that procurement staff can relate to and use when applying circular and sustainable criteria to an ICT tender.

Implementation planning

It is also essential to develop an appropriate plan or roadmap that integrates circular and sustainable policy objectives in public procurement systems. The roadmap should ideally contain relevant policy links, stakeholders and assigned responsibilities, resources, implementation measures and procedures, progress indicators, and a realistic time frame.



Creating the conditions



Policies and plans for circular and sustainable ICT procurement require the right conditions to make them happen on the ground. Practical steps for capacity building and enabling circular and sustainable ICT procurement include managing the governance, setting priorities and engaging stakeholders.

Manage the governance

It is also necessary to identify the gaps and areas required to connect implementation to policy and how current approaches to ICT procurement might prevent circular and sustainable outcomes. Bringing together key stakeholders and asking the right questions will help make the connections, and using systems, processes, and controls will support circular and sustainable procurement of ICTs. E-procurement systems can present tender opportunities, support decision-making, optimize operations, and improve data management for sustainable and circular outcomes. Centralizing procurement criteria, standards, and other information in a portal also gives procurers a place to find resources.

Labelling will boost the circular and sustainable ICT market. Labels are an effective tool to verify and communicate sustainable and circular credentials of ICT products to consumers. Labels can also be an instrument for procurers to identify if a producer or bidder complies with circular and sustainable requirements. Using existing labels to develop relevant criteria can strengthen regional standards. Compliance with conditions can be shown by labels, equivalent standards, or evidence but need not be mandatory.

Set goals and targets

National-level goals and targets can oblige, mandate, or encourage public authorities to follow them or set their own goals and targets for circular and sustainable ICT procurement. Openly communicated goals and targets can drive or link to political backing, demonstrate commitment to the general public and provide a framework for measuring progress. Targets are not just about percentages but about the quality of the sustainable or circular outcomes from public procurement. These can include procurement targets, such as 100 per cent of ICT procurement having green, social, or circular criteria. Category targets, such as a specified percentage of recycled materials in computer hardware, can incorporate more specific ICT aims. In addition, outcome targets can set complementary aims such as a set number of ICT procurement staff trained in life-cycle costing.

Engaging stakeholders

The process of capacity building will be supported by involving the main actors in procurement. Getting input from those responsible for writing tender documents, evaluating tenders, and managing the contracts is also important. These activities can turn circular and sustainability commitments into individual responsibilities for procurement.

One or more of these responsibilities should be assigned to procurement teams or roles across ministries or departments and breaking these responsibilities down will reflect how the role of each procurer or team might contribute to achieving the objectives. Participating in national, regional or international networks can secure an ongoing political commitment and visibility for sustainable procurement while providing a mechanism for sharing information and best practice from other governments and public administrations.

Procurement processes



Circularity and sustainability should be built into the typical procurement cycle of procurement planning, solicitation and evaluation, award, contract management and reviewing performance.

Procurement planning

Proactive planning will integrate circular and sustainable considerations into ICT purchases or contract extensions. Preparation for sustainable needs, supplier capacity, and outcomes will support the rest of the procurement cycle. The need to procure should also be analyzed and assessed and whether the ICTs being considered meet requirements sustainably. New ways to acquire the hardware or software in line with circular economy principles can be considered by looking at new acquisition models. Potential sustainable impacts, risks, and costs of ICT procurement can be mapped using methods such as life cycle analysis, and labels can be used for sustainability impact mapping, outlining solutions, and verifying findings. Understanding applicable laws, regulations, and trade agreements will ensure the procurement meets environmental, human rights, and labour laws and engaging the market will help to gather intelligence, allow suppliers to understand demand, and inform the approach.

Solicitation and evaluation

The call for tender should be designed in a way that supports circular and sustainable procurement, and gives as many suppliers as possible access to the bidding opportunities. The use of relevant criteria and specifications in the design of the call such as signalling intentions for circular and sustainable approaches by including sustainability themes in the title and subject matter, selecting suppliers based on their circular and sustainable credentials and experience, and specifying circular and sustainable requirements using appropriate technical or outcome-based specifications will all increase the chances of successful circular and sustainable procurement.



Awarding of contracts

It is essential to compare supplier offers and select the best combination of circular and sustainable performance and other requirements. Circular and sustainable award criteria weighting should reward those suppliers with more advanced circular and sustainable bids, including life cycle costing to the ICT product or service to base decisions on energy use, maintenance, and replacement and disposal costs. In addition, the use of labels (and their underlying criteria) will help to rate more circular and sustainable ICT products or services.

Contract management

Contracts may include circular and sustainable considerations in contract performance clauses, provided they were previously included in the solicitation document. Including circular and sustainable elements in the contract can help to ensure that outputs and outcomes are achieved. More advanced environmental, social, and governance requirements, especially those related to systems effectiveness, may require additional training and resources for those tasked with compliance monitoring.

Reviewing performance

Contract performance should be monitored and reviewed with the procurement team, ICT users, and suppliers at agreed periods against agreed key performance indicators (KPIs). The review process can include evaluating contract outcomes against priorities and building the lessons and results into subsequent procurement processes.

Recap and review



Summary takeaway points include:

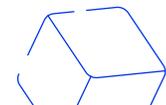
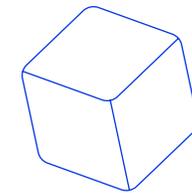
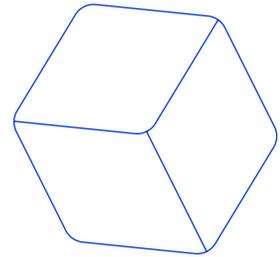
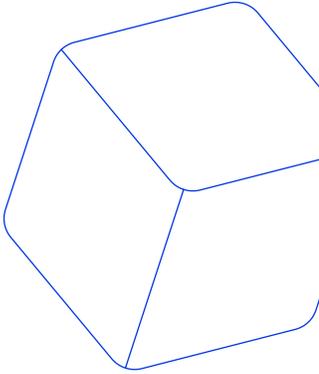
- Align ICT circularity and sustainability goals with existing or newly created policies.
- Set goals, establish measurement indicators and track progress.
- Create a publicly available circular and sustainable procurement policy.
- Allow adequate time and resources for procurement planning when developing calls for tender.
- Engage with ICT suppliers on circularity and sustainability when developing policy and strategy and as part of a procurement process.
- Add sustainability to procurement processes and guidance to reflect circular and sustainable aims and contract conditions.
- Use international standards, including ITU Recommendations, for direction on how to implement and enforce circular and sustainable ICT procurement and management.



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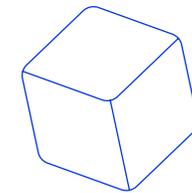
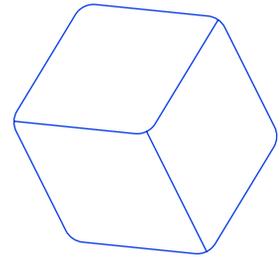
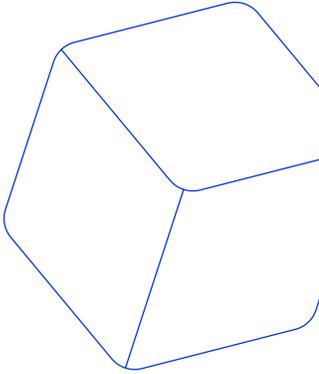




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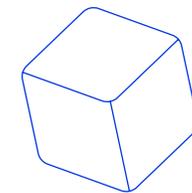
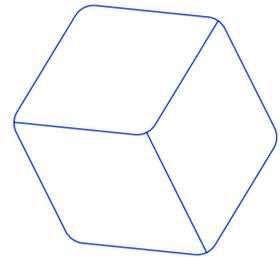
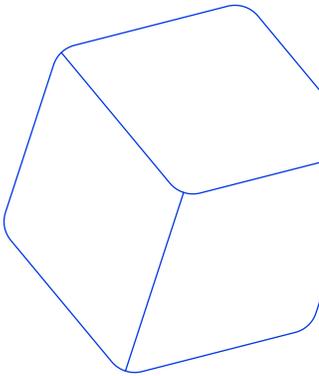




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LIST OF DEFINITIONS

Award criteria: qualitative criteria with a weighted scoring are chosen to determine the most economically advantageous tender including environmental performance characteristics. ([European Union](#))

Circular and sustainable procurement: The purchase of goods, services, works, and utilities that meets user needs while generating positive environmental and societal impacts and stimulating the circular economy through purposeful design, production, sale, use, re-use, and recycling processes throughout the life cycle. ([Recommendation ITU-T L.1061](#))

Circular economy: closing the loop between different life cycles through design and corporate actions/practices that enable recycling and reuse to use raw materials, goods, and waste more efficiently and increase energy performance. ([Recommendation ITU-T L.1022: Circular economy](#))

Circular procurement: maximising the lifetime of products and their components, stimulating innovation, boosting the use of refurbishment, remanufacturing and repair, closing material loops and minimising carbon emissions and other environmental impacts. ([Circular & Fair ICT Pact](#))

Contract performance clauses: special conditions laid down that relate to the performance of a contract and how it must be carried out and monitored, provided that they are linked to the subject matter of the contract. ([European Union](#))

Data centres: a facility composed of networked computers, storage systems and computing infrastructure that organizations use to assemble, process, store and disseminate large amounts of data. A business typically relies heavily on the applications, services and data contained within a data centre, making it a critical asset for everyday operations. ([Tech Target](#))

Electrical and electronic equipment (EEE): EEE includes any household or business item with circuitry or electrical components with a power or battery supply. ([STEP](#))

Environmental life cycle assessment (LCA): a systematic analytical method by which the potential environmental effects related to ICT goods, networks, and services can be estimated. LCAs have a cradle-to-grave scope where all the life cycle stages (raw material acquisition, production, use, and end-of-life treatment) are included. Moreover, transport and energy supplies are included at each stage of the life cycle assessment. ([Recommendation ITU-T L.1410](#))

Green data centre: A green or sustainable data centre can be defined as a repository for the storage, management, and dissemination of data in which the mechanical, lighting, electrical and computer systems are designed for maximum energy efficiency and minimum environmental impact ([ITU-T Recommendation L.1304](#)).

Information and communications technology (ICT): The production (goods and services) of a candidate industry [that] must primarily be intended to fulfil or enable the function of information processing and communication by electronic means, including transmission and display ([UN Department of Economic and Social Affairs](#)).

ICT (manufacturing industries): products for information processing and communication, including transmission and display, and use of electronic processing data to detect, measure and control physical processes. ([ITU](#))

ICT (service industries for software and others): products that enable information processing and communication by electronic means. These are usually software programming for distribution and customer use from a mobile or home device. ([ITU](#))

ICT (service industries for telecommunications): network operations and provision of telecommunication services such as telephony or data communication accesses or broadcasting services. ([ITU](#))

Life cycle: Consecutive and interlinked stages of a product system, from raw material acquisition or generation from natural resources to final disposal. ([ISO 14040](#))

Life cycle costing: Technique used to establish the actual cost of ownership of a product or service, from purchase, through usage and maintenance costs, to disposal. The reduction of environmental impacts usually leads to economic savings in short to medium-term periods ([Recommendation ITU-T L.1061](#)).

Needs assessment: The first stage in the procurement cycle for green public procurement, prior to launching a tender, to ensure that a true demand exists for the goods, services or works being purchased, and to identify the most environmentally efficient way of meeting that need ([European Commission](#)).

Public procurement for innovation: the public sector uses its purchasing power to act as early adopter of innovative solutions which are not yet available on large scale commercial basis. ([OECD](#)).



Recyclability: Ability of a product to be recycled at the end of its life. ([Recommendation ITU-T L.1022](#))

Reconditioning/refurbishing: Return a used product to a satisfactory working condition by rebuilding or repairing major components that are close to failure, even where there are no reported or apparent faults in those components. ([Recommendation ITU-T L.1024](#))

Remanufacturing: Remanufacturing and comprehensive refurbishment are intensive, standardized industrial processes that provide an opportunity to add value and utility to a product service life. ([UNEP](#))

Selection criteria: assess the suitability of an economic operator, a tenderer, to carry out a contract (such as capacity to pursue activity, economic and financial standing, technical and professional ability). ([European Union](#))

Smart sustainable cities: an innovative city that uses information and communication technologies (ICTs) and other means to improve quality of life, efficiency of urban operation and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social, environmental as well as cultural aspects. ([Recommendation ITU-T Y.4900](#))

Supply chain [b-ITUb]: The group of planning, manufacturing and producing operations required to bring a product/service to the market is known as the supply chain, and it covers activities that range from sourcing of raw materials to the delivery of a completed product. ([ITU](#))

Sustainable development: meeting the needs of the present without compromising the ability of future generations to meet their own needs. ([United Nations Brundtland Commission](#))

Sustainable public procurement: A process whereby public organizations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life cycle basis in terms of generating benefits not only to the organization, but also to society and the economy, whilst significantly reducing negative impacts on the environment. ([UNEP](#))

Technical specifications: the required characteristics of a product or a service, including requirements relevant to the product at any stage of the life cycle of the supply or service and conformity assessment procedures. ([European Union](#))

Waste electrical and electronic equipment (WEEE): E-waste – or WEEE – is a term used to cover items of all types of electrical and electronic equipment and its parts that have been discarded by its owner as waste without the intent of reuse. ([STEP](#))





ABBREVIATIONS

CE	Circular economy
CEP	Circular Electronics Partnership
CFIT	Circular & Fair ICT Pact
COTS	Commercial off-the-shelf
CSR	Corporate Social Responsibility
DaaS	Device as a service
DIAL	Digital Impact Alliance
EEE	Electrical and electronic equipment
EPA	Environmental Protection Agency
EPEAT	Electronic Product Environmental Assessment Tool
GEC	Global Electronics Council
GeM	Government e-market place
GHG	Greenhouse gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GPIS	Green products information system
GPP	Green public procurement
HaaS	Hardware-as-a-service
ICT	Information and communications technology
ILO	International Labour Organization

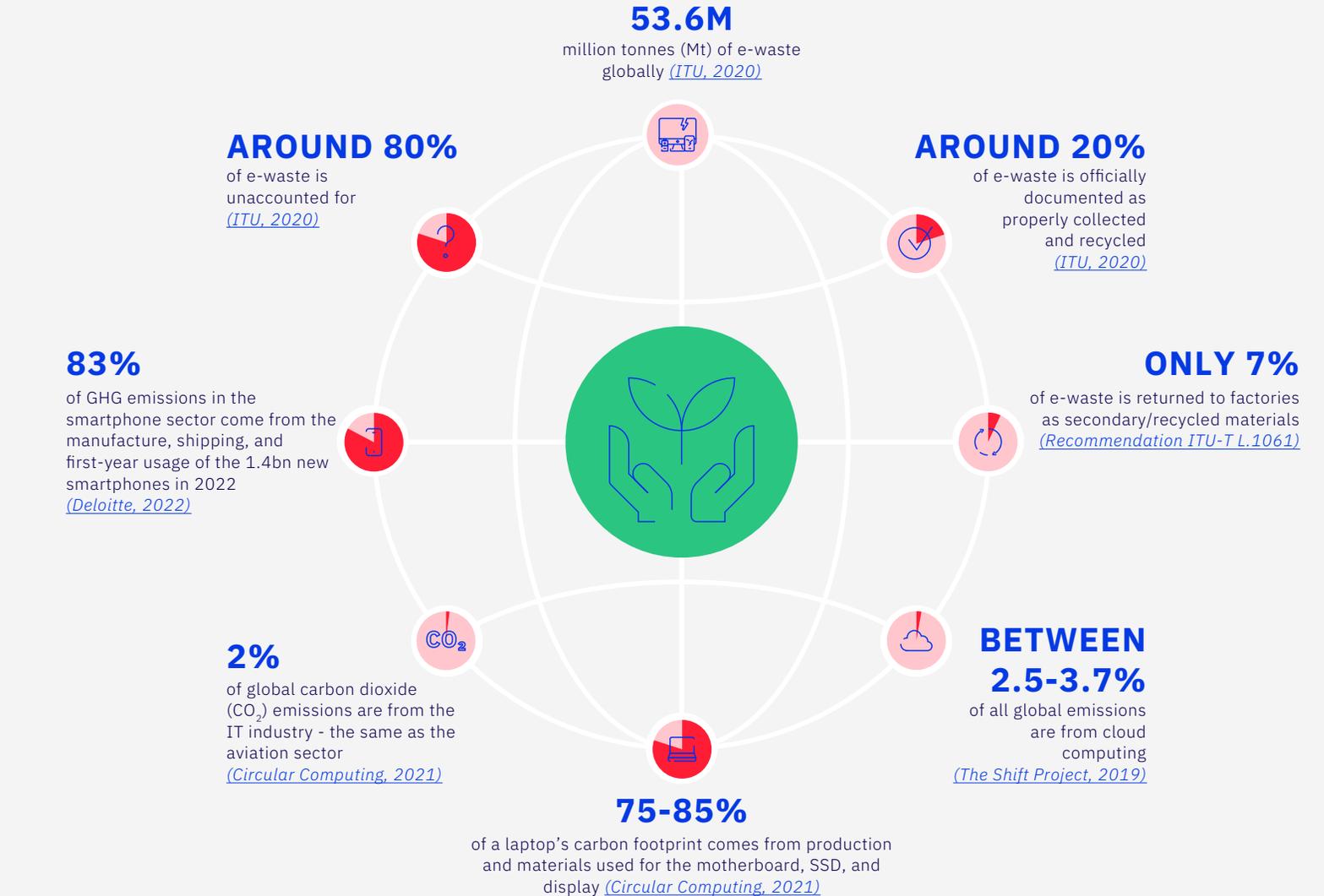
ISO	International Organization for Standardization
ITS	Intelligent transport systems
ITU	International Telecommunication Union
LCA	Life cycle analysis
LCC	Life-cycle cost
MAPS	Methodology for assessing procurement systems
Mt	Metric tons
PACE	Platform for accelerating the circular economy
ROI	Return on investment
RPPS	Responsible Purchasing Promotion Scheme
SaaS	Software-as-service
SAICM	Strategic Approach to International Chemicals Management
SDG	Sustainable Development Goal
SMEs	Small and medium-sized enterprises
TCO	Total cost of ownership
U4SSC	United for Smart Sustainable Cities
UNGPs	United Nations Guiding Principles on Business and Human Rights
WEEE	Waste electrical and electronic equipment



1_ INTRODUCTION

Public procurement is a powerful tool for improving the circularity and sustainability of information and communications technologies (ICTs) required for a successful green and digital transition. Digital transformation is part of the solution to one of humanity's biggest problems: climate change. But the acquisition of ICTs for environmental protection and climate change abatement activities must be carried out sustainably, ensuring that benefits are generated not only for the organization procuring them but also for society and the economy whilst minimizing damage to the environment.

Both the green and digital transitions will create an increasing demand for materials - many of which are precious, rare or susceptible to risk from the supply chain or political uncertainty. The growth of ICT products globally every year means that circular and sustainable choices and practices are crucial to reducing the impact of the ICT sector. Computing devices, data centres, and communication networks can contribute to greenhouse gas (GHG) emissions through energy use, waste, raw material and resource extraction, and production. In this sense, circular procurement is essential to ensure that the design, production, selling, reuse and recycling of ICTs get maximum value retention.



↑ Figure 1: Sustainable impacts of digital technologies



The good news is that ICTs can be part of the solution for sustainability and GHG emissions reduction. ICTs can support other sectors to switch to smart energy management systems, virtualizing networks and working methods, and providing connectivity for digital solutions that reduce energy use. ICTs are also [essential for digital inclusion](#), and can support business activity, employment, education, the provision of basic citizens' services, entertainment, and socializing. Therefore, ensuring that this vital cross-cutting sector is as sustainable as possible is the responsibility of all involved.

Public authorities play a significant role in the sustainable transition of ICT value chains. Public sector organizations can help uphold human rights, protect the environment, and influence the transition to a circular economy through their purchasing and contracting processes. With around [12% of global GDP](#) spent annually on public procurement, circular and sustainable procurement by governments can be a market driver for sustainable innovation and an enabler for a circular economy.

1.1 Using the guide

This guide on circular and sustainable ICT procurement helps public sector procurement planners and professionals to improve the circular and sustainable outcomes of ICT buying decisions and to avoid adverse impacts on social and environmental systems. It provides resources and pathways for the policy and systemic changes needed and the procurement processes that can make this happen. While predominately aimed at governments, it is equally relevant for other public buyers.

The guide focuses mainly on the ICT procurement categories of office and computing, telecommunication equipment, software and data centres, but the approaches can be applied to a wide variety of digital and communication sectors. When procured sustainably, ICTs can support public sector digital transformation in line with the [ITU goals of growth, inclusiveness, sustainability and innovation and partnership](#).

The guide also supports governments and other public buyers implementing [GovStack](#) in procuring e-services consistently with sustainability and circular economy principles. Through GovStack, reusing the same components and software in multiple government initiatives instead of constantly reinventing the wheel reduces cost, opens digital siloes, and makes coordination easier. The GovStack approaches, including the GovStack SandBox, can support sustainability in ICT procurement by promoting the reuse of digital public goods (see Box 1).

The provision of e-government services in areas such as taxation, licence renewals, and health continues to increase across countries. The digitization of these once in-person and paper-based public services requires deploying more ICTs, thus resulting in an increasing amount of data traffic and the potential for rising levels of greenhouse gas emissions output and e-waste generation.

GovStack

The vision of GovStack is to “Accelerate the digital transformation of government services, empowering governments to take ownership of their digital futures by building more effective and cost-efficient digital government services”. The GovStack initiative was launched in 2021, under the leadership of four partner organizations – the [International Telecommunication Union](#) (ITU), the [Republic of Estonia](#), [Deutsche Gesellschaft für Internationale Zusammenarbeit](#) (GIZ), and the [Digital Impact Alliance](#) (DIAL).

The GovStack initiative aims to build a common understanding and technical practice on foundations for re-usable and interoperable digital components, collectively referred to as Building Blocks. Building Blocks provide key functionality for generic workflows across multiple sectors. Because they are reusable and interoperable, they facilitate the deployment of digital services at scale, with fewer resources and a greater return on investment.

The Building Blocks are being developed in waves and their characteristics include:

- Reusable software components
- Open-source, commercial off-the-shelf (COTS), or freely available with open access to data

- Facilitates one or more generic workflows
- Applicable to multiple use cases across multiple sectors
- Interoperable with other ICT building blocks
- Designed for scalability and extensibility
- Standards-based

The same infrastructure may be applied to related use cases in agriculture, education, finance and other sectors, thereby increasing return on investment (ROI) even further. This potential ROI can help incentivize governments and other funders to make the large-scale investments needed to implement sustainable ICT platforms at scale.

GovStack Sandbox

The GovStack Sandbox is a unified environment for all the GovStack and digital government ecosystem actors to discover, understand, engage, experiment, innovate, and build digital government solutions using the GovStack platform. This enables government agencies and digital government players to experiment with innovative GovTech products or services within a well-defined space and duration.

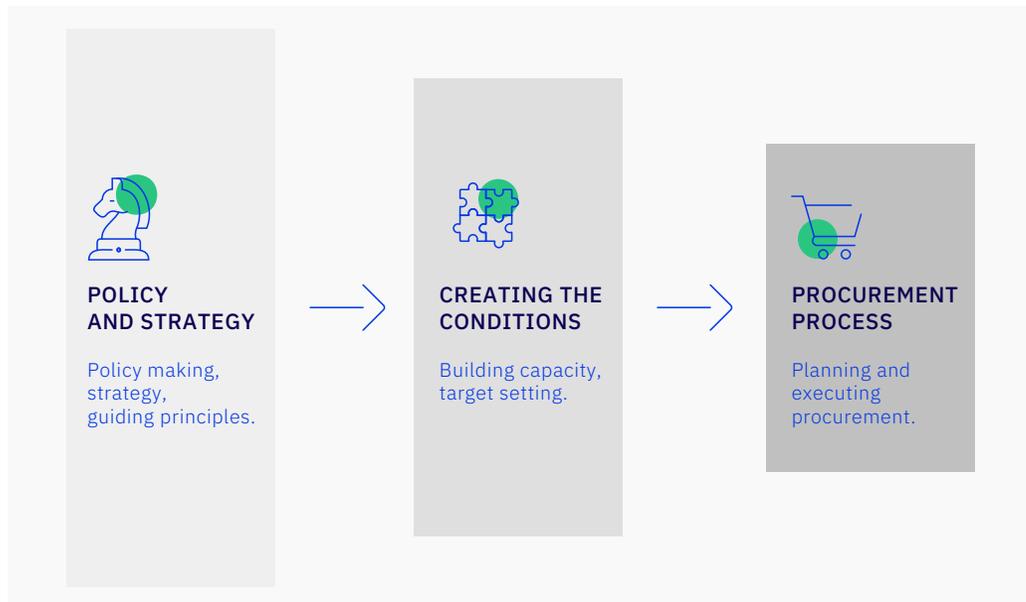
For more information, please access the [GovStack website](#).

↑ Box 1: The GovStack initiative



Three levels of guidance

Three levels of circular and sustainable ICT procurement necessary for getting started or improving are covered in the guide. Starting with policy and strategy: it is policy for circular and sustainable ICT procurement that sets the guiding principles and goals that allow governments or organization to make the necessary decisions. The strategy is the plan and communicated ambitions for circular and sustainable ICT procurement that set the agenda for procurers and suppliers.



↑ Figure 2: Circular and Sustainable ICT Public Procurement Guide levels (adapted from [Supply Chain Sustainability School](#))

Next, the guide focuses on creating the conditions. These are the practical steps for capacity building, target setting, and generally enabling circular and sustainable ICT procurement within government agencies and public authorities. Finally, the procurement processes section provides methods, approaches, and cases of application for circular and sustainable procurement of ICTs on the ground.

RECOMMENDATION ITU-T L.1061 “CIRCULAR PUBLIC PROCUREMENT OF INFORMATION AND COMMUNICATION TECHNOLOGIES”

ITU-T Recommendations are standards defining how telecommunication networks operate and interwork. Many ITU-T Recommendations relate to the environment, energy efficiency, clean energy, sustainable digitalization for climate actions, circular economy and e-waste management.

This guide was developed in coordination with the development of [Recommendation ITU-T L.1061](#) “Circular public procurement of information and communication technologies”, acting as a ‘how-to’ companion to many concepts in this and other ITU Recommendations.

Recommendation ITU-T L.1061 provides technical guidance to public sector organizations on improving their procurement practices to purchase more circular ICT goods and services. The Recommendation covers the purchase of ICT equipment such as personal computers, terminals, network equipment and servers, and imaging equipment, and recommends specific requirements in procurement to (1) minimise the generation of e-waste and its adverse effects, (2) maximize the useful life of equipment, and (3) maximize recyclability. It also covers design for e-waste prevention and procurement recommendations which are relevant for the management choices of the e-waste hierarchy, as well as specific requirements and guidance on procurement to enhance energy efficiency, reduce Green House Gas (GHG) emissions to mitigate climate change, and reduce the emissions of hazardous substances in e-waste.

The standard was developed by [ITU-T Study Group 5 “Environment, EMF and Circular Economy”](#), which is responsible for the development of standards on the environmental aspects of ICTs and digital technologies and protection of the environment, including electromagnetic phenomena and climate change.

↑ Box 2: Recommendation ITU-T L.1061 “Circular public procurement of information and communication technologies”



UNITED FOR SMART SUSTAINABLE CITIES (U4SSC) INITIATIVE

To further facilitate international dialogue on smart and sustainable cities, the “United for Smart Sustainable Cities” ([U4SSC](#)) initiative was launched by ITU, UNECE and UN-Habitat, and supported by CBD, ECLAC, FAO, UNDESA, UNDP, UNECA, UNESCO, UNEP, UNEP-FI, UNFCCC, UNIDO, UNOP, UNU-EGOV, UN-Women, UNWTO and WMO. This UN initiative conducts its operations in line with the Sustainable Development Goal (SDG) 11: “Make cities and human settlements inclusive, safe, resilient and sustainable”. The smart city is an interconnected system with various sectors including E-health, Intelligent Transport Systems (ITS), Smart Tourism, Smart Education, and Intelligent Sustainable Buildings etc.

ITU together with UNECE, has developed the following definition for Smart Sustainable Cities, based on the analysis of over 100 definitions. This definition has been embraced across the activities of U4SSC.

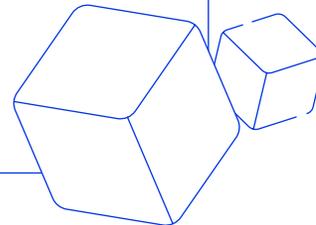
“A smart sustainable city is an innovative city that uses information and communication technologies (ICTs) and other means to improve quality of life, efficiency of urban operation and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social, environmental as well as cultural aspects”

U4SSC PROCUREMENT GUIDELINES FOR SMART SUSTAINABLE CITIES

The U4SSC procurement guidelines for smart sustainable cities aim to present new ways of buying digital and technology products, services and capabilities that are fair, open, transparent, effective and multidisciplinary. The Guidelines also focus on meeting users’ needs in a way that is accessible, so that anyone can benefit from them regardless of their age, gender, capacities or the context of their use, and that they are fit for supporting Internet-era digital public service delivery.

The Guidelines are for anyone who engages in procurement activities for their country’s public sector, whether for local, regional or national government organizations. The Guidelines focus on digital, data and technology products, services and capabilities, as these topics are most needed to support public sector transformation. Information is intended to be relevant internationally and not specific to any particular regulatory environment.

Access the U4SSC procurement guidelines for smart sustainable cities [here](#).



↑ **Box 3: U4SSC initiative and procurement guidelines for smart sustainable cities**



While reading the guide from cover to cover is one option, it is intended as a resource to use as needed when developing circular and sustainable ICT procurement at these levels. Each section provides an overview of good practices and actions, many based on consultations with governments and relevant companies and individual experts from other organizations involved in the ICT sector and public procurement. Links to other resources are provided to go deeper into practices and tools.

The guide is also available on the ITU Academy in an interactive e-learning format ([here](#)). The e-learning closely follows the content of the guide to give an overall understanding of the topics covered here. In areas where learners want to get a deeper understanding of the topics and case studies, references are made to the guide for further reading. The e-learning is 2.5 hours long and participants will receive a badge at the end of the course, after successfully completing the materials and quizzes. The following section provides an overview of circular and sustainable ICT procurement foundations.

Gaps for circular and sustainable ICTs and using the guide

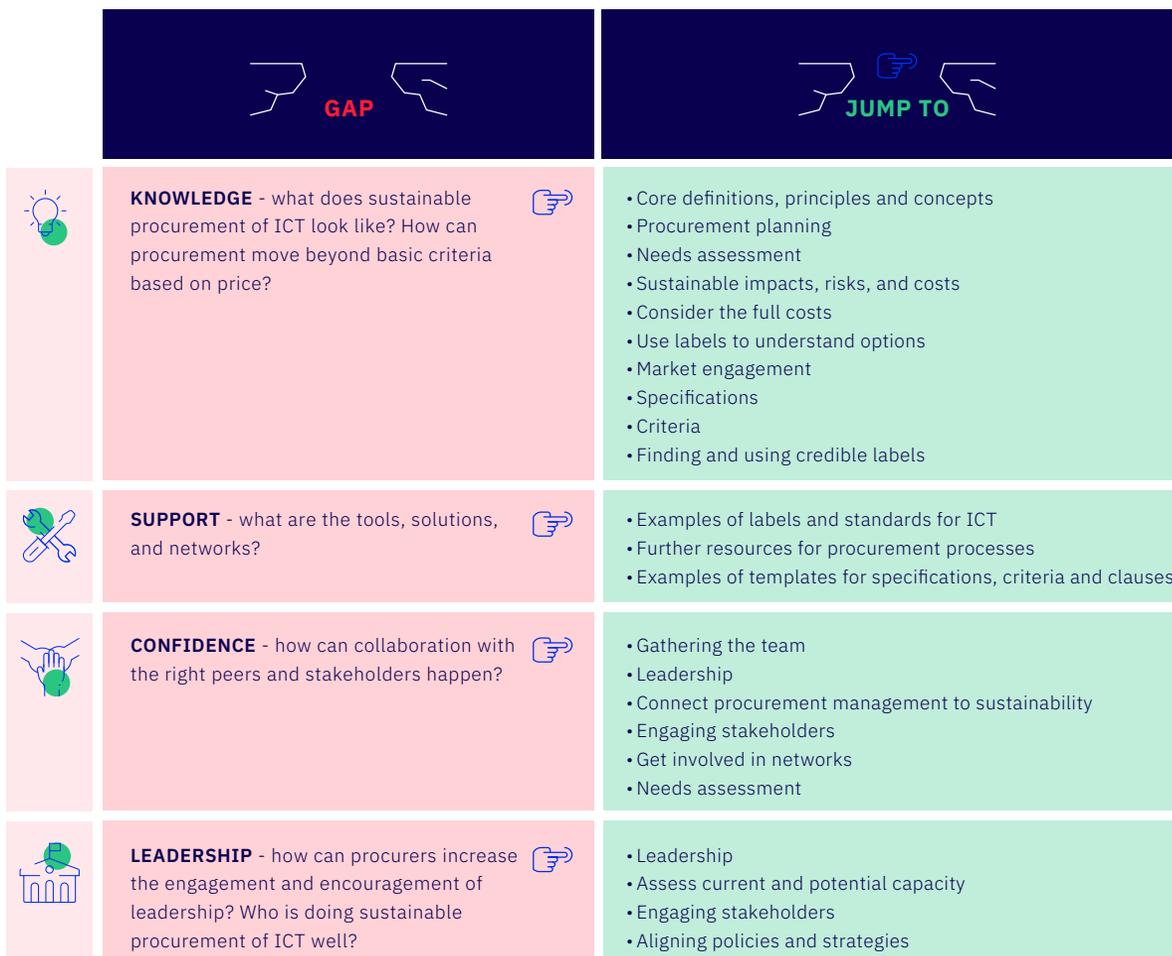


Figure 3: Circular and sustainable ICT procurement knowledge gaps: using the guide

2_CIRCULAR AND SUSTAINABLE PROCUREMENT: THE FOUNDATIONS

This section covers the core essentials and starting points of circular and sustainable ICT procurement to provide a solid understanding of definitions and concepts. This knowledge will help to make more informed policy, strategy, and procurement decisions, communicate effectively with key stakeholders and know where to go for additional resources by:

- understanding and applying core definitions, concepts, and principles of a circular and sustainable economy and where ICT procurement can be a facilitator;
- recognizing the drivers of circular and sustainable ICT procurement and how they can be used to create momentum in organizations;
- appreciating the challenges and considerations for circular and sustainable ICT procurement and how they might be overcome using some of the ideas in this guide.

2.1 Core definitions, principles and concepts

Procurement practitioners now require working knowledge of sustainability to set appropriate demands and monitor the environmental, social, and other positive outcomes of ICT procurement. This section provides a basic understanding of the concepts.

These definitions and principles also give the rest of this guide context.

2.1.1 Defining the concepts

When getting started on circular and sustainable procurement in the national government context, colleagues responsible for procurement and contract management must understand the topic. Define the concepts so that all the affected stakeholders know what direction the policy is headed. This section starts by outlining some international definitions and sources of further information.

The definitions in this guide are limited to those relating to sustainable and circular ICTs. For a more comprehensive list of sustainable procurement vocabulary on ICTs, see the [ITU Terms and Definitions database](#), as well as [ITU-T L Suppl. 20 \(10/2015\)](#) for green procurement and Recommendation ITU-T L.1061 for circular procurement. Also see [Box 6](#) and [Box 7](#) for concepts from the Circular Electronics Partnership (CEP) and Global Electronics Council (GEC), respectively. In addition, take time to explore regional meanings of sustainable and circular procurement so that initiatives are relevant to local supply chains and conditions.

SUSTAINABLE PUBLIC PROCUREMENT

A process whereby public organizations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life cycle basis in terms of generating benefits not only to the organization, but also to society and the economy, whilst significantly reducing negative impacts on the environment. ([UNEP](#))

CIRCULAR ECONOMY

ITU defines the circular economy (CE) as covering the entire life cycle of (1) goods and (2) business models. In general, CE is about closing the loop between different life cycles through design and corporate actions/practices that enable recycling and reuse to use raw materials, goods, and waste more efficiently and increase energy performance. ([Recommendation ITU-T L.1022](#))

CIRCULAR PROCUREMENT

Circular procurement occurs when the buyer purchases products or services that follow the principles of the circular economy, supporting the assessment of designing, making, selling, re-using, and recycling products to determine how to get the maximum value from them, both in use and at the end of their life. Collaborating Centre on Sustainable Consumption and Production ([CSCP](#)).

CIRCULAR AND SUSTAINABLE PROCUREMENT

The purchase of goods, services, works, and utilities that meets user needs while generating positive environmental and societal impacts and stimulating the circular economy through purposeful design, production, sale, use, re-use, and recycling processes throughout the life cycle. ([Recommendation ITU-T L.1061](#))

↑ **Box 4: International definitions related to circular and sustainable procurement**



2.1.2 Electrical and electronic equipment

It is important that procurement teams and professionals understand the scope of electrical and electronic equipment (EEE) and which includes ICTs. While many definitions of EEE exist, they all tend to point in the same direction. ICT falls under the ‘Electronic’ part of EEE. The [Global E-waste Statistics Partnership](#), classifies EEE in relation to e-waste. Box 5 outlines a small selection of international definitions of EEE, ICT and data centres, but regional variations also exist.

The [Strategic Approach to International Chemicals Management Secretariat](#) recognises that the life cycle of EEE follows the same pathway as the procurement cycle:

- production (sourcing);
- utilisation (including repair and maintenance and reuse);
- end-of-life management (including remanufacturing, recycling and e-waste disposal).

Therefore, the procurement cycle and product life cycle need to be actively linked so that public authorities can support the maximisation of life cycle benefits and impact reduction and the reduction of negative impacts.

The concepts discussed throughout this guide can be applied to anything purchased that runs on a battery or a power supply. To keep this guide practically useable, the focus is mainly on the procurement categories:

- office and computing;
- telecommunications equipment;
- software;
- data centres.

These categories support the focus of the [Recommendations ITU-T L.1034](#) “Procurement criteria for sustainable data centres” and L.1061 “Circular public procurement of information and communication technologies”, and the GovStack initiative.

ELECTRICAL AND ELECTRONIC EQUIPMENT

EEE includes a wide range of products with circuitry or electrical components with a power or battery supply. EEE becomes e-waste once it has been discarded by its owner as waste without the intent of reuse ([United Nations University/StEP](#)). Public procurement can be a key mechanism in the prevention of waste electrical and electronic equipment (WEEE) generation and promoting reuse and repair ([European Commission](#)).

INFORMATION AND COMMUNICATIONS TECHNOLOGY

The production (goods and services) of a candidate industry [that] must primarily be intended to fulfil or enable the function of information processing and communication by electronic means, including transmission and display ([OECD, 2008](#)).

The [ITU defines ICT industries and related products](#) in three categories:

- *Manufacturing industries*: products for information processing and communication, including transmission and display, and use of electronic processing data to detect, measure and control physical processes.
- *Service industries for telecommunications*: network operations and provision of telecommunication services such as telephony or data communication accesses or broadcasting services.
- *ICT service industries for software and others*: products that enable information processing and communication by electronic means. These are usually software programming for distribution and customer use from a mobile or home device.

GREEN DATA CENTRES

A green or sustainable data centre can be defined as a repository for the storage, management, and dissemination of data in which the mechanical, lighting, electrical and computer systems are designed for maximum energy efficiency and minimum environmental impact ([Recommendation ITU-T L.1304](#)).

↑ **Box 5: Definitions of electrical and electronic equipment, information communications technology and data centres**



2.1.3 Circular and sustainable procurement of ICTs

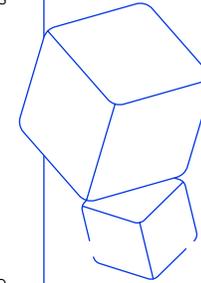
Public procurement is an essential tool for circular and sustainable objectives and identifying concrete actions for ICT standardization. A number of initiatives in the ICT sector identify public procurement as a driver of a circular electronics industry, including the CEP, which is driving a coordinated transition towards an economically viable circular industry (see Box 6).

CIRCULAR ELECTRONICS PARTNERSHIP ROADMAP TOWARDS A CIRCULAR ELECTRONICS INDUSTRY

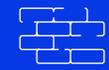
In 2020, the [Circular Electronics Partnership \(CEP\)](#) launched an extensive stakeholder engagement process, mobilizing experts from companies and the six founding partners to collaborate in six working groups, also referred to as the six CEP pathways. [The Circular Electronics Roadmap](#) captures the barriers, enablers, interventions and questions identified in these collaborative pathway sessions. The CEP roadmap is structured around the six pathways and their objectives to drive progress in key stages of the electronics value chain by 2030:

1. Design for circularity.
2. Drive demand for circular products and services.
3. Scale responsible business models.
4. Increase official collection rate.
5. Aggregate for reuse and recycling.
6. Scale secondary material markets.

Combining the actions defined across pathways presents a comprehensive picture of what is needed to drive system transformation towards the vision of a more circular electronics industry.



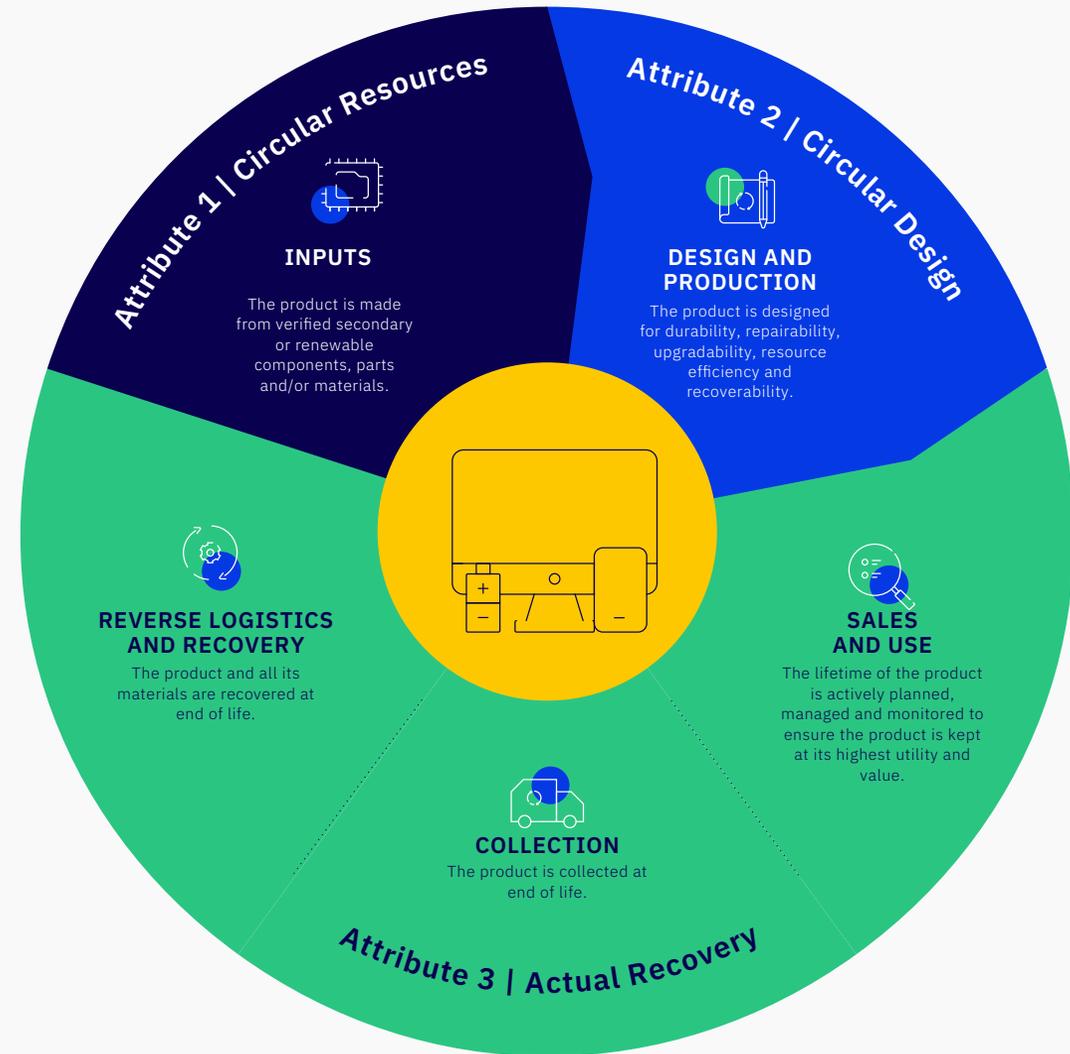
↑ Box 6: Circular Electronics Partnership Roadmap Towards a Circular Electronics Industry



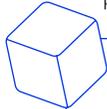
After development of the roadmap, the CEP next published the [CEP Circular electronics system map](#) defining a product to be circular if the following three attributes apply:

1. The product is made from verified **circular resources**.
2. The product has **circular design** for use-phase optimization and material recovery.
3. The product-use phase is optimized, and **recovery** of materials happens at end-of-life.

These three attributes are shown in Figure 4. Procurement processes in this guide provide approaches, tools and methods for public procurement to contribute to these attributes and circular systems.



↑ Figure 4: Definition of a circular electronic product (source/adapted from [CEP, 2022](#))



The Global Electronics Council (GEC) is also a key contributor to the circular agenda (see Box 7) and has produced purchaser guidance on circularity.

GLOBAL ELECTRONICS COUNCIL PURCHASER GUIDE FOR CIRCULARITY

The [GEC Purchaser Guide for Circularity](#) provides guidance on the specific attributes a purchaser shall look for or could require in order to procure more sustainable and circular ICT products and services. The guide provides examples of procurement questions and associated supporting documentation for use by purchasers within the procurement process.

It also provides a resource to solicit information from vendors about the circularity of their products and their contribution and aspirations in promoting a circular economy, spanning from market assessment and supplier qualifications to request for proposals and tenders. Purchasers can use the procurement questions to engage in dialogue with their suppliers, develop preferences or requirements, and evaluate their supplier base.

↑ Box 7: Global Electronics Council Purchaser Commitment

Recommendation ITU-T L.1061 ([see Box 2](#)) outlines practices for public procurement to support the transition to a circular and sustainable ICT sector. Figure 5 outlines how a successful circular and sustainable procurement of ICT could look. Combining the circular and sustainable elements of public procurement can result in ICTs with closed energy and material loops within supply chains while minimizing, and in the best case avoiding, negative environmental impacts and waste creation across the whole life cycle. Public procurement can also support the formalisation of the e-waste sector, creating jobs and stimulating a market for compensation schemes.



WHAT DOES CIRCULAR AND SUSTAINABLE ICT LOOK LIKE?

PRODUCTS AND SERVICES THAT:

 <i>are energy efficient</i>	 <i>minimize the use of natural resources or have reduced environmental impacts throughout their life cycle</i>
 <i>use renewable energy sources in the production process</i>	 <i>are made from recycled materials</i>
 <i>reduce water consumption in the manufacturing process</i>	 <i>can be easily repaired, maintained, or upgraded, thereby increasing their life cycle</i>
 <i>contain less toxic materials</i>	 <i>allow the software to be updated for an extended period</i>
 <i>have a longer life cycle</i>	 <i>were produced with decent working conditions in the whole supply chain, including end-of-life</i>
 <i>can be recycled</i>	 <i>a take-back system is in place at end-of-use and end-of-life</i>
 <i>minimize or eliminate packaging or with a provision for packaging take-back</i>	 <i>See more on the EU report on ICT Standardisation supporting Circular Economy at this link.</i>

↑ Figure 5: Key features of circular and sustainable ICT

The next section focuses a little deeper on the specific sectoral drivers for circular and sustainable ICT procurement.



2.2 Drivers of circular and sustainable ICT procurement

Sustainable public procurement can be seen as a driver of SDG 12 on Sustainable Consumption and Production, and in turn, SDG 12 has a cross-cutting role for all sustainable development. The products and services that governments buy matter, and this is the same for the ICT sector. A non-exhaustive snapshot of other drivers of circular and sustainable ICT procurement are outlined here.

Reducing supply chain risks

Global ICT supply chains are some of the most complex of any sector, which can be a risk for public buyers. If a supplier is associated with an organization with bad practices like child labour or pollution, the [reputation](#) of the procuring organization can also be impacted. Sustainable procurement approaches often involve identifying supply chain risks and promoting data and information transparency ([see section 5.3.1](#)). Developing circular and sustainable procurement practices also future-proofs against scarcity in supply and changes in social, economic, and environmental factors.

Become a sustainable digital administration

Sustainable digital government services operate in a sector that is vital for fostering economic growth, developing the digital economy, and promoting trust in government and other public institutions. Citizens can understand that sustainability can improve public services and increase their health and quality of life.

Stimulate circular and sustainable innovation

Circular and sustainable ICT procurement encourages innovation and more efficient use of natural resources. Public buyers can use their influence to shape markets and set standards, create new markets for circular and sustainable products, and act as lead customers for innovative and sustainable ICT products, services, and circular approaches.

New ways of specifying and awarding public contracts can increase the quality of public services and positively impact access to ICTs for citizens. Governments can also push suppliers towards new models such as lease, takeback, and IT as a service – all circular approaches that complement other innovative approaches, such as the [GovStack Sandbox](#). Circular ICT is still niche in most regions, so the demand from big spenders such as governments and other public authorities is required to boost the sector.



INNOVATION FOR CIRCULAR CONSTRUCTION OF A DATA CENTRE, HELSINKI, FINLAND

To control infrastructure development and reduce natural resource use, Helsinki took a circular approach to data centre construction by repurposing pre-existing underground tunnels and caverns. An empty Second World War bomb shelter made of granite beneath the Uspenski Orthodox Cathedral was repurposed by a Finnish information technology company, Academica, and Helsingin Energia, an energy company owned by the City of Helsinki. Academica has installed a 2-megawatt data server 30 metres below the Cathedral – in this former bomb shelter – and sources cold water from the Baltic Sea to cool servers. Rather than returning the hot water to the sea, it is transferred via a separate pipe network of desalinated water and pumped into an underground tunnel network to the district heating system for which these underground tunnels were initially built. This transfer of excess heat is used for heating 500 homes in Helsinki. After the heat extraction, the water is recycled to cool the servers again.

Read the entire case study [here](#).

↑ [Case Study 1: Innovation for circular construction of a data centre, Helsinki, Finland](#)



Make ICT procurement part of the solution, not part of the problem

If there are no changes to how procurement is done, there cannot be an expectation of change within the societies or economies that the procurement is serving. Business as usual in public procurement of ICTs can reinforce unsustainable growth of ICTs, putting pressure on energy systems and resources globally. For instance, increased demand for cloud services also encourages the expansion of energy-intensive data centres.

Procurement can help create sustainable ICT solutions by paying attention to all stages of an ICT product or service value chain. For example, the energy use of ICT products during operation is only a small part of the overall footprint, with most of the impact coming from the embodied carbon and other resource-intensive production phases.

GovStack and the importance of software for circular and sustainable ICTs

Circularity and sustainability also apply to the software development side of ICT procurement. Reducing and reusing code and networks can cut costs, optimize resources, and avoid waste and risks. However, budget constraints, low coordination, and siloed digitalization programmes prevent public authorities from keeping up with digitalization trends. This has sustainability implications while slowing development periods, increasing costs, and increasing investment risks.

GovStack solves these problems by developing specifications for reusable software components called “building blocks” that can be used to support design in various e-government services. Reusing the same components in multiple government e-services, instead of constantly reinventing the wheel, reduces cost, opens digital siloes, and makes coordination easier ([see Box 1](#) for more information on GovStack).

2.3 Challenges and considerations

Understanding the challenges and typical barriers governments face in setting up sustainable procurement will help create policies, strategies, and processes.

Challenges at the policy level can include:

- lack of policy-maker and other leadership awareness of sustainability issues and impacts in ICT value chains;
- no clear definition of circular and sustainable ICT procurement;
- lack of relevant applicable laws and regulations to provide backing for circular and sustainable approaches to procurement;
- procurement practitioners not understanding or using applicable laws, regulations.

Challenges at the procurement and contract level include:

- no resources or knowledge to explore the (possible) impacts of essential ICT purchases;
- no knowledge of good supplier practices and potential to deliver circular and sustainable ICTs;

- small supplier pool capable of meeting sustainable demands;
- effectively communicating sustainable ambitions;
- integrating sustainability criteria into calls for tender in a way that balances competition, price, transparency, and positive outcomes;
- going beyond price as a purchasing criterion;
- no understanding of how to use ecolabels and other sustainable certifications and accreditations in procurement;
- lack of data to assess life cycles and cost of ownership;
- resources to enforce and check on contract conditions and supplier performance;
- lack of a system to capture learning and review for the next procurement cycle.

The CEP *Roadmap Towards a Circular Electronics Industry* (Box 6) is based on barriers and enablers for the circular ICT sector. It outlines how public sector procurement is a key lever for creating demand for circular products and solutions.

This guide seeks to advise and provide further resources for supporting in addressing these challenges in circular and sustainable ICT procurement.



3_POLICY AND STRATEGY

This section provides a snapshot of circular and sustainable policies and strategies relevant to procurement of ICTs. It explains how governments can set the agenda for sustainable and circular ICTs, from general compliance to good practice by:

- taking **leadership** by gathering the right supporting team, define and communicate principles and drivers, and assess the current and potential capacity for circular and sustainable ICT procurement;
- aligning **goals and targets**, including national and international contexts;
- developing a **roadmap** that brings together measurable goals, allocation of people and resources, and a timescale for implementation.

3.1 Leadership

Circular and sustainable ICT procurement needs to start with a vision and strategy that can create the conditions for procurement managers and involve responsible stakeholders. This section explores how government adoption of circular and sustainable procurement practices can be driven by leadership in several key areas by:

- identifying and bringing together people with the required expertise, commitment and influence to develop the policy;
- defining organizational principles and priorities for circular economy and sustainable development concerning ICT procurement now and in future;
- communicating the drivers of circular and sustainable ICTs with decision-makers, policy-makers, procurement managers, procurement staff, and other stakeholders, including suppliers and citizens;
- assessing procurement capacity using openly available tools or methods such as the [OECD MAPS](#) (see Box 8).



3.1.1 Gathering the team

Identify the key people and departments needed for developing an ICT procurement policy (see Figure 6).

ICT procurement is different in every organization, so asking the right questions can help build a picture of how procurement of ICTs currently looks and who needs to be engaged to shift to a circular and sustainable model. Consider questions such as:

- What government agencies or ministries are responsible for setting the agenda at the policy level?
 - » For example, perhaps engage with environmental, economic, or communications ministries is required.
- Which departments control the ICT procurement budgets?
 - » Find out who the decision-makers are and what ICT strategies exist.
- How is government ICT procurement set up?
 - » Is there a central procurement team? Or a central-led procurement structure?
 - » Is every ministry responsible for its procurement?
 - » Are there government guidelines on procurement that each different ministry must follow?
 - » Which ICT purchases (or categories of spend) are procurers responsible for?

- » Are there specialized procurement staff, and what training do they receive?
- » What are the relationships between ICT budget holders, procurement staff, and the users of ICTs?
- » Who holds the most influence within a typical procurement process?

The answers to questions like these will help uncover those colleagues in the support network with the expertise, knowledge, and experience who can contribute to creating the space for circular and sustainable ICT procurement.

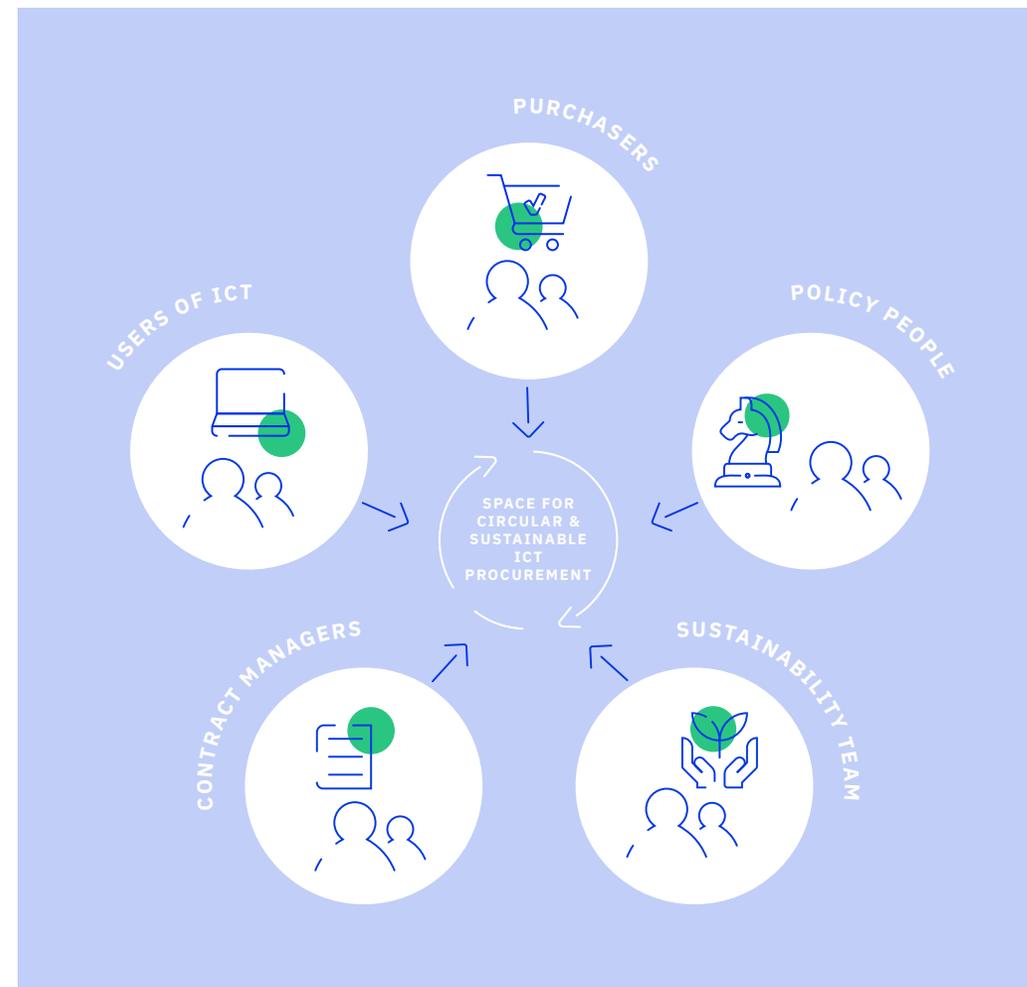


Figure 6: Creating the space for circular and sustainable ICT procurement



3.1.2 Define and communicate the foundations of circular and sustainable ICTs

What principles of the circular economy and sustainable development are a priority for ICT procurement now and in the future? What are the first issues to be tackled? ([See Box 4](#) for definitions of circular and sustainable ICTs).

Draw upon international standards, regulations, and other government work.

While covering all possible ICT sustainability impacts is complex, start by focussing on national laws and international agreements. For example, many international multilateral environmental agreements exist in areas such as waste and [chemicals of concern](#), setting some general baseline standards that can be [applied in public procurement](#). In addition, procurement can be used as a tool to enforce basic compliance.

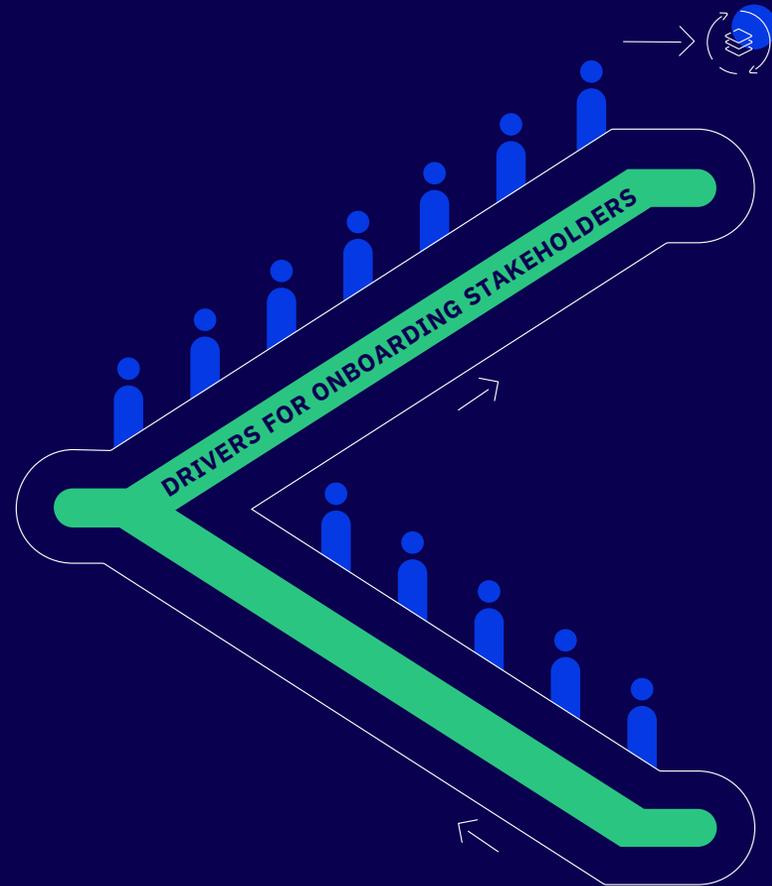
The International Labour Organization (ILO) conventions relating to sustainable and circular ICTs deal with supply chain labour and human rights considerations. Section 7.1 below contains a non-exhaustive list of international standards and regulations that could be considered when developing both policy and processes for circular and sustainable procurement of ICTs. Circular and sustainable procurement policies and processes require continuous evolution in line with regulations and standards. It is essential to keep up to date with changes to national laws and international agreements. Carrying out market research and engagement will further indicate sustainability considerations. The ICT sector is fast-moving with innovation and trends often outpacing regulations. For example, the switch to cloud computing has rapidly increase the focus on the impact of data centres and their sustainability.





3.1.3 Identify and communicate the drivers

Section 2.2 outlined the general drivers of circular and sustainable ICT procurement. As a government agency, ensuring that stakeholders are on board (including decision-makers, policy-makers, procurement managers, procurement staff and suppliers) with the new or expanded approach to circular and sustainable ICT procurement is a key task. Figure 7 shows some reasons for stakeholders to get on board.



CIRCULAR AND SUSTAINABLE ICT

- **Organizational ethics** - Sustainable and transparent procurement criteria grow ethical culture and open contracting
- **Personal leadership** - Showing committed leadership from the policy and management levels drives sustainability
- **Economic value creation** - Using Life Cycle Costing and Whole Life Cost analysis ensures that public money is used better
- **Cost optimization** - Needs assessment and circular approaches optimize resource use, minimize waste and reduce impacts
- **Supplier commitment** enhanced supplier relationships by closer working and new contract management methods
- **Procurer upskilling** - New skill sets can attract, retain and motivate staff, and improve productivity
- **Supply chain security** circular and sustainable models can create more secure value chains and reduce disruption
- **Risk management** - Ensure the reputation of the government by distancing from malpractice
- **Public policy goals** - Circular and sustainable approaches can increase efficient management and use of public resources
- **Meet international legislation** - Increase compliance throughout the supply chain for environmental and social standards
- **Stimulate supplier innovation** new sustainable approaches which could feed into other economic areas
- **Societal and stakeholder culture shifts** responding to citizen expectations for sustainability (the “Greta effect”)

↑ Figure 7: Drivers for onboarding stakeholders to circular and sustainable ICT



Communicate the drivers and benefits of procurement with the media and the general public as much as possible (see Case Study 12).

Circular and sustainable ICT procurement approaches can generate multiple benefits in some cases. For example, energy-efficient desktop computer procurement with reuse for social projects in the contract conditions would save money and CO₂ while also creating a community benefit.

Sometimes a trade-off might exist between benefits in one category and costs in another. For example, energy-saving features might reduce the life cycle cost, but a socially responsible labour approach, where people in the supply chain have fair working conditions, could increase the price.

Procurement teams have the difficult task of evaluating and managing these trade-offs. Effective leadership in creating a circular and sustainable ICT procurement policy takes this beyond an ad-hoc practice. Instead, circular and sustainable ICT procurement must be supported, monitored, and improved over time.

Information sharing through media and other influential stakeholders can help to justify using more resources for sustainability and reduces criticism of procuring a more expensive but sustainable option.

3.1.4 Assess current and potential capacity

Identify procurement capacity and knowledge of sustainability to define a starting point or baseline.

It is important to know current capacity and the potential for improvement when developing a realistic strategy for circular and sustainable ICT procurement. Several tools are openly available for this process, including, for example, the OECD MAPS method (see Box 8).

OECD METHODOLOGY FOR ASSESSING PROCUREMENT SYSTEMS (MAPS)

MAPS is a tool that assesses public procurement systems in their entirety. By showing what works and what does not, MAPS can support more efficient reforms for better public procurement systems. The method has been used in dozens of countries worldwide, for example, supporting the Government of Argentina in its sustainable procurement development.

MAPS is organized around four pillars:

- (I) Legislative, Regulatory, and Policy Framework;
- (II) Institutional Framework and Management Capacity;
- (III) Procurement Operations and Market Practices; and
- (IV) Accountability, Integrity, and Transparency of the Public Procurement System.

Find out more at this [link](#).

↑ Box 8: OECD Methodology for Assessing Procurement Systems (MAPS)



Methodologies such as MAPS can also help to uncover the national or regional market conditions – what can suppliers offer in terms of circular and sustainable products? The UNEP market readiness assessment also includes elements that could be applied the ICT sector (Table 1). For example, the UNEP market readiness methodology recommends to reach out to key actors from the national register of companies, such as manufacturers, resellers, accreditation/ verification bodies, or those managing certifications and labels.

 RESEARCH METHODS	 MARKET READINESS ANALYSES - SUGGESTED OUTLINE
<p>INTERVIEWS</p> <p>QUESTIONNAIRE-BASED SURVEY (BY E-MAIL, ONLINE, TELEPHONE INTERVIEW, VISITS)</p> <p>EXAMINATION OF RECORDS OF CERTIFICATIONS, ECOLABELS AND STANDARDS</p> <p>REVIEW OF PUBLIC INFORMATION ABOUT THE IDENTIFIED PRODUCT GROUPS</p>	<p>Priority goods and services</p> <ul style="list-style-type: none"> • ICT sector eco-labels, criteria based on these eco-labels and already established circular and sustainable procurement criteria in country or surrounding region. • Instruments and tools for sustainability certification or verification. • Analysis of supply. • National programmes, policies and instruments promoting circular and sustainable ICT production. • Overview of the barriers and opportunities in the ICT sector, and current and future availability of more sustainable ICT. • Economic implications (cost differential) in the acquisition of more circular and sustainable ICT throughout the life cycle. <p>Analysis of demand</p> <ul style="list-style-type: none"> • National programmes, policies and instruments promoting sustainable consumption (also including individuals or private sector). • Changes in national and/or international demand for the circular and sustainable ICT. <p>Recommendations for sustainable public procurement and contracting</p> <ul style="list-style-type: none"> • Short, medium and/or long-term actions for categories of ICT goods and services. • Sustainability clauses for inclusion in procurements that push the market. <p><i>Adapted for ICTs: original version in UNEP Sustainable Public Procurement Implementation Guidelines.</i></p>

↑ Table 1: UNEP market readiness method



It is also vital to support and promote circularity and sustainability within the national ICT market. If supplier knowledge of the concepts is raised, they

will be capable of bidding for tenders with increased availability of circular and sustainable products. [See also section 5.1.7.](#)



MARKET READINESS ANALYSIS IN COLOMBIA

The Colombia National Agency for Public Procurement - Colombia Compra Eficiente ([ANCP - CCE](#)) is the governing body for public procurement. Its objective is to develop and promote public policies and tools for state procurement and contracting processes, in order to generate greater efficiency, transparency, and optimization of State resources.

ANCP – CCE created the [Guidance for the Preparation of Sector Studies](#) to establish the context of the procurement process, identifying some of the risks and determining the enabling requirements.

The Colombian national focal organization for sustainable public procurement [stated](#), “Market Readiness Analysis is considered essential for the proper development of sustainable public procurement (SPP), as it is a matter of supply and demand, so it is necessary to have permanent direct contact with bidders to encourage greater supply. If an in-depth market study is not done, the SPP strategy may not apply if there is no supply, and thus the strategy itself will lose credibility.”

← Case Study 2: Market readiness analysis in Colombia

3.2 Aligning policies and strategies

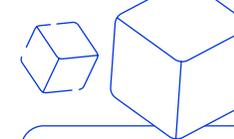
Non-procurement specific policies and strategies for a circular and sustainable economy can also be used for developing ICT procurement. Linking any circular and sustainable procurement plans to other goals and policies can not only provide legislative and policy backing, but also motivate procurers and reduce perceived risk of new approaches.

3.2.1 Understand the context for policy and strategy

Understand how ICT supply chains work at both national and global level.

It is essential to know how ICTs are currently supplied, the sources of products, and who are selling them. It is also important to explore industry standards and practices and how public procurement could support the initial development or expansion of circular systems that keep ICT products in the loop. For example, the [Circular Electronics System Map](#) outlines some of the enablers necessary for working towards a circular electronics system.

Understanding the context for the policy and strategy can also assist in making sure it is contributing to the sustainability goals intended. This knowledge helps to link procurement processes to the policy outcomes. Using international standards, such as the ISO 20400 (see Box 9) and ITU standards and recommendations will help to understand what circular and sustainable ICT procurement policy and strategy should include.



SUSTAINABLE PROCUREMENT: WHAT IS ISO 20400?

The International Organization for Standardization (ISO) produces guidance on sustainable procurement:

- defines sustainable procurement;
- explains what the sustainability impacts and considerations are across the different aspects of the procurement activity: policy, strategy, organization, process; and
- explains how to implement sustainable procurement practically.

This applies to any organization, regardless of its sector, size, location, and any stakeholder involved in or impacted by procurement decisions and processes. However, the ISO 20400 standard does not replace legislation, policy, or ethical frameworks regulating procurement activities. Find out more [here](#).

↑ Box 9: ISO 20400 guidance standard on sustainable procurement

The [CFIT Framework for Circular and Fair ICT Procurement](#) offers a study of the adverse impacts of ICT and strategies for government to address them and provides another useful resource for understanding the context of sustainable ICT procurement policy and strategy.



3.2.2 Link legislation and policy to approaches and processes

Create more tangible policies, strategies, priorities, and targets.

Global sustainability issues and policies can seem abstract and distant for many procurers (or staff tasked with procurement) who may not be sustainability experts. The more tangible policies, strategies, priorities and targets are, the easier it will be to apply circular and sustainable criteria to an ICT tender, for example, by defining the percentage of public ICT purchases that have to be dedicated to circularity or sustainability. Some technical work will be required to define and measure what this means, but it can create strong institutional incentives.

The [GEC Purchaser Guide for Circularity](#) can help to identify attributes, supporting documentation, possible targets and outcomes on product attributes for circularity or supplier practices. The SAICM Secretariat guide to [Sustainable Procurement of Electronics](#) also provides valuable background to outcomes on chemicals of concern in ICTs for circular electronics.

Table 2 shows how this could be achieved with the example of key recommendations from [Recommendation ITU-T L.1061](#) converted into tangible procurement policies or targets. Consider also what a best circular and sustainable outcome could be from the policy or target, so procurement teams know what their approaches should aim towards. Case Study 3 also shows how linking goals and outcomes with technical guidance can be effective.

RECOMMENDATIONS FROM ITU-T L.1061	PROCUREMENT POLICY OR TARGET	CIRCULAR AND SUSTAINABLE OUTCOME
 Government has an e-waste management policy in place.	→ All procurement includes criteria on waste neutrality or waste compensation in specifications or award criteria (e.g., TCO Certified Edge).	For each certified product manufactured, the IT brand must ensure that an equivalent amount of e-waste is collected and recycled.
 Restriction of hazardous substances in products.	→ All ICT procurement covers minimum standards for products containing hazardous substances.	No acquired ICT products contain hazardous substances.
 Energy reduction and high performance.	→ 100% of new electronic office equipment is energy efficient (e.g., Energy Star label , EPEAT).	Reduced energy consumption and LCC during the use phase.
 Product design for maximizing recycling, repair, reuse, and upgrade.	→ X% of ICT equipment should be repurposed in line with circular economy principles.	All ICT is either repurposed or recycled.
 Transparency and reporting of product data for more informed decision making.	→ Product data sheets or digital product passports (where available) will be specified for all ICT.	Increased accountability of materials, manufacturing processes and locations, and circularity.
 Due diligence on social and environmental risks.	→ All procurement will include requests for supplier risks assessments.	Reduced supply chain risks and uncertainties.

↑ Table 2: Examples of using ITU-T L.1061 for procurement policies or targets



THE CITY OF BARCELONA OUTLINES PRIORITIES FOR ICT EQUIPMENT

To support a consistent circular and sustainable approach to ICTs, the City of Barcelona technical procurement instructions for ICT priorities outlines various commitments to environmental protection, climate change, and energy savings.

When procuring, criteria must be established to:

- reduce the energy consumption linked to equipment use;
- reduce all emissions (sound, electromagnetic, harmful substances, etc.) that might affect the environment or human health;
- minimize the impact of waste, in particular from consumables, encouraging reuse and recycling as far as possible.

This approach links the guidance with specific goals and outcomes.

[Find out more.](#)

All agencies and public authorities can set targets and share plans for circular and sustainable ICT procurement. In addition, there may be opportunities for joint actions, such as training, market engagement, and framework contracts.

[↑ Case Study 3: The City of Barcelona outlines priorities for ICT equipment](#)



3.3 Planning and implementation

Work on a plan or roadmap that is relevant to the national or regional context.

The OECD [Recommendation of the Council on Public Procurement](#) advises that countries develop an appropriate plan for integrating secondary policy objectives, such as sustainable development, in public procurement systems.

Those governments already more advanced in circular and sustainable procurement of ICTs all started with primary appropriate aims and actions (roadmaps) and evolved the approaches from there.

A roadmap should ideally contain the following:

- the ICT link to any political commitment to circular and sustainable procurement;
- identification of the stakeholders involved;
- assigned responsibilities;
- breakdown of available resources;
- description of implementation measures and procedures;
- progress indicators;
- a realistic time frame.

IMPLEMENTATION PLANNING

The action plan serves as a guiding example to suggest strategies. Use it as a starting point and adjust and customize it as needed.



1 ACTION PLAN *the first 3-5 years*

A first action plan could include:

- Training and methods to help procurers to understand sustainability concepts, outcomes, and impacts.
- Methods to promote circular and sustainable products as an option for key and influential procurement staff and government agencies and departments.
- Some of the possible ways to ensure suppliers can comply with basic demands.
- An introduction to credible international ecolabels and standards such as Energy Star, EPEAT, TCO Certified, and others should be carried out here.
- Set modest targets for % of circular and sustainable ICT procurement and set up a monitoring system (and ownership).



2 ACTION PLAN *the following 3-5 years*

The action plan will increase awareness beyond basic circular and sustainability issues:

- Upskill procurers towards influencing the ICT market to offer more transparency of supply chains and address deeper social and environmental issues.
- Introduce other international certifications, and explore the creation of national criteria standards and certifications.
- Increase % of circular and sustainable ICT procurement and explore other more specific targets for doing so.
- Integrate the monitoring system for sustainable and circular procurement into other procurement systems.



3 ACTION PLAN *the next 3-5 years*

A more advanced action plan adds comprehensive strategies for long-term impact

- Can expand upon policy instruments, including eco-labeling and certification.
- The new goal is to increase the purchase of sustainable and circular ICT products in the public sector, with a target of 100% of all ICT.



IMPLEMENTING A PLAN FOR SUSTAINABLE PROCUREMENT IN THE BASQUE GOVERNMENT (SPAIN)

The Green Public Procurement Programme of the Basque Country 2020 (covering the period 2016-2020) used a participatory development process involving all levels of the public sector of the Basque autonomous community in northern Spain. It had three over-arching goals: i) Contribute to a more efficient administration and use of resources; ii) Optimize coordination with the market, stimulating eco-innovation of Basque companies; and iii) Ensure that the Basque Country is a benchmark in Southern Europe.

It set two voluntary objectives to achieve this:

1. Institutionalizing green public procurement (GPP) in the various participating public administrations through:
 - Leadership: Appointment of a manager tasked with leading and coordinating the GPP actions in the administration.
 - Planning: Defining an annual work plan in the priority groups of the programme.
 - Integration: Analysing and integrating GPP into procurement procedures and tools existing in the administration.
 - Training: Increasing the number of contracting staff trained in GPP.
 - Measurement: Monitoring the degree of 'greening' of procurement.
2. To achieve a degree of greening in public procurement of 50 per cent by 2020.
 - Measured by the inclusion of sustainable criteria in 50 per cent of tenders for more than 20 priority groups, including computers and imaging equipment.

The Basque Government approach was led by a 'Driver Group', which meets annually and was tasked with coordinating the deployment of the program in five strategic areas:

1. **Content and tools for implementation** includes criteria and needs assessment, market engagement, and piloting new approaches (such as eco-innovation, life cycle costing, and circular procurement).
2. **Integration into procurement processes, procedures, and tools** to identify and establish mechanisms to enable integration of environmental aspects/requirements into existing procurement tools.
3. **Awareness raising and capacity building** that aims to train managers across the administration about the benefits and how-to of environmentally responsible procurement.
4. **Coordination with the market** to mobilize the private sector and actively involve it in public procurement processes to increase sustainable capacity.
5. **Communication, dissemination, and networking** to publish and promote results annually and actively participating in other networking activities.

The GPP 2020 Programme included a monitoring and result measurement system, which tracked the degree to which each objective was implemented.

Read the full case study [here](#).

[↑ Case Study 4: Implementing a plan for sustainable procurement in the Basque Government](#)



A non-exhaustive list of resources for further information and guidance

RESOURCES	POLICY AND STRATEGY SUBTOPICS		
	LEADERSHIP	ALIGNING GOALS AND TARGETS	IMPLEMENTATION PLANNING
Second Edition of UNEP Sustainable Public Procurement Guidelines	✔	✔	✔
OECD: Methodology for Assessing Procurement Systems (MAPS)	✔	✔	✔
UNOPS Sustainable Procurement Framework			✔
Circular Procurement in 8 Steps (Copper8)	✔	✔	✔
The Procura+ Manual: A Guide to Implementing Sustainable Procurement (ICLEI)	✔	✔	✔
Implementing Sustainable Procurement in Latin America and the Caribbean, IISD (in Spanish)		✔	✔
OECD Innovation playbook (OECD)	✔	✔	✔
Manual de Compras Públicas Sustentables 2017, Government of Argentina (in Spanish)	✔	✔	✔
Promotion of the implementation of sustainable public procurement in Costa Rica Final report (in Spanish)	✔	✔	✔
A toolkit on human rights for policymakers and public buyers, The Danish Institute for Human Rights	✔	✔	✔
Galvanizing Action: Strategies to Maximize Engagement in Sustainable Public Purchasing, Sustainable Purchasing Leadership Council (SPLC)	✔		
GPP Training Toolkit, European Commission		✔	✔
Circular Electronics System Map, CEP		✔	
GEC Circularity Purchaser Guide, GEC		✔	✔
Examples of Sustainable Purchasing Policy and EPEAT Specific Policy Language, GEC	✔	✔	
Action Agenda for Circular Electronics, PACE	✔	✔	
CFIT Framework for Circular and Fair ICT Procurement, CFIT		✔	✔

↑ Table 3: Further resources for policy and strategy



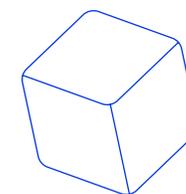
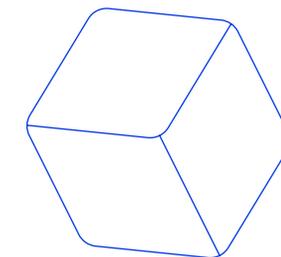
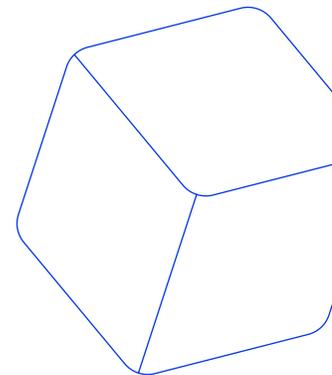
Checklist



POLICY AND STRATEGY

- ✓ Develop a circular and sustainable ICT policy based on organizational and stakeholder defined principles and priorities.
- ✓ Identify and communicate the drivers of circular and sustainable ICT to build awareness and support for the approach.
- ✓ Measure procurement capacity using openly available tools or methods.
- ✓ Review how ICT is currently supplied, and explore industry standards and practices happening already.
- ✓ Consider strategies, priorities, and targets that can link circular and sustainable ICT policy to procurement processes.
- ✓ Create a plan or roadmap to bring together policy, responsibilities, resources, new processes, progress indicators and a time frame for action.

↑ Figure 8: Policy and Strategy checklist





4_CREATING THE CONDITIONS

Policies and plans for circular and sustainable ICT procurement require the right conditions to make them happen on the ground. This section covers some practical steps for capacity building and enabling circular and sustainable ICT procurement within government agencies, other procuring authorities, and other stakeholders such as suppliers, including how to:

- **manage governance** of circular and sustainable ICT procurement by connecting goals, processes, and impacts;
- **set priorities** for product and service sectors, as well as categories and outcomes;
- **engage stakeholders** through networks, e-procurement systems, and other sources of circular and sustainable ICT procurement knowledge.

4.1 Managing governance

Circular and sustainable procurement governance should link procurement regulations, policies, and strategies to the procurement processes that will happen 'on the ground'. Governance includes ensuring all relevant stakeholders understand where circular and sustainable procurement is placed within the legal and regulatory framework.

Steps should be taken to involve managerial and technical staff to build capacities to coordinate efficient and transparent circular and sustainable procurement processes in order to:

- clearly connect how procurement is managed and regulated with sustainability issues and impacts;
- use systems, processes, and controls to support circular and sustainable procurement of ICTs;
- explore how ecolabels could be used to boost the circular and sustainable ICT market.

4.1.1 Connect procurement management to sustainability

If a plan or roadmap for circular and sustainable ICTs contains policies, strategies, and processes, look at how this can be embedded across the whole organization or in key government departments. Work done for ISO 20400 (see Box 9), for example, will identify the gaps and areas required to connect implementation to policy. Furthermore, if enacting aspects of Recommendation ITU-T L.1061, consider also how current approaches to ICT procurement might prevent circular and sustainable outcomes. Bring together key stakeholders and ask questions (Figure 9) that will help to make the connections between circular and sustainable procurement policy and opportunities.

KEY QUESTIONS FOR PLANNING CIRCULAR AND SUSTAINABLE PROCUREMENT

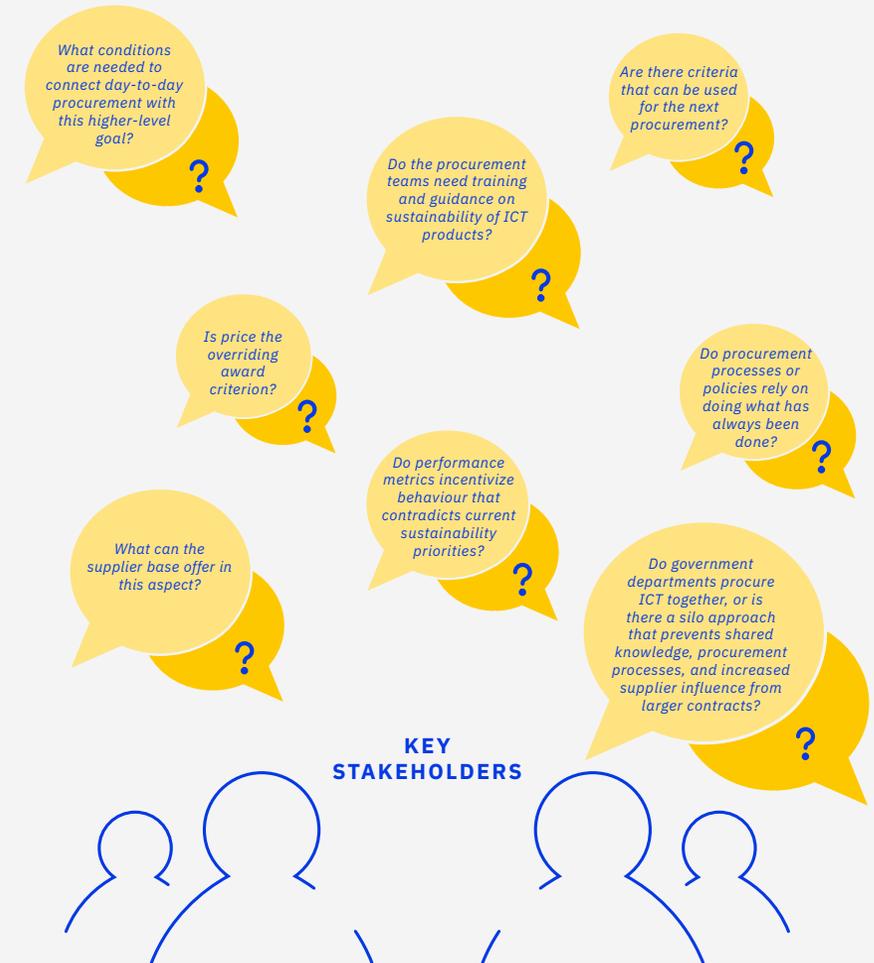


Figure 9: Key questions for planning circular and sustainable procurement



Taking a step back and looking at how procurement is done can effectively clear any blockages to enacting the circular and sustainable ICT policy.



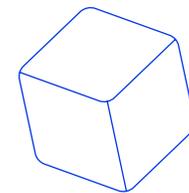
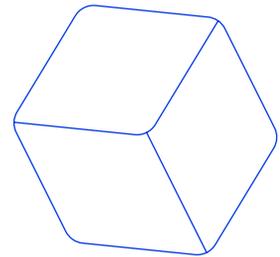
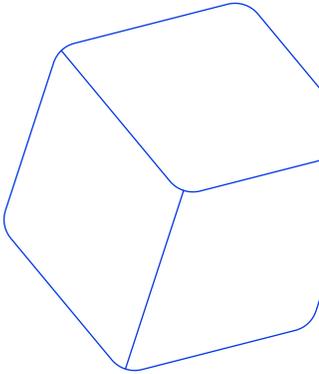
CONNECTING CIRCULAR AND SUSTAINABLE POLICY WITH PROCUREMENT IN THE CITY OF NANTES, FRANCE

The Responsible Purchasing Promotion Scheme (RPPS) of the City of Nantes, France, links public policy on energy and environmental transition to public procurement. Action sheets for staff outline 11 areas of public policy being targeted and the achievements to date. They also set the strategic direction and operational targets for incorporating policy goals into procurement and set performance targets to be achieved. For example, the circular economy action sheet sets out the related policy framework (e.g., policy on waste prevention and management), provides information about the strategic direction (e.g., eco-design), and presents operational targets.

At the technical level, the public procurement team works jointly with a network of corporate social responsibility (CSR) ambassadors in each department. This approach supports integrating social and environmental clauses into their purchasing and evaluating the quality of the offers in this field. A CSR committee is the ‘political authority’ responsible for setting, improving, reviewing, and assessing the general guidelines of the RPPS. Each specific target or issue related to SPP – energy, circular economy, social inclusion - is monitored by one project officer within the department in charge of the public policy concerned. The public procurement department coordinates the whole project.

Find out more [here](#).

[↑](#) **Case Study 5: Connecting circular and sustainable policy with procurement in the City of Nantes, France**





4.1.2 Systems, processes and controls

Use e-procurement and other systems to stimulate circular and sustainable ICT procurement.

E-Procurement systems can be used as an end-to-end process that goes beyond just moving to electronic tools. E-procurement can change the way circular and sustainable ICT procurement is done at various pre-award and post-award phases:

- pre-procurement stage, capturing needs assessment and e-design of circular and sustainable procurement specifications, criteria, and clauses;
- tendering stage, including e-purchasing, e-noticing, and e-submission; and
- execution stages, such as e-decision, e-contract management, and e-evaluation.

E-procurement also allows for integrating data-based approaches at various stages of the procurement process, which can provide enhanced knowledge, planning, and reporting. Such systems can also be used to track and report how much procurement incorporates circular and sustainable criteria. E-procurement is not just about presenting opportunities to tender or making transactions online. There are also e-procurement systems that can support decision-making, optimize processes and improve data management for sustainable and circular outcomes.



DRIVING SUSTAINABLE AND CIRCULAR SOLUTIONS USING THE GEM PORTAL IN INDIA

In 2016, the Government of India set up the Government e-Market Place (GeM) for digital procurement aimed at streamlining processes, promoting transparency, and supporting sustainable development. Procurement on the GeM was authorized by making necessary changes in government rules, leading to more than 7 400 products and services in 150 categories available on the [GeM POC portal](#). The GeM promotes green procurement by targeting and prioritizing the listing and availability of environmentally sustainable products and services, with filters to help government buyers identify sustainable options. The GeM continues to develop further 'green' product and service categories in partnership with UN Environment, [The Energy and Resource Institute](#), and other Indian and global agencies. The GeM has also expanded into circular solutions, promoting reuse, recycling, and green buying through a forward auction option, which allows government organizations to auction away fully depreciated or obsolete assets. The buyback option is presently available in over 37 product categories.

Read more about the technical development and wider applications of GeM in the U4SSC procurement guidelines for smart sustainable cities [here](#).

Visit the GeM website [here](#).

↑ Case Study 6: Driving sustainable and circular solutions using the GeM Portal in India

Centralizing the possible approaches in a portal also gives procurers a place to find resources. Many governments have created platforms with procurement criteria, standards, and other information ([see Table 8](#) for a list of such databases).

It also reduces risk perceptions of sustainable approaches by providing case studies and examples of it working in practice.



SUSTAINABLE PROCUREMENT SEARCH TOOL FOR ICTS AND DATA CENTRES IN IRELAND

Ireland's Office of Government Procurement (OGP) launched an [online search tool](#) to help users quickly find, select and download Green Public Procurement criteria for goods and services. The tool provides criteria for sustainable ICTs, and data centres and related services. This search tool was developed in collaboration with the Environmental Protection Agency (EPA) and the Department of the Environment, Climate, and Communications.

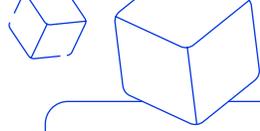
↑ Case Study 7: Sustainable procurement search tool for ICTs and data centres in Ireland



4.1.3 Using ecolabels

Ecolabels are an effective tool to verify and communicate sustainable and circular credentials of ICT products to consumers. Ecolabels can also be an instrument for procurers to identify if a producer or bidder complies with circular and sustainable requirements.

The benefits for procurers are that using a specific ecolabel can be more straightforward to check. More important, however, is that the product or producer fulfils the relevant criteria, so there is circular and sustainable benefit when a specific product is purchased compared to a product that does not meet the criteria. Fulfilment can be proven either by a certificate from a label body or by a laboratory or third-party auditor.



FINDING AND USING CREDIBLE LABELS

Many ICT products will try to claim green, social and circular credentials, but knowing which labels to trust is tricky, given the suite of options and limited evidence of benefits.

International standards for environmental labels are set by ISO:

- [ISO 14020:2000](#) Environmental labels and declarations. General principles.
- [ISO 14024:1999](#) Type I - third party verified, multicriteria.
- [ISO 14021:2016](#) Type II - self-declared environmental claims.
- [ISO 14025:2006](#) Type III - environmental product declarations.

[EPEAT](#) and [TCO](#) recommend to look for a Type I label that complies with the principles of ISO 14024.

- Is the labelling program voluntary?
- Do standards address multiple environmental criteria over the life cycle of a product or service?
- Are standards published, openly available, and transparent?
- Have the label criteria been independently verified?

The [Global Ecolabelling Network](#) has a [set of common core criteria](#) to assist with balancing standards across the world.

The [US EPA applies a four-step framework](#) before recommending labels to federal purchasing departments, assessing:

1. Environmental effectiveness.
2. The process of product evaluation.
3. Conformality assessment process.
4. Use of ecolabel governance in the marketplace.

↑ Box 10: Finding and using credible labels



Considerations when using labels

Supplier resources

Ecolabels often come with costs for suppliers, and multinational companies might not be interested in applying for national or regional labels. It can also be a risk for the procurer as it might limit the number of companies joining the tender. Finally, there is the risk of a break of national competition law if producers are excluded from bids because they do not have a label but otherwise fulfil all the requested criteria.

Using existing ecolabels to develop relevant criteria is one approach to strengthening regional standards. Compliance with the criteria can be shown by ecolabels or equivalent standards or evidence but need not be a mandatory condition.

[The EU GPP criteria](#), for example, first define the criterion and then describe how to verify compliance. Verification could come from a test report from an accredited laboratory or ecolabel. This approach benefits the holder of an ecolabel when bidding but enables other suppliers to provide alternative evidence of compliance with the same standards.

Creating labels

Many governments choose to directly create or fund the creation of national, regional or global ecolabels so that they have a standard that is relevant to their context, recognizable by both buyers and suppliers, and can be referred to in procurement policies and standards.

For example, the [EPEAT](#) (a global ecolabel for the IT sector) was initially developed using a grant from [US EPA](#) and is now owned and managed by the non-profit, the [Global Electronics Council \(GEC\)](#).

The creation of new ecolabels should be carefully considered, however. While they can bring a consistent and recognisable standard for a country or region, many ecolabels already exist for ICT sectors and product categories. Ecolabels are a simple way to evaluate their products credibly and uniformly against sustainability standards rather than having to meet various procurement criteria. The more labels that exist, the less consistency in procurement approaches for manufacturers and suppliers to deal with when complying. This scenario could weaken the ability of manufacturers to keep circular solutions universal.

Using existing ecolabels to develop relevant criteria is one approach to strengthening regional standards. Compliance with the criteria can be shown by ecolabels or equivalent standards or evidence but need not be a mandatory condition.

The [EU GPP criteria](#), for example, first define the criterion and then describe how to verify compliance. Verification could come from a test report from an accredited lab or ecolabel. This approach benefits the holder of an ecolabel when bidding but enables other suppliers to provide alternative evidence of compliance with the same standards.



COSTA RICA DEVELOPS NATIONAL ECOLABELS

Costa Rica launched the National Environmental Labelling and Energy Efficiency Program in 2019 to encourage sustainable production and consumption and support public authorities to procure sustainably. The use of labels translates technical or scientific terms into language understandable for procurers, making selecting products with better environmental performance easier and differentiating between sustainable and other products.

The National Program sets the rules for the process of type I and type III labels in Costa Rica. To ensure that public procurers and all other consumers can use a simple and recognizable system, Costa Rica has created one national label that covers all products and services using varied criteria for the different categories. The environmental and energy labelling is supported by the National Quality System Law, the government, and the Ministry of Environment and Energy.

Upon the programme launch, expressions of interest from business sectors drove the creation of standards for cleaning products, coffee for domestic consumption, domestic refrigeration equipment, and concrete products. The country is working towards labels for ICTs that account for energy, e-waste aspects, and circularity.

To verify that all this is fulfilled, the National Quality System has an organization that verifies compliance with the above, the Costa Rican Accreditation Entity. This organization periodically evaluates the evaluators in their work to guarantee they are assessing correctly and adhering to the ISO environmental or energy labelling standards. Label operating costs are met by the Government, so businesses seeking certification do not have to pay but just meet compliance with the standards gain the label for their product or service.

Lessons learned from the process include making sure the label is branded in such a way as to make it recognizable for all products. Costa Rica followed the approach of Blue Angel or Nordic Swan, which have different product categories under one well-recognized type I label. Starting with a type I label is also less costly to set up and makes product and service comparison easier for procurers and consumers. Finally, Costa Rica also ensured a legal framework for implementation. All activities are linked to the broader sustainable production and consumption programme and associated activities such as training and guidance creation, with label technical standards available as an online tool for procurers.

↑ Case Study 8: Costa Rica develops national ecolabels



Governments also collaborate to create regional or international labels. This approach has the advantages of shared resources for developing standards and

verification, creating a more recognised label, and providing suppliers with consistency, clarity and access to multiple market opportunities.



REGIONAL COOPERATION FOR ECOLABELING IN LATIN AMERICA AND THE CARIBBEAN

The [Environmental Alliance of America](#) is the first regional initiative to develop a common ecolabeling and environmental declaration system in Latin America and the Caribbean. The ecolabel is voluntary and allows the identification of products, processes, or services that have proven to have environmental characteristics or specifications defined in national standards harmonized among different countries or in specific product category rules.

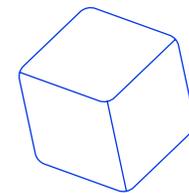
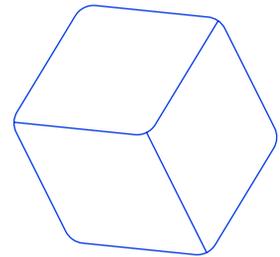
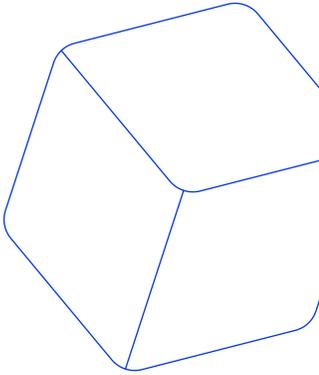
Since 2016, representatives from Colombia, Costa Rica, Mexico, and later Ecuador and Paraguay have worked together. They are creating awareness, building capacity, and improving the knowledge of accreditation bodies, standardization bodies, regulators, and certification bodies of their countries regarding life cycle analysis, carbon emission, and water footprint.

The regional ecolabelling scheme can help to give relevance to the countries as providers of sustainable products and increase the number of companies that respect sustainable practices. More sustainable national sectors can stimulate export into markets with high environmental standards, foster competitiveness, and allow companies to enter new niche markets. Finally, the alliance programmes facilitate communication with consumers (including procurers).

↑ Case Study 9: Regional cooperation for ecolabeling in Latin America and the Caribbean

[See section 5.1.5](#) to understand how national, regional, and international ecolabels for ICTs can be applied directly into a procurement process,

supporting criteria and specifications, as well as verification.





4.2 Setting goals and targets

National-level goals and targets can oblige, mandate, or encourage public authorities to follow them or set their own goals and targets for circular and sustainable ICT procurement. Openly communicated goals and targets can drive or link to political backing, demonstrate commitment to the general public and provide a framework for measuring progress.

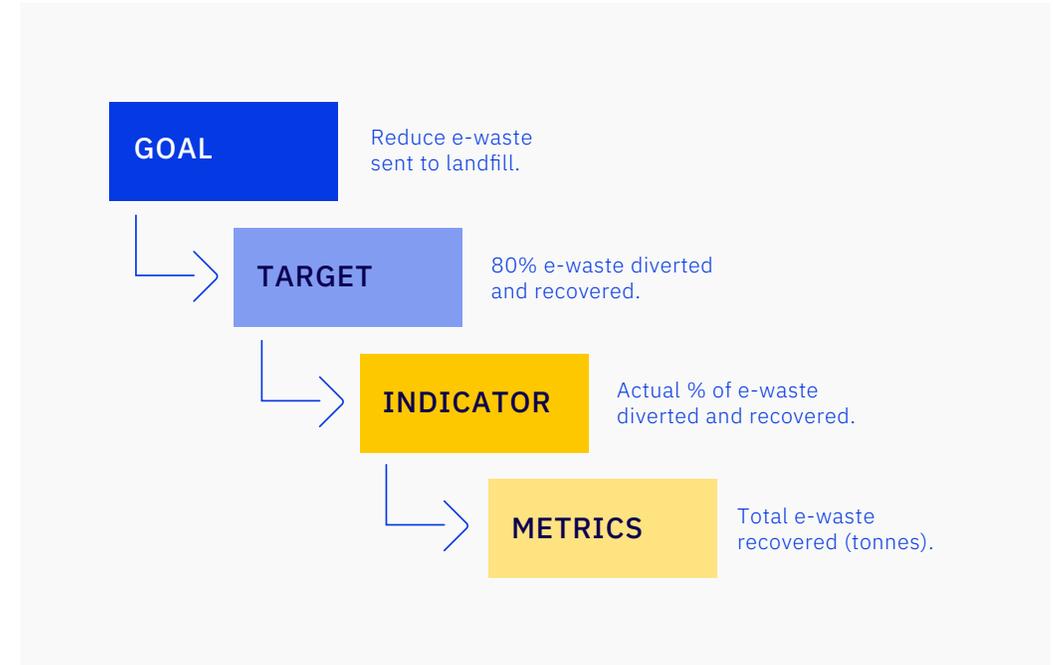
Targets are especially beneficial for governments where sustainable procurement is not yet business as usual. They can feed into the procurement processes and give the procurement teams the internal validation to do circular and sustainable ICT procurement (see Figure 10). Targets, such as 100 per cent of procurement to include green criteria, can strengthen political support to those responsible for implementation, demonstrate commitment to the general public and provide a framework for measuring progress. Goals and targets also send a powerful message to suppliers that these are the new government conditions for doing business.

4.2.1 Types of targets

Targets are not just about percentages but about the quality of the sustainable or circular outcomes from public procurement. These can include:

- **Procurement targets**, such as 100 per cent of ICT procurements to include green, social, or circular criteria.
- **Category targets**, such as X per cent recycled materials in computer hardware; or X per cent of servers decommissioned to be repurposed and reused.
- **Outcomes targets**, such as CO₂ saving figures from ICT procurement; or X number of ICT procurement staff trained in life cycle costing.

Outcomes and other targets can be used for working with the market to push them for more sustainable solutions. Fiscal incentives, such as larger budgets and performance bonuses, can be built into processes to make the targets more effective.



↑ Figure 10: Setting the conditions to measure procurement performance

Monitor circular and sustainable ICTs to evaluate progress towards goals. Specify the methods and metrics to monitor delivery and performance, to then form the feedback for moving circular and sustainable procurement forward.



The [UNEP Global Review of Sustainable Public Procurement 2017](#) found that the two most commonly used data-gathering methods for monitoring sustainable public procurement in organizations are standardized questionnaires and e-procurement platforms. The use of e-procurement

systems can enable, for example, systematic capture of more, better-quality and consistent data on sustainability, shared learning through open data and joined up systems, and the capture and use supply chain data on sustainability (see Case Study 11).



MONITORING GREEN PUBLIC PROCUREMENT (GPP) AT THE NATIONAL LEVEL IN THE REPUBLIC OF KOREA

The Republic of Korea systematically monitors GPP at the national level using three indicators:

1. The number of public organizations that submit an implementation plan and performance records.
2. The total amount of annual green procurement in economic value and units.
3. Green standards and specifications of service and construction contracts.

The online Green Products Information System (GPIS) was set up in 2005 to simplify and make monitoring and reporting more convenient. Records of GPP through the national e-procurement portal of the central procurement agency are automatically transferred to the GPIS, with additional reporting and uploading of data by purchasing authorities. About 60 per cent of the national green procurement data is automatically reported via the GPIS, significantly reducing the administrative burdens of both procurers and the KEITI in monitoring.

Coordination between the central procurement agency, the Ministry of Environment, and the [KEITI](#) helped set up an integrated monitoring system. GPP data is publicly available, and the media usually covers results in Korea, encouraging competition among public organizations. In 2013, 96.4 per cent of State agencies submitted their implementation plans and records, and 97.7 per cent of the organizations reported their performance records. Read the full case study at this [link](#).

← Case Study 10: Monitoring GPP at the national level in the Republic of Korea



MONITORING SUSTAINABLE PROCUREMENT IN FLANDERS, BELGIUM

The Government of Flanders has a 100 per cent target for sustainable procurement for product groups, including ICTs. Monitoring is one of the biggest challenges to achieving this goal. Procurement is dispersed among 640 personnel across 12 divisions and 10 locations. Everyone in the organization is a potential procurer, with small orders (< EUR 8500) comprising 96 per cent of all procurements. In early 2015, they launched an e-monitoring system to capture all procurement data. The system ensures that everyone procures through one portal containing all product categories, products, and associated sustainable procurement criteria. The Government of Flanders now knows which product and service areas to improve upon. Find out more at this [link](#).

← Case Study 11: Monitoring sustainable procurement in Flanders, Belgium

4.3 Engaging stakeholders

Support the process of capacity building by involving the main actors in procurement.

Consider getting input from those responsible for writing tender documents, evaluating tenders, and managing the contracts. This will enable concentrating on turning circular and sustainability commitments into individual responsibilities for procurement:

- Assign one or more of these responsibilities to procurement teams or roles across ministries or departments.
- Break these responsibilities down to reflect how the role of each procurer or team might contribute to achieving the objectives.

Including all stakeholders can facilitate:

- setting processes (such as annual planning and allocating responsibilities to staff) and outcome targets;
- creating process manuals and technical benchmarks;
- creating opportunities for collaboration and sharing best practice;
- training provision, advisory services, and engaging with suppliers;
- creating multiplier actions, such as centralized purchasing, and setting up pilots to test out new approaches, such as circular procurement, application of life cycle costing;
- optimizing monitoring systems to ensure greater efficiencies by integrating them into already existing platforms and tools.



CREATING THE CONDITIONS FOR SUSTAINABLE PROCUREMENT IN ARGENTINA

The [National Information Technology Office](#) (ONTI) and the National Procurement Office (ONC) of Argentina work jointly to promote circular and sustainable ICT procurement by public administrations. While there is no specific legislation for sustainable procurement of ICTs in Argentina, procurement of ICTs is guided by two overriding principles:

1. Continuous optimization of standards used for the purchase of ICT equipment to maximize technical efficiency and enhance the capacities of Government actions.
2. Identify guidelines that ensure equipment has the most extended useful life cycle and least environmental impact through sustainable and long-lasting public sector contracts.

Capacity-building activities and initiatives have been adopted since 2010 to create circular and sustainable procurement conditions.

Guidance, standards, and training

First, in 2010, sustainable technical characteristics were added to the Goods and Services Identification System (SIByS) that guides procurers. This was followed by formalizing all available information in the Single Cataloguing and Sustainability Procedure Manual in 2013. In 2015, General Recommendation Sheets for Sustainable Purchases were produced for various goods and services, providing information on sustainable certifications, technical specifications, and evaluation criteria. The ONC and the National Ministry of Environment and Sustainable Development produced a [Sustainable Public Procurement Manual](#) in 2017, with financing from the United Nations Environment Programme (UNEP). The ONC provides government officers and agents training on best practices and tools for circularity in procurement to help them find technological and sustainable solutions.

Strategy and planning

Argentina also produced a [Sustainable Consumption and Development strategy](#) carried out by the National Ministry of Environment and Sustainable Development in which the ONC participated. The strategic lines include sustainable purchasing and the circular economy. In 2021, the ONC signed the [Organization of American States \(OAS\) Sustainable Purchasing Model Directive](#), which contains circular purchasing.

The ONC is also carrying out the [MAPS sustainable purchasing assessment](#) for the first time.

Consolidated purchasing and framework agreements

These activities in growing awareness of SPP were complemented in 2016 by a national Decree regulating the procurement regime, creating the conditions for the COMPR.AR and CONTRAT.AR systems of purchasing and contracting, respectively. The National Procurement Office was given the power to develop framework agreements that include sustainability criteria regarding the good or service, production and manufacturing processes, logistics and distribution, and final disposal.

Networks and subnational activities

The federal purchasing network works on sustainable public procurement, while the national government works with regional and local authorities within Argentina, many of whom have their own policies for procurement. The City of Buenos Aires created a Circular Economy Network, while the City of Cordoba has developed a Certificate of Circular Enterprises (CEC) and circular stamps.

At the American regional level, the OAS has the Inter-American Network of Government Procurement (RICG), where one of the work lines is sustainable public procurement. The Network in 2021 published a model directive for Latin America on sustainable public procurement, in which Argentina contributed.

Capacity building for suppliers

Capacity building for circular and sustainable ICTs also extends to suppliers. For example, as part of the Green Production Development Plan, a Programme for the Development of the Circular Economy strengthens the capacity of cooperatives and SMEs to recover waste materials within a circular economy. The programme aims at optimising the flow of available materials and energy to reduce the extraction of virgin natural resources and the consequences of a culture of consumption and discarding.

In addition, communicating the benefits of circular and sustainable procurement with the media and citizens has helped to justify the case for additional spending or resources where needed.

↑ Case Study 12: Creating the conditions for sustainable procurement in Argentina



In addition:

- Ensure that responsibilities for overseeing circular and sustainable procurement rest at the senior leader level.
- Consider dedicating one or more senior roles to ICT sustainability goals.
- Communicate that the government as a buyer will monitor circular and sustainable ICT procurement performance to ensure accountability.
- Show procurement teams that circular and sustainability efforts are valued through a culture of recognition.
- Build annual training of purchasing and other relevant officials in the role of procurement.
- Train suppliers where necessary on sustainability topics and bidding for tenders according to circular and sustainable criteria ([see section 5.1.7](#)).



CAPACITY BUILDING FOR SUSTAINABLE PROCUREMENT PRIORITIES IN COSTA RICA

Costa Rica's action plan for five priority areas, mirroring the five key challenges identified by the government and public procurement stakeholders, includes: (i) the institutional framework of the public procurement system; (ii) the strategic use of public procurement; (iii) the professionalization of the public procurement workforce; (iv) the participation of civil society in the public procurement system and; and (v) the control of the public procurement system.

It was made mandatory in 2022 that during a tender up to 25 per cent of points must be allocated to criteria related to environmental, social or innovation. Every authority in Costa Rica needs to comply with this general policy.

In order to make the sustainable procurement aspects of the action plan a reality, the government engaged in capacity building with over 4000 staff and suppliers trained since 2015. Annual training includes:

- the foundations of what is sustainable procurement and how it works;
- the legal grounds for sustainable procurement and what is mandatory;
- how sustainable procurement can be used to apply points for products.

Due to high turnover of staff and the resources needed for constant training, online tools with technical guidelines and national standards from ecolabelling are made available.

[↑ Case Study 13: Capacity building for sustainable procurement priorities in Costa Rica](#)

4.3.1 Get involved in networks

Participating in networks can secure an ongoing political commitment and visibility for sustainable procurement while providing a mechanism for sharing information and best practice from other governments and public administrations. Sector-specific networks exist for public procurers of ICTs interested in circular and sustainable approaches.



U4SSC PROCUREMENT FOR SMART SUSTAINABLE CITIES

This thematic group has developed practical, step-by-step guidance with an expanding collection of case studies from around the world for social purpose procurement to support smart, sustainable cities. It provides cities with advice on how to strategically transition from traditional approaches to improve their supply chain performance and illustrate the potential of sustainable procurement in bringing positive impacts. U4SSC contributes to cities successfully achieving the Sustainable Development Goals (SDGs). [Find out more.](#)

[↑ Case Study 14: U4SSC procurement for smart sustainable cities](#)



CIRCULAR & FAIR ICT PACT

The Circular & Fair ICT Pact (CFIT) is an international procurement-led partnership to promote circularity, fairness, and sustainability in the ICT sector. CFIT stimulates common, easy-to-use procurement criteria, provides guidance, and facilitates knowledge sharing. Together CFIT participants leverage their collective procurement power, in close dialogue with the ICT supply side, to accelerate change and innovation. CFIT is an action under the UN One Planet Network SPP programme. Governments with circular and fair ambitions can join the pact as a coordinating organization. Find out [more](#).

[↑ Case Study 15: Circular & Fair ICT Pact](#)



ASIA PACIFIC GREEN PUBLIC PROCUREMENT (GPP) NETWORK

The Asia Pacific Green Public Procurement (GPP) Network project aims at enhancing GPP knowledge-sharing and networking in the Asia Pacific region to stimulate markets for eco-friendly products and services. The main objectives of the Asia Pacific GPP Network project are to (i) serve as an information platform for Green Public Procurement among the relevant governments, public organizations, and stakeholders in the Asia-Pacific region; (ii) promote awareness and build the capacity of policymakers; (iii) support and amplify the work of the UN One Planet Network SPP programme in the Asia-Pacific region; and (iv) identify concrete needs of the countries for the introduction and implementation of green public procurement. Find out [more](#).

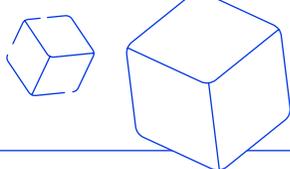
[↑ Case Study 16: Asia Pacific Green Public Procurement \(GPP\) Network](#)



LATIN AMERICAN COUNTRIES SPP WORKING GROUP

The LAC working group aims to support countries in Latin America with monitoring SDG 12.7.1 and promoting SPP implementation. In addition, two workshops have been hosted - one to [introduce the 12.7.1 Indicator and its methodology](#), and another to [present the resources linked to SPP](#) (training, manuals, etc.) developed by the Organization of American States (OAS).

[↑ Case Study 17: Latin American Countries SPP working group](#)



ELECTRONICS WATCH SUPPORTS SOCIALLY RESPONSIBLE PROCUREMENT OF ICTS

Electronics Watch works with public buyers to detect problems workers do not usually report to social auditors, remedy problems in a timely manner, and address systemic issues over time. Its international network of local monitoring partners provides public buyers with eyes and ears on the ground in electronics production regions and creates capacity to follow up on contractual labour and safety standards in electronics supply chains. Public buyer collaboration within and across countries creates the strength and leverage to address issues such as forced labour and health and safety hazards and improve conditions for workers.

Electronics Watch also provides public buyers with contract clauses and conditions for ICT hardware products that demand decent working conditions in the electronics supply chain.

Find out more [here](#).

↑ **Box 10: Electronics Watch and socially responsible procurement of ICTs**

A non-exhaustive list of resources for further information and guidance

RESOURCES	CREATING THE CONDITIONS SUBTOPICS			
	GOVERNMENT PROCUREMENT	USING ECOLABELS	SETTING PRIORITIES AND TARGETS	ENGAGING STAKEHOLDERS
Second Edition of UNEP Sustainable Public Procurement Guidelines	✓		✓	✓
OECD: Methodology for Assessing Procurement Systems (MAPS)	✓		✓	✓
Circular Procurement in 8 Steps (Copper8)	✓		✓	✓
The Procura+ Manual: A Guide to Implementing Sustainable Procurement (ICLEI)	✓		✓	✓
Implementing Sustainable Procurement in Latin America and the Caribbean (IISD) (in Spanish)	✓		✓	✓
OECD Innovation playbook (OECD)	✓			✓
Manual de Compras Públicas Sustentables 2017 , Government of Argentina (in Spanish)	✓			✓
Promotion of the implementation of sustainable public procurement in Costa Rica Final report (in Spanish)				✓
A toolkit on human rights for policymakers and public buyers , The Danish Institute for Human Rights				✓
Galvanizing Action: Strategies to Maximize Engagement in Sustainable Public Purchasing , Sustainable Purchasing Leadership Council (SPLC)				✓
UNEP Ecolabelling Training Programme , UNEP and Global Ecolabelling Network		✓		
Training Handbook Ecolabelling: What it is & How to do it , UNEP		✓		
Barrier Analysis report , GIZ	✓	✓		
GEN life cycle ecolabelling (video) , GEN		✓		
Webinar: Ecolabel, what is that? And how to develop a new ecolabel? (video), One Planet Network		✓		

↑ **Table 4: Further resources for creating the conditions**



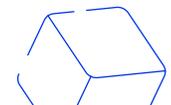
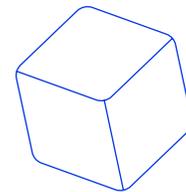
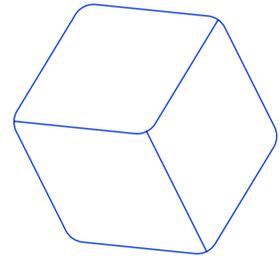
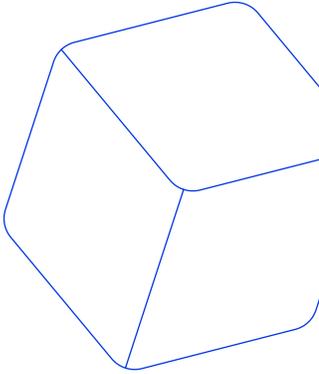
Checklist



CREATING THE CONDITIONS

- ✓ Examine how procurement is currently done to plan for potential blockages to enacting the circular and sustainable ICT policy.
- ✓ Set up systems, processes, and controls to support circular and sustainable procurement of ICT, including e-procurement portals.
- ✓ Consider creating or using existing ecolabels to boost the circular and sustainable ICT market.
- ✓ Set overall a procurement target for circular and sustainable ICT, as well as category targets and outcomes targets.
- ✓ Specify methods and metrics to monitor circular and sustainable procurement ICT delivery and performance.
- ✓ Plan and deliver initiatives for embedding circular and sustainable ICT procurement, including process manuals, collaboration, training, and pilot procurements.

↑ Figure 11: Creating the conditions checklist



5 PROCUREMENT PROCESSES

This section explores the possibilities for circular and sustainable procurement of ICTs in practice. It provides methods, approaches, and cases of application for circular procurement of ICTs, which are aligned with processes laid out in Recommendation ITU-T L.1061 (see Box 2).

The procurement process has been divided into five stages of a typical procurement cycle:

1. **Procurement planning** around circular and sustainable needs, supplier capacity and other pre-procurement activities.
2. **Solicitation and evaluation** of bids in a way that supports circular and sustainable procurement through relevant criteria and specifications.
3. **Awarding of contracts** using approaches to assess and select offers based on circular and sustainable criteria.
4. **Contract management**, including circular and sustainable considerations in contract performance clauses.
5. **Reviewing performance** against agreed key performance indicators (KPIs) for circularity and sustainability and gathering insights and lessons learned to improve future procurement processes.

5.1 Procurement planning

Engage in proactive planning to integrate circular and sustainable considerations into ICT purchases or contract extensions.

As the [CFIT Framework for Circular and Fair ICT Procurement](#) highlights, the greatest opportunities for improvement of environmental and social impact exist before the request for tender (call for bids) stage. Sustainable needs, supplier capacity, and outcomes are all part of the procurement cycle preparation and include:

- **assessing needs** to determine if there is really a need to procure and if the ICTs being considered meet requirements for sustainability;
- **considering how to acquire** the hardware or software in line with circular economy principles by looking at models such as HaaS and SaaS;
- **mapping potential sustainable impacts, risks, and costs** of the ICT procurement using methods such as life cycle analysis;
- **using ecolabels** for sustainability impact mapping, outlining solutions, and verifying findings;
- **understanding applicable laws, regulations, and trade agreements** to ensure the procurement meets environmental, human rights, and labour laws;
- **engaging the market** to gather intelligence and allow suppliers to understand demand and inform the approach.

5.1.1 Needs assessment

An essential first step in making ICT procurement more sustainable is to determine what is really needed and how it links to sustainability policy and goals:

- **map needs** by asking the right questions about the potential use of ICTs for government activities;
- **link policy and strategy** to the procurement by reviewing government sustainability commitments relevant to ICTs;
- **create a concept** based on needs, reflecting how the ICT procurement could meet functional requirements and sustainable outcomes.

5.1.1.1 Map needs

Define what sustainable and circular ICT procurement should achieve by mapping and identifying what is needed from the ICT product or service.

Thinking about the reasons for the purchase and asking colleagues and service users the right questions (see Table 5) will help to understand the desired sustainability outcomes. For example, think less about specific or technical details at this stage and leave more space for ideas from colleagues and users for creative use of the ICT product or service and how that can lead to sustainable and circular solutions (this approach leaves room for supplier innovations later too).

- Is the procurement of the new ICT product or service to satisfy new legislation?
 - » For example, is more energy-efficient equipment needed to help reduce the energy demand?
- Or is the aim to streamline working processes for efficiency?
- Does the new ICT product or service help to meet citizens' needs?
- By rethinking needs, it could be that the most sustainable procurement of the ICT product or service is the one not made?
- Remember to consider the users of the ICT product or service. It could be colleagues, employees of another public body, or citizens such as school or university students.
- How do they use ICTs?
- For example, how do employees currently use technology and do their work?
- If new staff are employed, will they all have a fixed desk and computer station in the remote work environment?
- Perhaps fewer desktops are required because some employees prefer to hotdesk on laptops. Can ICTs reduce service or product quantity or even obviate the need to purchase?



The [U4SSC procurement guidelines for smart sustainable cities](#) also covers needs assessment and how to move government employees from their silos. Carrying out research on their needs will help ensure that public officials and stakeholders test assumptions they have about ICT users, ensure valid ICT requirements, make services better value and cheaper to run in the long term, and avoid legacy ICTs.

QUESTIONS	CIRCULAR AND SUSTAINABLE CONSIDERATIONS
What type of ICT is needed?	Is the ICT that has always been bought still the best option? E.g., moving from desktops to thin clients or traditional servers to cloud computing.
Why is new ICT needed?	Is new ICT necessary? Have user needs changed, and will the purchase lead to efficiencies?
When is the ICT required?	What is the procurement and delivery timeline of the hardware or software? Does this affect how the service is delivered? Is there have more time to consider circular and sustainable options?
What are the details of the ICT required?	How technical do the specifications need to go? Can there be a more sustainable outcomes-based approach?
Who can best describe the ICT required?	With which users should the team be speaking?
Has this ICT been required before? If so, how was the requirement satisfied?	Is this a repeat purchase? Is the same approach still relevant? How can the procurement be redesigned to make it more circular and sustainable?
Can ICT solutions be provided in-house?	Could the IT team or an external service provider use existing hardware or software to meet the need?
Is external expertise needed to assist with the definition of the requirement and with the evaluation, selection, and contract administration?	From whom is support needed to develop circular and sustainable criteria for the tender? Who can help verify the supplier bids from a circular and sustainable perspective?

↑ Table 5. Needs assessment question prompts



QUESTIONS	CIRCULAR AND SUSTAINABLE CONSIDERATIONS
Is the ICT procurement expected to be one-off or continuous?	Will this be a recurring need or service? Could a HaaS or SaaS approach be more circular and sustainable?
What is the expected duration of the contract?	What do current solutions offer in terms of sustainability? Would a framework contract allow for more flexibility for sustainable innovations?
What is the budget?	Can the budget support more circular, green, and socially sustainable approaches?
How can budgetary constraints be overcome to obtain the ICT more circularly or sustainably?	Consider an early-stage life cycle costing approach (see section 5.1.4) or buying less (e.g., identify the number of new printers based on current print usage)
What procurement method best suits a circular and sustainable approach to ICT?	Avoiding getting ‘locked in’ to contracts that require a specific volume of supplies or services supports a circular and sustainable approach.
What type of contract would be most appropriate for this ICT approach?	Framework contracts, for example, allow adjustments to volume or frequency to adapt to potential future needs.
Who would be responsible for contract administration and follow-ups?	Which team members can monitor the circular and sustainable outcomes of the contract once in progress? Do they have the knowledge and resources required?



PERFORMANCE-BASED SPECIFICATIONS FOR DATA CENTRE INFRASTRUCTURE, TELUS COMMUNICATIONS

TELUS, a national telecommunication company in Canada, planned to upgrade its national data centre infrastructure. But a traditional procurement process would not have served the TELUS goal of consolidating its existing sites while integrating a scalable, flexible, and sustainable plan for growth over the next 20 years. TELUS collaborated with Skanska to use a performance-based procurement structure that stimulated supplier-led solutions. The approach achieved energy and water-based efficiencies and ensured a low TCO while supporting TELUS business needs.

Read more [here](#).

[↑](#) **Case Study 18: Performance-based specifications for data centre infrastructure, TELUS Communications**

5.1.1.2 Link the procurement to policy and strategy

Reviewing sustainability commitments of ICT procurement at the needs assessment stage is also a good idea. For example, can a circular approach open more access to the tender for social businesses, or could the products support lower energy use? Linking the potential ICT procurement with sustainability goals and policy at this stage strengthens the chances that colleagues (and eventually suppliers) will be on board with the sustainable and circular approaches.



LINKING PROCUREMENT TO GOVERNMENT SUSTAINABILITY GOALS: SCOTTISH GOVERNMENT

One of the devolved government for Scotland procurement priorities is to embed sustainability in all activities. This priority aligns with the Procurement Reform (Scotland) Act 2014, which established laws to maximize the environmental, social, and economic benefits through effective and efficient procurement activity. A new suite of frameworks for the procurement of ICT client devices was established by Scottish Government in 2016. The government and other public sector organizations in Scotland use the frameworks that focus on circular economy outcomes through end-of-life management of devices, energy, environmental management, packaging, and fair and ethically traded supply and fair work practices.

See the full procurement description [here](#).

[↑](#) **Case Study 19: Linking procurement to government sustainability goals: Scottish Government**



5.1.1.3 The first concept based on needs

After establishing a first set of needs, explore if less or no procurement at all is possible. The procurement could be unnecessary, or ICTs can be used differently. For example, with the switch to remote working and flexible work patterns, is a desktop computer required for every employee? Is the procurement then for desktop computers or flexible working and communication solutions?

This process can also help in designing circular solutions. For example, can current hardware and software be reused, repurposed, refurbished, or repaired instead of purchasing new ones? Can used or refurbished products be purchased instead of brand-new ones? Is what is being purchased now likely to be a long-term investment? Are there trends indicating that a certain device/technology is likely to be outdated very soon?



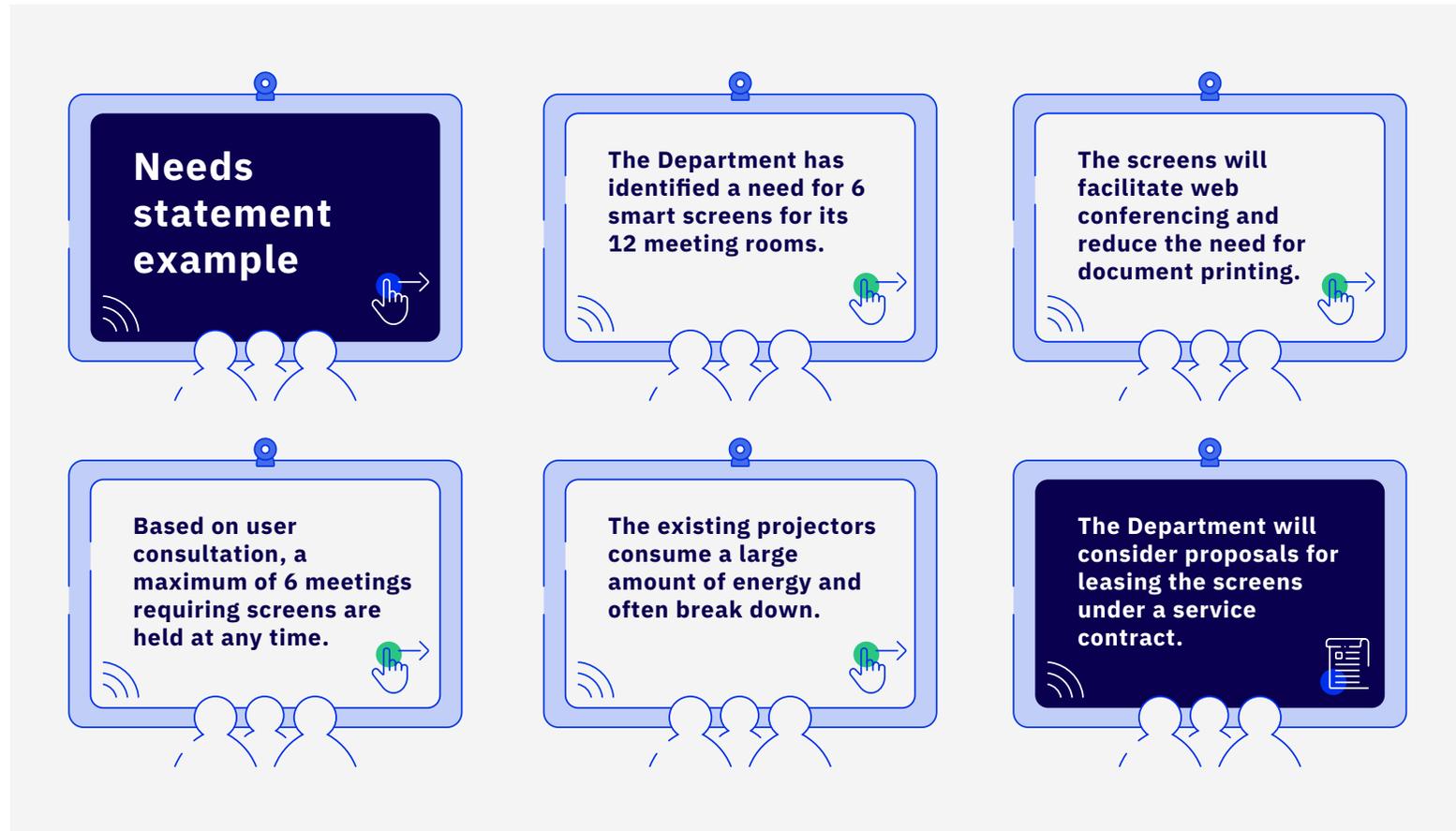
The GovStack Sandbox contributes to the initiative vision to provide a demonstration environment to learn, and a technical environment to test “more effective, cost-efficient and sustainable digital government services”.

In other words, the GovStack Sandbox:

- Makes the GovStack approach tangible. It is a key tool to raise awareness and educate people on the benefits of the GovStack approach.
- Is an isolated, safe environment, simulating a small governmental e-service system (reference implementation).
- Is an architectural approach centred around APIs and microservices to help unlock monolithic legacy systems to increase the speed of IT project delivery, leading to more effective and cost-efficient digital governments.
- Encapsulates the business logic and data necessary to represent multiple GovStack capabilities such as APIs, building blocks, use cases and work flows.
- Supports sustainability in ICT procurement by promoting the re-use of digital public goods saving government digital teams both time and financial resources.

For more information please visit www.govstack.global

Finally, the process can also produce a needs statement, describing the reason for the purchase and any alternatives to purchasing being considered.



↑ Figure 12: Needs statement example



5.1.2 How to acquire the ICT product or service

Look beyond the need to purchase the hardware or software.

- Is it necessary to own the ICT product or service?
- Could a service model work?

Renting, leasing or asset sharing could be a more circular and sustainable solution. Innovative service-oriented circular models focused on usage may allow more efficient management of devices and, therefore, less e-waste generation than those oriented towards ownership [[Recommendation ITU-T L.1024](#)].

Decoupling ownership from use and maintenance allows other schemes to be considered such as ‘servitization’ (use as a service provided by a third party) or pooling and leasing devices across larger user groups (shared ownership). An increasing number of ICT providers offer managed services that include hardware-as-a-service (HaaS) components. This might consist of routinely updating and exchanging personal computers and other office equipment and ongoing system maintenance and security monitoring.

Public authorities also consider software-as-a-service (SaaS) as a sustainable option. With SaaS, the software is run on a server, so individual ICT hardware does not need upgrading, and there are no issues with meeting minimum specifications.



HARDWARE-AS-A-SERVICE IN HAARLEM, NETHERLANDS

The Municipality of Haarlem procurement team strengthened their responsible procurement of ICT hardware. They assessed the needs to determine how they used ICTs and engaged in supplier dialogue to learn about new approaches for circular ICTs. The team decided to adopt a new “hardware-as-a-service” model for procuring ICTs.

Read the full case study [here](#).

↑ Case Study 20: Hardware-as-a-service in Haarlem, Netherlands



THE GOVERNMENT OF CANADA MAKES SOFTWARE AS A SERVICE SUPPLY ARRANGEMENT

The Government of Canada issued a request for supply arrangement (RFSA) to establish a new method of supply to satisfy various software as a service (SaaS) requirements. This new supply method is a procurement enabler for the Government of Canada cloud requirements. The SaaS supply arrangement aims to simplify the procurement processes to acquire SaaS solutions and increase competition and access to the latest SaaS solutions on the market.

See the whole procurement approach [here](#).

↑ Case Study 21: Software as a service supply arrangement, The Government of Canada

Management services, including maintenance, repair, upgrade, and disposal, are another type of purchase model ([see Recommendation ITU-T L.1061 in Box 2](#) for more on this). Under device as a service (DaaS) management, all is outsourced, under a subscription fee to the tendered in exchange for hardware lease and management services.



5.1.3 Sustainable impacts, risks, and costs

Another pre-procurement exercise examines the potential sustainable impacts, risks, and costs of ICTs, helping the design of the call for tender. The [CFIT Framework for Circular and Fair ICT Procurement](#), for example, advises considering the impacts in all stages of the product life cycle, from production, to sourcing, through use, to end-of-use, and includes:

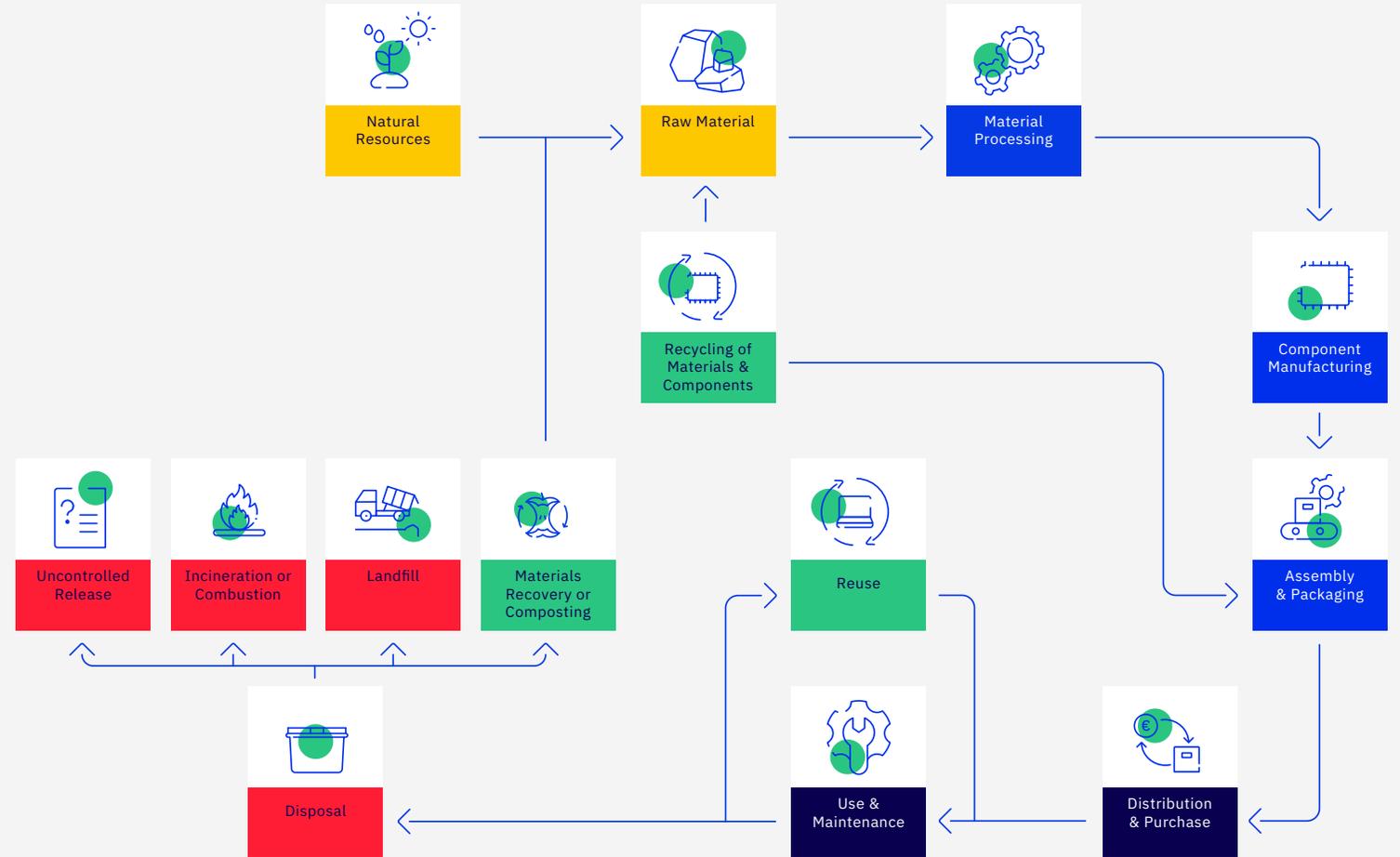
- **mapping out the impacts** as a first exercise, either in a more informal manner or using a life cycle analysis method;
- **assessing the sustainability risks** by forming risk screening questions to identify key areas of concern;
- **considering the total costs** by examining the full costs of the ICT product or service across its lifetime.

5.1.3.1 Map out the impacts

Map out some of the social, economic, and environmental impacts that could come from the ICT product or service.

It does not have to be fully detailed or accurate at this stage, but mapping out the impacts can provide a starting point for prioritizing sustainability criteria. The impacts identified can be used later in the procurement process for prioritizing specification and award criteria.

- Bring together relevant people from the team to perform the mapping, using a simple methodology such as the one in Figure 13.
- Consider at each stage of the life cycle the environmental and social effects of materials, logistics and labour.



CONSIDER TRANSPORTATION AT EACH STAGE

Resources and materials Manufacture Use phase Reuse and recovery Disposal

Figure 13: Life cycle of a product and stages for consideration for circular and sustainable procurement (adapted from [Embedding Project](#))



Life cycle assessment

Life cycle assessment (LCA) applies the life cycle concept to environmental impacts, such as carbon emissions, water usage, air pollution, energy consumption, hazardous and toxic substances, and waste amounts ([Recommendation ITU-T L.1061](#)). LCA is standardized in ISO 14040 and applied to evaluate the environmental impact of ICT goods, networks, and services ([Recommendation ITU-T L.1410](#)).



REGION STOCKHOLM USES LIFE CYCLE PERSPECTIVE FOR COMPUTERS

Region Stockholm, responsible for all publicly-financed healthcare and public transport in Stockholm County, wanted to include the environmental impact from a life cycle perspective in its procurement of computers. Bidders were asked to offer computers for which the climate impact in a life cycle perspective had been analysed and documented following the standards set out in the ISO 14040 series, ISO/ TS 14067, or ISO 14025.

See the full case study [here](#).

← Case Study 22: Region Stockholm uses life cycle perspective for computers

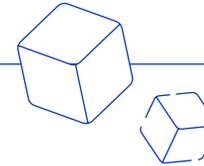


USE OF LIFE CYCLE ASSESSMENT METHODS IN ITALY

[Italian regulations](#) on green public procurement link to LCA-based methods and require that the use of GPP/environmental criteria is mandatory in the public procurement process. LCA-based methods must therefore be employed as a fixed criterion in public procurement tendering processes.

See more on LCA in other EU countries [here](#).

↑ Case Study 23: Use of LCA methods in Italy



EPEAT ECOLABEL FOR LIFE CYCLE-BASED CRITERIA

The EPEAT ecolabel is a global Type I ecolabel that covers ICT products and services. EPEAT criteria are life cycle based and developed through a balanced voluntary consensus process using an innovative method developed by the Global Electronics Council (GEC) called the Dynamic Criteria Development Process (DCDP). The DCDP contains the five elements of a voluntary consensus process: openness, balance, due process, appeals process, and consensus. A summary of the criteria development process and procedures governing the process are [publicly available](#), as is the process GEC follows to select [product categories](#).

Find out more [here](#).

↑ Box 12: EPEAT ecolabel for life cycle-based criteria

It is important to note that environmental LCA does not address the economic elements of the product life cycle, which are the focus of life cycle costing ([see section 5.1.4.2](#)).



5.1.3.2 Assess the sustainability risks

List the social and environmental risks associated with the ICT product or service using the impact mapping, as well as opportunities to improve the sustainability of the purchase.

This due diligence exercise can uncover social and environmental risks related to raw material extraction, processing and trading of certain raw materials, and work conditions in parts suppliers and device assembly factories.

Simple risk screening questions can get this started. For each impact identified, consider the following:

- How important is this issue to the government?
- How important is this issue to my agency or department?
- What scope is there to improve?
- How can the market respond to this issue?

For example, if GHG emissions are a possible impact, ask if the purchase has risk potential through energy-intensive production and materials, high-energy consumption, and e-waste in landfill.

5.1.4 Consider the full costs

Consider the full ownership costs at this early stage, even if it is an estimate or brainstorming exercise. The cost estimates from making some first calculations around energy use, durability, longevity, and repairability can be surprising. Use more formalized methodologies that might later be built into the procurement criteria.

5.1.4.1 Total cost of ownership

Total cost of ownership (TCO) is the sum of all costs incurred throughout the lifetime of owning or using ICT products or services, going beyond the purchase price in most cases. TCO enables a more strategic approach to ICT procurement (beyond the lowest bidder) and it levels the playing field when choosing among competitive bids where the lowest-priced offer may or may not be the least costly asset to procure.



IT TCO CALCULATIONS - CONSEIL GÉNÉRAL DU LOIRET, FRANCE

To reduce the impact of its IT infrastructure, the Conseil Général du Loiret, France, contracted an audit to calculate the total cost of ownership (TCO) of its 200 servers; 1 700 desktop and 800 mobile workstations; and 381 printers and 122 multifunction copiers. A six-month audit (based on interviews and energy and technical data) revealed that the procurement costs (both hardware and software) represented 17 per cent of total costs, while 20 per cent were operating costs, and up to 63 per cent were indirect costs (maintenance, users and administrators, consumables, electricity costs). Following the audit, proposed improvements included a one-year increase in computer durability or the mainstreaming of awareness and good practice among users, which could achieve more than EUR 1 million in savings.

Find out more [here](#).

[↑](#) Case Study 24: IT TCO Calculations, Conseil Général Du Loiret, France



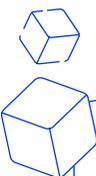
5.1.4.2 Life cycle costing

Life cycle cost (LCC) refers to the cost of ownership of a product or service, from purchase, through usage and maintenance costs, to disposal. The reduction of environmental impacts usually leads to economic savings in short to medium-term periods ([Recommendation ITU-T L.1061](#)).

The EU 2014 Procurement Directives define LCC as:

“all consecutive and/or interlinked stages, including research and development to be carried out, production, trading and its conditions, transport, use and maintenance, throughout the existence of the product or the works or the provision of the service, from raw material acquisition or generation of resources to disposal, clearance and end of service or utilization”.

In other words, life cycle costing can assist the ICT procurement award process by taking into account any costs considered appropriate. For example, from a sustainability perspective, asset disposal, energy consumption, and resources used could be included in an LCC approach to awarding the tender.



TIP: USE LIFE CYCLE COSTING AT DIFFERENT STAGES OF THE PROCESS

Pre-procurement: to roughly evaluate different solutions, guide market engagement activities, or narrow down sustainable and circular technological solutions.

During purchasing or tendering: to compare offers during the evaluation and award of contracts.

Managing contracts: to evaluate the performance of the ICT solution, communicate results and gather data for future ICT procurement.

↑ Box 13: Using life cycle costing at different stages of the procurement process

Life cycle costing can outline future financial costs of ICT products or services to decision-makers and budget-holders and demonstrate the value of sustainability solutions. This can be especially useful if the sustainable approach adds extra upfront costs but can show savings over the contract lifetime. For example, the energy efficiency of ICTs can reduce operational costs, reparability and longevity can reduce maintenance costs, and re-use or re-sale value can reduce disposal costs.

5.1.5 Use labels to understand options

Many labels and standards map the sustainability impact, outline the solutions and verify the findings. Using these labels also helps suppliers to standardize sustainability requirements across regions. For example, a circularity label might require companies to avoid using certain materials or chemicals if they wish to obtain certification. [See section 4.1.3](#) on using labels for more background on this.

When applying labels to specific ICT procurement, be clear about the evidence required to support the evaluation process, whether through labels and certifications, supplier documentation, or other means. If selecting a particular ecolabel or social certification could limit the supplier pool, specify some of the underlying criteria instead.

When using the labels, follow good practice and ensure that they are objective and accessible to all interested operators.



Many national or regional procurement laws make life cycle costing a legal requirement. For example, in an ICT procurement, the labels used should be:

- concerned with criteria directly linked to the subject matter of the ICT product or service being purchased;
- based on objectively verifiable and non-discriminatory criteria;
- established using an open and transparent procedure in which all relevant stakeholders, including government bodies, consumers, social partners, manufacturers, distributors, and non-governmental organizations, may participate;
- accessible to all interested parties;
- set by a third party over which the economic operator applying for the label cannot exercise a decisive influence.

There are [legal considerations](#) for using labels outlined by the European Commission, and these could be considered good practice for transparent and fair use of labels in any region.

EXAMPLES OF LABELS AND STANDARDS FOR ICT PRODUCTS AND SERVICES

GLOBAL ECOLABELING NETWORK	The Green Ecolabel Program has a database of Type 1 labels and other accredited standards . View the specific list of office product labels, which includes labels for ICT .
EPEAT	EPEAT is a leading global label for ICT, its free Registry of products lists thousands of ICT products from many established and emerging brands.
TCO CERTIFIED	TCO Certified is a leading global label for ICT and has a certified product finder .
ENERGYSTAR	Developed by the US EPA and used globally, with specific support for public procurers .
KOREA GREEN-LABELS	KEITI has created certification criteria for a range of ICT product groups.
ABNT ECOLABEL - HUMMINGBIRD	Brazilian-based label, product categories include batteries and office equipment.
ECO MARK PROGRAM	Developed by the Japan Environment Association (JEA), and includes office ICT equipment and printing inks.
ENVIRONMENTAL CHOICE NEW ZEALAND	The New Zealand Ecolabelling Trust developed the multi-product label that includes Copying Machines, Printers, Scanners, and Multifunctional Devices.
THAI GREEN LABEL	The list of products (updated monthly) includes computers, printers and copiers, batteries, and mobile phones.
TÜV RHEINLAND GREEN PRODUCT MARK	Labels and standards for IT, Telecommunication, and Entertainment Electronics, including Wearable Devices, Cordless Phone Routers, Television, Routers.
HONG KONG GREEN LABEL SCHEME	Green Council's ecolabelling standards product categories include computer products, batteries, Computer Monitors, Copying Machines, Printers, Fax Machines and Multifunctional Devices, Green IT Software.
INTI-ECOPLAS (ARGENTINA)	The INTI-ECOPLAS certification is for products that are made from recycled plastic. It is a registered trademark whose logo indicates the percentage of recycled material in the product.

↑ Table 6. Examples of labels and standards for ICT products and services

It is good practice to review the criteria and requirements underlying any label being referred to

in tendering documents to ensure that they are linked to the subject matter of the contract, objective and non-discriminatory.



5.1.6 Understand the applicable laws, regulations, and trade agreements

Take the time to understand legal obligations, governmental sustainability commitments, and how these extend to ICT value chains.

It is also important to consider whether there are gaps in how the legal obligations have been interpreted regarding procurement and sustainability. For example, there may be national and international regulations that cover elements as varied as hazardous chemicals, e-waste, or labour rights that the current purchasing of ICTs does not take into account.

In addition, the relevant laws, policies, and guidance relating to public procurement, sustainability, and human rights should be identified to see what environmental, human rights, and governance requirements are allowed or required. Some of the international agreements in the procurement process are listed in the Appendix.

5.1.7 Market engagement

Market engagement is the process of communicating with potential suppliers before purchasing ICT goods or services. It can allow suppliers to understand the circular and sustainable specifications and be ready to meet the demand.

When introducing new and more advanced circular and sustainable approaches to ICT procurement, it is useful to engage the market and gather intelligence. It might not be practical on every occasion, but

it should be considered where procurements are complex, of significant value, and introduce new concepts to potential bidders. Engaging the market can take place before, during, and after procurement.

Evaluate the consequences of circular and sustainable procurement processes on the products and services (e.g., through needs assessment or other pre-procurement methods).

The scope of supplier engagement and the level of collaboration and support required can be determined by finding the answers to questions such as:

- Which value chain partners have the most influence on product circularity and circular use?
- What are their geographical locations?
- What are the business models of the value chain partners?

ICT supply chains are typically complex, so bringing different suppliers and perspectives together might help and stimulate innovation.

How can suppliers be engaged fairly and transparently?

Market engagement is legal in most countries for public procurement, but core procurement principles also apply to market dialogue:

- **non-discrimination based on nationality;**
- **freedom of movement and establishment;**
- **economy;**
- **efficiency;**
- **equal treatment;**
- **transparency;**
- **mutual recognition.**



CHILECOMPRA AND MARKET CONSULTATION FOR ICTS

In 2010, ChileCompra developed a market consultation guide for purchasing agents. The document defines market consultation as a tool for the elaboration of bidding conditions through formal processes of consultation and meetings with suppliers. The ChileCompra portal provides information on markets, prices, products, and services and on the progress of tenders. In 2014, ChileCompra used this mechanism to study the ICT industry and prepare a general agreement for ICT goods and services. The consultation gathered information on products, innovations, computer prices and life cycles, components, software licensing, development and maintenance, digital educational resources, and digital signatures.

[Find out more.](#)

↑ Case Study 25: ChileCompra and Market Consultations for ICTs



5.1.8 Pre-procurement: bringing it together

After defining needs, assessing impacts and standards, and exploring the market to understand what is possible for sustainable and circular ICT solutions, it is time to bring these findings and intelligence together to rethink specifications. Before developing and designing a tender, check if the following procurement processes are in place.

Checklist



PROCUREMENT PROCESSES

PLANNING

- ✓ A well-defined set of needs relating to sustainable and circular ICT that can keep the team and other colleagues on track with the procurement approach. Include any links to goals or targets for sustainability here.
- ✓ Compliance with national and international laws applicable to the procurement. This includes environmental, social, human, and labor rights legislation that will serve as minimum standards.
- ✓ A map of the sustainability impacts, risks, and full costs and considered hotspots and areas that can be addressed in this procurement. Using existing methodologies or approaches can be helpful here.
- ✓ A shortlist of labels or standards that can map sustainability impact, outline solutions, inform criteria, and verify the product or service. These can be used for the tender design.
- ✓ An engaged market by communicating with potential suppliers to allow them to both inform the circular and sustainable specifications and understand if they can meet the

↑ Figure 14: Procurement processes: planning checklist

The more information and resources mobilized at this stage, the more the procurement team will be able to include sustainable circular criteria in the next steps.



5.2 Solicitation and evaluation

Design the call for tender in a way that supports circular and sustainable procurement.

Obtaining the relevant criteria and specifications will extend the bidding opportunities to as many suppliers as possible and increase the chances of sustainable bids.

A well-designed call for tender will:

- include sustainability themes in the title and subject matter to signal intentions for circular and sustainable approaches;
- allow for suppliers to be selected based on their circular and sustainable credentials and experience; and
- use appropriate technical or outcome-based specifications to specify circular and sustainable requirements.

5.2.1 Broaden supplier access for sustainable and circular bidding

A good starting point when designing the tender is to consider what barriers might be in place for SMEs and new bidders offering sustainable circular solutions. Some of the most common barriers include procurement complexity, difficulty meeting qualifying criteria, and resources required to prepare bids. Broader supplier access could add sustainable value at different stages of the ICT life cycle, so the procurement process must be accessible and understandable.

5.2.1.1 Build the capacity of suppliers to bid

Ensure suppliers know circular and sustainable concepts, perhaps through training or workshops.

A circular and sustainable approach to procurement may be a new approach to suppliers, including smaller businesses. Training or special sessions to explain the tenders and submissions processes and hosting open days or training to provide supplier insights into the public procurement competitive bidding process as part of market engagement will help to widen the scope of potential suppliers (see section 5.1.7). Some public buyers help micro and social businesses to develop business plans and documentation. These actions can support both simple quotations and more complex tenders, making suppliers more confident about public contract bidding processes.

5.2.1.2 Reduce the complexity of tender documentation

Ensure bidders understand what is being procured.

Complete and easy to understand tender documentation will promote fair and efficient competition and help bidders to understand what is involved in the procurement process. Circular and sustainable elements of the tender should be clearly set out, and suppliers should know how they will be assessed on their offers and contract outcomes.

The assessment, analysis, and procurement strategy should be proportional to the size, nature, and complexity of the procurement. The more complex the requirements, the higher the cost of bidding will

be for suppliers. SMEs, social and environmental enterprises, and other smaller organizations operating in the circular economy may not have the resources to prepare a complex bid. For instance, the Government of the Netherlands [SPP Tool for ICTs](#) was developed with simplicity principles for both the procurers using the tool and suppliers.

Particularly for ICTs, global supply chains are complex many bidders, such as resellers, have limited influence on their value chains.

5.2.1.3 Use lots

Separate services into lots with the relevant criteria.

Where a single tender involves the contracting of several different services, such as ICT provision, repair services, and end-of-life management, these services can be separated into lots. For example, companies that handle e-waste and ensure circularity may be different from those supplying the hardware or software.

5.2.2 Signal intentions with title and subject matter

Include sustainability themes in the title and subject matter of the call for tender or bids.

For example, when communicating sustainable ambitions to the market, an alternative to using the title “Supply of ICT hardware for offices” would be to use “Provision of circular and sustainable mobile office solutions for government staff”.

A snapshot of the sustainable and circular demands should also be included in procurement advertisements. The wording could look like this:

“The purchasing authority has included obligations within the specification and award criteria relating to circular and sustainable outcomes connected with the source of materials, energy efficiency, chemicals of concern, repairability, and reuse, which are relevant to ICT equipment.”

This snapshot links to the work carried out in the needs assessment stage. Choosing the appropriate title can set the agenda with suppliers early in the process, causing them to consider whether they can meet the sustainable requirements before submitting the tender.

5.2.3 Make selection and exclusion criteria clear

Separate the requirements (must-haves) for the circular and sustainable ICTs from any additional or nonessential criteria.

Selection criteria are used to assess the ability of an operator to perform a contract and can be achieved with circularity and sustainability as a consideration. Bidders for tenders can be excluded if, for example, they have breached environmental law or have other failures of sustainability performance. They can be selected based on the company sustainability-linked experience and the professional qualifications of its staff.



Suppliers should be selected based on the assessment of at least the following:

- experience in delivering circular contracts and products;
- environmental management systems that bidders have in place for e-waste collection;
- controls along the supply chain to check the presence of restricted substances in the products to be supplied;
- bidder ability to track ICT products throughout complex global supply chains and monitor compliance with the ILO core conventions.

EXAMPLES OF SELECTION CRITERIA WORDING

Circular Resources: Hazardous substances

The tenderer must demonstrate the use of a framework for Restricted Substance Controls (RSC) along the supply chain for the products to be supplied. Product evaluations, according to the RSC, should, as a minimum, cover the following areas:

- product planning/design;
- supplier conformity;
- analytical testing.

Verification

The tenderer must provide documentation describing the system and its procedures and give proof of its implementation. See the complete criterion [here](#).

Actual recovery: Experience with circular products

The more experience the tenderer has in supplying reused equipment, the higher this will be rated. The tenderer must indicate how many reused products, with the same specifications, it has provided to the market in the past two years.

The purchasing organization itself must state one of the following ratings:

- highest rating: 1001 items or more;
- average rating: 505-1 000 items;
- lower rating: 251-500 items;
- lowest rating: 1-250 items.

See the complete criterion [here](#).

Circular resources: Refurbished and remanufactured products

The tenderer must implement quality assurance/quality control procedures to ensure the minimum quality of the equipment delivered as part of the contract. Quality assurance and control procedures must cover, as a minimum, the following steps:

- inspection;
- reprocessing (e.g., repair, replace, or upgrade) if needed;
- cleaning;
- testing;

- storage;
- packaging and transport.

Verification

The tenderer must provide details of the quality assurance/quality control procedures established to ensure the quality of the equipment delivered as part of the contract. Third-party certified management systems for refurbishment/remanufacturing accepted. See the complete list of criteria [here](#).

 Figure 15: Examples of selection criteria wording



The effects of the selection criteria on potential suppliers should also be considered. For example, how many suppliers could comply? Could innovative suppliers and potential collaborators for circular approaches be able to form consortia? These questions can be explored in the pre-procurement phase, particularly during the supplier dialogue activities.

5.2.4 Specifications

Tailor the circular and sustainable requirements for different goods and services.

There is no one-size-fits-all approach to technical specifications in circular and sustainable ICT procurement. Specifications will depend on needs, objectives, market conditions, and other factors identified in the pre-procurement activities. The specifications selected should also be verifiable by the procurement team.

The box below outlines examples of technical specifications for ICTs that align with sustainability principles and the [attributes of a circular electronic product](#). For other sources of technical specifications, [see Table 8](#).

EXAMPLES OF TECHNICAL SPECIFICATIONS WORDING 1/2

Energy Efficiency

[Products] should meet [relevant energy label] requirements. In case of a model change during the contract period, [products] must comply with the latest version [relevant energy label].

Verification

Documentation confirming compliance with the requirements shall be available from the supplier and sent to the contracting authority upon request.

[See section 4.1.3](#) on using labels to understand options and the appendix to view a list of global labels.

Circular resources: Product life cycle

[Products] are required to meet or exceed the minimum of EPEAT Gold or Silver. Compliance dependent on the product category.

Verification

Documentation supplied by the manufacturer to support the product as EPEAT registered.

Circular resources: Constituent materials of products

The plastics used in housings and housing parts must not contain, as constituent components, any substances with the following characteristics:

1. Substances that have been identified as substances of very high concern according to Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Regulation (EC) No 1907/2006.
2. Substances that have been classified according to the Classification, Labelling and Packaging (CLP) Regulation in the following hazard categories or meet the criteria for such classification:
 - Carcinogenic of category Carc. 1A or Carc. 1B;
 - Mutagenic of category Muta. 1A or Muta. 1B;
 - Reprotoxic of category Repr. 1A or Repr. 1B.

Verification

The applicant shall declare compliance with the requirements in the contract and present a list of the housing plastics used for all housing parts weighing more than 10 grams. Also, the applicant shall submit a written declaration from the plastic manufacturers or ensure the submission of such declaration for all parts appearing on said list. Such declaration shall confirm that the banned substances have not been added to the plastics and give the chemical designation of the flame retardants used, including Chemicals Abstract Services number and classifications and classifications.

See the complete list of criteria [here](#).

 Figure 16: Examples of technical specifications wording 1/2






EXAMPLES OF TECHNICAL SPECIFICATIONS WORDING 2/2

Circular design: Continued availability of spare parts

Tenderer must guarantee the availability of spare parts (critical components), for 3 years from the date of purchase.

Verification

Tenderer must declare that the requested spare parts will be available for three years for each model provided. Equipment holding a relevant Type I Ecolabel fulfilling the specified requirements will be deemed to comply. See the complete list of criteria [here](#).

Circular resources: Innovative packaging and circular economy

- Minimization of waste through the principles of sustainably sourced materials as well as reduction, reuse, and recycling methods, such as through creative packaging design, innovative environmentally friendly materials, and re-usable packaging such as unboxed palletized packaging.
- Adherence to all *[country or region specific]* packaging and waste regulations where applicable and ensure that plastics used for product packaging do not include halogen-containing polymers.
- Recycled materials, with packaging containing a minimum of 50 per cent recycled content, or, as an alternative, use sustainably sourced material.

Verification

Technical product specifications of the packaging or other documentation showing that this criterion has been met (or equivalent).

Management of delivery fleet

All deliveries should be managed to minimize emissions, including efficient logistics, full loads, and driver training.

Verification

The concept for delivery, driver training records. Contractors must continually monitor and report on the fleet efficiency and work to reduce the environmental impact over the contract term.

Actual recovery: End-of-life management of devices and circular economy

The contractor will extend *[products]* useful life through appropriate measures such as product design, take back of products aligning with framework public bodies replacement cycles, re-use of *[products]* or parts, or re-conditioning of *[products]*.

Verification

Concept or plan for product take-back, re-use or re-conditioning.

New build or retrofit data centre

The contractor must demonstrate that the facility has environmental control facilities and infrastructures that are in line with the requirements and recommendation of standard EN 50600-2-3 and are capable of measuring:

1. Computer room temperatures: a) supply air temperature; b) return air temperature; c) cold aisle temperature (where used); d) hot aisle temperature (where used).
2. Relative humidity: a) external relative humidity, b) computer room relative humidity.
3. Air pressure under the access floor (if an access floor is installed).
4. Coolant flow rates (if the design of the environmental control system relies on the movement of fluids, e.g., water cooling). They must also report on the granularity of the measurement regime they propose to install.

Verification

The tenderer must provide designs and technical specifications for the monitoring system they will install and identify how this provides the reported measurement regime granularity per EN 50600-2-3. The contracting authority reserves the right to request a report of a suitable third-party audit of the data centre to verify the implementation of the best practices.

↑ Figure 16: Examples of technical specifications wording 2/2



Procurement must consider the circular and sustainable issues that can have the most positive effect both on the supply chains and products in question. For example, in the most recent [TCO Certified Generation 9](#) criteria, product lifetime extension is a focal point. This includes, for example, battery longevity and replaceability (quality through many charging cycles and replaceability) and battery information and protection (software to prolong battery life and monitor health). Additionally, EPEAT also addresses these concerns in its criteria.



KEEPING SUSTAINABLE TECHNOLOGICAL STANDARDS UP-TO-DATE IN ARGENTINA

Technological Standards for Public Administration (ETAPs), elaborated by the National Information Technologies Office, provide guidelines and minimum criteria for all the ministries and entities of the Government of Argentina. ETAPs contribute to the design of technological projects, covering the stages of needs assessment and preparation of technical specifications.

The ETAPs allow existing innovations in the market to be captured, such as energy savings and efficient use of energy consumption. For example, the uninterruptible power supply (UPS) standard technical specification includes:

- efficiency greater than 90 per cent at full load (to reduce heat dissipation);
- in case the supplier replaces the batteries during the warranty or obsolescence stage (with support) of the UPS, whether this is at the explicit request of the organization or due to the scope provided in the maintenance service, the provider will be responsible for the deposit of the same, in accordance with current regulations.

ETAPs also allow government ministries to extend the useful life cycle of ICT devices. A standard technical specification for personal computers states that: *Regardless of the brand or model offered, the CPU must be no more than 24 months old when launched on the international market.* This minimizes the possibilities for manufacturers and suppliers to offer products nearing the end-of-support or end-of-life stages. The specification is essential in reducing obsolete or out-of-use ICTs stored in buildings, producing, in many cases, the accumulation of large quantities and their subsequent discarding without proper recycling conditions. The ETAP switch standard technical specification for the life cycle of the equipment offered outlines that:

- the minimum EOL date of the offered equipment must not be less than five years;
- if it exists, bidders must report the following:
 - » manufacturer end-of-support date;
 - » end of sale date by the manufacturer;
 - » end-of-life date by the manufacturer.

The energy, electrical security, product age, and life cycle are all included within the national framework agreements as labels, alongside clauses on WEEE disposal. Find out more [here](#).

↑ Case Study 26: Keeping sustainable technological standards up-to-date in Argentina



Outcome-based specifications

Outcome-based procurement is a procurement process that can be used for ICTs to develop innovation and creative solutions to circular or sustainable challenges. This can be done by stating a problem (e.g. through a needs statement – [see section 5.1.1.3](#)), the desired capabilities, or key performance indicators (KPIs) without specifying the technologies or solutions. Using this approach, government agencies can trial solutions through validation tests before deciding on the best solution for deployment at the pilot phases and later stages of a project.

Outcome based specifications are especially useful when existing solutions on the market cannot meet circular or sustainable needs, or there is a requirement for new and innovative solutions.

Checklist



PROCUREMENT PROCESSES

SOLICITATION AND EVALUATION

- ✓ Open the opportunity to as many suppliers as possible through support activities and the design of the call or request for bids.
- ✓ Include sustainability themes in the title and subject matter to signal intentions for circular and sustainable approaches and outcomes.
- ✓ Select suppliers based on their circular and sustainable credentials and experience.
- ✓ Specify circular and sustainable requirements using appropriate technical or outcomes-based specifications.

↑ Figure 17: Procurement processes - solicitation and evaluation checklist



5.3 Awarding of contracts

Compare supplier offers and select the best combination of circular and sustainable performance and other requirements.

Suppliers should be selected based on circular and sustainable competencies (selection stage). Baseline circular and sustainable standards (specifications) should be established, including:

- circular and sustainability weighting or award criteria that will reward suppliers with more advanced circular and sustainable bids;
- life cycle costing applied to the ICT product or service that will base decisions on energy use, maintenance, and replacement and disposal costs;
- higher ratings for more advanced ICTs through labelling.

5.3.1 Criteria

Award extra points for the percentage of renewable energy used in production or service.

One way to assess circular and sustainable bids is to establish clear, weighted award criteria in the evaluation. For example, circular criteria could include the recyclability of parts, supplier circular business models, or repairability.

EXAMPLES OF AWARD CRITERIA WORDING 1/2

Circular resources: Circular materials / resources

Of the recycled/reused/remanufactured components within the product, what percentage contains materials derived from post-consumer sources?

Verification

Documentation of the post-consumer claims of recycled materials or reused components in the product. List of the recycled/reused/remanufactured components containing post-consumer materials and percentage of post-consumer materials for each.

Circular design – recyclability / repairability

Additional points will be awarded if all discrete plastic parts do not contain a metal insert or fastener that is moulded-in, inserted by heat or ultrasonically, or glued-in.

Verification

The tenderer must provide:

- product documentation;
- technical manual with instructions;
- a basis for exemption.

Equipment with Type I Ecolabel fulfilling the specified requirements will be deemed to comply.

See the complete list of criteria [here](#).

Actual recovery: Circular economy plan

The contractor submits a development plan for the highest possible level of circular handling of raw materials during the contract term, including:

- vision on use of raw materials;
- measures to be taken to increase circularity;
- the intended goal and time frame for the realization of a circular system;
- motivation for the role of the various chain parties and the contracting party;
- organization and allocation of tasks during the term of the contract.

A better plan is rated higher. The plan will be assessed on the following aspects:

- completeness of the subjects described;
- sense of reality: state of affairs, goals, required actions, and time frame;
- a SMART approach and goals;
- organization of the project.

Verification

The tenderer may be asked for references of completed projects according to the principles of a circular economy and its application in its organization. See the complete list of criteria [here](#).

↑ Figure 18: Examples of award criteria wording 1/2



EXAMPLES OF AWARD CRITERIA WORDING 2/2

Social and ethical responsibility

Goods supplied under the framework agreement are produced in accordance with all ILO principles.

Verification

Bidders demonstrate that they have a robust process for the selection, ongoing monitoring, and management of their supply chain.

Actual recovery: Recycling of packaging

The better the tenderer takes care of the collection and recycling of the packaging supplied by them, the higher this part of the tender will be rated.

Waste heat reuse in data centres

Points will be awarded to tenderers that commit to supplying a given percentage or higher of the data centre waste heat expressed as the energy reuse factor (ERF) to local end-users. An additional point will be given for every 10 per cent extra waste heat the data centre supplies. The ERF must be calculated for each facility according to EN 50600-4-6:2020 or an equivalent standard.

Verification

The tenderer must provide calculations according to ETSI ES 205 200-2-1 or an equivalent standard and the design engineering drawings for the heat reuse systems and connection. Evidence of contractual arrangements or letters of intent must be obtained from potential heat customers.

↑ Figure 18: Examples of award criteria wording 2/2

The award criteria for suppliers can use baseline or advanced. Market research and engagement will help to identify potential supplier expectations based on the maturity of their circular and sustainable procurement. Recommendation ITU-T L.1061 outlines two approaches for criteria levels:

- **Core criteria**, focussing on key areas of the circular and sustainable performance of a product and aimed at keeping administrative costs for companies to a minimum.
- **Comprehensive criteria**, considering more aspects or higher levels of performance, supporting circular, sustainable, and innovation goals.

Many of the sources of criteria in Table 8 apply a similar approach, offering different levels of criteria to suit the procurement needs and market conditions.

If requiring evidence in support of the evaluation process, for example ecolabels and certifications, supplier documentation or other means, would limit supplier bids, specifying underlying criteria might better suit the process ([see section 5.1.5](#)). Scoring methods and instructions do not need to be disclosed but it is good practice to do so and can strengthen the sustainable message to suppliers.

5.3.2 Calculate the circular and sustainable value

The award stage of the process is an excellent time to apply LCC to the ICT product or service. As mentioned in section 5.1.4, this approach can account for additional cost elements incurred during the full life

of an ICT product or service. Life cycle savings from circular and sustainable ICT procurement include energy use, maintenance, and replacement and disposal costs.

- **Hardware**: around 17 to 44 per cent of LCC for desktops and notebooks and 87-92% for displays;
- **Operation**: around 8 to 15 per cent of LCC;
- **Support and upgrading**: around 54 to 70 per cent of LCC for desktops and laptops;
- **End-of-life service**: manufacturers and specialist WEEE handlers can recover up to 7 per cent of the original cost for re-use and up to 2 per cent of the original cost for recycling.

With the appropriate tender design, a supplier will input their data to reduce the time and resources needed to take this approach. Extra points might be awarded to tenders with the lowest LCC. Templates are often available, and creating a new method may not be needed. As an example, templates from the European Union that include ICT products are available [here](#).

Making LCC part of the award criteria can make sense when the market is still maturing towards a more circular and sustainable model. By allocating a small percentage in the first uses of LCC, colleagues and suppliers get into the mindset of considering beyond the upfront purchase costs of ICT procurement.



5.3.3 Use of labels

Look for labels that provide transparent underlying criteria and use relevant standards in the tender award.

Labels that refer to the circular or sustainable characteristics of ICTs can also be used to help draft and assess award criteria. Section 5.1.5 explores how labels can be a resource for procurers at different stages of the tender design, including for award criteria. As with specifications, award criteria can relate to production processes or any other stage of the life cycle, including how raw materials are sourced, energy consumption during ICT use, the recovery phase, and recyclability or biodegradability of a product.

Labels can be included as part of the award criteria if the market availability of eco-labelled products or suppliers still needs to be determined. Some labels have different levels - such as [EPEAT with Bronze, Silver, or Gold](#) - and these can be also used to differentiate quality. Environmental criteria may be weighed against other criteria, including costs, when using labels as part of the bid evaluation.

EXAMPLE OF CRITERIA WORDING USING LABELS

Energy performance

Power supplies for computers that meet the energy performance standards set [relevant energy label highest categories] are rated higher. The higher the level, the higher the tender will be rated.

Verification

Proof that the products are on the list of [relevant energy label highest categories]. Or another equivalent way of demonstrating that the stated energy performance standards are met.

Environmental Assessment

Points will be awarded if the product is in an EPEAT performance rating higher than Bronze (Product meets all required EPEAT criteria). A maximum of x points may be awarded. Points must be awarded in proportion to the improvement in performance as follows:

EPEAT Silver (Product meets all required EPEAT criteria plus at least 50 per cent of the optional criteria) – [x] points. EPEAT Gold (Product meets all required EPEAT criteria plus at least 75 per cent of the optional criteria) – [x] points.

Verification

For each model delivered, the tenderer must provide the valid EPEAT registration status.

Where relevant, consider conducting background checks on the vendor(s) recommended for award including verification of the circular and sustainable related responses provided.

Once the contract is awarded, unsuccessful suppliers should be debriefed if the circular and sustainable elements need to be improved in their future procurement processes.

Figure 19: Examples of criteria wording using labels



USING LABELS IN A CONTRACT FOR IT HARDWARE AND SERVICES, COMMONWEALTH OF MASSACHUSETTS

In its [state-wide contract for IT hardware and services](#), the Commonwealth of Massachusetts requires all desktops, notebooks, tablets, integrated desktop computers, and displays to have achieved either Silver level registration or higher under the EPEAT or TCO Certification. Both are procurement tools designed to help purchasers evaluate, compare, and select equipment based upon their sustainable attributes. This includes environmental criteria that address the full product lifecycle, from energy conservation and toxic materials to product longevity and end-of-life management, as well as supply chain, and human rights.

In addition, the contract allows for the purchase of re-furbished desktops, laptops, Chromebooks, and tablets. All servers, multi-node-servers and rack servers provided under this contract are preferred to have achieved Bronze level registration or higher from EPEAT.

[↑ Case Study 27: Using labels in a contract for IT Hardware and Services, Commonwealth of Massachusetts](#)

Checklist



PROCUREMENT PROCESSES

AWARD

- ✓ Develop and give weighting to circular and sustainable award criteria to reward bids with more advanced circular and sustainable elements.
- ✓ Apply Life Cycle Costing (LCC) to the ICT product or service to base decisions on energy use, maintenance, and replacement and disposal costs.
- ✓ Use labels (and their underlying criteria) to rate more advanced ICT more highly.

[↑ Figure 20: Procurement processes - award checklist](#)

5.4 Contract management

Contracts may include circular and sustainable considerations in contract performance clauses, provided they were previously included in the solicitation document. Including circular and sustainable elements into the contract can help to ensure that outcomes are achieved.

For example, the [CFIT Framework for Circular and Fair ICT Procurement emphasises](#) the importance of not leaving options for end-of-life management of ICT equipment to the point of disposal. Planning for longer use means end-of-life considerations should be assessed early in the procurement cycle and considered in contract design. Contract management and monitoring then enables reporting on impacts and what happens to products, components, and materials after the end-of-life, or to products for their second life.

5.4.1 Clauses and conditions

Integrate environmental and social performance expectations into the final awarded contract through contract performance clauses.

Clauses and conditions can promote sustainability-related performance by creating incentives or disincentives. Determining how to verify and enforce these requirements is key to their effectiveness. A different team may oversee contract management, so it is essential to clarify the conditions, who will monitor them, and how they will be verified. Coordination between the procurement and contract management teams ensures that sustainability clauses can be

appropriately monitored with the relevant resources available. Ensure that those responsible for overseeing the contract have the capacity and the knowledge to ensure that the sustainability terms are upheld.

More advanced environmental, social, and governance requirements, especially those related to system effectiveness, may require additional training and resources for those tasked with compliance monitoring.

EXAMPLES OF CONTRACT CLAUSES AND CONDITIONS WORDING 1/2

LCA requirement

The contractor must supply a life cycle assessment (LCA) of the relevant product or a similar product with a similar structure within one year of the contract being awarded.

Verification

Proof that the products are on the list of *[relevant energy label highest categories]*. Or another equivalent way of demonstrating that the stated energy performance standards are met.

See the complete list of criteria [here](#).

Actual recovery: Reports on reuse and recycling of equipment

The supplier shall, at the time decided by the contracting authority, report the following:

- manufacturer, model, serial number, and date of disposal for the sent units;
- test results in preparation for reuse;
- the amount of reused, recycled and disposed of equipment;
- carbon dioxide savings for the reused units;
- financial compensation to the contracting authority.

On request from the contracting authority, reports will be provided on the above.

See the complete list of criteria [here](#).

↑ Figure 21: Examples of contract clauses and conditions wording 1/2



EXAMPLES OF CONTRACT CLAUSES AND CONDITIONS WORDING 2/2

Secure collecting, data erasure, and upgrades of IT equipment

At the least comprising:

- collecting;
- confidential handling, including de-identification of equipment;
- secure data erasure (if not performed internally by the contracting authority);
- functional testing, service, and upgrade;
- secure that the equipment is reused to the maximum possible extent;
- secure the recycling of disposed of equipment.

On request from the contracting authority, the supplier shall account for compliance with the terms in writing and provide proof of the provided information.

See the complete list of criteria [here](#).

Sustainable supply chain risk management

The contract shall be fulfilled in accordance with the following terms regarding human rights, worker rights, environmental protection, and anti-corruption (sustainable supply chains):

- the UN Universal Declaration on Human Rights;
- the UN Convention on the Rights of the Child, Article 32;
- the eight core conventions of the ILO regarding forced or compulsory labour, child labour discrimination, as well as freedom of association, and the right to collective bargaining (no 29, 87, 98, 100, 105, 111, 138, and 182);
- the labour law in force in the country where the work is performed, including regulations for salary, working hours, leisure time, and work environment;

- the environmental law in force in the country where the work is performed;
- the UN Convention against Corruption.

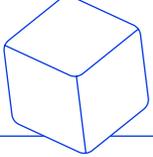
Verification

[The contracting authority] has the right to follow up that the supplier fulfils its obligations. The follow-up may be carried out in different steps; self-assessment and audit.

See the complete list of criteria [here](#).

Changes during the contract might be required, as technology projects sometimes need to adapt or innovate to deliver circular and sustainable outcomes. Contract changes need to be managed carefully to ensure that public officials and stakeholders avoid any legal or corruption risks. See the [U4SSC procurement guidelines for smart sustainable cities](#) for further guidance on managing contract changes for smart and sustainable procurement of ICTs.

↑ Figure 21: Examples of contract clauses and conditions wording 2/2



MANAGING THE CONTRACT: SUCCESS FACTORS FOR CIRCULARITY AND SUSTAINABILITY

- Collaborate and don't expect suppliers to deliver sustainability commitments unprompted.
- Hold successful bidders to sustainability commitments they made when tendering.
- Collect and analyse data from the supply chain (including performance against minimum standards).
- Collect qualitative information from suppliers.
- Score performance – as an individual or collated KPI(s).
- Integrate into a system of performance assessment, e.g., via KPIs.
- Attach penalties and incentivization to sustainability KPIs.
- Foster collaboration and solid and professional relationships with suppliers.

↑ **Box 14: Managing the contract: success factors for circularity and sustainability**

Checklist



PROCUREMENT PROCESSES

CONTRACT MANAGEMENT AND REVIEWING PERFORMANCE

- ✓ Integrate environmental and social performance expectations into the product or service delivery through contract performance clauses.
- ✓ Determine how to verify and enforce these requirements.
- ✓ Allocate any required training and resources for those tasked with compliance monitoring of environmental, social, and circular requirements.

↑ **Figure 22: Procurement processes: contract management checklist**

5.5 Reviewing performance

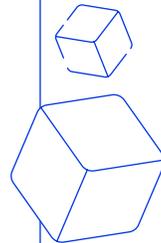
Contract performance should be monitored and reviewed with the procurement team, ICT users, and suppliers at agreed periods against agreed key performance indicators (KPIs). This includes:

- evaluating contract outcomes against priorities;
- building the lessons and outcomes into subsequent procurement processes.

Products and services must be evaluated, including the effect of using specific standards, technical specifications, and any life cycle assessment activity carried out during the procurement process. In general, the procurement team and users should assess the procured ICTs against circular and sustainability ICT strategy and goals for future public procurement activities. Aspects to be considered include, for example, new standards or other technical specifications that impact decisions for ICT products or services going into the next contract cycle.

REVIEWING AND LEARNING

- Seek out perceptions of all stakeholders, including suppliers.
- Document:
 - » What worked well?
 - » What worked less well?
 - » Benchmark levels of performance achieved?
 - » Case studies?
 - » What could be done differently next time?
How could problems have been overcome or minimised?
 - » Lessons learned and recommendations for future contracts.
- Share:
 - » Within organization.
 - » Externally, e.g., learning legacy webpage.
- Apply to other contracts.



↑ **Box 15: Reviewing and learning from procurement**

Checklist



PROCUREMENT PROCESSES

CONTRACT MANAGEMENT AND REVIEWING PERFORMANCE

- ✓ Evaluate contract outcomes against sustainable and circular ICT policies and priorities.
- ✓ Build the lessons and outcomes into subsequent procurement processes.

↑ **Figure 23: Procurement processes – reviewing performance checklist**



A non-exhaustive list of resources for further information and guidance 1/2

RESOURCES	PROCUREMENT PROCESSES SUBTOPICS				
	PLANNING	SOLICITATION AND EVALUATION	AWARD	CONTRACT MANAGEMENT	REVIEW
Second Edition of UNEP Sustainable Public Procurement Guidelines	✔	✔	✔	✔	✔
OECD: Methodology for Assessing Procurement Systems (MAPS)	✔	✔	✔	✔	✔
Circular Procurement in 8 Steps (Copper8)	✔	✔	✔	✔	✔
The Procura+ Manual: A Guide to Implementing Sustainable Procurement (ICLEI)	✔	✔	✔	✔	✔
Buying green! A handbook on green public procurement (European Commission)	✔	✔	✔	✔	✔
Purchaser Guide Circularity in Procurement, Global Electronics Council	✔	✔	✔	✔	✔
Principles for Digital Development , Digital Impact Alliance	✔				
Guide for Circular Procurement (REBus)	✔	✔	✔	✔	✔
Implementing Sustainable Procurement in Latin America and the Caribbean (IISD) (in Spanish)	✔	✔	✔	✔	✔
GPP Training Toolkit (European Commission)	✔	✔	✔		
Manual de Compras Públicas Sustentables 2017 , Government of Argentina (in Spanish)	✔	✔	✔	✔	✔
Circular Economy Procurement Framework (Ellen MacArthur Foundation)	✔	✔	✔	✔	✔
A toolkit on human rights for policymakers and public buyers , The Danish Institute for Human Rights	✔	✔	✔	✔	
Sustainable Facilities Tool (US EPA)	✔	✔	✔	✔	
Australian Government Sustainable Procurement Guide	✔	✔	✔	✔	✔
Using Product-Service Systems To Enhance Sustainable Public Procurement (UNEP)	✔				
Best Practice Guide for Cloud and As-A-Service Procurements (Centre for Digital Government)	✔	✔			

↑ Table 7: Further resources for procurement processes 1/2



A non-exhaustive list of resources for further information and guidance 2/2

RESOURCES	PROCUREMENT PROCESSES SUBTOPICS				
	PLANNING	SOLICITATION AND EVALUATION	AWARD	CONTRACT MANAGEMENT	REVIEW
Guidelines on the acquisition and reuse of software for public administrations (Agency for Digital Italy)	✔	✔	✔	✔	
Tools for life cycle and systems thinking (Embedding Project)	✔				
Life Cycle Impact Mapping (The Scottish Government)	✔				
Worked example: Measuring life cycle costing (OCP)	✔		✔		
EPEAT (Global Electronics Council) (US EPA)	✔	✔	✔		
CSR Risk Check Tool (MVO Netherland)	✔				
PRACTICAL GUIDE Socially Responsible ICT-Procurement (WEED)	✔	✔	✔	✔	✔
Sustainability and risk analysis templates (ADDA, Sweden)	✔				
Risk Based Approach for Project Procurement (Islamic Development Bank)	✔				
Purchaser Guide for Addressing Labor & Human Rights Impacts in Technology Procurements , GEC	✔				
User Guide to the Life Cycle Costing Tool for Green Public Procurement of Computers and Monitors (European Commission)	✔	✔	✔	✔	✔
User Guide to the Life Cycle Costing Tool for Green Public Procurement of Imaging Equipment (European Commission)	✔	✔	✔	✔	✔
Tools for Total Cost of Ownership in public procurement Office IT Equipment Computers (Danish EPA)	✔	✔	✔		
State of the Art Report: Life Cycle Costing (SPP Regions)	✔	✔	✔		
How to engage the market - a step-by-step guide for dialogue events (Make ICT Fair)	✔				
SPP Regions: Market Engagement	✔				

↑ Table 7: Further resources for procurement processes 2/2



EXAMPLES OF TEMPLATES FOR SPECIFICATIONS, CRITERIA AND CLAUSES

[Computers, monitors, tablets and smartphones](#), European Commission

[EU GPP criteria for data centers, server rooms, and cloud services](#), European Commission

[Recommendation ITU-T L.1304: Procurement criteria for sustainable data centres](#), ITU

[Environmental criteria for sustainable public procurement](#), Government of the Netherlands

[Sustainable criteria for computers and monitors](#), Sweden National Agency for Public Procurement

[Sustainable criteria for imaging equipment](#), Sweden National Agency for Public Procurement

[Technical instructions and criteria for ICTs](#), Barcelona City Council

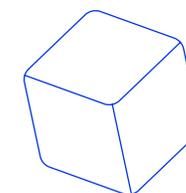
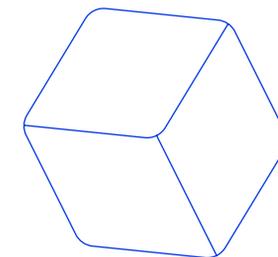
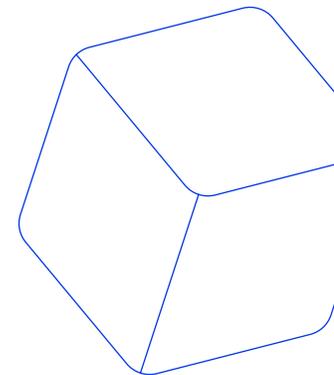
[GPP Criteria Search](#) (ICT products, services, and data centers), Government of Ireland

[Sustainable Procurement Criteria for PC](#), HP

[EPEAT](#) criteria, Global Electronics Council (GEC)

[TCO Certified Generation 9](#), TCO

↑ **Table 8. Examples of templates for specifications, criteria and clauses**





6_RECAP AND REVIEW



Align ICT circularity and sustainability goals with existing or newly created policies. If your government has a sustainability initiative, review the existing ICT procurement processes for opportunities to improve.



No matter the level of circular and sustainable maturity, **set goals, establish measurement indicators and track progress**. Establish the baseline and set milestones and goals. Set up systems and procedures, including e-procurement tools.



Create a public-facing circular and sustainable procurement policy, published where all stakeholders can find it. This can encourage suppliers and other public buyers to adopt best practices, while showing media and citizens that the government is paying attention to circularity and sustainability while spending responsibly.



Allow time and resources for planning, in order to explore needs, research the market, understand labels and standards, and involve the right stakeholders early when developing the call for tender.



Engage with ICT suppliers, including previous and potential new suppliers, on sustainability. Gather information on circular and sustainable solutions and innovations, and understand risks. Communicate the changes and expected circular **and sustainable outcomes to give suppliers the opportunity to adapt**.



Add sustainability to procurement processes, including updating tendering process to reflect circular and sustainable sourcing and contract conditions.



Use international standards, including ITU Recommendations, for guidance on how to implement and enforce circular and sustainable ICT procurement and management.

7_APPENDICES

I: Full checklist of activities for circular and sustainable ICT procurement

Checklist



POLICY AND STRATEGY

- Develop a circular and sustainable ICT policy based on organizational and stakeholder defined principles and priorities.
- Identify and communicate the drivers of circular and sustainable ICT to build awareness and support for the approach.
- Measure procurement capacity using openly available tools or methods.
- Review how ICT is currently supplied, and explore industry standards and practices happening already.
- Consider strategies, priorities, and targets that can link circular and sustainable ICT policy to procurement processes.
- Create a plan or roadmap to bring together policy, responsibilities, resources, new processes, progress indicators and a time frame for action.

Checklist



CREATING THE CONDITIONS

- Examine how procurement is currently done to plan for potential blockages to enacting the circular and sustainable ICT policy.
- Set up systems, processes, and controls to support circular and sustainable procurement of ICT, including e-procurement portals.
- Consider creating or using existing ecolabels to boost the circular and sustainable ICT market.
- Set overall an procurement target for circular and sustainable ICT, as well as category targets and outcomes targets.
- Specify methods and metrics to monitor circular and sustainable procurement ICT delivery and performance.
- Plan and deliver initiatives for embedding circular and sustainable ICT procurement, including process manuals, collaboration, training, and pilot procurements.

7_APPENDICES

I: Full checklist of activities for circular and sustainable ICT procurement

Checklist



PROCUREMENT PROCESSES PLANNING

- ✓ **A well-defined set of needs relating to sustainable and circular ICT** that can keep the team and other colleagues on track with the procurement approach. Include any links to goals or targets for sustainability here.
- ✓ **Compliance with national and international laws** applicable to the procurement. This includes environmental, social, human, and labor rights legislation that will serve as minimum standards.
- ✓ **A map of the sustainability impacts, risks, and full costs** and considered hotspots and areas that can be addressed in this procurement. Using existing methodologies or approaches can be helpful here.
- ✓ **A shortlist of labels or standards** that can map sustainability impact, outline solutions, inform criteria, and verify the product or service. These can be used for the tender design.
- ✓ **An engaged market** by communicating with potential suppliers to allow them to both inform the circular and sustainable specifications and understand if they can meet the demand.

Checklist



PROCUREMENT PROCESSES SOLICITATION AND EVALUATION

- ✓ Open the opportunity to as many suppliers as possible through support activities and the design of the call or request for bids.
- ✓ Include sustainability themes in the title and subject matter to signal intentions for circular and sustainable approaches and outcomes.
- ✓ Select suppliers based on their circular and sustainable credentials and experience.
- ✓ Specify circular and sustainable requirements using appropriate technical or outcomes-based specifications.



7_APPENDICES

I: Full checklist of activities for circular and sustainable ICT procurement

Checklist



PROCUREMENT PROCESSES

AWARD

- ✓ Develop and give weighting to circular and sustainable award criteria to reward bids with more advanced circular and sustainable elements.
- ✓ Apply Life Cycle Costing (LCC) to the ICT product or service to base decisions on energy use, maintenance, and replacement and disposal costs.
- ✓ Use labels (and their underlying criteria) to rate more advanced ICT more highly.

Checklist



PROCUREMENT PROCESSES

CONTRACT MANAGEMENT AND REVIEWING PERFORMANCE

- ✓ Integrate environmental and social performance expectations into the product or service delivery through contract performance clauses.
- ✓ Determine how to verify and enforce these requirements.
- ✓ Allocate any required training and resources for those tasked with compliance monitoring of environmental, social, and circular requirements.
- ✓ Evaluate contract outcomes against sustainable and circular ICT policies and priorities.
- ✓ Build the lessons and outcomes into subsequent procurement processes.

7_APPENDICES

II: ITU Recommendations, relevant international standards and regulations for circular and sustainable ICTs

- [ICT Sector Guidance Built on the GHG Protocol Product Life Cycle Accounting and Reporting Standard](#)
- [At the confluence of digital rights and climate & environmental justice](#)
- [ISO/TC 323 Circular economy](#)
- [United Nations Guiding Principles on Business and Human Rights \(UNGPs\)](#)
- [International Bill of Human Rights](#)
- [International Labour Organization \(ILO\) Labour Clauses \(Public Contracts\) Convention 1](#)
- [OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas](#)

ITU Recommendations relevant to sustainable and circular ICTs

- [Recommendation ITU-T L.1020 “Circular economy: Guide for operators and suppliers on approaches to migrate towards circular ICT goods and networks”](#)
- [Recommendation ITU-T L.1022 “Circular economy: Definitions and concepts for material efficiency for information and communication technology”](#)
- [Recommendation ITU-T L.1023 “Assessment method for Circular Scoring”](#)

- [Recommendation ITU-T L.1100 “Procedure for recycling rare metals in information and communication technology goods”](#)
- [Recommendation ITU-T L.1032 “Guidelines and certification schemes for e-waste recyclers”](#)
- [Recommendation ITU-T L.1021 “Extended producer responsibility - Guidelines for sustainable e-waste management”](#)
- [Recommendation ITU-T L.1031 “Guideline on implementing the e-waste reduction target of the Connect 2030 Agenda”](#)
- [Recommendation ITU-T L.1035 “Sustainable management of batteries”](#)
- [Recommendation ITU-T L.1300 “Best practices for green data centres”](#)
- [Recommendation ITU-T L.1304 “Procurement criteria for sustainable data centres”](#)

International multilateral environmental agreements relevant to sustainable and circular ICTs

- [Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal](#)
- [Stockholm Convention on Persistent Organic Pollutants](#)
- [Minamata Negotiations on Mercury](#)

- [Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade](#)
- [Montreal Protocol on Substances that Deplete the Ozone Layer](#)

ILO conventions relevant to sustainable and circular ICTs

- [Transition from the Informal to the Formal Economy Recommendation, 2015 \(No. 204\)](#)
- [Labour Inspection Convention, 1947 \(No. 81\)](#)
- [Occupational Safety and Health Convention \(No. 155\) and Recommendation \(No. 164\), 1981; and the Promotional Framework for Occupational Safety and Health Convention, 2006 \(No. 187\)](#)
- [Chemicals Convention \(No. 170\) and Recommendation \(No. 177\), 1990](#)
- [Job Creation in Small and Medium-Sized Enterprises Recommendation, 1998 \(No. 189\)](#)
- [Promotion of Cooperatives Recommendation, 2002 \(No. 193\)](#)
- [Employment Relationship Recommendation, 2006 \(No. 198\)](#)
- [Guidelines for a just transition towards environmentally sustainable economies and societies for all \(2015\)](#)

