



Establishing future-oriented training and qualification quality standards for fostering a broad uptake of sustainable energy skills in the European construction sector

## **D4.2 Analysis of Green and Sustainable Public Procurement (GPP) process in the EU**



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# 1 Executive summary

The aim of this report is to analyse the exploitable approaches, methods and initiatives for improving the public procurement processes focused on sustainability and energy efficiency in the building sector, specifically in constructions, renovations and maintenance and related skills. The analysis is done at European and international level to draw conclusions that could be transferred to the national and regional EU construction market.

This study points out the advantages and weak points in relation to the demand of qualified experts in energy efficiency and sustainability in all phases of the green public procurement processes

In Chapter 3, "Diagnosis within European and international context", the reviewed Initiatives are organized depending on its origin and their main points described in a unified manner. A preliminary list of conclusions is Has been performed. At the end of the chapter a list of preliminary conclusions has been made. Templates of the initiatives with the main information of each one is also included. Important approaches such as GPP coupled with Level(s) are described.

The goal of Chapter 4 is to present how these initiatives could be transferred into regional construction market in 3 general aspects.

- First of all, analysing the situation of current markets in order to find out the missing topics in training programs
- Secondly, identify the gaps of these initiatives in order to look for improvements when implementing them in national or regional markets. That is, to identify what missing points these initiatives have not considered in order to include them when these initiatives are transferred to the national framework.
- Third, in most of these approaches new topics are appearing with regards to sustainable Green Public Procurement for construction as well as the newest trends. These topics are listed, and they are potential points to take into account when public authorities are making the GPP for mid and long term.

Finally, in Chapter 5 the lessons learnt have been summed up.

It can be said that most of the approaches or projects focus on defining and describing the green procurement procedure and how it can be enhanced by introducing concepts such as Life Cycle Assessment (LCA) or Sustainable Procurement planning. While actions to stimulate the demand of qualified expert in sustainability and energy efficiency is a secondary issue.

It would be very important to include - in all procedures and tenders - an extra methodology capable of improvement of the tenders Terms and conditions – and bid specifications of administrative clauses.

In relation to the requisites of the bid specifications and administrative clauses of the GPP, it is really important not only to specify the subject and level of capability and expertise desired but also to take into account and even anticipate the needs and trends of the market as a way to promote continuous training of the professionals.

The implementation of the aforementioned aspects could influence the content planning and execution of public training plans, promote the use of training platforms and encourage good practice cases. In this sense, public administrations could homologate tested, easily accessible and standardized training courses that, at the same time, also benefit the quality of the contract.

These conclusions highlight the importance of concepts such as the ESR (European Skills Registry) and the electronic inventory developed by **TRAIN4SUSTAIN** (T4S) project.

#### ABBREVIATIONS AND KEY WORDS

GPP	Green Public Procurement
CAM	Minimum Environmental Criteria
GPP NAP	National Action Plan on Green Public Procurement
PA	Public Authorities
CPP	Circular procurement
T4S	TRAIN4SUSTAIN

## 2 Introduction

Regional public authorities and municipalities recently have started to implement GPP criteria in their tenders, also environmental and social criteria according to the new guidelines and European requirements in relation to construction sector. (e.g. GPP Criteria). The vast majority have adopted these criteria to internal guidelines by adapting them to the different areas of their public policies.

However, there is still a long way to go and a lot of work ahead. That is why this deliverable is intended to focus on the most current initiatives. This will make it possible to analyse current needs and what trends exist in order to mark the long-term roadmap.

## 3 Diagnosis of the European and international context

The purpose of this chapter is to present a current diagnosis regarding the different methodologies, initiatives and approaches to improve procurement processes within the European and the international context.

The first step was to create a map of the initiatives and approaches in order to classify them according to: who manage them, who is it addressed to, the main purpose, goals and results, and the territorial or thematic scope that those initiatives cover.

In relation to the public to whom they are addressed to, it can be said that most are focused on the professionals of the public administration. For example, networks platforms are intended primarily for public administration workers.

### **3.1 Initiatives and methodologies Map**

Generally speaking, the map has been divided in 2 different levels. The first range separates European or International initiatives. The second level divides those initiatives or approaches from public policies official web portals such as European Commission from other kind of entities both public or private. Finally, in the last place, there are the sister projects (finished or ongoing projects) that study directly or indirectly the sustainable procurement and the impact and needs of professional skills.



ANALYSED INITIATIVES MAP			
1st Level	2n Level		
1. EUROPE	1. European commission official web portals	Green Public procurement	GPP Criteria GPP good Practices GPP Toolkit linked to Ongoing and Complete projects GPP Helpdesk and GPP News Alert
		ProcurCompEU	
		Build-up Skills	
		Level's	
		Futurium- Urban agenda- Public Procurement -	
	2. European local and regional entities Networks	ICLEI	Procura+ Sustainable Procurement Platform INNOVATION PROCUREMENT PLATFORM Procurement FORUM
		CONSTRUCTION21 INTERNATIONAL	
	3. Sister projects	Concluded	LIFE GPPbest ENFORCE E-CENTRAL AIDA
		Ongoing	INSTRUCT BUSLEAGUE BIMEET HP4ALL nZEB Roadshow
	2. INTERNATIONAL	1. Networks and initiatives	United Nations Environment Programme
One Planet Network			

Image 1: initiatives and approaches

At the end of this chapter the main information and characteristics of each studied initiative have been collected in a template. It allows having the information in a homogenous format and to facilitate by a glance what each one is about and its main aspects, and also to be able to compare them.

## 3.2 Initiatives and methodologies analysis

### 3.2.1 European Framework

#### 3.2.1.1 Green Public procurement – European Commission

European Commission has in its Environmental web portal a specific section dedicated to the Green Public procurement<sup>1</sup> (from now GPP). Both public and private parties involved in this kind of procedures could find different kind of information support materials and tools, such as the buying green and circular procurement guidelines, a monthly newsletter with best practices carried out

<sup>1</sup> [https://ec.europa.eu/environment/gpp/index\\_en.htm](https://ec.europa.eu/environment/gpp/index_en.htm)

by the Estate Members and cities, the GPP criteria adopted by the European commission focused on different topics, among others.

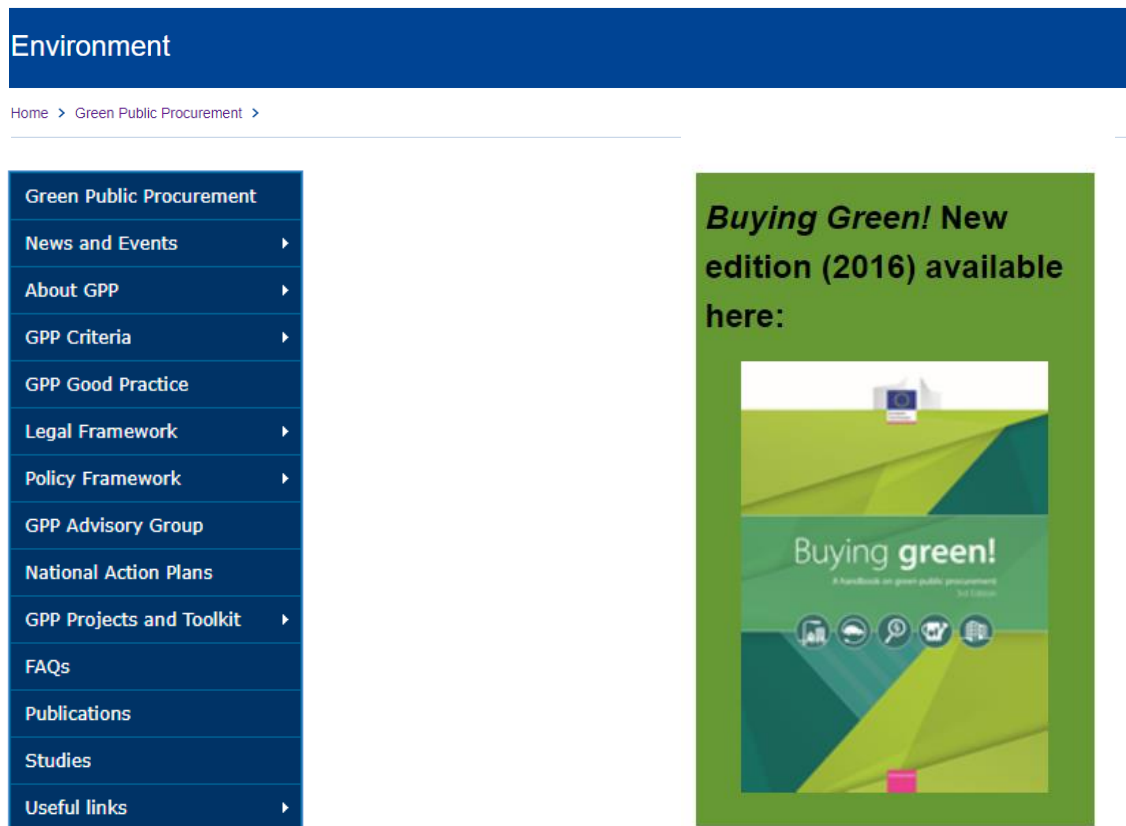


Image 2 GPP European Website. Source [https://ec.europa.eu/environment/gpp/eu\\_gpp\\_criteria\\_en.htm](https://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm)

### 3.2.1.1.1 GPP Criteria and Good Practices

Tender criteria are requirements related to the terms and conditions and included in folds of clauses. There are different types of criteria among others in relation to: solvency, award, execution conditions and technical prescriptions.

## GPP Criteria

The European Commission has developed since 2008 several EU GPP criteria focused in products and services, in order to facilitate the inclusion of green requirements in public tender documents.

The main objectives set with the development of the criteria are:

- Unify the criteria used by the Member States
- Have clear, verifiable, justifiable and ambitious environmental criteria for products and services
- Improve procurement processes by striking a balance between environmental performance, cost considerations, market availability and ease of verification and facilitate to the public authorities the inclusion of appropriate requirements

GPP approach covers different sectors and proposes two types of criteria:

- The core criteria, suitable for use by any contracting authority across the Member States and address the key environmental impacts.
- The comprehensive criteria are for those who wish to purchase the best environmental products available on the market

Focused on the building sector, several criteria have been developed related to the construction market, (see the attached picture with the areas focused). Despite this fact, nowadays there are not relevant or specific criteria regarding sustainable and energy competences, skills or/ and knowledge of the agents involved.

## GPP good practices

The European Commission, in parallel, has been promoting good practice experiences on GPP to expose the cases of success of 'greened' public tender or procurement process.

The good practices selected include samples of green procurements and Guides, protocols related to the implementation of GPP criteria, and processes that take into account the use of life-cycle costing (LCC), circular economy principles and approaches fostering sustainable innovation, among others.

### 3.2.1.1.1 GPP Toolkit, Ongoing and completed projects

The GPP Training Toolkit is a set of GPP training tools<sup>2</sup> designed for use by public purchasers and by GPP trainers, or for integration in general public procurement training courses and workshops.

It consists of six independent modules and ten operational modules including presentation and accompanying guidance.

**The analysis** of the independent and operational modules **will be made taking into account aspects related to the TRAIN4SUSTAIN project.**

The following is a summary of the contents of the **independent modules**:

**M2: Procurement strategy** One of the main goals of the strategy is to integrate sustainability into procurement activities and to present decision-makers with real-life examples of successful GPP.

Pilot cases actions plans including targets regarding the incorporation of environmental/social purchasing demands -specific criteria in relation to sustainable and energy competences- have been analyzed. A sample of procurement actions collected within the development of procurement strategies are:

- The Professionalization of the public sector agents
- The Professionalization and development of the procurers through external training.

**M3: Legal aspects of GPP:** The content of this module should be taken into account in relation to the **TRAIN4SUSTAIN** project since it has a strong link with the legal assessment of professional skills such as the environmental requirements or the award criteria. Some of them are summarized in the following list.

Summary of the Legal aspects concerned:

- Exclusion and selection of bidders may include environmental aspects
- Technical specifications can set minimum environmental requirements, including by reference to third-party labels
- Award criteria are used to evaluate performance above and beyond the minimum requirements, and may include life-cycle costing
- Contract performance clauses should enforce GPP commitments, and be specific to each contract

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<sup>2</sup> <sup>4</sup>[https://ec.europa.eu/environment/gpp/toolkit\\_en.htm](https://ec.europa.eu/environment/gpp/toolkit_en.htm)

The main points founded in relation to **sustainable and energy competences, skills or/ and knowledge involved in GPP** are:

- The Link to the Subject-matter (LtsM)
- The Choice of procedures
- Exclusion + selection of bidders
- Environmental management systems
- Technical specifications
- Award criteria
- Combining specifications and award criteria
- Contract performance clauses
- Life-cycle costing (LCC)

And specifically the issues related to the points to focus on are:

1. [The considerations to be taken into account when Selecting bidders:](#)

- Human and technical resources
- Experience and references
- Educational and professional qualifications of staff
- Environmental management systems and schemes\*
- Conformity assessment certificates...

2. [The Environmental management systems included\\*](#)

- These systems provide a structured and third-party certified way to manage environmental performance. (In this sense EMAS and EN/ISO 14 001 are the most common systems in use in Europe).

3. [The technical Specifications of the tenders](#)

Under the directives there is a choice between

- Performance-based or functional specification
- Specification based on standards

4. [The Award Criteria:](#)

- Determine the winning bid from amongst those which meet the technical specifications
- Combine cost (including life-cycle cost) and qualitative criteria
- Can include a range of environmental factors

**M4: Need assessment**

Related to the tender specifications needs assessment helps to choose the most appropriate specification to ensure that they are not overly restrictive, and that allow SMEs to compete.

## M5: GPP and the circular economy

The circular procurement is mainly related to the cycle life of products or service. Regarding the construction sector there are opportunities to develop in relation to:

- The Design for deconstruction
- The Recycled content
- Multiple REBMs
- CO2 reduction
- The End of Life - closing material loops
- Refurb & maintenance
- Cost savings.

### Procurement cycle impacts

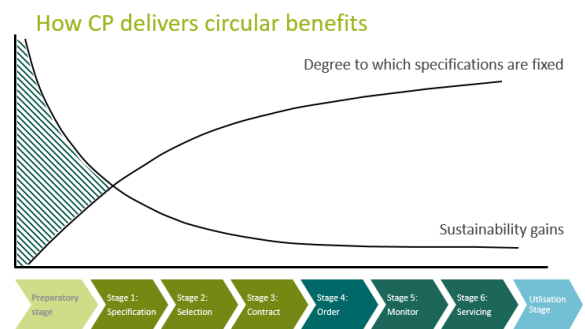


Image 3 Procurement cycle impacts. Module 5 Toolkit.

Source:

[https://ec.europa.eu/environment/gpp/toolkit\\_en.htm](https://ec.europa.eu/environment/gpp/toolkit_en.htm)

The process of construction of circular buildings still has many shortcomings. It can be concluded that, **since the concept of circularity linked to the construction sector is beginning to unfold, competences: skills and knowledge of circularity of the external and internal actors involved in circular GPP should be taken into consideration in the different stages of GPP design.** Key elements are the determination and development of new areas of expertise and the training of agents, professionals and workers in relation to circularity

## M6: GPP Market engagement

To take into account the engagement with the market in the design of the procurement and contract. Especially with regard to a paradigm shift that would involve working in a circular way, specifically in the world of construction

### Operational modules

Analysis of the Module 7.5: Office Building Design, Construction and Management that includes the renovation of existing buildings and construction of new office buildings.

**One of the key stages identified in the procurement process found to be taken into account in relation to the TRAIN4SUSTAIN project is:**

#### A. The selection of the design team and contractors

In the EU GPP are included Criteria related to the **Competencies of the design team and contractors:**

- Competences of the project manager
- Competences of the design team (architect, consultant and / or design team)

- Competences of the main construction contractor and specialized contractors.
- Competences of BOD contractors and real estate developers
- Energy management system.

**The careful analysis and definition of the requirements will be of great importance in relation to other tasks carried out by the TRAIN4SUSTAIN project.**

### Ongoing and completed projects

The completed GPP Projects and the GPP Ongoing Projects, linked to the GPP Toolkit section are analysed later in this Deliverable.

#### 3.2.1.1.2 Help desk and GPP news an Alerts.

Other initiatives to improve the GPP

**Helpdesk for GPP**, <https://ec.europa.eu/environment/gpp/helpdesk.htm>

Tool set up by the European Commission as a mean for supporting public authorities to green their purchasing decisions. The main aim is to provide timely and accurate answers to stakeholders' enquiries, and to promote and disseminate information on GPP.

**GPP News Alert**, [https://ec.europa.eu/environment/gpp/alert\\_en.htm](https://ec.europa.eu/environment/gpp/alert_en.htm)

The GPP News Alert is a newsletter that covers the latest news on green procurement.

#### 3.2.1.2 *ProcurCompEU*

*ProcurComp*<sup>EU3</sup> is a tool designed to support the professionalization of public procurement by defining **30 Key competences** that will provide a common reference for public procurement professionals.

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<sup>3</sup> [https://ec.europa.eu/info/policies/public-procurement/support-tools-public-buyers/professionalisation-public-buyers/procurcompeu-european-competency-framework-public-procurement-professionals\\_en](https://ec.europa.eu/info/policies/public-procurement/support-tools-public-buyers/professionalisation-public-buyers/procurcompeu-european-competency-framework-public-procurement-professionals_en)

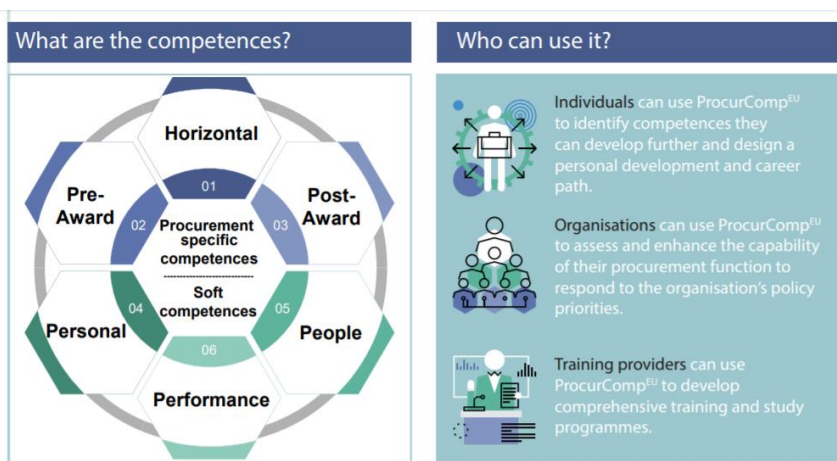


Image 4 Procurement Competences pillars. Source: Procurement Website <sup>4</sup>

It is a **voluntary and free customisable** tool that helps the authorities when contracting professional and experts in relation to public procurement. The benefits that offers Procurement<sup>EU</sup> will allow the organisation to build professional teams specialized in procurement processes and that could give and added value to reach the strategic investment goals.

Even there isn't any specific reference to the GPP, this tool could be adapted and expanded to the **sustainable or circular procurement** requirements without any inconvenience by introducing these mandatory elements and knowledge that are fundamental to reach the GPP targets. From the results obtained it will be possible to find the main gaps and to establish training plans in order to improve their knowledge and transversal skills, and create a procurement policy or define job and recruitment requirements.

**How does it work?** Procurement<sup>EU</sup> it is a simple questionnaire that covers around **30 competences** necessary to deploy the procurement according to the competences are related specifically with the procedure and its phases or, otherwise, are linked with soft or transversal competences.

Competences of Procurement<sup>EU</sup>:

Category of competence	Cluster of competences	Competences
Procurement specific	Horizontal	1. Planning
		2. Lifecycle
		3. Legislation
		4. e-Procurement and other IT tools
		5. Sustainable procurement
		6. Innovation procurement
		7. Category specific
		8. Supplier management
		9. Negotiations

<sup>4</sup> [https://ec.europa.eu/info/policies/public-procurement/support-tools-public-buyers/professionalisation-public-buyers/procurement-eu-european-competency-framework-public-procurement-professionals\\_en](https://ec.europa.eu/info/policies/public-procurement/support-tools-public-buyers/professionalisation-public-buyers/procurement-eu-european-competency-framework-public-procurement-professionals_en)



	Pre-award	10. Needs assessment
		11. Market analysis and engagement
		12. Procurement strategy
		13. Technical specifications
		14. Tender documentation
	Post-award	15. Tender evaluation
		16. Contract management
		17. Certification and payment
		18. Reporting and evaluation
		19. Conflict resolution and mediation
<b>Soft</b>	Personal	20. Adaptability and modernisation
		21. Analytical and critical thinking
		22. Communication
	People	23. Ethics and compliance
		24. Collaboration
		25. Stakeholder relationship management
	Performance	26. Team management and Leadership
		27. Organisational awareness
		28. Project management
		29. Business and performance orientation
30. Risk management and internal control		

Image 5 ProcurComp Competences List according to the Phases of the Procurement Process. Source: [https://ec.europa.eu/info/sites/default/files/procurcompeu-ecf\\_for\\_pp\\_en.pdf](https://ec.europa.eu/info/sites/default/files/procurcompeu-ecf_for_pp_en.pdf)

In addition to this, ProcuraComp<sup>5</sup> defines 4 levels of professionals: **Basic, intermediate, advanced and expert** in order to punctuate according the proficiency level. In the table below there are the descriptions of each one:

<sup>5</sup> [https://ec.europa.eu/info/policies/public-procurement/support-tools-public-buyers/professionalisation-public-buyers/procurcompeu-european-competency-framework-public-procurement-professionals\\_en](https://ec.europa.eu/info/policies/public-procurement/support-tools-public-buyers/professionalisation-public-buyers/procurcompeu-european-competency-framework-public-procurement-professionals_en)

Proficiency levels	Description
<b>1. Basic</b>	You demonstrate basic factual knowledge/ awareness of the procurement field;
	You have basic practical skills, required to use relevant information in order to carry out simple tasks and activities of public procurement processes
	You perform quality work and acquire new skills under direct supervision and within a structured context.
<b>2. Intermediate</b>	You demonstrate factual and theoretical knowledge of public procurement and related fields;
	You have a range of cognitive and practical skills required to use relevant information in order to carry out recurring procurement tasks and solve simple problems;
	You are able to carry out public procurement processes and tasks with little supervision.
<b>3. Advanced</b>	You demonstrate advanced practical and theoretical knowledge of the public procurement field
	You display a range of advanced practical skills required to tackle complex and less frequent tasks and problems using innovative methods and approaches;
	You take responsibility and ownership for completion of public procurement tasks, manage inputs by other procurement specialists and take key decision at different stages of public procurement processes.
	You know to quickly adapt your behaviour to others' and specific circumstances
<b>4. Expert</b>	You demonstrate comprehensive, specialised, practical and theoretical knowledge of the public procurement field at expert level;
	You possess an extensive range of techniques, methods and skills required to address complex issues, develop innovative solutions, and contribute to expand the public procurement knowledge of your organisation;
	You exercise leadership and keep abreast of latest developments in the field of public procurement by attending and participating in key procurement related events with both expert and non-expert audiences, based on which you shape your organisation's policy and vision.

Image 6 ProcurComp Proficiency level description. Source: [https://ec.europa.eu/info/sites/default/files/procurcompeu-ecf\\_for\\_pp\\_en.pdf](https://ec.europa.eu/info/sites/default/files/procurcompeu-ecf_for_pp_en.pdf)

In relation to TRAIN4SUSTAIN it could be very useful in order to evaluate the competences for those professionals who are in charge of writing procurement terms and conditions. Furthermore, depending on each case, new competences and questions related to **circular procurement, construction and energy sustainability** could be introduced as a complementary section providing a greater degree of demand on the part of public authorities. It can also be useful to determine proposals for improvement at different stages of the procurement process to increase the use of skills and knowledge that make procurement processes more sustainable. It facilitates the creation of specialized working teams in writing green construction procurements.

### 3.2.1.3 Build-up Skills

**BUILD UP Skills** <sup>6</sup> is an initiative that encompasses several European projects across 30 countries to work on their national roadmaps for qualifying professionals. **TRAIN4SUSTAIN** as a part of Build UP Skills initiative seeks to accomplish the set of recommendations that BUS have put forward, among which **TRAIN4SUSTAIN** can affect. Some are detailed below:



**1) Green procurement:** *Demand qualifications / skills as part of tendering procedures.*

In that sense T4S is working to harmonise a qualifications quality Standard. This Standard will facilitate the public authorities to introduce specific qualifications and skills requirements without affecting the competitive concurrence of public contracts. Furthermore, it will ensure that the winning professionals or companies have the indispensable knowledge to carry out a Green Procurement Project.

Apart from that, **TRAIN4SUSTAIN** standard makes possible to incorporate skills and quality requirements for certified qualifications in the national legal framework. Through Skills Passport professionals could proof their level of qualification when participating in other EU countries public procedures.

**2) Promoting the upskilling of the construction**

T4S services such as E-Inventory or Match-Making Hub could support Public authorities to promote the need of upskilling of the construction among professionals through training materials and courses that they will make available to professionals.

**3) Companies and Professionals registers.**

Just as it is important for BUS to create a register of companies that employ skilled workers, T4S wants to go one step further and create a professional register **European Skills Registry**. This electronic data base not only allows the professionals to register their skills and qualifications, but also eases the interaction between companies looking for qualified professionals and these professionals by strengthen in this way the employment and the labour market.

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<sup>6</sup> <https://www.buildup.eu/en/skills/10th-build-skills-eu-exchange-meeting-rotterdam-netherlands-30-31-may-2017>

On the other hand, in the latest BUS report (Pillar II) important barriers were identified such as economic barriers (costs and time), lack of understanding the importance of qualified workers, legal difficulties to introduce energy efficiency aspects, still poor demand on sustainable skills, and a wide diversity of procedures, standards and theoretical and practical training courses. In that sense **TRAIN4SUSTAIN** seeks on its work to overcome these obstacles through the different services that offers.

### 3.2.1.4 Level's

Level(s)<sup>7</sup> is a new European approach to assess and report on the sustainability performance of buildings, throughout the full life cycle of buildings.

**Level(s) is a framework to help design and construct sustainable buildings with the whole lifecycle in mind.**

Level(s) brings buildings into the circular economy. It encourages **lifecycle** thinking, and **supports users all the way from the design stage through to operation and occupation** of a building.

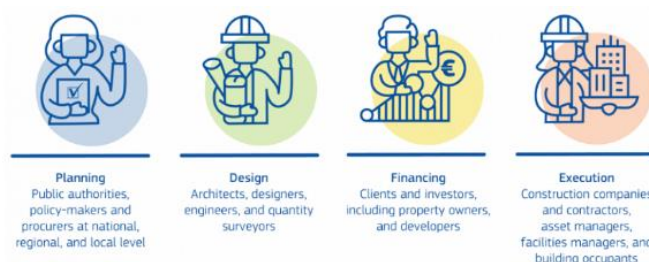


Level(s) focuses on the most important aspects of a building's performance, providing a simple entry point to what can be a very complex area.

#### Professionals and potential actors

The Level(s) common framework has been designed with three main projects actors in mind and has the potential to offer a range of advantages:

- **Project design teams**, including architects, engineers, quantity surveyors and specialist consultants
- **Client and investors**, including property, developers, managers and investors
- **Public policy makers and procurers**



<sup>7</sup> [https://ec.europa.eu/environment/topics/circular-economy/levels\\_en](https://ec.europa.eu/environment/topics/circular-economy/levels_en)

the framework encompasses both public and private potential actors:

Project actors	Potential advantages of using Level
<b>Project design teams</b> <i>(including project managers, architects, engineers and quantity surveyors)</i>	<ul style="list-style-type: none"> <li>- It provides a simple structure that can be presented to clients in order to prioritise attention on sustainability aspects.</li> <li>- It supports the user at each stage in a project, with guidance notes on how to make accurate performance assessments.</li> <li>- It has a focus on the performance of the completed building, and the steps to be taken at design stage to ensure high performance.</li> <li>- It provides flexibility in the level of detail at which sustainability aspects can be addressed in the design process</li> </ul>
<b>Clients and investors</b> <i>(including property owners, developers and investors)</i>	<ul style="list-style-type: none"> <li>- It provides a clear set of priority aspects of performance to focus attention on, forming a basis for instructing design professionals.</li> <li>- It ensures transparency in the reporting of performance assessment, and the associated data, calculation methods and assumptions.</li> <li>- It focusses on minimising the gap between design and occupied performance.</li> <li>- It identifies how the costs and risks associated with a building's performance can be future proofed and managed to deliver long-term value.</li> <li>- It provides tools to identify opportunities to extend the lifespan, improve the internal environmental quality and enhance the long term value of building assets.</li> </ul>
<b>Public policy makers and procurers</b> (at local, regional and national level)	<ul style="list-style-type: none"> <li>- It provides a clear set of prioritised aspects of performance to focus attention on, together with a standardised basis for setting requirements for new and renovated buildings to meet.</li> <li>- It provides the basis for actions and requirements that can contribute to Member State, regional and local government carbon reduction targets as well as broader sustainability objectives.</li> <li>- It focusses on performance aspects that are of direct ongoing financial interest to public authorities and agencies, such as operating and maintenance costs;</li> <li>- It includes indicators that measure comfort and wellbeing aspects of a building and its internal environment, e.g. indoor air quality, thermal comfort.</li> <li>- It provides recommendations on how the performance of an occupied building can be monitored and surveyed</li> </ul>

### [Level\(s\) and other European Initiatives](#)

Level (s) interacts with other European sustainability initiatives such as:

- Agenda 2030 in particular it helps to achieve SDG11 Sustainable Cities and Communities goals
- European Green Deal, Level (s) help professionals to achieve the green deal targets.
- Circular Economy Action Plan by making accessible the concept of circularity for all building construction phases.
- Renovation Wave: Introduce the lifecycle and circularity into refurbishment projects.
- EPBD (Energy Performance Building Directive) and EED (Energy Efficiency Directive): Level (s) could provide support for directive revision and its planned update.
- GPP. Level(s) will be the basis of GPP criteria for office buildings. The idea is that it covers other kind of uses such as schools and social housing.

- Sustainable Finance (taxonomy) Level(s) guides part of the technical screening criteria used to identify new buildings for sustainable finance.

### Areas covered

Level(s) is divided into three areas:

- Resource use and environmental performance during a building's life cycle
- Health and comfort
- Cost, value, and risk

There are three levels considered as stages in the execution of a building project:

**Level 1:** The conceptual design for the building project. Qualitative assessment

**Level 2:** The detail design and construction: Quantitative assessment

**Level 3:** The as-built and in use performance of how the building performs after completion and handover to the client. Monitoring and surveying

### Structure- Macro-objectives

The Level(s) frame is based on 6 macro-objectives, which describe what the strategic priorities should be for the contribution of buildings to EU and Member State policy objectives in areas such as energy, material use and waste, water and indoor air quality.

- MO1 Greenhouse gas air pollution emissions along building life cycle
- MO2 resource efficient and circular material life cycles
- MO3 Efficient use of water resources
- MO4 Healthy and comfortable spaces
- MO5 Adaptation and resilience to climate change
- MO6 Optimised life cycle cost and value

## Indicators

In Addition to this, each of the three areas above has its own **set of indicators** dealing with a building's environmental, social, and economic long-term sustainability. Furthermore, the indicators are grouped in 6 different Macro objective that at the same time are grouped by these 3 thematic areas.

*For more information about areas covered, Macro-objectives and indicators see the appendix details*

## Level's TECHNICAL MANUALS:

Level(s) initiative provides a manuals pack for professionals and interested people to help them to understand properly how it works and how to implement the indicators according to each macro objective. First of all, there is 2 introductory User Manuals with the main information about the Level(s) framework, the rest of manuals are dedicated to each of the indicators.

## LEVEL(S) INITIATIVES

*Level(s) initiatives regarding:*

1. **GPP processes:** In relation to this point, Level(s) proposes an interesting initiative for the year 2022 of Green public procurement criteria based on Level's for offices and schools both built and renovation.
2. ***the professionalization of the construction sector related to sustainability and Life Cycle of Building and the improvement of sustainable professional skills and competences***

Level(s) is a framework to help design and construct sustainable buildings with the whole Life Cycle in mind, professionals who use this tool will need a certain level of training that will allow them to achieve and improve their skills in the field of sustainability.

*Regarding the professionalization of the construction sector there is the possibility of use the Level's system to the assessment and certification schemes to make sure that their criteria reflect the most important priorities for circular economy at a European level.*

These tool allows Building professionals and their clients to increase their understanding of how buildings impact upon the environment. Level(s) helps the user identify hotspots and shows how to reduce environmental impact.

### 3. **Innovation:**

*In relation to innovation this tool also enables It also enables the comparability of data and results across different building performance rating*



#### Spain.

Linked within the framework of the Levels project are several initiatives carried out by L'ITeC<sup>8</sup>, a reference institution in training, innovation and sustainability from Catalonia.

ITeC made different test using its software, that allows to calculate the environmental impacts in projects of building and is able to calculate with the methodology of Life Cycle Analysis the environmental impacts, to check the 3 different levels included in **Level(s) framework, as well as assess how this approach responds to its indicators.** In order professionals could use these tools specific training courses will be necessary. It should be considered it an innovative procedure that could ensure the success of circularity procedures.

<sup>8</sup> <https://itec.es/infoitec/jornadas/el-itec-tester-de-la-metodologia-europea-levels/>



### 3.2.1.5 Futurium- Urban agenda- Public Procurement

Futurium is a platform dedicated to Europeans discussing EU policies. It is organized in different thematic groups; Among these groups one can find the **Urban Agenda for EU Topic**. It is a meeting point where the Estate Members can cooperate with European Commission, and other stakeholders in order to stimulate the growth and innovation in European cities. <sup>9</sup>

Under the Urban Agenda umbrella there are 12 priority fields such as Climate Adaptation, Circular Economy, jobs and skills, or **Public Procurement**.

In particular, for **Public Procurement**, a partnership on Innovative and responsible public procurement is set by different sort of public and private. This working group creates a 7 E-learning modules Toolkit of the Urban Agenda Partnership<sup>10</sup> on Innovative and Responsible Public Procurement. The seven areas are: 1) Building Strategy; 2) Circular procurement 3) Local cooperation; 4) Innovation procurement broker; 5) Funding; 6) Legal Framework; 7) Measuring spend.



Different guides, which include practical and theatrical examples, have been published to understand better the description and the content of each of these areas. This initiative is quite similar to GPP Toolkit, where through different e-learning modules a the GPP professional can learn new working methodologies to design and to execute the Procurement Plan.

In relation to **TRAIN4SUSTAIN** it would be necessary to see how to approach the aspects not only of energetic sustainability in the construction, but also the effect that it has in projects of innovation and especially in social responsibility. That is, how the qualified professionals in Areas of Expertise of the **TRAIN4SUSTAIN**, can also be certified in these two mentioned areas of Futurium.

<sup>9</sup> <https://futurium.ec.europa.eu/en/urban-agenda>

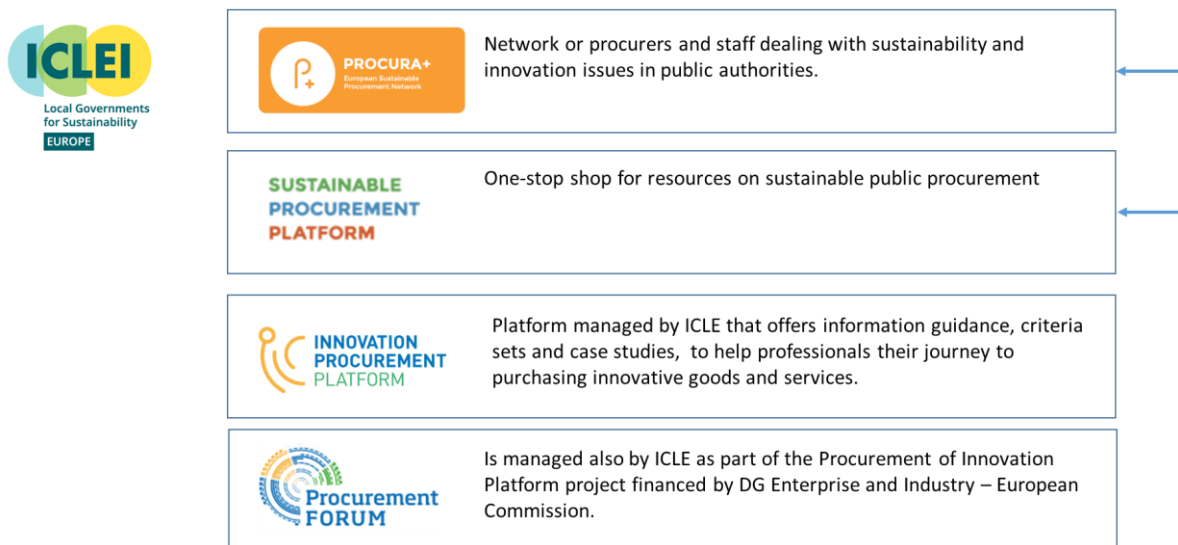
<sup>10</sup> <https://uapp.maester.com/>

## 3.2.2 Network Initiatives

### 3.2.2.1 ICLEI

In the analysis and evaluation to find out which initiatives are aimed to improve the public procurement process and in particular GPP, it is important to include the **Network Platforms**. The main reason, unlike the goals of specific European projects, is that the networks allow a directly interaction and communication between public professionals and private sector in relation to public procurement. They can share their knowledge, experiences, doubts and concerns among other issues, in order to improve in their own day to day work.

One of the entities that promotes this type of networks is ICLEI (Local Governments for Sustainability) in more than 125 countries around the World, and about 33 in Europe. Their participants look for influence sustainability policy and drive local action for low emission, nature-based, equitable, resilient and circular development.



#### 3.2.2.1.1 Procura+

Procura+ is an initiative designed to help support public authorities in implementing Sustainable Procurement.

A range of different guidance's and resources and case of studies for implementing SPP are available on the website, including detailed purchasing



criteria for six product groups (buses, cleaning products & services, electricity, food & catering services, IT products, building construction & renovation) a Manual for SPP implementation and a collection of best practice case studies.

### 3.2.2.1.2 Sustainable Procurement Platform

The Sustainable Procurement Platform is **a key online platform whose contents are related to the sustainable procurement from across the world.** <sup>11</sup>



It works as a One-stop shop to gather at a single point all information that could help both private and public sectors improve the deployment of sustainable and circular procurement. This platform also provides information related to Cases of study, tools and guidance, data base of European Programs, training services that links with GPP toolkit.

Through the analysis of the contents existing on the Sustainable Procurement Platform, several finalisations of green procurement action plan in different cities of the world have been brought to light<sup>12</sup>,

All these examples, provide very good examples of innovative practices in the use of procurement to get environmental, social and economic established targets, but nothing related to the stimulation demand for qualified experts in energy, key theme investigated by **TRAIN4SUSTAIN**.

The strong point of this online platform is definitely the possibility to share resources on sustainable public procurement which allows, both private and public sectors, to find useful information or key example of case studies related to GPP and Sustainable Procurement. These best practices represent inspiration and guidance on how to implement a sustainable procurement in the proper sector, also helping solving more practical aspects of the tender process.

It is equally important to take into account also the synergies which might occur among users of the platform, making contact with other professionals, creating networking activities and exchanging opportunities

<sup>11</sup> <https://sustainable-procurement.org/sustainable-public-procurement/>

<sup>12</sup> [https://glcn-on-sp.org/fileadmin/user\\_upload/Publications/GLCN\\_Leaflet\\_WEB\\_korr.pdf](https://glcn-on-sp.org/fileadmin/user_upload/Publications/GLCN_Leaflet_WEB_korr.pdf)

### 3.2.2.1.3 INNOVATION PROCUREMENT PLATFORM

This platform is focused on Innovation Procurement<sup>13</sup>. In this case, the central is the innovation and offers to the visitor all information in relation to the following topics: resources of Innovation Procurement, Training and consultancy Support by ICLE ,Guidelines, etc.



The Innovation Procurement Platform is also supported by EAFIP (European Assistance For Innovation Procurement – EAFIP)<sup>14</sup>. This initiative offers an **innovation procurement toolkit (3 Modules)**. This toolkit fosters the improvement of these skills of procurers and end-users to use innovative products, in different ways. On the one hand to create

innovative procurement processes and on the other provides some examples how to punctuate those professionals according their innovative and business skills.

Toolkit structure:

- **Module 1:** A strategic module addressed to policy makers, providing economic and case evidence about the impacts and benefits of Pre-commercial Procurement (PCP) and Public Procurement for innovation (PPI) , together with concrete guidance on how to embed PCP and PPI into innovation strategies;
- **Module 2:** An operational module addressed to public procurers aimed at clarifying the pre-requisites and key steps to design and implement an innovation procurement process (PCP and PPI); and
- **Module 3:** A legal / operational module addressed to legal services aimed at clarifying legal issues and provide practical 'how-to' guidelines, supported by templates.

<sup>13</sup> <https://innovation-procurement.org/>

<sup>14</sup> <https://eafip.eu/about/>

### 3.2.2.1.4 Procurement FORUM

Following the other platforms, Procurement Forum is a meeting center where procurement professionals (mainly Public authorities) can share information, ask for questions and doubts with other professionals. There are different opened thematic discussions as well as different working groups. As in other cases, there are no specific discussions on how to consider the professional qualification of contracted companies.



### 3.2.2.2 CONSTRUCTION21 INTERNATIONAL

Construction 21 is a social media dedicated to all professionals active in buildings and city sectors interested in Sustainability, with the main objective to have a huge stakeholder's community to adopt innovative and best practice solutions at national and international level. Construction21 has a complete Agenda with all international events related to Sustainable and energy efficiency construction sector. The platform is divided in 7 sections: News, Dossiers, Case Studies, Awards, Communities, Training, Members.



The specialized social networks like this, could be a perfect driver to promote the use of T4S platform and get the attention of professionals.

### 3.2.3 Sister Projects

In Section 3.2.1.3 regarding Build UP Skills some references to European projects which are aimed to improve skills and abilities of construction professionals (blue collars and white collars) have already done. Below have been chosen the most relevant ones that may have a close relationship with **TRAIN4SUSTAIN**.

#### 3.2.3.1 Concluded

##### 3.2.3.1.1 LIFE GPPbest

“Best practices exchange and strategic tools for GPP” it's a research project financed by the European Commission within LIFE program. The main objective of the LIFE GPPbest project was to contribute to the promotion of new patterns of sustainable consumption and to the development and dissemination of best practices and policy approaches concerning the improvement of sustainability in public procurement processes, in order to highlight the benefits of GPP and to promote its wider application.



Specifically, the project aimed to **improve governance of procurement policies** ensuring that they are oriented towards the achievement of sustainable development objectives; **trying also to improve skills and tools for the verification of green criteria in the evaluation of offers and bidders in the management and implementation of contracts.**

Many of these outputs are perfectly in line with **TRAIN4SUSTAIN** approach, in particular the **GPPbest Catalogue**, downloadable from the project website [www.gppbest.eu](http://www.gppbest.eu). This document contains the selection of the best “good practices” in order to plan and implement Green Public Procurement (GPP), very useful also to exchange tools and strategic practices based on GPP. As showed in the image below, the definition of candidate selection criteria and the definition of contract awarding criteria for the adoption of sustainability criteria in tenders are taken into account.

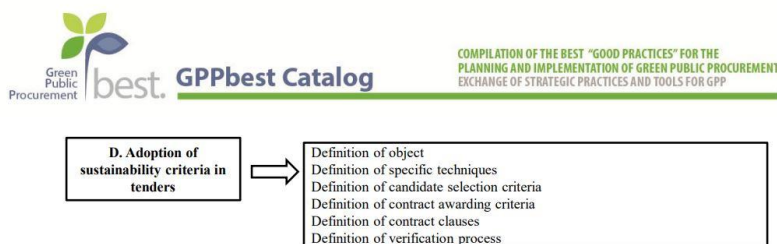


Image 7 Stages of the adoption and implementation process for sustainable procurement. Source: Falocco S., Ricotta S., "Sustainable Procurement" December 2012, Milan, Edizioni Ambiente<sup>15</sup>.

Starting from the phases for the adoption of sustainability criteria in tenders, different aspects have been defined. In the next table are identified how these topics are linked with T4S goals:

GPP main aspects	TRAIN4SUSTAIN SKILLS
Policy planning;	It helps to introduce the section professional skills aspects when making public policies planning, for both public workers and private ones, and give add value into the analyses of labour market of these policies into the tries to homogenize the technical requirements
Legislation, official documents/regulation	
Centralized green public procurement;	it helps to homogenize a unique way of valuing professionals in GPP processes.
Internal organization;	
Training and updates;	It promotes the continuous upskilling.
Information, awareness campaigns and events;	It has a direct impact on market demand and supply.
Use of environmental criteria in tenders	Introduce qualification skills scheme for sustainable construction by Areas of Expertise
Verification and monitoring	It facilitate the verification and monitoring of GPP outcomes by ensuring qualified professionals and companies.
Cost-benefit analysis of green public procurement	

Concerning the objectives of this sister Project and the field of interest of **TRAIN4SUSTAIN**, some key aspects have been extrapolated from the document and listed below.

POLICY PLANNING	How T4S can support on this?
<u>A technical evaluation of the construction products life cycle analysis</u> <u>Basic training and refresher courses</u> , helpdesk activities, interdisciplinary technical roundtables and preliminary consultations.	e-inventory and Match-making Hub

<sup>15</sup> <https://www.greenreport.it/news/comunicazione/acquisti-sostenibili-di-s-falocco-s-ricotta/>



<b>Legislation and official documents</b>	<b>How T4S can support on this?</b>
it was decided to adopt a green public procurement policy with the aim of promoting, through its procurement choices, the diffusion of environmental technologies, the reduction of energy consumption and climate-altering gas emissions, etc.	to drive the demand on the part of the public administrations of qualified and specialized professionals
<b>INTERNAL ORGANIZATION</b>	<b>How T4S can support on this?</b>
A broad involvement of internal offices through specific participation and training. Identify tenders and elements that allow for a cost/benefit analysis on some specific topics such as: energy efficiency, use of green materials, incentivizing the control of waste from operations,	Improve the public workers skills and knowledge to anticipate market needs
<b>TRAINING AND UPDATES</b>	<b>How T4S can support on this?</b>
Provide practical tools for stakeholders to carry out GPP, seminars and technical workshops, differentiating the topics and tools for further analysis, depending on the target. The topics of the training were differentiated according to the professional role.	All T4S services are related on GPPbest project activities
<b>MONITORING SYSTEMS</b>	<b>How T4S can support on this?</b>
Monitoring of the implementation of the commitments made. In this manner, GPP activity is made transparent and verifiable, setting the basis for more specific analyses on the environmental and economic effects deriving therefrom.	Through European Skills Registry T4S can support the task of ensure the quality and the success of the GPP projects.

As it is possible to note from the collection of these existing approaches and methods, several are the initiatives related to the improving of the sustainability and energy efficiency in Public Procurement but almost nothing is taken into account referred to professionals and blue collars requirements. That's why **TRAIN4SUSTAIN** can helps to reorient these initiatives by introducing professional skills according to the needs of each GPP.

### 3.2.3.1.2 ENFORCE

ENFORCE project, acronyms which stands for “European Network for the Energy Performance Certification of Buildings



[www.enforce-eeen.eu](http://www.enforce-eeen.eu)



ENFORCE has given to final consumers independent, qualified, information and assistance on energy certification of their buildings, allowing them to make informed decisions, thus aiding the diffusion of energy certification (Energy Performance of Buildings Directive 2002/91/EC).

Among its objectives there is the creation of a trans-national network of trained **energy auditors**, operating under a common code of conduct, to assist final consumers on energy performance related topics;

- operating a call-center for consumers as a first contact point, providing the requested information and access to the network of auditors;
- launching an information campaign to promote the call-center and network services, thus qualify the market.

It is important to mention the outputs of ENFORCE project because it has deepened several key topics addressed by **TRAIN4SUSTAIN**, mainly related to the stimulating demand for qualified expert and the training of energy auditor for buildings. ENFORCE has analysed the minimum requirements criteria for Energy Performance Certification Assessors, giving important feedback on **energy auditor high-quality training**. This training has been conceived in order to avoid serious differences in the professional competences of Energy Certification Assessors.

**Qualified Energy Certification Assessors or Energy Auditors** have a central role with regards to the success or failure of the EPBD implementation. Their competencies, knowledge and the whole mechanism of approving/registering energy certification depend on local or regional authorities, which should focus their efforts on the following 3 key points:

- Energy auditor training and qualifications;
- Incentives and subsidies, which help to promote investment in energy efficiency measures;
- Divulcation campaigns, which are the effective ways to reach consumers.

ENFORCE project highlights the fact that the process to obtain **the licence of independent expert energy certification assessors is not homogeneous in all the EU countries**; training courses have different topics covered, not always mandatory and the qualifying exam varies in terms of technical contents, duration and type of approval.

Concerning the **trainer training**, it should be carried out by a Public Body, on a national level, and be compulsory for every trainer. In fact, uniform professional qualifications for Energy Certification Assessors throughout the national territory can only be ensured by a uniform trainer training system. In this way, (compulsory) Energy Certification Assessor training could be carried out by private organizations.

Energy Certification Assessors should be able to provide strong and verifiable guarantees of professionalism and independence. Such conditions are absolutely essential for consumers to consider Energy Certification not just another useless bureaucratic task. For these reasons, **Public Authorities should define minimum standards, as well as Energy Certification Assessor qualifications**, according to the following principles:

1. Independence regarding the commercial interests of the companies involved in construction and plant engineering.
2. Enrolling of ECAs in Public Professional Associations of Graduates from Universities of Engineering and Architecture.
3. Professional Qualification of ECAs, through compulsory attendance of Training Courses organized by public or private Bodies or Organizations, based on educational programmes defined by Public Authorities.
4. Final Course exam, carried out the Public Body responsible for the educational programme
5. The Public Body responsible for Registers should then collect and file the Energy Certifications (EPC) issued by Energy Certification Assessors.
6. Random monitoring activities should be carried out to assess the quality of Certifications issued by ECAs.,
7. ECAs should undergo a compulsory professional update, at least every 5 years, regarding innovative energy technologies; in order to confirm the official validity of energy certifications.

Consider a continuous quality monitoring of Certifications issued is a key step to provide a **quality assurance of Energy Certification Assessors and Inspectors**.

### 3.2.3.1.3 E-CENTRAL

Addressing poor energy performance of public the **eCentral**<sup>16</sup> project had the objective to raise awareness and motivate public authorities to aim for more ambitious energy renovation standards of buildings and to test the applicability of three innovative financing models in pilot regions.

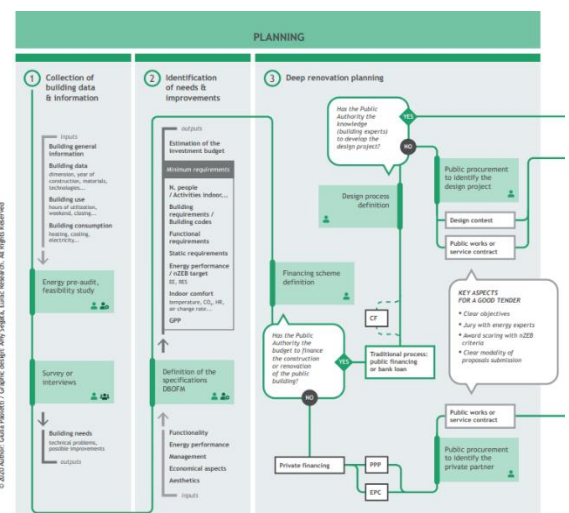


The project developed **5 innovative tools and guidelines for municipalities** to support these projects. Thirteen training programmes for local/regional authorities were organised, **4 strategies** and action plans and **3 pilot studies** were lead to test the applicability of innovative financing models.

The project objectives

- capitalise on results of previous and ongoing EU initiatives
- develop an Energy Performance Certificate - EPC Tool for public authorities
- deploy and promote innovative financing schemes
- develop training programmes
- assist nZEB projects
- develop building renovation strategies
- establish cooperation with scientific institutions and other nZEB initiatives

STEP-BY-STEP GUIDE ON HOW TO TURN PUBLIC BUILDINGS INTO NZEB<sup>17</sup>, this guide aims to support public authorities to identify and manage the renovation process, with a particular focus on eCentral project countries.



<sup>16</sup> <https://www.interreg-central.eu/Content.Node/eCentral.html>

<sup>17</sup> <https://www.interreg-central.eu/Content.Node/DT232-05112020.pdf>

development, through the design and construction phase, up to the service life of the buildings.

Public tenders are crucial for the success of the project: how they are carefully defined and managed can have an impact on the later stages of the process.

### 3.2.3.1.4 AIDA

AIDA<sup>18</sup> (stands for Affirmative Integrated Energy Design Action) offers support to **public authorities** to increase the number of nZEBs by including this energy target in **public design tenders** for new buildings (or buildings to be renovated / refurbished) and push design teams to follow an Integrated Energy Design (IED) process.



In total, 86 study tours to nearly zero-energy buildings with more than 3200 participants were conducted. Moreover 28 municipalities in seven European countries were supported in integrated energy design via feasibility studies and design tenders

AIDA offers action tailored to suit each of these groups including study tours, operational success stories, presentation of existing tools, active support for municipalities and close cooperation with key actors, public and building professionals.

One of the aims of the was to support its practical implementation in public procurement processes for building design or construction of the nZEB concept, on the basis of knowledge and background of the AIDA partners. In order to introduce the nZEB target and the IED approach, first of all, the AIDA partners organized a series of meetings, for municipalities and design teams involved in the building projects, to present different topics, discuss and fix energy targets, and explain the Integrated Energy Design procedures, whose implementation process was subsequently supervised and supported.



<sup>18</sup> <https://www.aidaproject.eu/>

### 3.2.3.2 On going

#### 3.2.3.2.1 INSTRUCT

INSTRUCT – SKILLS INSTRUCT INSTRUMENTS CONSTRUCTION, is a Horizon 2020 project coordinated by the ASM – Market Research and Analysis Centre Ltd.,

INSTRUCT intends to create **a complete operational framework to increase the number of skilled building professionals and blue collar workers over the whole value chain** (both for renovations and new constructions), and offer a set of service to support **raising awareness** of home and building owners and tenants **about the benefits of sustainable energy skills**,



and the public authorities for the development of new legislative frameworks, as for example the **requirements for skilled workers in public procurement**.

INSTRUCT wants to achieve the most important objectives:

- quantitative and qualitative evidences that corroborate and reinforce the **correlation between skills and education and energy performance and quality**;
- a set of tools and **instruments facilitating the mutual recognition of energy skills** and qualifications in the construction sector;
- new legislative frameworks enabling reliance on skilled workers in public / private procurement.

This project is directly related to **T4S** in relation to the creation of homologated tools to facilitate and consolidate a common recognition of energy and sustainability skills and qualifications in the construction sector.

#### 3.2.3.2.2 BUSLEAGUE

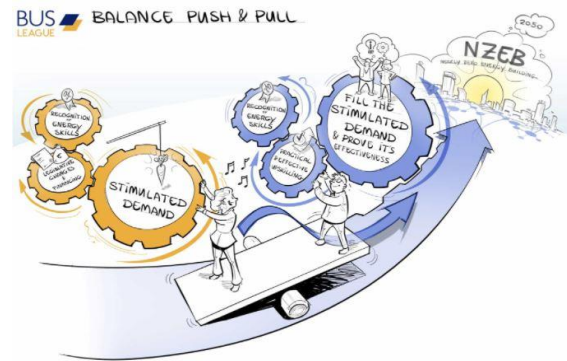
**BUSLeague**<sup>19</sup> is an international project co-funded by the European Union's Horizon 2020 . Building a Low-Carbon, Climate Resilient Future: Secure, Clean, and Efficient Energy) It has many similarities with **TRAIN4SUSTAIN** because is **dedicated to stimulate demand for sustainable energy skills in the construction sector**.

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<sup>19</sup> <https://busleague.eu/>).

The project **acts at market level and supports legislative changes** that will stimulate the demand for energy skills.

A significant remaining barrier related to this challenge is 'how to motivate and upskill the majority of the workforce involved' (blue collar workers and white-collar professionals).



BUSLeague has distinguished **five main challenges to be addressed in an integrated approach**:

- Challenge 1: Testing and Recognition of Skills
- Challenge 2: Awareness of both the general public and workforce
- Challenge 3: Lack of support / request for the skilled professional by the Public Authorities
- Challenge 4: Lack of motivation, time and trainings
- Challenge 5: Integration of new technologies and addressing new societal and technological trends

BUSLeague will achieve this objective by **developing and implementing a cross European recognition of energy skills, together with upscaling successful training methods and techniques** which have already been developed in previous EU and National initiatives such as BUILD UP Skills, Construction Skills.

Just Like **TRAIN4SUSTAIN** BUSLeague focusses on a blend of four elements: mutual recognition of energy skills, awareness raising, capacity building and legislative changes.

The first outcomes of this project provide an overview on the actual situation experiences regarding the recognition of energy efficiency skills and associated effects on stimulating market demand. In order to be able to **implement the sensibly related to buildings with high-energy performance** or "nearly zero energy building standards (nZEB)", workers must be trained accordingly; this aspect represents the **main challenges** for the construction industry across Europe. The report also shows **problems and challenges with recognition of energy efficiency skills** and summarizes the provision of further education and recognition of skills in the building sector among these partner countries, indicating country specific strengths and weaknesses in connection with challenges and opportunities.

One important outcome that could be linked with **TRAIN4SUSTAIN**, in particular with e-inventory, is the potential initiatives related with **micro learning and e-learning offers**, determination and dissemination of a suitable methodology to



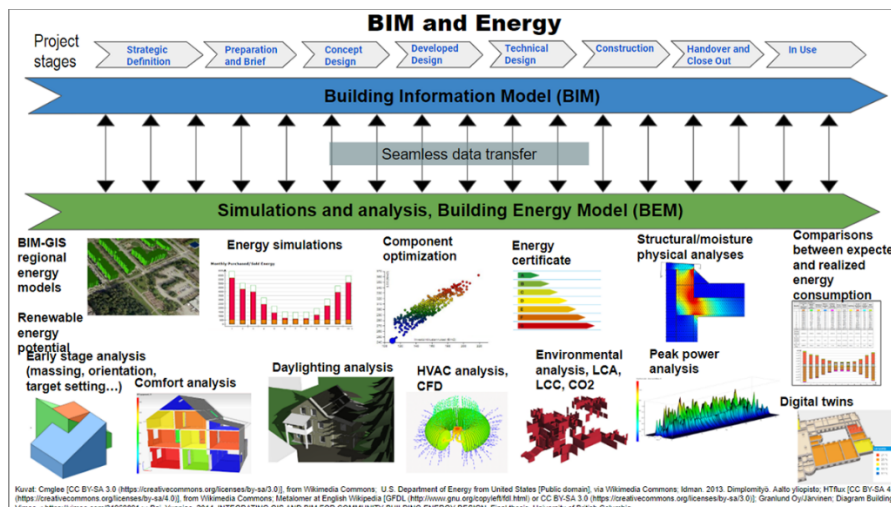
describe knowledge imparted through courses to compile and recognize additional qualifications, extension of successful training programs in the field of energy efficiency in cooperation with training centres, etc.

Based on these considerations, it will be productive and useful for **TRAIN4SUSTAIN** to observe the progress of BUSLeague project in order to cooperate in similar areas of interest.

### 3.2.3.2.3 BIMEET

BIMEET project<sup>20</sup> it's a **BIM-based EU-wide standardized qualification framework for achieving energy efficiency training**; the project brings together nine partners around BIM technology as a key digital support for the energy efficiency of the built environment.

BIMEET leverages the take-up of ICT and BIM through a **significant upgrade of the skills and capacities of the EU construction workforce**. This project is built around a strong consortium relying on educational and research & technology expertise, robust experience of accrediting bodies, training supply chain and a wide engagement of industry led best practice.



Through its actions the project:

- paves the way to a fundamental step change in delivering systematic, **measurable and effective energy efficient buildings through BIM training**;
- promotes a **well-trained world** leading generation of decision makers, practitioners, and blue collars;
- establishes **a platform for training**.

<sup>20</sup> <https://projectsites.vtt.fi/sites/bimeet/index.html>

All the aspects commented above give guideline that **TRAIN4SUSTAIN** should consider as current and future trends to be included in the feedback rating system.

- The reports and documents produced by BIMEET project are important to for its similarities with the topics addressed by **TRAIN4SUSTAIN**. For example, the analysis and gaps identification in relation to skills and competencies involved in BIM training for energy efficiency prior to integration with following training models and strategies, or the definition of common learning outcomes in the European Level in order to be able to compare different qualifications across national borders and stakeholders.
- The project also includes a BIM training platform complementary to e-Inventory of **TRAIN4SUSTAIN**

#### 3.2.3.2.4 HP4ALL

HP4ALL project<sup>21</sup> has received funding from the European Union's Horizon 2020 research and innovation programme. HP4ALL aims at **stimulating demand for sustainable energy skills in the**



**construction sector**, enhancing the development and promotion of the skills required for high quality; in synthesis the objectives of HP4ALL project are:

- Design Heat Pumps competency & excellence skills framework;
- Increase the number of skilled workers;
- Enable end users/clients to demand high quality solutions;
- Replicate the project at national and EU-Level.

Within the HP4ALL reports there is a section which presents a **summary of the best practice initiatives for increasing the skills in the energy sector in Europe**. Strictly related with the contents of **TRAIN4SUSTAIN** is one of the initiatives mentioned in the project, called NEWCOM <https://www.newcomtraining.com/> (New qualification schemes to build high quality), which is a European-wide project developing on the one hand **training schemes to enable construction workers and building professionals to build the nearly zero-energy building (nZEB) standard** and on the other hand **a basis for the mutual recognition of the developed training schemes**. As basis for the mutual recognition of the developed training schemes, a **database of competences was developed**. Then by this way professionals and/or companies can promote themselves or their work. Moreover, companies in

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<sup>21</sup> <https://hp4all.eu/projects/>



search of qualified professionals can compare competences of registered craftsmen. It is quite similar with **TRAIN4SUSTAIN** services.

The **key learning points** highlighted from these best practice initiatives in Europe are the following:

- **Associations and professional bodies** have a key role to play in developing and coordinating activities that support upskilling.
- **Ensuring training quality for energy professionals and installers**, the quality of training courses for energy professionals and equipment installers is a critical factor to ensure an upskilling of the workforce.
- **Choosing the right training provider** is of critical importance to guarantee the quality of the training. Training providers must have both a high level of technical knowledge and excellent communication skills.
- **Training programmes that are embedded in a wider policy framework** can help to create an incentive for people to be trained.
- **Energy networks**, a widespread initiative in some European countries was the creation of **networks of experts in energy efficiency** which proved to be a strong driving force for innovation.
- **Certification schemes** gives end-users confidence that they are reliable, proves that they are qualified to deliver the services promised and requires that the professional is insured in case of a problem.
- **Awareness and training tools**, the knowledge and competence in product related energy efficiency has to be strengthened along the value chain, from manufacturers, to the retailer and the consumers.

#### 3.2.3.2.5 nZEB Roadshow

The nZEB Roadshow<sup>22</sup> is a Horizon 2020 project that started in June 2020 for **stimulating the demand for skilled workers by promoting market demand for quality nearly zero-energy buildings**. In support of this goal, during the lifetime of the project, no less than 25 events in Bulgaria, Croatia, Greece, Italy and Romania will be organised, featuring product exhibitions, job fairs, training courses and live demonstrations.

The team of the project will **design and construct mobile training and demo units that will serve as information centres to raise awareness of the benefits of nZEBs** and will create the necessary conditions for effective communication between stakeholders. With very careful attention to exterior and interior design, the centres will offer real-life experience of quality nZEB and will be equipped with all necessary technologies to provide full information of the

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<sup>22</sup> <https://www.nzebroadshow.eu/>

processes with relevance to the building's performance in terms of comfort, internal air quality parameters and energy consumption.

They will be performed **training courses for both designers and workers during nZEB days**, going on-site finding ongoing construction projects. During these occasions, they will have live demonstration events, workshops, games for youngsters and active social media engagement.

The project doesn't take into account GPP aspects and neither there are available details about recent results.

## 3.3 International

### 3.3.1.1 United Nations Environment Programme

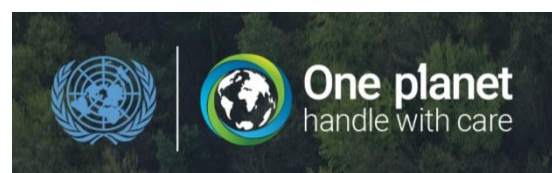
The United Nations Environment Programme (UNEP)<sup>23</sup> is the leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system, and serves as an authoritative advocate for the global environment.

Its mission is to provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations.

They categorize its work into seven broad thematic areas: climate change, disasters and conflicts, ecosystem management, environmental governance, chemicals and waste, resource efficiency, and environment under review.

### 3.3.1.2 One Planet Network

The One Planet networks a multi-stakeholder partnership is made of hundreds of organisations and thousands of individuals from around the world. its strategic objective during the period 2018-2022 is to be the lead mechanism to support and **implement the shift to sustainable consumption and production patterns**, contributing as an effective implementing mechanism of Goal 12 of the 2030 Agenda for Sustainable Development.



<sup>23</sup> <https://www.unep.org/>

One Planet Network generates collective impact through its six programmes: **Public Procurement, Buildings and Construction**, Tourism, Food Systems, Consumer Information, and Lifestyles and Education.

The two programmes of greatest interest in relation to **TRAIN4SUSTAIN** objectives are the one related to Public Procurement and the one related to Buildings and Construction.

### Public Procurement

Concerning Public Procurement<sup>24</sup> the **One Planet Network Sustainable Public Procurement (SPP) programme** is a voluntary global multi-stakeholder partnership in which various parties - governmental, non-governmental, public and private, agree to work together in a systematic way with the aim to promote and accelerate the implementation of sustainable public procurement globally as a way to ensure sustainable consumption and production patterns.



**Work areas** of the SPP programme are 4:

- Facilitate and Support SPP Implementation
- Stimulate change in International Sectoral Markets
- Advocate and mobilise political leadership and support
- Public value of SPP implementation and measuring impacts and progress

### Building and Construction

Concerning Building and Construction<sup>25</sup>, the goal of the programme is to promote resource efficiency, mitigation and adaptation efforts, and the shift to SCP patterns in the buildings and construction sector. The Sustainable Buildings and Construction Programme (SBC) aims at improving the knowledge of sustainable construction and to support and mainstream sustainable building solutions. Through the programme, all major



<sup>24</sup> <https://www.oneplanetnetwork.org/sustainable-public-procurement>

<sup>25</sup> <https://www.oneplanetnetwork.org/sustainable-buildings-and-construction>

sustainable construction activities can be brought together under the same umbrella.

**Work areas** of the SBC programme are 5:

- Enabling Frameworks
- Sustainable Housing
- Sustainability in the Supply Chain
- Reduce climate impact
- Knowledge Sharing, Outreach, Awareness Raising

### 3.4 Findings of current context.

After having analysed several initiatives and projects in relation to the Green Public Procurement and its connection with the qualification of professional skills and knowledge, the following points can be concluded.

In general terms, the majority of the initiatives and approaches are focused on helping public authorities in implementing a GPP, in particular those fostered by the European commission. Through different tools or methodologies such as *GPP toolkit* or *Level's*, the public entities have at their disposal a series of guides that allow them to determine the best way to plan, design and execute a green or sustainable public procurement. Hence, each public authority can adapt their needs and their internal protocols by using them. However, the proper functioning of these tools and the proper implementation of the methodologies requires that the public workers be well trained on the topic of energy efficiency or sustainability connected to materials, buildings etc. in order to be able to achieve a successful implementation of GPP Toolkit. Public servants specialized for dealing with public procurements should be also specialized for GPP too. In relation to the first point ProcuraComp helps public organisations to evaluate the proficiency level of their workers and look for improvement measures to achieve levels of internal excellence, such as specific training or creating cooperative teams. However, ProcuraComp does not go beyond the provisions of the European directives, therefore it could be necessary to introduce specific elements based on competences regarding GPP and circular economy, as they will be contract requirements.

On the other hand, there are different communications platforms where public authorities can share and publish their experiences and learn from success stories. ICLE (Local Governments for Sustainability) is the one who manage the most used networks such as Procura+ or Procurement Forum. One important

thing to highlight of the analysis performed is that in these Networks all GPP Criteria issues are addressed with special mention to innovation or circular contracting. Nevertheless, the examples related to energy efficiency and sustainable construction are limited and one can only find basic requirements in relation to the qualification and skills of professional.

As far as the private sector concerned, there are also different organisations and social media platforms where construction professionals can find the latest sector news, cases of study and other kind of information that they can use, learn and implement when participating in a tender ensuring their proposals are fit for the purpose.

### 3.5 Templates

The following templates gather the main points of each initiative in a homogeneous way.

ANALYSED INITIATIVES MAP			
1st Level	2n Level		
1. EUROPE	1. European commission official web portals	Green Public procurement	
		ProcurCompEU	
		Build-up Skills	
		Level's	
		Futurium- Urban agenda- Public Procurement	
	2. European local and regional entities Networks	ICLEI	Procura+ Sustainable Procurement Platform
		Concluded	LIFE GPPbest ENFORCE E-CENTRAL AIDA
	3. Sister projects	Ongoing	INSTRUCT BUSLEAGUE BIMEET HP4ALL nZEB Roadshow
		One Planet Network	

## GPP

ANALYSIS OF GREEN AND SUSTAINABLE PUBLIC PROCUREMENT (GPP) PROCESS IN THE EU								
Existing approaches, methods and initiatives on improving the public procurement processes								
Territorial Scope	Organism/entity	Area	GGP Regulatory frame	Categories	Typology of GPP	Initiatives / Methodologies		Addressed to:
EUROPE	EUROPEAN COMMISSION	ENVIRONMENT GPP	Directive 2014/23 / EU, of 26 February 2014, on the award of concession contracts Directive 2014/24 / EU, of 26 February 2014 on public procurement. Directive 2014/25 / EU of 26 February 2006 on the procurement of entities Directive	PUBLIC PROCUREMENTS: PROFESSIONALISATION OF PUBLIC BUYERS	GENERAL	Manuals	<b>GPP good practices</b> Guides and protocols related to the implementation of GPP criteria, and processes that take into account the use of life-cycle costing	Civil servant working on public Procurement - Jurist/lawyers - Architects - Engineers...  Public purchasers  GPP trainers
						Tool kits	<b>GPP Toolkit</b> – Set of GPP training tools consisting in 6 independent modules and 10 operating modules related to several market sectors, one related to office building design.	
						Surveys/Assessments/evaluation		
						Training courses		
						Action Plans		
						Criteria	<b>GPP Criteria:</b> several EU GPP criteria focused in products and services, in order to facilitate the inclusion of green requirements in public tender documents.	
						Consultation Bodies	<b>Help Desk</b> The main aim of the Helpdesk is to provide timely and accurate answers to stakeholders' enquiries, and to promote and disseminate information on GPP.	
						Publication studies	Buying Green	
Others	<b>GPP News Alert</b> Newsletter covering the latest news on green procurement in the EU plus a selection of good practice examples to illustrate how GPP can be done in practice. <b>GPP good practices:</b> to illustrate how public authorities in Europe have successfully 'greened' a public tender or procurement process.							
Links	<a href="https://ec.europa.eu/environment/gpp/index_en.htm">https://ec.europa.eu/environment/gpp/index_en.htm</a> <a href="https://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm">https://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm</a> <a href="https://ec.europa.eu/environment/gpp/toolkit_en.htm">https://ec.europa.eu/environment/gpp/toolkit_en.htm</a> <a href="https://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm">https://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm</a> <a href="https://ec.europa.eu/environment/gpp/helpdesk.htm">https://ec.europa.eu/environment/gpp/helpdesk.htm</a> <a href="mailto:gpp-helpdesk@iclei.org">gpp-helpdesk@iclei.org</a> <a href="https://ec.europa.eu/environment/gpp/alert_en.htm">https://ec.europa.eu/environment/gpp/alert_en.htm</a>							

## PROCURCOMP EU

ANALYSIS OF GREEN AND SUSTAINABLE PUBLIC PROCUREMENT (GPP) PROCESS IN THE EU									
Existing approaches, methods and initiatives on improving the public procurement processes									
Territorial Scope	Organism/entity	Area	GGP Regulatory frame	Categories	Typology of GPP	Initiatives / Methodologies		Addressed to:	
EUROPE	EUROPEAN COMMISSION	POLICIES	Directive 2014/23 / EU, of 26 February 2014, on the award of concession contracts Directive 2014/24 / EU, of 26 February 2014 on public procurement. Directive 2014/25 / EU of 26 February 2006 on the procurement of entities Directive	PUBLIC PROCUREMENTS : PROFESSIONAL ATION OF PUBLIC BUYERS		Manuals	ProcurCompEU – European competency framework for public procurement professionals (pdf)		Public Procurement professionals: - Jurist/lawyers - Building and construction technicians - Others
						Tool kits	ProcurCompEU – Competency matrix in table format		
						Surveys/Assessments/evaluation	- ProcurCompEU – Self-assessment test calculator - ProcurCompEU on the ground (cases of study)		
						Training courses			
						Action Plans			
						Criteria			
						Consultation Bodies			
						Publication studies	ProcurCompEU – Study on professionalisation of public procurement in the EU and selected third countries		
Others									
Links	<a href="https://ec.europa.eu/info/policies/public-procurement/support-tools-public-buyers/professionalisation-public-buyers/procurcompeu-european-competency-framework-public-procurement-professionals_en">https://ec.europa.eu/info/policies/public-procurement/support-tools-public-buyers/professionalisation-public-buyers/procurcompeu-european-competency-framework-public-procurement-professionals_en</a> Contact: GROW-PP-PROFESSIONALISATION@ec.europa.eu								

## BUILD-UP SKILLS

Territorial Scope	Organism/entity	Areas	GPP Regulatory frame	Categories	Typology of GPP	Initiatives / Methodologies		Addressed to:
EUROPE	EUROPEAN COMMISSION	BUILD UP European Portal for Energy Efficiency	Directive 2012/27/EU of 25 October 2012 on energy efficiency Directive 2010/31/UE on the energy performance of buildings Directive (UE) 2018/844			<b>Manuals</b>	-	All sectors
						<b>Tool kits</b>	-	
						<b>Surveys/Assessments/evaluation</b>	<a href="https://www.buildup.eu/sites/default/files/content/bus-d4.4finareport_on_assessment_april_2018_0.pdf">https://www.buildup.eu/sites/default/files/content/bus-d4.4finareport_on_assessment_april_2018_0.pdf</a>	
						<b>Training courses</b>		
						<b>Action Plans</b>	<a href="https://www.buildup.eu/en/skills/bus-projects">https://www.buildup.eu/en/skills/bus-projects</a>	
						<b>Criteria</b>	<a href="https://www.buildup.eu/en/news/build-skills-pillar-ii-final-evaluation-report-published">https://www.buildup.eu/en/news/build-skills-pillar-ii-final-evaluation-report-published</a>	
						<b>Consultation Bodies</b>	<a href="https://www.buildup.eu/en/skills/technical-working-groups">https://www.buildup.eu/en/skills/technical-working-groups</a>	
						<b>Publication studies</b>	<a href="https://www.buildup.eu/en/skills/eu-exchange-meetings">https://www.buildup.eu/en/skills/eu-exchange-meetings</a>	
						<b>Relevant case of study</b>	<a href="https://wayback.archive-it.org/12090/20210412140251/https://ec.europa.eu/easme/en/news/mobile-app-skills-construction">https://wayback.archive-it.org/12090/20210412140251/https://ec.europa.eu/easme/en/news/mobile-app-skills-construction</a> <a href="https://wayback.archive-it.org/12090/20210412140327/https://ec.europa.eu/easme/en/news/new-training-programmes-deep-energy-retrofitting">https://wayback.archive-it.org/12090/20210412140327/https://ec.europa.eu/easme/en/news/new-training-programmes-deep-energy-retrofitting</a>	
						<b>Others</b>	<a href="https://www.buildup.eu/en/skills/newsletters">https://www.buildup.eu/en/skills/newsletters</a>	
<b>Links</b>	<a href="https://www.buildup.eu/en/skills/about-build-skills">https://www.buildup.eu/en/skills/about-build-skills</a> <a href="https://wayback.archive-it.org/12090/20210412124950/https://ec.europa.eu/easme/en/section/horizon-2020-energy-efficiency/build-skills">https://wayback.archive-it.org/12090/20210412124950/https://ec.europa.eu/easme/en/section/horizon-2020-energy-efficiency/build-skills</a>							



## LEVEL(S)

ANALYSIS OF GREEN AND SUSTAINABLE PUBLIC PROCUREMENT (GPP) PROCESS IN THE EU								
Existing approaches, methods and initiatives on improving the public procurement processes								
Territorial Scope	Organism/entity	Area	GPP Regulatory frame	Categories	Typology of GPP	Initiatives / Methodologies	Addressed to:	
EUROPE	EUROPEAN COMMISSION	ENVIRONMENT Level(s)	Directive 2014/23 / EU, of 26 February 2014, on the award of concession contracts Directive 2014/24 / EU, of 26 February 2014 on public procurement. Directive 2014/25 / EU of 26 February 2006 on the procurement of entities Directive	EUROPEAN FRAMEWORK FOR SUSTAINABLE BUILDINGS	BUILDING	<b>Manuals</b>  <b>Tool kits</b>	<b>Level's TECHNICAL MANUALS:</b> - Manuals pack for professionals and interested people to help them to understand properly how it works and how to implement the indicators according to each macro objective. First of all, there is 2 introductory User Manuals with the main information about the Level(s) framework, the rest of manuals are dedicated to each of the indicators.  - Calculator	- Built Environment and Sustainability professionals.  - Policy makers / Procurers / Public authorities.  - Investors / Property owners / Landlords
						<b>Surveys/Assessments/evaluation</b>		
						<b>Training courses</b>	<b>Level(s) eLearning and tools:</b> Developing a comprehensive set of online training materials. The eLearning course will provide a detailed overview of Level(s) and prepare you to start using it in your working environment.	
						<b>Action Plans</b>		
						<b>Criteria</b>		
						<b>Consultation Bodies</b>	<b>Level(s) Community and help desk</b>	
						<b>Publication studies</b>	- A brief introduction to Level(s) - Level(s): Putting circularity into practice - Level(s) Specimen Specialised Article: For Architects and Designers	
						<b>Others</b>	Leves(s) newsletter	
						<b>Links</b>	<a href="https://ec.europa.eu/environment/levels_en">https://ec.europa.eu/environment/levels_en</a> <a href="https://ec.europa.eu/environment/newsletter-and-mailing-list_en">https://ec.europa.eu/environment/newsletter-and-mailing-list_en</a> <a href="https://ec.europa.eu/environment/community-and-help-desk_en">https://ec.europa.eu/environment/community-and-help-desk_en</a> <a href="https://ec.europa.eu/environment/start-using-levels_en">https://ec.europa.eu/environment/start-using-levels_en</a>	

## FUTURIUM- URBAN AGENDA- PUBLIC PROCUREMENT

Territorial Scope	Organism/entity	Areas	GGP Regulatory frame	Categories	Typology of GPP	Initiatives / Methodologies		Addressed to:
Europe	European Commission	Europeans discussing EU policies urban Agenda- Public Procurement	Directive 2014/23 / EU, of 26 February 2014, on the award of concession contracts  Directive 2014/24 / EU, of 26 February 2014 on public procurement.  Directive 2014/25 / EU of 26 February 2006 on the procurement of entities Directive + National and regional regulation of Futurium Partnership	continuous improvement procedure:  Innovative and responsible public procurement	General	<b>Manuals</b>	<a href="https://futurium.ec.europa.eu/en/urban-agenda/public-procurement/library">https://futurium.ec.europa.eu/en/urban-agenda/public-procurement/library</a> <a href="https://futurium.ec.europa.eu/en/documentation">https://futurium.ec.europa.eu/en/documentation</a>	Public Authorities Regional and local
						<b>Tool kits</b>	<a href="https://uapp.maester.com/">https://uapp.maester.com/</a>	
						<b>Surveys/Assessments/evaluation</b>		
						<b>Training courses</b>	<a href="https://uapp.maester.com/">https://uapp.maester.com/</a>	
						<b>Action Plans</b>	<a href="https://futurium.ec.europa.eu/en/urban-agenda/monitoring-actions/monitoring-table/table-actions-update-march-2021">https://futurium.ec.europa.eu/en/urban-agenda/monitoring-actions/monitoring-table/table-actions-update-march-2021</a>	
						<b>Criteria</b>		
						<b>Consultation Bodies</b>	<a href="https://futurium.ec.europa.eu/en/urban-agenda/public-procurement/pages/members">https://futurium.ec.europa.eu/en/urban-agenda/public-procurement/pages/members</a>	
						<b>Publication studies</b>		
						<b>Relevant case of study</b>		
						<b>Others</b>		
Links	<a href="https://spark.adobe.com/page/Ecf51AaulbP1b/">https://spark.adobe.com/page/Ecf51AaulbP1b/</a>							

## PROCURA +

ANALYSIS OF GREEN AND SUSTAINABLE PUBLIC PROCUREMENT (GPP) PROCESS IN THE EU								
Existing approaches, methods and initiatives on improving the public procurement processes								
Territorial Scope	Organism/entity	Areas	GPP Regulatory frame	Categories	Typology of GPP	Initiatives / Methodologies		Addressed to:
Europe Municipalities	ICLE (Local Governments for Sustainability)  <a href="https://procuraplus.org/">https://procuraplus.org/</a>	Network	Directive 2014/23 / EU, of 26 February 2014, on the award of concession contracts	Sustainable Public Procurement	ABUILDINGS: New construction  Renovation  Facilities management  	<b>Manuals</b>	Manual for SPP implementation (2016)  <a href="https://procuraplus.org/fileadmin/user_upload/Manual/ManualProcura_online_version_new_logo.pdf">https://procuraplus.org/fileadmin/user_upload/Manual/ManualProcura_online_version_new_logo.pdf</a>	Mainly Local Public Authorities
						<b>Tool kits</b>		
						<b>Surveys /Assessments /evaluation</b>	<ul style="list-style-type: none"> <li>• Environmental management systems for contractors</li> <li>• Experience with sustainable design and construction, use of lower-impact materials and methods, design for all users and renewable energy systems (if relevant)</li> <li>• Professional qualifications related to the above aspects</li> <li>• Health and safety record</li> </ul>	
						<b>Training courses</b>	The Procura+ seminars provide face-to-face exchange on sustainable procurement. Participants include purchasers from all levels of governments, suppliers, policy-makers and multipliers. Webinars and <b>ECOPROCURA</b>	
						<b>Action Plans</b>		
						<b>Criteria</b>	Energy or water efficiency which is better than the minimum specified Attainment of a third-party sustainability certification (e.g. BREEAM, Passive House) Use of environmentally preferable materials (e.g. lowVOC paints and finishes to improve indoor air quality) Life cycle costing, including monetised emissions where possible	
						<b>Consultation Bodies</b>		
						<b>Publication studies</b>	In Website there are different cases of study	
						<b>Relevant case of study</b>		
						<b>Others</b>		
			Directive 2014/24 / EU, of 26 February 2014 on public procurement.					
			Directive 2014/25 / EU of 26 February 2006 on the procurement of entities					
			Directive					
					Links			

## SUSTAINABLE PROCUREMENT PLATFORM

ANALYSIS OF GREEN AND SUSTAINABLE PUBLIC PROCUREMENT (GPP) PROCESS IN THE EU								
Territorial Scope	Organism/entity	Areas	GGP Regulatory frame	Categories	Typology of GPP	Initiatives / Methodologies		Addressed to:
International	SUSTAINABLE PROCUREMENT PLATFORM – International activities	ENVIRONMENT - POLICIES	Directive 2014/24 / EU, of 26 February 2014 on public procurement. Directive 2014/25/EU of 26 February 2014 on procurement by entities operating in the water, energy, transport and postal services sectors. Directive 2014/23/EU of 26 February 2014 on the award of concession contracts. Directive 2012/27/EU of 25 October 2012 on energy efficiency.	GPP: sustainable consumption; development and dissemination of best practices and policy approaches concerning the improvement of sustainability in public procurement processes; energy efficiency; Facilitate and Support SPP Implementation	BUILDING AND CONSTRUCTION; POLICY PLANNING	Manuals	The Procura+ Manual <a href="https://procuraplus.org/manual/">https://procuraplus.org/manual/</a>	Public Procurement Professionals; Public administrations; Governmental agencies; Non-governmental organizations; Private sector businesses; Intergovernmental organizations
						Tool kits	Tools and guidance for public procurement <a href="https://sustainable-procurement.org/tools-and-guidance/">https://sustainable-procurement.org/tools-and-guidance/</a>	
						Surveys/Assessments/evaluation		
						Training courses	Sustainable procurement training & services <a href="https://sustainable-procurement.org/trainingservices/">https://sustainable-procurement.org/trainingservices/</a>	
						Action Plans	Global Lead Cities Networks (GLCN)	
						Criteria		
						Consultation Bodies		
						Publication studies	The Procura+ Manual	
						Relevant case of study	Case Studies on Sustainable and Circular Procurement <a href="https://sustainable-procurement.org/case-studies/">https://sustainable-procurement.org/case-studies/</a> Global Lead Cities Networks (GLCN) on Sustainable Procurement <a href="https://glcn-on-sp.org/home/">https://glcn-on-sp.org/home/</a>	
						Others	Public procurement news <a href="https://sustainable-procurement.org/news/">https://sustainable-procurement.org/news/</a> Newsletter <a href="https://sustainable-procurement.org/newsletter/">https://sustainable-procurement.org/newsletter/</a> Platform Events <a href="https://sustainable-procurement.org/events/">https://sustainable-procurement.org/events/</a> Procurement Forum <a href="https://procurement-forum.eu/">https://procurement-forum.eu/</a>	
Links	<a href="https://sustainable-procurement.org/sustainable-public-procurement/">https://sustainable-procurement.org/sustainable-public-procurement/</a>							

## ONE PLANET NETWORK

ANALYSIS OF GREEN AND SUSTAINABLE PUBLIC PROCUREMENT (GPP) PROCESS IN THE EU								
Existing approaches, methods and initiatives on improving the public procurement processes								
Territorial Scope	Organism/entity	Areas	GGP Regulatory frame	Categories	Typology of GPP	Initiatives / Methodologies		Addressed to:
International	ONE PLANET NETWORK – International activities	ENVIRONMENT - POLICIES	Directive 2014/24 / EU, of 26 February 2014 on public procurement  SDG 12 – Responsible Consumption and Production	GPP: sustainable consumption; development and dissemination of best practices and policy approaches concerning the improvement of sustainability in public procurement processes; energy efficiency; Facilitate and Support SPP Implementation	BUILDING AND CONSTRUCTION ; POLICY PLANNING	Manuals		Public Procurement Professionals;  Public administrations;  Governmental agencies;  Non-governmental organizations;  Private sector businesses;  Intergovernmental organizations
						Tool kits	Global SCP Projects Database	
						Surveys/Assessments/evaluation	Portfolio of work concerning Public Procurement: 88 projects and 192 resources	
						Training courses	One Planet Network Webinars <a href="https://www.oneplanetnetwork.org/webinars">https://www.oneplanetnetwork.org/webinars</a>	
						Action Plans		
						Criteria		
						Consultation Bodies		
						Publication studies	One Planet network - Annual Reports <a href="https://www.oneplanetnetwork.org/one-planet-network-annual-reports">https://www.oneplanetnetwork.org/one-planet-network-annual-reports</a>	
						Relevant case of study	One Planet Network Case Studies <a href="https://www.oneplanetnetwork.org/case-studies">https://www.oneplanetnetwork.org/case-studies</a>	
						Others	One Planet Network News <a href="https://www.oneplanetnetwork.org/news">https://www.oneplanetnetwork.org/news</a>	
Links	<a href="https://www.oneplanetnetwork.org/">https://www.oneplanetnetwork.org/</a> <a href="https://www.oneplanetnetwork.org/sustainable-public-procurement">https://www.oneplanetnetwork.org/sustainable-public-procurement</a> <a href="https://www.oneplanetnetwork.org/sustainable-buildings-and-construction">https://www.oneplanetnetwork.org/sustainable-buildings-and-construction</a>							

## BIMEET

ANALYSIS OF GREEN AND SUSTAINABLE PUBLIC PROCUREMENT (GPP) PROCESS IN THE EU								
Existing approaches, methods and initiatives on improving the public procurement processes								
Territorial Scope	Organism/entity	Areas	GGP Regulatory frame	Categories	Typology of GPP	Initiatives / Methodologies		Addressed to:
Europe	Ongoing Sister Project: <b>BIMEET</b> EUROPEAN COMMISSION - H2020	ENVIRONMENT	Energy Efficiency Directive 2012/27/EU	BIM-based EU-wide standardized qualification framework for energy efficiency training;  BIM technology as a key digital support for the energy efficiency;  Skills and capacities of the construction workforce	BUILDINGS	<b>Manuals</b>	eLearning material	Decision makers;  Practitioners and blue collars in BIM for energy efficiency
						<b>Tool kits</b>		
						<b>Surveys/Assessments/evaluation</b>	Surveys and evaluation are available at: <a href="https://projectsites.vtt.fi/sites/bimeet/publications.html">https://projectsites.vtt.fi/sites/bimeet/publications.html</a>	
						<b>Training courses</b>	-BIM for Energy efficiency of buildings; -BIM for energy performance certificate (Introduction of BIM for enabled EPC assessment);	
						<b>Action Plans</b>		
						<b>Criteria</b>		
						<b>Consultation Bodies</b>		
						<b>Publication studies</b>	Results and publications available at: <a href="https://projectsites.vtt.fi/sites/bimeet/publications.html">https://projectsites.vtt.fi/sites/bimeet/publications.html</a>	
						<b>Relevant case of study</b>		
						<b>Others</b>	BIMEET Energy-BIM portal, Online Energy BIM portfolio can be accessed from this link: <a href="https://www.energy-bim.com/">https://www.energy-bim.com/</a>  BIMalliance <a href="https://projectsites.vtt.fi/sites/bimeet/bimalliance.html">https://projectsites.vtt.fi/sites/bimeet/bimalliance.html</a>	
<b>Links</b>	<a href="https://projectsites.vtt.fi/sites/bimeet/">https://projectsites.vtt.fi/sites/bimeet/</a>							

## BUSLEAGUE

ANALYSIS OF GREEN AND SUSTAINABLE PUBLIC PROCUREMENT (GPP) PROCESS IN THE EU								
Existing approaches, methods and initiatives on improving the public procurement processes								
Territorial Scope	Organism/entity	Areas	GGP Regulatory frame	Categories	Typology of GPP	Initiatives / Methodologies		Addressed to:
Europe	Ongoing Sister Project: <b>BUSLEAGUE</b> EUROPEAN COMMISSION - H2020	ENVIRONMENT	COM (2015) 80 final - A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy	Mutual recognition of energy skills; Sustainable energy skills in the construction sector; Energy efficiency/nZEB training clause into Public Procurement; Training schemes;	BUILDINGS	<b>Manuals</b>	Strategies to improve the energy skills of blue-collar workers ( <i>ongoing activity</i> ) Guide for Methodologies and Pedagogical Training Tools ( <i>ongoing activity</i> )	Blue collar workers and white-collar professionals; Public Procurement Professionals; Public administrations.
						<b>Tool kits</b>	Established Energy Skills Quality Repository ( <i>ongoing activity</i> )	
						<b>Surveys/Assessments/evaluation</b>	Report on proven approaches on the recognition of energy efficiency skills: <a href="https://busleague.eu/outcomes/">https://busleague.eu/outcomes/</a> Best Practice Procurement Policy Guide with energy efficiency clause ( <i>ongoing activity</i> ) Qualification for the recognition of energy efficiency skills ( <i>ongoing activity</i> )	
						<b>Training courses</b>	Development of qualification and training schemes ( <i>ongoing activity</i> )	
						<b>Action Plans</b>		
						<b>Criteria</b>		
						<b>Consultation Bodies</b>		
						<b>Publication studies</b>	Report on incorporating Energy efficiency/nZEB training clause into Public Procurement ( <i>ongoing activity</i> )	
						<b>Relevant case of study</b>		
						<b>Others</b>		
<b>Links</b>	<a href="https://busleague.eu/">https://busleague.eu/</a>							

## HP4PAII

ANALYSIS OF GREEN AND SUSTAINABLE PUBLIC PROCUREMENT (GPP) PROCESS IN THE EU								
Existing approaches, methods and initiatives on improving the public procurement processes								
Territorial Scope	Organism/entity	Areas	GGP Regulatory frame	Categories	Typology of GPP	Initiatives / Methodologies		Addressed to:
Europe	Ongoing Sister Project: <b>HP4ALL</b> EUROPEAN COMMISSION - H2020	ENVIRONMENT	Energy Efficiency Directive 2012/27/EU	Sustainable energy skills in the construction sector;  Increasing the skills in the energy sector.	BUILDINGS	<b>Manuals</b>		Associations and professional bodies in the construction sector;  Blue collar workers (equipment installers) and white-collar professionals;  Energy efficiency professionals;  Certification schemes.
						<b>Tool kits</b>		
						<b>Surveys/Assessments/evaluation</b>		
						<b>Training courses</b>	Digital learning tools: gamification/apps for micro-learning and market development ( <i>ongoing activity</i> )  Workshop <a href="https://hp4all.eu/knowledge-hub/#workshops">https://hp4all.eu/knowledge-hub/#workshops</a>	
						<b>Action Plans</b>		
						<b>Criteria</b>		
						<b>Consultation Bodies</b>		
						<b>Publication studies</b>	Report of best practice initiatives designed to increase the skills in the energy sector	
						<b>Relevant case of study</b>	Key learning points from the best practice initiatives in Europe <a href="https://hp4all.eu/documents/#downloads">https://hp4all.eu/documents/#downloads</a>	
						<b>Others</b>	Knowledge-hub <a href="https://hp4all.eu/knowledge-hub/#workshops">https://hp4all.eu/knowledge-hub/#workshops</a>	
<b>Links</b>	<a href="https://hp4all.eu/">https://hp4all.eu/</a>							



## INSTRUCT

ANALYSIS OF GREEN AND SUSTAINABLE PUBLIC PROCUREMENT (GPP) PROCESS IN THE EU								
Existing approaches, methods and initiatives on improving the public procurement processes								
Territorial Scope	Organism/entity	Areas	GGP Regulatory frame	Categories	Typology of GPP	Initiatives / Methodologies		Addressed to:
Europe	Ongoing Sister Project: <b>INSTRUCT</b> EUROPEAN COMMISSION - H2020	ENVIRONMENT	EU 2050 long-term strategy	<p>Skilled building professionals and blue-collar workers over the whole value chain;</p> <p>Awareness of building owners and tenants about the benefits of sustainable energy skills;</p> <p>Development of new legislative frameworks concerning requirements for skilled workers in GPP.</p>	BUILDINGS (both for renovations and new constructions)	<b>Manuals</b>	Correlation between training and energy efficiency <a href="https://instructproject.eu/wp-content/uploads/2021/03/Evidencing-the-correlation-between-training-and-energy-efficiency.pdf">https://instructproject.eu/wp-content/uploads/2021/03/Evidencing-the-correlation-between-training-and-energy-efficiency.pdf</a>	Decision makers; Professionals and blue collars;
						<b>Tool kits</b>	Tools facilitating the mutual recognition of energy skills and qualifications in the construction sector ( <i>ongoing activity</i> )	
						<b>Surveys/Assessments/evaluation</b>	New legislative frameworks enabling reliance on skilled workers in public / private procurement ( <i>ongoing activity</i> )	
						<b>Training courses</b>		
						<b>Action Plans</b>		
						<b>Criteria</b>		
						<b>Consultation Bodies</b>		
						<b>Publication studies</b>	Project Results available at: <a href="https://instructproject.eu/library/results/">https://instructproject.eu/library/results/</a>	
						<b>Relevant case of study</b>	Real-world demonstrations (in 5 geographical European areas) of the usefulness of the deployed instruments for recognition of energy skills and qualifications <a href="https://instructproject.eu/about/pilot-sites/">https://instructproject.eu/about/pilot-sites/</a> ( <i>ongoing activity</i> )	
						<b>Others</b>		
Links	<a href="https://instructproject.eu/">https://instructproject.eu/</a>							

## nZEB ROADSHOW

ANALYSIS OF GREEN AND SUSTAINABLE PUBLIC PROCUREMENT (GPP) PROCESS IN THE EU								
Existing approaches, methods and initiatives on improving the public procurement processes								
Territorial Scope	Organism/entity	Areas	GPP Regulatory frame	Categories	Typology of GPP	Initiatives / Methodologies		Addressed to:
Europe	Sister Project: nZEB roadshow EUROPEAN COMMISSION - Horizon 2020 Project	ENVIRONMENT	Energy Efficiency Directive Review and revision of Directive 2012/27/EU, amended by Directive 2018/2002/EU	Energy efficiency; nZEB Buildings; Nearly zero-energy buildings skilled workers; Training activities;		<b>Manuals</b>		Professionals and workers; Public Administrations; Communities; nZEB market and construction industry.
						<b>Tool kits</b>		
						<b>Surveys/Assessments /evaluation</b>	Mobile training and demo units used as information centres to raise awareness of the benefits of nZEBs <a href="https://www.nzebroadshow.eu/nze-b-days.html">https://www.nzebroadshow.eu/nze-b-days.html</a>	
						<b>Training courses</b>	Policy conferences, workshops and training events <a href="https://www.nzebroadshow.eu/nze-b-days.html">https://www.nzebroadshow.eu/nze-b-days.html</a>	
						<b>Action Plans</b>	Building Knowledge Hubs network	
						<b>Criteria</b>		
						<b>Consultation Bodies</b>		
						<b>Publication studies</b>		
						<b>Relevant case of study</b>		
						<b>Others</b>	Live demonstration events, workshops, games for youngsters and active social media engagement; Comic book and an online game on nZEB Buildings; (ongoing activities)	
<b>Links</b>	<a href="https://www.nzebroadshow.eu/">https://www.nzebroadshow.eu/</a>							

## 4 Implementation in regional and national construction market

The aim of this chapter is to present a global overview of the methodologies introduced in Chapter 3 and how they could be implemented into the regional and national construction market. To do that the present chapter has been divided in 3 sections: first, a brief analysis of the construction market situation is reviewed, then the gaps found out in general terms and its impact on regional markets, and finally potential topics are highlighted in the medium and long term.

The purpose of having an overview of the current market situation, and in particular, the lack of specialized training to professionals is to determine what are the needs of the market and what are the areas of expertise, in which European countries will have to reinforce their training plans. As a result of this analysis and an inventory of the prospective themes and trends, it can be possible to define how to implement the initiatives and approaches analysed in the previous chapter, as well as define future actions that enable to renovate the current public services making them more social, sustainable and beneficial for all citizens. The enhancement of the market of construction sector by updating training plans will help the governments to have country or different regions more competitive and be ready to face the new challenges of the energy transition.

### 4.1 Construction market situation

This section links the Deliverable 4.1 Analysis of public sector obstacles and needs and Deliverable 4.2 Analysis of Green and Sustainable Public Procurement (GPP) process in the EU

Whereas in **Deliverable 4.1 Analysis of public sector obstacles and needs** it has been described in depth the actual usage of requirements concerning sustainable skills for professionals and workers in public tenders for buildings and how they are formulated, the goal of **Deliverable 4.2 Analysis of GPP process** seeks to determine how the current approaches could be implemented into national or regional markets. To be able to have a first picture about the gaps of the studied initiatives and the potential topics to be introduced to construction market is important to make an overview of the market state-of-art.

This analysis has been done for Italy and Spain due to limited efforts and the representativeness of those country situations.

#### 4.1.1 Italy

- *The National Action Plan on Green Public Procurement – GPP NAP*". The Plan, updated in April 2013 and to date under further revision, aims to **maximize the diffusion of GPP among public bodies** in order to make it fully exploit its potential in terms of environmental, economic and industrial improvement.
- **Minimum Environmental Criteria (CAM)** are the environmental requirements defined for the different phases of the purchasing process
- the National Action Plan on Green Public Procurement provides the development of Minimum Environmental Criteria also for **construction building and energy services**, key themes in **TRAIN4SUSTAIN** project. The Minimum Environmental Criteria specified in the CAM for the construction, retrofit and maintenance of buildings refer explicitly to the **buildings energy and environmental sustainability certification systems at national and international level**. CAMs mention some examples of these rating systems to which it is possible to refer to: BREEAM, CasaClima, Protocollo ITACA, LEED, WELL.
- CAMs indicate, as a useful element for the contracting entity, the selection of projects providing for the application of one of these energy and environmental sustainability certification systems related to the buildings. For each criterion specified by CAMs, **the professional is required to verify that quality and performance levels of the rating system applied are equal or higher to those indicated by the CAMs**.
- A key point is the fact that, **the technical ability of the professionals is not a mandatory requirement**, but is indicated, in Article 2.6.1 as a rewarding criterion that the contracting authority can request optionally, assigning the score it deems appropriate.
- it's important to mention that in the Minimum Environmental Criteria Decree there is a reference to the activation of specific professional figures in relation to the "energy diagnosis" criterion:
  - **Expert in Energy Management (EGE)** with reference to the Uni CEI 11339 standard
  - **Energy Auditor (AE)** with reference standard UNI CEI 16247 part 5, pending activation by the Ministry of the Environment
  - **Technician competent in Acoustics**

To date, the Italian construction sector is experiencing **a phase of strong growth**<sup>26</sup>, powered mainly by the redevelopment of public buildings and

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<sup>26</sup> <http://www.cresme.it/>

residential real estate. This increase, however, is generating an unbalanced supply/demand ratio as the speed of growth is higher than the production capacity of the supply chain linked to labour.

Training courses and upskilling of workers and professionals

The average **educational level of construction workers is very low**. In 2017, 55.1% achieved a high school diploma at most, 40.8% a diploma and only 4.1% graduated. **The low level of education is reflected in the level of professional qualification: only 13.5% have highly qualified professions**. Moreover, unfortunately, the use of **irregular work** by businesses and private citizens is particularly widespread in construction sector in Italy<sup>27</sup>.

- **workers and professionals in the construction sector most often do not have the adequate level of knowledge and skills** necessary for the design, construction or renovation and maintenance of energy-efficient buildings. Participation in upskilling training courses is usually sporadic and does not follow a precise plan.
- Concerning the available offer of continuous training, there is a **lack of a general and shared plan for structuring and mapping the skills and qualifications** necessary for the different areas and target groups of the construction sector.
- **Professional training**, in general, **is very sectorial** while **the need to use a multidisciplinary and integrated approach**, with a high degree of interaction and collaboration between the various professionals involved in the supply chain, **now has long recognized at European level**.

#### 4.1.2 Spain- Catalonia

In Catalonia and in all European countries and regions workers and blue collars with traditional profiles such as artisan or bricklayers, which enter to training system, have being disappearing. Either because these are unattractive professions and have little training demand or because expert professionals are retiring. In Spain there is a large difficulty to meet the demand by the market. In addition to this, at the same time the number specialized training academy on this issues it is also fewer. It entails that since this kind of professions are still needed, the national and regional government together with training institutions and organizations (private and public) have to redesign the current training plans and adapt them to the market needs towards new technologies in order to make them more attractive for new students and future workers. Hence, one of the main strategic objectives of public institutions, both state

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CRESME: for over 50 years, Cresme has provided strategic scenarios and foresees the future evolution of the construction industry in Italy.

<sup>27</sup> <https://italiaindati.com/edilizia-e-costruzioni-in-italia/>

and regional, is to strengthen the introduction and consolidation of the use of new technologies in the construction market.

The last study the last study done by Public Service of State Employment<sup>28</sup> from 2019 lists the main training needs in technical-professional skills. The most important are:

a) Those that effect all professional profile:

- 1) The mandatory need and upskilling regarding the construction codes and buildings legislation.
- 2) Security and risk prevention
- 3) Implementation of technology regarding: tools, equipment, materials and products.
- 4) A specific mention to Energy Efficiency and Renewable energy knowledge in construction sector. It implies the necessity of practical training specific to each economic activity and raising awareness about profitability economic and energy derived from its implementation.
- 5) In the same way as the previous point, there is a need to train BIM technologies for all professional profile and all construction phases

b) In relation to specific professional groups.

- 1) The group of technical staff, such as engineers and architects, requires training and updating in urban legislation, installation in renewable energies, energy efficiency in buildings, waste control, demolition and acoustic protection. Knowledge in sustainable buildings renovations, as well as tools and methodology for the environmental assessment of buildings, and R + D + I evaluation in new construction techniques. In addition, specific training is needed to identify the different pathologies that can affect a building and use different sort of technologies to carry out its diagnosis and to make a proper interpretation of results.
- 2) The supervisors of construction works (whether at the project level or on-site execution) also need more knowledge about security and safety plans as well as in quality control.
- 3) The absence of training in new materials and their behaviour.
- 4) In relation to blue collars there is a need to acquire knowledge in techniques for loading, unloading, transporting and storing materials and machinery.

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<sup>28</sup><https://www.sepe.es/HomeSepe/que-es-el-sepe/observatorio/informes-mercado-trabajo/informes-anales-mercado-trabajo-estatal/ver-resultados.html?documentType=informes&tipo=1&periodo=anual&ambito=Nacional>

The study also introduces soft skills such as the languages knowledge due to different reason. The first one, the capacity to use and interpret technical manuals, and the second one, the need to work multi-disciplinary teams formed by professionals (technicians and superiors) from various countries. Another important point that the study refers to, is the need of financial knowledge, quality systems, public administration procedures (grants, procurement, etc.) Finally, especially people who lead and coordinate teams it is necessary to update the techniques of management, organization, planning of the personnel to position and establish good communications plans.

## 4.2 Gap assessment

### *European frameworks and projects*

Professional skills and specialized knowledge are not a priority point in relation to the approaches or initiatives studied. They focus more on addressing an improvement in the public procurement process as it has seen in GPP Toolkit, Futurium, Level(s) or ProcurComp. In all these approaches new planning methods, by introducing new criteria of circularity and continuous improvement, soft skills such as Communication, collaboration, project management etc. are promoted. Knowledge would be needed for these new skills, since these initiatives do not delve into these matters in depth, but treat it very superficially

Actually, the approaches just treat partially professional qualifications, even those relating to construction sector. For example, in the case of GPP Criteria, it only focuses on office buildings when it should deal with other types of buildings and construction sectors.

Therefore, it could be said that to enhance these initiatives linked to green procedures, specific section could be included where their involvement in the labour market is discussed. In this way, public authorities could find information on the needs of the construction sector at a single point and introduce and adapt it to their policies and actions. In this sense, **TRAIN4SUSTAIN** project outcomes could support and complement the initiatives and skills sought.

### *Networks initiatives:*

- **Lack of information about professional Skills or knowledge** that is needed for the success of a project. Lack of connections between the object of the contract with labour market. The main gap found in analysing the network initiatives and their cases of study is the lack of professional's skills



requirements. These platforms mainly talk about improving procurement processes, provide examples to introduce sustainable aspects and technical requirements, but instead there is very little that talk about the professional skills demanded of those professionals or companies that will participate in the execution of the contract. These issues are treated in a very generic way. Therefore, it is assumed that the winning companies already have workers with sufficient knowledge to carry out a project, but the skills cannot be checked. In the cases published there are no reference or special section to talk about professional skills and knowledge. Completing the guidelines with this kind of information would bring many benefits. Among others, knowing what type of professionals is needed in each case or contract typology, and especially what level of expertise, would allow public institutions to analyse whether in their construction sector there are qualified professionals who can certify those skills. Additionally, indicators should be introduced to relate to the object of the contract or its execution with the labour market, and how the demand of qualified professionals could improve. And collaterally, for private companies would also provide information on what the administration is looking for in the specifications. Hence, **TRAIN4SUSTAIN** can complement these initiatives to use the qualification standard and introduce it when writing success stories.

In relation to Sister Projects linked with **TRAIN4SUSTAIN** and those projects that participate in Build-Up Skills there are some gaps. Below are some examples:

- **Limited in a time frame.** Even though **Build Up Skills** seeks to promote the training of craftsmen among others by supporting different European projects, few of them have been able to continue after their completion. The most difficulties are given by diverse reasons such as **lack of public authority's involvement, lack of investment, and difficulties to manage or create specific organisation and** entities that are able to carry out the objectives and the activities done during projects extensively throughout their territory with a long-term vision.
- **Limited scope territory.** Analysing the Build-up skills map, we can see that projects concentrate their efforts on specific areas of different European countries, including some from outside the EU. However, the results have not been replicated in other regions of the same country. It could be happened due to the diversity of regions in each country. However, this makes us reflect on the need **to look for more basic and flexible standards that can cover an entire territory and at the same time allow them to be adapted to the needs of each region.**
- **Thematic Scope.** In the majority of cases the targeted skills analysed and treated in those projects are quite similar. The ideal would be to be able



to discover **which skills have not yet been covered** in order to broaden the field of study, and thus make all projects complementary at the same time that they can nourish each other.

- **Legislation** One important point which is treated more superficially is the legislative framework. The good results of these projects should affect the updating and adaptation of regulations

## 4.3 Potential topics for improvements

From the analysis of chapter 3 it has been possible to extract a set of thematic needs related to the professional skills and the current trends. These could provide what are the potential topics or areas of expertise that will be **demande d in the medium and long term** within the public procurement processes.

### **GREEN PROCUREMENT LEGISLATION POTENTIAL UPDATE:**

Both for those who write the specifications and for those who write the offers and participate in it, it is essential to achieve a level of knowledge of the regulations related to green procurement. This thematic field should include areas such as:

- Climate Change Legislation (at International, European, national and regional level). This could be linked, for example, to the nZEB
- Circular Economy
- Regulation about: Energy Efficiency, nZEB,
- Innovation in technology.

Furthermore, regarding legislation, it would be necessary in order to avoid any possible misunderstandings, define properly the concepts related to sustainability, as well as the terms and expressions meanings. Currently, the European or national regulations define vaguely some of these terminologies, which makes it difficult to implement in public or private contracts procurements

It could be beneficial to open the door to update the current procurement legislation and consider the possibility to take into account the Skills Passport.

## PLANIFICATION and MONITORING

It has been seen in several initiatives and approaches such as GPP Toolkit and Futurium that a previous planning is a key element to be successful in the GPP or circular procurement deployment. Hence, although these skills or all competences related to it, are not directly linked with construction market competences, they are fundamental aspect to consider. Especially when Public Authorities have to implement their public policies, make decisions or prioritize actions. Furthermore, this planning should also include a Construction Sector study in order to balance the demand with the offer and if the case, take into account it when mapping out the national training plans. An excellent planning of the actions that want to carry out under the umbrella of the green procurement, it will have to anticipate, in any case, determine what are the current needs and what is its implication in other public policies areas, such as educations, economy.

On the other hand, equally important to planning, is the **evaluation and monitoring of the implementation of contracts**. It means that the Public Authorities have to be disposed to create indicators and monitoring tools to check in each phase of the project and in each work-related issue not only if the contract is performed correctly, but also indicators to assess professional skills. This way it could be able to detect possible deficiencies during all stages of the contract. In consequence, it could be used a s tool to check the continuous improvement of the contract execution.

## CIRCULARITY

In the topic of circularity, speaking more technically and not so much legally, it is necessary to reinforce the concept of circularity for all that it entails. Circularity today encompasses many aspects, not only related to sustainability but also to social responsibility, innovation and also covers the entire project from design to demolition. Here are some of the issues that are trending.

- New construction materials
- Life Cycle Assessment (LCA) and Life Cycle Cost Assessment (LCCA)
- Integration into BIM
- Innovation in Building renovation and rehabilitations.

Hence, all potential technical aspects to be considered in public tenders and in which professionals should update and upskill, could be grouped into a “macro concept” such as **circularity**. In this sense, the approach Level(s) would be a good starting point to develop the macro concept.

## 5 Overall conclusion and lessons learnt

All the initiatives analysed in the previous sections are likely to be incorporated into national and regional frameworks. However, a prior work is required for to make them effective. On the one hand, it is necessary to study the labour market and in particular in the construction sector to see what the deficiencies are. This will make possible to see what changes should take place in order for these initiatives to have an optimal course in their implementation. On the other hand, these initiatives also have certain points for improvement, which must also be taken into account when they want to be adapted to each country or region.

To be ensured that the market is qualified enough to carry out a successful GPP, public authorities have to ensure that the training plans include the sustainable and energy efficiency skills adequate to prepare the professionals. In other words, the public administration cannot demand in its GPPs specific qualifications, skills or knowledge that are not taken into account in official training courses or there is not a sufficiently wide offer on the market for professionals. Otherwise, nowadays, the private sector is the one that leads the implementation of new training and individually adapts its courses to market trends. This means that all public as well as private should go hand in hand with each other in order to build more solid and complete training offer. The administration should be able to implement and promote its own policies and be able to establish indications but also synergies with the private market. The **participation and the public authority's implication** is a crucial element to transfer the market needs and trends into the public procurement processes.

The second step that the public administration or Governments could do is to make dissemination the best practices into their professional markets, and take the most up-and-coming approaches, assess them and identify weak points in order to think how to improve them into the regional legislative framework. Finally, they have to identify the potential topics that will dominate the construction market in the near future and midterm, in about 15 to 20 years. It will allow the governments engineer a proper long-term plan for construction sector and align the public policies to that and consequently to the GPP plans.

Many of the initiatives studied, in particular Networks and GPP Criteria or Toolkit, deal with all areas regarding the Green and Circular Public Procurement not just building or construction criteria. Moreover, the social procurement has been introduced recently. Although there are quite a few references in terms of examples and success stories in sustainable rehabilitation and new constructions. There is only Building Office Criteria published in GPP portal. To expand the thematic fields would be necessary to create criteria for other

typologies of buildings such as facilities (e.g. schools, hospitals), commercial buildings (e.g. hotels), and some reference to residential buildings (public or private). In this sense according Level(s) the coming years it is expected to expand the criteria for more building typologies. Another possibility could be to leverage the current pilot model for Office Buildings, and study the possibilities of improvement that could be used in other type of buildings

A point that is not addressed is how to fix the professional skills in these procurement processes in order to not eliminate competition. Hence, tools or qualification schemes such us **TRAIN4SUSTAIN** would allow to evaluate the professionals and SME skills keeping the competition criteria as well. One aspect to take into account when applying this, is to ensure the quality of contractors, either for years of experience and for other certified high qualifications.

### **Coming Challenges**

The following is a summary of the main conclusions of each of the initiatives studied. In order to see the connection what these represent in all the WP4 of the **TRAIN4SUSTAIN**, the main challenges of each have been extracted that will entail an improvement not only of the GPP but also of the professionalization of the workers who participate so much of the own public administration as of private companies.

#### **Professionalization of the building sector:**

Challenges:

- The public administrations should impulse strategies to recognize the current state of training levels and to improve the quantity, quality and easy access to training courses on sustainability skills for all the agents of the building sector.
- Public administrations should encourage the approval and dissemination of existing tools for professionals and workers could improve their energy knowledge and skills.
- In relation to training courses it is essential to take into account different innovative aspects as: the training in of circularity and life cycle of buildings aspects; BIM technologie.

## **Green Public tenders:**

### Challenges:

- Procurement strategies: training of the public sector agents working in GPP and facilitate access to discussion forums in relation to sustainable procurement information.
- Legal aspects: development of the main points related to sustainable and energy competences involved in GPP, focus in building design, in particular in the requirements of the tenders Terms and condition: TECHNICAL SOLVENCY CRITERIA, AWARD CRITERIA... and their connections.
- Legal aspects: Implement the mandatory use of skilled professionals to answer public tenders
- Increase the number of public registers listing skilled professionals matching supply and demand.

## **Innovation**

### Challenges:

- Promote the use of innovative technologies (e.g. BIM, Level(s)) and tools that allow to optimize the efficiency in the processes of construction of buildings as in the ones of development of processes of green purchase related with the building.

## **Market:**

### Challenges:

- Improve the engagement with the market in the design of the procurements and contracts.
- Regarding the role of public administrations towards the market, one of the main strategic objectives of public institutions, both state and regional, is to strengthen the introduction and consolidation of the use of new technologies in the construction market
- Find strategies to be able to implement financial incentives to SMEs training and using skilled professionals and workers for renovation works or new constructions.

1<sup>st</sup> Level

ANALYSED INITIATIVES MAP		CONCLUSIONS IN RELATION TO THE INITIATIVES				
1st Level	2n Level	Professionalization of the building sector	Public sector: Tenders and impulse strategies	Innovation	Market	
1. EUROPE	1. European commission official web portals	GPP Criteria		<b>Area specified in GPP Criteria</b> not relevant or specific criteria regarding sustainable and energy competences, skills or/ and knowledge of the agents involved.		<b>Area specified in GPP Criteria</b> building sector: several criteria have been developed related to the construction market,
		GPP good Practices		<b>Samples of good practices, guides:</b> Catalonia the Department of Environment has developed a Technical solvency and environmental management guide		
		Green Public procurement	<b>Toolkit</b> <b>M5: Circular procurement:</b> Competences, skills or/ and knowledge of circularity of the external and internal actors involved in circular GPP should be taken into consideration when designing a GPP process by developing different areas of GPP	<b>Toolkit</b> <b>M2: Procurement strategy</b> procurement actions collected: • The Professionalization of the public sector agents • The Professionalization and development of the procurers through external training <b>M3: Legal aspects:</b> Development of the main points related to sustainable and energy competences involved in GPP <b>Operational modules, Module 7.5: Office Building Design:</b> A. Selection of the design team and contractors	<b>Toolkit</b> <b>M5: Circular procurement</b>	<b>Toolkit</b> <b>M6: GPP Market engagement:</b> To take into account the engagement with the market in the design of the procurement and contract
		GPP Toolkit linked to Ongoing and Complete projects				
		GPP Helpdesk and GPP News Alert				
		ProcurCompEU	<b>European competency framework for public procurement professionals:</b> Tool useful as a starting point to evaluate the competences of public procurement professionals			
		Build-up Skills	<b>Strategic initiative</b> Low National quality label/certification demonstrating the competence of building professionals  Description of the main barriers regarding training: lack of time and cost of training  Knowledge and awareness barriers  See recommendations*	<b>Strategic initiative</b> <b>Very low obligation to use skilled professionals to answer public tenders.</b>  <b>Very low public registers listing skilled professionals, matching supply and demand.</b>  Description of the main Legal barriers: delays in introducing energy efficiency related definitions  See recommendations*		<b>Strategic initiative</b> <b>Very low financial incentives</b> regarding home building owners using skilled professionals for renovation works or new constructions.  <b>Very low training tools</b> specifically designed for SMEs  Description of the main market barriers: low demand.  See recommendations*
		Level's	<b>Tool</b> <b>Competence of professionals and workers: Level(s)</b> is a tool for Building professionals and their clients to increase their understanding of how buildings impact upon the environment	<b>Tool</b> <b>Tenders:</b> Possibility of use the Level's system to the assessment and certification schemes to make sure that their criteria reflect the most important priorities for circular economy at a European level.  <b>Initiatives: 2022 regarding the improvement and efficiency of the selection criteria in CV processes:</b> Level(s) will develop Green public procurement criteria based on Level's for offices and schools both built and renovation.	<b>Tool</b> <b>Technology in data processing:</b> Level(s) enables the comparability of data and results across different building performance rating  <b>Initiatives 2021:</b> Web based support tool to work with Level's	
Futurium- Urban agenda- Public Procurement		Partnership on Innovative and responsible public procurement create the E-learning module of the Urban Agenda. <b>(There's not relevant or specific criteria regarding sustainable and energy competences, skills)</b>				

2d Level

ANALYSED INITIATIVES MAP		CONCLUSIONS IN RELATION TO THE INITIATIVES					
1st Level	2n Level		Professionalization of the building sector	Public sector: Tenders and impulse strategies	Innovation	Market	
	2. European local and regional entities Networks	ICLEI	Procura+		European Sustainable Procurement <b>Network</b> : Nothing specifically related to the stimulation demand for qualified experts in energy		
			Sustainable Procurement Platform	<p><b>online platform</b> whose contents are related to the sustainable procurement, information:</p> <p>4- Training and services.</p> <p>Nothing specifically related to the stimulation demand for qualified experts in energy</p>	<p><b>online platform</b> whose contents are related to the sustainable procurement, information:</p> <p>1- Cases of study</p> <p>2- Tools and guidance</p> <p>3- A data base</p> <p>Nothing specifically related to the stimulation demand for qualified experts in energy</p>		
			INNOVATION PROCUREMENT PLATFORM		This <b>platform</b> is focused on Innovation Procurement: Nothing specifically related to the stimulation demand for qualified experts in energy		
			Procurement FORUM		<b>Meeting center</b> where procurement professionals (mainly Public authorities) can share information, ask for questions and doubts with other professional.		
		CONSTRUCTION21 INTERNATIONAL	<p><b>Social media</b> dedicated to all professionals active in buildings and city sectors interested in Sustainability, to adopt innovative and best practice solutions at national and international level</p>				

2nd level

ANALYSED INITIATIVES MAP		CONCLUSIONS IN RELATION TO THE INITIATIVES				
1st Level	2n Level	Professionalization of the building sector	Public sector: Tenders and impulse strategies	Innovation	Market	
1. EUROPE	3. Sister projects	LIFE GPPbest		"Best practices exchange and strategic tools for GPP" research project		
		ENFORCE	"European Network for the Energy Performance Certification of Buildings", The project has deepened several key topics addressed by TRAIN4SUSTAIN, mainly related to the stimulating demand for qualified expert and the training of energy auditor for buildings.			
		E-CENTRAL		Initiatives to aim more ambitious energy renovation standards of buildings and testing the applicability of innovative financing models		
		AIDA		AIDA (stands for Affirmative Integrated Energy Design Action) offers support to public authorities to increase the number of nZEBs by including this energy target in public design tenders		
		INSTRUCT		INSTRUCT – SKILLS INSTRUCT INSTRUMENTS CONSTRUCTION: intends to create a complete operational framework to increase the number of skilled building professionals and blue collar workers over the whole value chain, (both for renovations and new constructions Set of services for the public authorities for the development of new legislative frameworks, as for example the requirements for skilled workers in public procurement.	INSTRUCT – SKILLS INSTRUCT INSTRUMENTS CONSTRUCTION: Set of services to support raising awareness of home and building owners and tenants about the benefits of sustainable energy skills	
		BUSLEAGUE	BUSLEAGUE Challenges o work on: 1. Testing and Recognition of Skills of white and blue collars 2. Awareness of both the general public and workforce 4: Lack of motivation, time and trainings	BUSLEAGUE The project works in the national implementation plans and supports legislative changes that will stimulate the demand for energy skills  Challenges o work on: 3. Lack of support / request for the skilled professional by the Public Authorities	BUSLEAGUE Challenges o work on: 5. Integration of new technologies and addressing new societal and technological trends	BUSLEAGUE The project acts at market level to stimulate the demand for energy skills in the construction sector
		BIMEET	BIM-based EU-wide standardized qualification framework for achieving energy efficiency training around BIM technology as a key digital support for the energy efficiency of the built environment.			
		HP4ALL	HP4ALL aims at stimulating demand for sustainable energy skills in the construction sector, enhancing the development and promotion of the skills required for high quality See Initiatives mentioned related			
		nZEB Roadshow	nZEB Roadshow The project aims to stimulating the demand for skilled workers by promoting market demand for quality nearly zero-energy buildings			
		2. INTERNATIONAL	1. Networks and initiatives	United Nations Environment Programme		
One Planet Network				Concerning Public Procurement there is One Planet Network Sustainable Public Procurement (SPP) programme	Concerning Building and Construction , the goal of the programme is to promote resource efficiency, mitigation and adaptation efforts, and the shift to SCP patterns in the buildings and construction sector	



## 6 Annex

### 6.1 Annex I. Additional initiatives Information.

#### LEVEL's

#### Areas

Level 1	Level 2	Level 3
<b>Conceptual design</b>	Detailed design and construction	As-built and in-use
<b>L1a. Project definition and brief</b>	L2a. Outline design (spatial planning and permitting)	L3a. As-built design
<b>L1b. Concept design</b>	L2b. Detailed design (tendering)	L3b. Commissioning and testing
	L2c. Technical design (construction)	L3c. Completion and handover
		L3d. Occupation and use

#### Macro-objectives

Macro-objective 3: Efficient use of water resources	Definition	Scope and focus
<b>Macro-objective 1: Greenhouse gas and air pollutant emissions along a buildings life cycle</b>	Minimise the total greenhouse gas emissions along a buildings life cycle <sup>1</sup> , from cradle to grave, with a focus on emissions from building operational energy use and embodied energy.	<ul style="list-style-type: none"> <li>Near zero energy consumption during the use phase,</li> <li>Embodied greenhouse gas emissions along the buildings whole life cycle, including those associated with product manufacturing, maintenance, repair, adaptation, renovation and end of life.</li> </ul>
<b>Macro-objective 2: Resource efficient and circular material life cycles</b>	Optimise the building design, engineering and form in order to support lean and circular flows, extend long-term material utility and reduce significant environmental impacts.	the life cycle relating to: <ul style="list-style-type: none"> <li>building design,</li> <li>structural engineering and construction management,</li> <li>construction product manufacturing,</li> <li>replacement cycles and flexibility to adapt to change, and</li> <li>the potential for deconstruction.</li> </ul>
<b>Macro-objective 3: Efficient use of water resources</b>	Make efficient use of water resources, particularly in areas of identified long-term or projected water stress.	Combine efficiency measures to minimise water use, supply-side measures such as grey water reuse and rainwater harvesting, designed to make use of alternative sources.

<b>Macro-objective 4: Healthy and comfortable spaces</b>	Create buildings that are comfortable, attractive and productive to live and work in, and which protect human health.	the quality of the indoor air for specific parameters and pollutants, the degree of thermal comfort during an average year The quality of artificial and natural light and associated visual comfort, The capacity of the building fabric to insulate occupiers from internal and external sources of noise.
<b>Macro-objective 5: Adaptation and resilience to climate change</b>	Futureproof building performance against projected future changes in the climate, in order to protect occupier health and comfort and to minimise long-term risks to property values and investments.	Increased overheating in summer and inadequate heating in winter, which could lead to discomfort and be detrimental to health Increased risk of extreme weather events, which could compromise the security and integrity of building elements, and Increased risk of flood events, which could overwhelm drainage systems and damage structures and materials
<b>Macro-objective 6: Optimised life cycle cost and value</b>	Optimise the life cycle cost and value of buildings to reflect the potential for longterm performance improvement, inclusive of acquisition, operation, maintenance, refurbishment, disposal and end of life	Based on a long term view of the whole life costs and market value of more sustainable buildings, including: Achieving lower life-cycle costs and more productive and comfortable spaces to live and work in, and having a positive influence on property market value appraisals and risk ratings

## Indicators

Thematic areas	Macro objectives	Indicators	Unit of measurement
Resource use and environmental performance	1. Greenhouse gas emissions along a buildings life cycle	1.1 Use stage energy performance	kilowatt hours per square metre per year (kWh/m <sup>2</sup> /yr)
		1.2 Life cycle Global Warming	kg CO <sub>2</sub> equivalents per square metre per year (kg CO <sub>2</sub> eq./m <sup>2</sup> /yr)
	2. Resource efficient and circular material life cycles	2.1 Bill of quantities, materials and lifespans	Unit quantities, mass and years
		2.2 Construction and Demolition waste	kg of waste and materials per m <sup>2</sup> total useful floor area
		2.3 Design for adaptability and renovation	Adaptability score
		2.4 Design for deconstruction	Deconstruction score
	3. Efficient use of water resources	3.1 Use stage water consumption	m <sup>3</sup> /yr of water per occupant
Health and comfort	4. Healthy and comfortable spaces	4.1 Indoor air quality	Parameters for ventilation, CO <sub>2</sub> and humidity Target list of pollutants: TVOC, formaldehyde, CMR VOC, LCI ratio, mould, benzene, particulates, radon
		4.2 Time out of thermal comfort range	% of the time out of range during the heating and cooling seasons
		4.3 Lighting	Level 1* checklist
		4.4 Acoustics	Level 1 checklist
Cost, value and risk	5. Adaption and resilience to climate change	5.1 Life cycle tools: scenarios for projected future climatic conditions	Projected % time out of range in the years 2030 and 2050 (see also indicator 4.2)
		5.2 Increased risk of extreme weather	Level 1 checklist
		5.3 Increased risk of flooding	Level 1 checklist
	6. Optimised life cycle cost and value	6.1 Life cycle costs	Euros per square metre per year (€/m <sup>2</sup> /yr)
		6.2 Value creation and risk factors	Level 1 checklist