

Project co-financed by the European Regional Development Fund

GRASPINNO

Transnational model, strategies and decision support for innovative clusters and business networks towards green growth, focusing on green e-procurement in EE/RES for energy refurbishment of public buildings.

Deliverable: 3.4.1 Report on the upgrade and the parameterisation of tools

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1. INTRODUCTION

This report represents the "Report on the upgrade and the parameterization of tools" deliverable for the GRASPINNO project and describes part of the work undertaken in WP3 "Testing". Its main objectives are the description of the upgrades applied in the GRASPINNO Web Platform, LCC Tool, e-GPP tool and Living Lab Methodology, in order to satisfy the specific needs of GRASPINNO pilots. The deliverable is structured as follows: In Section 2, GRASPINNO Web platform is described with all the upgrades that took place. The Section 3 presents the upgrades in LCC tool and Section 4 the new features of e-GGP tool added in the existing tool which has been developed during GRASP project (previous programming period). Finally, in the Section 5, the Living Lab Methodology is presented in detail.

2. GRASPINNO WEB PLATFORM

This section consists a description of the main changes of the upgraded GRASPINNO web platform.

There are 3 groups of users:

- Administrators
- PA users (Public Authorities' users)
- SMEs users (Small and Medium Enterprises' users)

GRASPINNO platform is a web-based application developed according to the following web frameworks:





- PHP programming language. PHP is a server-side scripting language designed primarily for web development but also used as a general-purpose programming language.
- Bootstrap framework. Bootstrap is the most popular HTML, CSS, and JS framework for developing responsive, mobile first projects on the web.
- JQuery. jQuery is a fast, small, and feature-rich JavaScript library. It makes things like HTML document traversal and manipulation, event handling, animation, and Ajax much simpler with an easy-to-use API that works across a multitude of browsers. With a combination of versatility and extensibility, jQuery has changed the way that millions of people write JavaScript.
- MySQL database.

2.1. GROUP ADMINISTRATORS

The administrator can access the administrators' web panel by following the url: <u>http://grasp-egpp.eu/admin/login.php</u>.



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2.2. THE CHANGES OF THE WEB ADMINISTRATION PANEL

The main changes of the Web Administration Panel are the following:

- GRASPINNO database was cleaned from all kind dummy data. The cleaning was held on the following levels:
 - Products
 - Features
 - Categories
 - Subcategories
 - o Types
 - o Green criteria
 - Services
 - o SME users
 - o PA users
- There are changes on the template of the pages like:
 - Footer pages
 - Header pages
 - \circ Avatars
 - \circ Logos
 - \circ Icons
 - o Images
 - \circ Favicon







2.3. PUBLIC AUTHORITY (PA) USERS

The Public Authority users can access the GRASPINNO platform by following the url: <u>http://grasp-egpp.eu/login.php</u>.

				🧭 PA ~
Search Q	Welcome DEMO PA PA dashboard	L.		
🟠 Dashboard				.
ඩ් Products	FAQ / HELP	My Products GRASP - PA	Search	Environmental
Q, Search	HELP / FAQ 🎯	PRODUCT LIST	SEARCH PRODUCTS GRASP - P	ENVIRONMENTAL ANSWERS
ඩ් Best Practices				
n e-GPP	Search tenders	My profile		
Environmental answers	GRASP - PA	GRASP - SME		
	SEARCH TENDERS \ominus			
<u> </u> Profile				
A Logout				
2017 © GRASPINNO				<u>^</u>

2.3.1. The changes of the PA administration panel

The main changes of the Web Administration Panel are the following:

- There are changes on the template of the pages like:
 - Footer pages
 - Header pages
 - \circ Avatars
 - $\circ \ \ \text{Logos}$
 - \circ Icons
 - \circ Images
 - o Favicon
- Changes at the registration form (see chapter 2.3.2)
- Changes at the restore password form (see chapter 2.3.3.)





• Changes at the product list page (see chapter 2.3.4)

2.3.2. Changes of the Registration – sign up for a GRASPINNO PA account

Every user can register to the GRASPINNO platform as PA user following the url: <u>http://grasp-egpp.eu/register.php</u>

Home > GRASP > Create new account	r	
 Login Restore Password 	Enter your Organization information below	Select PA account type from the
> Register > Home	Are you an PA or SME?	selection option.
	A Organization Name	Enter organization name here e.g. Athens's Municipality
Como componios havo registration	1) your vab# here	Enter VAT # here e.g. G123654788E
number if you have one enter it,	illi your tempany registration number# here	
otherwise live it empty	Select country	Select your country e.g. Greece
	Enter your account details below:	Enter full name, which will be used,
ter e-mail address will be	A. full name	on your account
ed on your profile	Email.	Enter your desired password
	A Password.	Betwne your password again to
	V Re-type Your Password	make sure it was entered
	I agree to the Terms of Service and Privacy Policy	correctly, and click sign up
	Cancel Sign	Up 🛞

There are some major changes at the GRAPSINNO registration form. Some of them are described below:

 A new mail function used for sending e-mails to a Public Authority. The SMTP mail function used for sending e-mails. The SMTP is a standard protocol for sending e-mails and its full name is Simple Mail Transfer Protocol. All the e-mails of the outgoing from the server using the TLS, Transport Layer Security, in order to encrypt and secure the e-mail communications of the GRASPINNO platform.





- The limit of the characters of the text fields of the registration form was extended.
- There are also some changes at the submenu of the registration form, like removing the link for the home page and adding a link for a list of the already registered Small & Medium Enterprises.

2.3.3. Changes of the Restore password page

A Public Authority can access the platform even though has forgotten its password. By following the url: <u>http://grasp-egpp.eu/forgot.php</u> the PA has the ability to reset its password. A new mail function used for sending e-mails to a Public Authority. The SMTP mail function used for sending e-mails. The SMTP is a standard protocol for sending e-mails and its full name is Simple Mail Transfer Protocol. All the emails of the outgoing from the server using the TLS, Transport Layer Security, in order to encrypt and secure the e-mail communications of the GRASPINNO platform.





2.3.4. Changes of the Product list page

Mediterranean					🥖 PA ~
Search Q	GRASP - PA - product list	ct list page			
☆ Dashboard	Show products from				
🗗 Products	All countries				-
Q Search	All countries				
🖺 Best Practices	Belgium				
e-GPP	Cyprus				
Environmental answers	Greece				
	Italy Malta				
	Slovenia Spain				
Ω Profile	Acer Aspire VN7-571		Aspire VN7-571 series	ACER	→ View
윤 Logout	Series M52591		10152591		A Compare
	Acer Veriton N4620G- Ui3237X		N4620G-Ui3237X	ACER	→ View
	AGS SOLAR TMS200		AGS SOLAR TMS200	AGS SOLAR TMS200	✓ View ✓ Compare
	Air colled heat pump EWYQ016BAWP		EWYQ016BAWP	DAIKIN	✓ View ✓ Compare
	AIRWELL MQH D 18		MQH D 18	airwell	✓ View ✓ Compare
	AKRILIT - acrylic facade with blocide	Akrilit comprises of mineral fillings, acrylic binder, light resistant pigments, additives and biocides. Used for protection and decoration of facade and interior walls. Available in large number of shades from the Colorit color card. To be applied by rostfrei float in grain thickness, while the structure is achieved by scrubbing with a plastic float. Adding biocides reduces the possibility of occurrence of algae and fungus on the surface facade layer.	AKRILIT	Colorit	➢ View ➢ Compare

The upgraded feature of the Product list page is that a PA user can filter products per countries. The system, actually, has the ability to filter the products of the GRASPINNO database according the country of the SME, which has inserted specific products to the GRASPINNO database.

For example, a PA user wants to see which products have been inserted to the GRASPINNO database by SMEs of Cyprus. The user selects from the dropdown list Cyprus country and the system appears a table with products only from Cyprus.





					🧭 PA ~
Search Q	GRASP - PA - product list	age			
பி Dashboard		5			
D Products	Show products from Malta				-
Q Search					_
🖺 Best Practices	Products				
🔁 e-GPP	チ Manage Products				PDF CSV Excel Print
Environmental answers	✓ records				Search:
© HELP	NAME	Description	Model #	Brand name 👙	Options
ቧ Profile	Vacupor Insert NT		Vacupor Insert NT	Porextherm	✓ View Compare
🔒 Logout	Vacupor NT		Vacupor NT	Porextherm	→ View → Compare
	Vacupor NT-B2-S		Vacupor NT-B2-S	Porextherm	→ View → Compare
	Vacupor PS-B2-S		Vacupor PS-B2-S	Porextherm	→ View → Compare
	Vacupor RP-B2-S		Vacupor RP-B2-S	Porextherm	→ View → Compare
	Vacupor TS-B2-S		Vacupor TS-B2-S	Porextherm	
	Vacupor XPS-B2-S		Vacupor XPS-B2-S	Porextherm	→ View → Compare
	VACUSPEED - System		VACUSPEED - System	Porextherm	→ View → Compare
	WDS Flexipor		WDS Flexipor	Porextherm	→ View → Compare
	WDS MultiFlex ST/ HT		WDS MultiFlex ST/ HT	Porextherm	→ View → Compare
	Showing 1 to 10 of 10 entries				< 1 >
2017 © GRASP.					

2.4. SMALL & MEDIUM ENTERPRISES (SME) USERS

The Small & Medium Enterprises users can access the GRASPINNO platform by following the url: <u>http://grasp-egpp.eu/login.php</u>.







2.4.1. The changes of the SME administration panel

The main changes of the Web Administration Panel are the following:

- There are changes on the template of the pages like:
 - Footer pages
 - Header pages
 - o Avatars
 - \circ Logos
 - o Icons
 - o Images
 - Favicon
- New page added (see chapter 2.4.2)
- Changes at the registration form (see chapter 2.4.3)
- Changes at the restore password form (see chapter 2.4.4)





2.4.2. Registered SMEs list – new page

The upgraded GRAPINNO web platform has new a feature. There is a web page (<u>http://grasp-egpp.eu/sme_list.php</u>) that represents the already registered Small & Medium Enterprises (name, country, website) to the GRASPINNO web platform.

The users see the whole list, export this list to pdf, csv or excel format or print it. Additionally, all users have an advanced search box to search for specific enterprise.

> Login				PDF	CSV Exe	el Pi	rint
> Restore Password	records			Searc	:h:		
> Register	Name	Country	wahrita				
> Registered SMEs list	CCI of Terrassa	country	website				T
	CCI of Terrassa						
	CCIN of Castellon						
	CCIN of Castellon						
	Chamber Of Terrasa						
	DATAGRID						
	DEMO SME						
	Eleni Ntaliani						
	EMPRESA CASTELLON 1						
	EMPRESA CASTELLON 10						
	Showing 1 to 10 of 49 entries		< 1	2	3 4	5	>

2.4.3. Changes of the registration – sign up for a GRASPINNO SME account

Every user can register to the GRASPINNO platform as SME user following the url: <u>http://grasp-egpp.eu/register.php</u>





	Home > GRASP > Create new account		
	> Login		
	> Restore Password		
	> Register	Enter your Organization information below:	Select SME account type from
	> Home	Are you an PA or SME?	the selection option.
		A Organization Name	Enter Company name here e.g.
Some co	moanies have registration	1° your vat# here	Athens's IT Service
number	if you have one enter it,	your Company registration number# here	Enter VAT # here e.g. G123654788E
otherwi	se live it empty	Select country	Select your country e.g. Greece
Entor	o mail addrorr will bo	Enter your account details below:	Enter full name which will be used on your account
used o	on your profile	Email.	Enter your desired password
		A Password.	Retype your password again to
			make sure it was entered correctly, and click sign up
		I agree to the Terms of Service and Privacy Policy	
		Cancel Sign Up ()	

There are some major changes at the GRAPSINNO registration form. Some of them are described below:

- A new mail function used for sending e-mails to a Public Authority. The SMTP mail function used for sending e-mails. The SMTP is a standard protocol for sending e-mails and its full name is Simple Mail Transfer Protocol. All the e-mails of the outgoing from the server using the TLS, Transport Layer Security, in order to encrypt and secure the e-mail communications of the GRASPINNO platform.
- The limit of the characters of the text fields of the registration form was extended.
- There are also some changes at the submenu of the registration form, like remove the link for the home page and add a link for a list of the already registered Small & Medium Enterprises.





2.4.4. Changes of the Restore password page

A Small & Medium Enterprise can access the platform even though has forgotten its password. By following the url: <u>http://graspegpp.eu/forgot.php</u> the SME has the ability to reset its password. A new mail function used for sending e-mails to a Small & Medium Enterprise. The SMTP mail function used for sending e-mails. The SMTP is a standard protocol for sending e-mails and its full name is Simple Mail Transfer Protocol. All the e-mails of the outgoing from the server using the TLS, Transport Layer Security, in order to encrypt and secure the e-mail communications of the GRASPINNO platform.

2.5. UPDATE OF GREEN CRITERIA

Finally, the key elements criteria of databases of GRASPINNO web platform were updated. The key elements criteria are the green criteria used both by SMEs when they add their products, and the PAs when they search for products available in the market. Green criteria are a crucial point of GRASPINNO project and their update is one of the major changes of GRASPINNO web platform.

More specifically, the partnership had identified specific main categories (Indoor lighting, Office Building Design/Construction /Management, Combined Heat and Power, Furniture, Toilets & Urinals, Wall Panels, Water-based Heaters, Sanitary Tapware, Air conditioning, Thermal insulation, Electrical static autotransformers, Energy self- sufficiency) related to buildings' refurbishment and renewable energy sources.





For each one of those categories specific green criteria were identified during the development of Del. 3.2.1 "Methodology for developing green electronic procurement criteria". These new criteria were introduced in the databases based on the categorization that databases already had, in order to provide more options to the users and facilitate all partners to perform successfully their pilots.





3. LCC TOOL

The upgrade of the LCC tool focuses on adapting the previous LCC tool prepared for the GRASP project, with a main view to the green public procurement in EE/RES for energy refurbishment of buildings. Many cases and examples were already prepared in the previous project; the upgrade is mainly dedicated to introduce further EE/RES products to be evaluated and to cover all the potential pilot cases of GRASPINNO.

The long GRASP testing phase allows us to introduce some reflections on qualities and lacks of the tool. This could help the partnership to introduce some changes before the end of GRASPINNO testing phase.



3.1. GENERAL DESCRIPTION OF THE WORK

The aim of the update is covering all the possible products/cases presented in the pilot projects by the partnership. The list of the project is summarized in the following table:

S/N	PARTNER	PRODUCTS
1	University of Patras	Solar panels, Inverters
1	oniversity of Fatias	Heater-boiler
2	TSL	Air conditioning plant
3	СМАВ	Transformers
4	SIEEP	Solar panels
		build. lighting
5	UCV-Veneto Region	Insulation materials
		External windows and doors with
6	DPW, Cyprus	aluminum frame
		Roof insulation materials
7	GSCCP	Air-conditioning machines
		LED lamps for internal lighting
8	CCI of Terrassa	Photovoltaic system
		Tubs Leds



9 DDIP Internal i	Internal insulation materials	
	Heating equipment (boilers)	
		Windows and external doors
		Lamps for internal lighting

Almost all products/cases were described in the old manual of GRASP. The new version considers the previous pilots/tests and add new opportunities to prepare a GPP tender in EE/RES for energy refurbishment of public buildings. In particular, the new "options" are:

- voltage transformer

- thermostat applied to thermal plants (for instance boilers. This is an indirect application)

- air conditioning

Also for the new version remains uncertain the calculation of the disposal costs: waste data are not always available and an estimation of the costs may not be easy. As explained in the manual, in some cases to calculate the disposal cost would be erroneous as well. Similarly, to the previous GRASP project the waste treatment cost remains an "open" issue: the data, when available and without risk of miscalculation, will be used; otherwise, the other LCC elements are enough for an evaluation.

Public Administration staff can utilize this tool to simply reduce costs within the organization, or it can be used within a Sustainable Energy Action Plan (SEAP) as a way to reduce energy consumption and the



emission of greenhouse gasses. Any of the abovementioned uses would allow GRASPINNO to reach its objectives.

A LCC or a LCA assessment is a needed step in the Green Public Procurement; in fact, a correct preparation of a GPP tender does not give us the guarantee to:

- have the best economic choice for the Public Administration;
- have the best environmental choice for the Public Administration;

The weakness of the tool remains its application after the tender; it means that LCC is an ex-post verification; in this way, LCC gives a correct evaluation but when the tender is already published and eventual corrections to the tender are not possible anymore. With an ex-post evaluation only the experience can help to formulate the tender with a correct setting. Terre di Siena Lab is going to exploit the testing phase to introduce an ex-ante application after the audit or like a pre-audit system.

According to the Italian GPP procedures, described in the following figure, it would be possible. This usage allows the Public Administration to avoid, in absence of a prompt audit, to prepare a tender where the winning company has to prepare a refurbishment together with a planning. This kind of tender is a correct GPP procedure but it is generally considered unclear and dangerous by the small municipalities, because the real costs and benefits are defined by the company that will refurbish the building.

Small Public Bodies often are not able to control the real cost of this kind of operation, since they don't have at their own disposal the



right instruments and available human resources. A third part approach with an ex-ante application of LCC could guarantee an equal distribution of cost saving between company and PA.

Ex-Ante Application





3.2. CONCLUSION

The specifications provided are already enough to assess the tenders for the chosen pilots. However, considering that LCC for building refurbishment, as described in this document, LCC may be part of a complex structured path, thus an integration process with other tools and methodologies, is recommended. As minimum target, LCC should be integrated with preliminary information about the initial energy class and the Target Energy Class (TEC), in order to have precise suggestions for the selection of the product/service addressing to the needs of the contracting authorities. It should very useful to address a Green Tender towards more specific project details.

Moreover, a graphic interface to increase the usability could be useful. The tool has to be used through guided choices.

As maximum target, LCC as an ex-ante application could allow the identification of the products as subject of the tender when the audit is missing.

The testing phase could give more information on how to improve the tool further.



4. eGPP TOOL

4.1. INTRODUCTION

In this section, a part of the "Report on the upgrade and the parameterization of tools" deliverable for the GRASPINNO project is presented and its main objective is the description of the upgrades applied in the eGPP tool in order to satisfy the specific needs of the GRASPINNO pilots.

4.2. eGPP TOOL UPGRADES

4.2.1. Brief description

For the purposes of the GRASPINNO project, the collected tools (LCC, eGPP tool, eGPP tool's DBs and Living Labs) were parameterized and upgraded, in order to satisfy the specific needs of the GRASPINNO pilot actions (public buildings' refurbishment).

More specifically, regarding the eGPP tool, the following upgrades took place:

- Specific EU "green" criteria related to works/services (i.e. indoor lighting, Office/Building design, Furniture, etc.) for the buildings' refurbishment were identified and introduced in the eGPP tool. The main aim was to enrich the tool's available "green" criteria and help the partners in their pilot actions to achieve maximum energy efficiency during buildings' refurbishment.
- Update of the User Interface (UI) of the eGPP tool, so as the tool's "look and feel" corresponds to the GRASPINNO project





and respects the publicity of the guidelines set by the MED Programme (i.e. project/programme logos, references to the MED programme and funding authorities, etc.)

- Introduction of new functionalities in the eGPP tool (LCC calculator, Living Labs methodology).
- Update of the eGPP tools' User Manual, which contains the new functionalities.

All these upgrades, are presented in the following subsections.

4.2.2. Updated eGPP tool's "green" criteria

As mentioned before, specific GRASPINNO partners will perform pilot actions in their regions. These pilot actions have to do with the energy efficient refurbishment of public buildings by using the integrated GRASPINNO eGPP tool. For this reason, EU "green" criteria related to works/services for the buildings' refurbishment, were identified and enriched/harmonized with the "green" criteria, which are in force in the countries/regions which participate in the project.

The GRASPINNO consortium identified specific main categories (Indoor lighting, Office Building Design/Construction/Management, Combined Heat and Power, Furniture, Toilets & Urinals, Wall Panels, Water-based Heaters, Sanitary Tapware, Air conditioning, Thermal insulation, Electrical static autotransformers, Energy self- sufficiency) related to buildings' refurbishment. The identified "green" were introduced in the eGPP tool, so as to enrich the tool's criteria and the partners to have access to a big registry of "green" criteria, which will help them to maximizing the energy efficiency to their pilot actions.





More specifically, the following criteria were identified and introduced in the updated eGPP tool:

Indoor lighting "green" criteria

Regarding Indoor lighting the following general criteria categories were added:

- Energy class criteria.
- Lamp life criteria.
- Mercury content criteria.
- Lighting power density criteria.
- Normalized lighting power density criteria.
- Lighting controls criteria.
- Installation of lighting systems criteria.

Office Building Design/Construction/Management "green" criteria

In this category, the following criteria categories were added:

- Minimum energy performance criteria.
- Cost optimal performance criteria.
- Energy management system criteria.
- Low or zero carbon energy sources criteria.
- Staff travel plan and infrastructure criteria.
- Recyclable waste storage criteria.
- Thermal comfort conditions criteria.
- Daylighting and glare control criteria.
- Ventilation and air quality criteria.
- Demolition waste audit and management plan criteria.





- Sourcing of legal timber criteria.
- Site waste management criteria.
- Selection of fit-out materials and finishes criteria.
- Quality of the completed building fabric / Air tightness criteria.
- Building energy management system criteria.
- Energy performance contract criteria.
- Waste management system (Facilities management) criteria.

Combined Heat and Power "green" criteria

The added criteria categories are the following:

- Energy efficiency criteria.
- Energy saving criteria.

Furniture "green" criteria

The criteria categories, added in the updated tool are:

- Wood and wood-based material furniture criteria.
- Furniture plastic parts criteria.
- Furniture coating criteria.
- Furniture adhesives and glues criteria.
- Furniture packaging materials' criteria.
- Separation of furniture packaging materials' criteria.
- Outdoor furniture criteria.
- Share of wood and/or wood materials in furniture criteria.
- Furniture textile criteria.





Toilets & Urinals "green" criteria

The following "green" criteria categories were identified and added in the updated tool:

- Water efficiency criteria.
- Product performance criteria.

Wall panels "green" criteria

In this category, the following criteria categories were added in the tool:

- Gypsum Plasterboard Wall panels criteria.
- Wood-Based Wall panels.

Water-based Heaters "green" criteria

The identified criteria category is:

• Heaters Energy Efficiency criteria.

Sanitary Tapware "green" criteria

Regarding Sanitary Tapware, the criteria categories introduced in the tool, are:

- Water consumption/Energy saving criteria.
- Product quality/Longevity criteria.





Air conditioning "green" criteria

The following criteria categories were identified and introduced:

- Air conditioning general "green" characteristics criteria.
- Air-condition machine functions' criteria.
- Air-condition supplier certifications criteria
- Installation of air-conditioning machines criteria

Thermal insulation "green" criteria

The following thermal insulation criteria category was identified:

• Implementation of external and roof thermal insulation criteria.

Electrical static autotransformers "green" criteria

The electrical static autotransformes criteria category includes:

• Static autotransformer electricity saving criteria

Energy self-sufficiency "green" criteria

The "green" criteria categories, which were added in the upgraded eGPP tool, were the following:

- Biomass co-generation (gasification) criteria.
- Fotovoltaic plant introduction criteria.





4.2.3. eGPP tool UI upgrade

Regarding the eGPP tool's User Interface (UI), there was an upgrade in the tool's "look and feel" so as to improve the way users interact with the tool. More specifically, the GRASPINNO and MED Programme's logos were added in the tool along with specific references to GRASPINNO, so as the user to be able to easily understand that the tool is part of the GRASPINNO project, and also the consortium to respect its publicity obligations towards the Programme's Managing Authority. Moreover, a reference was added stating the project's Funding Authority.

Below, we array some screenshots from the updated GRASPINNO eGPP tool.

loterreg III												
Mediterranean e-GPP S	Support Tool											
	Home L	ibrary 👻	Tender 👻	Tender Descr	iption -	My TIPs 💌	LCC	Support	Help	About	Admin	Logout 🕩
Welcome to the	GRAS	PIN	NO e-C	SPP Sur	nou	rt Tooll						
This tool offers Public Authorities domains:	s an easy way	to collect g	reen specific	ations that can be	e used	during tender p	reperation	. Green spec	ifications	are availat	le for the f	ollowing
Energy Efficiency					F	Renewable E	nergy					
Building climate control						Energy self su	fficiency					
Toilets & Urinals						Biomass						
Air conditioning						Wind Energy						
Office Building Design, Con	nstruction and M	//anageme	nt			Solar Energy						
Combined Heat and Power	Combined Heat and Power				Solar Energy							
Design of indoor lighting	Design of indoor lighting				Geothermal energy							
Water-based Heaters												
IT Equipment												
Sanitary tapware												
Furniture												
Electricity												
Public Lighting												
Building renovation & retrot	fitting											
Wall panels												
Building renovation and ret	rofitting											
Building renovation & retrot	fitting (electricit	y)										

Image 1: GRASPINNO updated eGPP tool – Homepage





General Products & Service: ill in basic details of the new tende	s Potential Suppli	ers				
ill in basic details of the new tende	s Potential Suppl	ers				
III In basic details of the new tende						
	r.					
* Tender Title: Su	pply of LED lamps					
* Tender Summary: Su	pply of LED lamps for	refurbishment	of the Municipality's ce	entral building		
Contact Details:						
Save TIP	Cancel					

Image 2: GRASPINNO updated eGPP tool – "Create a TIP" section

e-GPP Support T	ool									
Home	Library 👻	Tender -	Tender Description -	My TIPs 👻	LCC	Support	Help	About	Admin	Logout 🕞
Seneral Products & Services F	otential Suppli	iers								
these forms to describe the green spe s refers to an individual product/service	cifications and type).	criteria of the	procured products and s	ervices. You ma	iy add as	many produ	cts as yo	u want (ea	ch one of th	e underlying
ED Lamps 🗙 😏										
Seneral Info										
ill in general info about the procured pr alculated (see relevant tab). 3	oduct. Once y	ou select the p	product/service category	and type, a list	of potenti	al suppliers	and the re	espective p	roducts is a	automatically
* Title:	LED La	mps								
* Category:		Energy Efficier	ncy O							
		Air condition	ing O							
	•	Building clin	nate control 🖸							
		Building reno	vation & retrofitting O							
	_	Building reno	vation & retrofitting (ele	ectricity) 🖸						
	•	Building ren	ovation and retrofitting	0						
		Combined He	at and Power O							
		Design of ind	loor lighting 🖸							
		Electricity O								
		Furniture O								
		Indoor Ligh	ting 🕑							
	-	11 Equipme Offers Dudut	nt U							
		Office Buildin	ig Design, Construction	and Manageme	ent U					
	•	Public Light	ang U							
		Sanitary tap	ware U							
		Vall page -								
		waii panels (-							

Image 3: GRASPINNO updated eGPP tool – "Add Product" section







		ary - Tender	r 👻 Tender Des	cription - My 1	TIPs - LCC	Support	Help A	bout Admin	Logout 🕞
About									
The green procurement supp	port tool aims to supp	ort the implemen	tation of the Green	Public Produreme	ent Directive in I	Mediterranean c	ountries.		
The basic functionality of the	tool is as follows:								
 General info about Title, related GPP c Green Specification Descriptions of the One Spec for each The minimum or exit Potential suppliers. Publish tenders using as 	the tender to be prep ategories, dates, etc is products/services to product to be procur act criteria to be satis and complying produ ssociated TIPs and g	be procured ed fied ts een documents							
Project "GRASPINNO" is co-f	unded by MED under	project number	1MED15_1.1_M23	_011. If you want t	o learn more ab	out the GRASP	INNO project	t click here.	

Image 4: GRASPINNO updated eGPP tool – "About" section

4.2.4. eGPP tool's new functionalities

Part of the eGPP tool's upgrade, was the introduction of two new functionalities. The first was the introduction of the Living Labs methodology and the other was the introduction of the LCC (Life Cycle Cost) tool.

In general, the Living Labs methodology is a process that will pursue behavioral change in favor of eco-innovation, green energy and green growth for the actors in quadruple helix process. The Living Labs will be used to integrate research and innovation processes, create a user-centered open innovation ecosystem based on systematic cocreation approach, promote and strengthen transnational cooperation and networking amongst existing clusters/networks/networks-ofnetworks of GEM eco-innovation. The tool's users will be able to consult the respective methodology, which is available in the "Library" section of the GRASPINNO eGPP tool.

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LCC tool, is a tool which support public procurers select the most cost & energy-efficient offered solution. Below you may find a screenshot from the LCC tool, which is available in the respective **"LCC"** section of the GRASPINNO tool.





e-GPP Support Tool

Home Library + Tender + Tender Description + My TIPs + LCC Support Help About Admin Logout®

LCC Calculating Tool

LCC Assessment CO2 emissions Conversion tables

	Lowest Price		Sustainable Price							
Price										
Purchase price per product (Euro/product)		6		6						
Lifetime (years)		У		у						
Comparable Number Of Replacements		e		¢						
Total Cost		6		•						
Duration										
Lifetime (years)		a		a						
Average yearly time usage (hours/year)		h/a		h/a						
Total usage time (hours)		h		h						
Number of purchases										
Total (hours)		h		h						
Maintenance										
Number Of Years (years)										
Units Per Year (work hour, kwp, page)										
Cost Per Unit (@)		e i		¢						
Total (6)		e		¢						
Energy Costs										
Price of energy (Euro/KWh)										
Energy Consumption (Watt ert)		w		w						
Lifetime Energy Consumption (kWh e/t)		Kwh e/t		Kwh e/t						
Total energy Cost (@)		6		¢						
Emissions										
KB of CO2/kWh										
Total Of CO2 Avoided (ton)		:		t in						
Economic Value Of CO2 (Eiton)		•		¢						
Total Economic Value Of Avoided CO2		6		•						
Total Life Cycle Costs	0	e i	0	e						

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Image 5: GRASPINNO eGPP tool - LCC tool





More detailed descriptions of the Living Labs methodology and LCC tool, are available in the respective sections of this deliverable.

4.2.5. eGPP tool's updated User Guide

Since the GRASPINNO eGPP tool was upgraded, the tool's User Guide should also be updated, in order to contain the new functionalities (LCC, Living Labs methodology). The tool's updated User Manual is available at the **"Help"** section of the GRASPINNO eGPP tool.

CRASPINIO	upport Tool _{Home}	Library +	Tender +	Tender Description +	My TIPs 👻	LCC	Support	Help	About	Admin	Logout 🕪
Help											
f you need instructions on how to	use this tool ple	ase download	I and read the	User Guide.							
Useful calculating to	ools										
Building Material Assessment M	lethodology Calc	ulator									
Building Material Assessment M	lethodology User	r Guide									
Public Lighting Renovation Calcu	ulator										
Public Lighting Renovation User	Guide										
Tender Evaluation Tool (Excel Fi	ile)										
Tender Evaluation Tool (Online T	Fool)										
Tender Evaluation Tool User Gui	ide										
Frequently asked q	uestions										
What is a TIP?											
How can I add a new TIP?											
Can I use a category in mu	ultiple specs?										
How many criteria can I ad	dd to a spec?										
How many values can I ad	d to a criterio	n?									
e information contained in this we rranties of any kind, express or in spect to the website or the informe ormation is therefore strictly at yo	absite is for gene mplied, about the ation, contained ur own risk.	eral informatio e completenes on the website	n purposes o s, accuracy, r e for any purp	nly. We make no represe reliability, suitability or a ose. Any reliance you pla	ntations or vailability with ice on such	In	terre	9 💽	Project Region	t co-financed al Developm	by the European ent Fund

Image 6: GRASPINNO eGPP tool - User Guide link

Each user of the tool will have access and be able to download the GRASPINNO eGPP tool User Guide, by selecting the "User Guide" link. Thus the user will be familiarized with its functionalities and then he will start using it.





5. LIVING LABS

5.1. LIVING LABS: GENERAL DESCRIPTION

Living Labs present a specific trend in open innovation approaches. In Living Lab approach, external ideas are resources in innovation process. The aim of the Living Lab approach is to support innovation process with a usable product or service as a result of the innovation process. Different stakeholders are involved in the Living Lab, from researchers, developers and end-users with the goal to co-create innovative products and services in a real-world environment.

The Living Lab concept is based on a systematic user co-creation approach integrating research and innovation processes (bringing together users, R&D institutions, producers, service providers and all relevant stakeholders in focused and integrated development process). These are integrated through the co-creation, exploration, experimentation and evaluation of innovative ideas, scenarios, concepts and related technological artefacts in real life use cases. Such use cases involve user communities, not only as observed subjects but also as a source of creation. This approach allows all involved stakeholders to concurrently consider both the global performance of a product or service and its potential adoption by users. This consideration may be made at the earlier stage of research and development and through all elements of the product life-cycle, from design up to recycling.

Living Lab is an environment in which researchers, developers and end-users co-create innovative products or services in the shortest possible time according to the needs of end-users and test the idea in





the real-life environment (a city, a region, a country, an industry or a supply chain).

Living Labs usually exploit opportunities of modern ICT and can be seen as "a large, broadly conceptualized laboratory". Living Lab, usually we sought to see cooperation of all stakeholders (from users, to companies, ICT providers, developers, government organizations, universities, and other involved institutions).

The key components of the Living Lab are:

- Users
- Structured working methods
- Organizational structure
- Technical platforms



Living Labs are built around innovation (creating new innovative solutions) and structured cooperation. A living lab is not similar to a testbed as its philosophy is to turn users, from being traditionally considered observed as subjects for testing modules against requirements, into value creation in contributing to

the co-creation and exploration of emerging ideas, breakthrough scenarios, innovative concepts and related artefacts. Hence, a living lab rather constitutes an experiential environment, where users are immersed in a creative social space for designing and experiencing their own future.

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Living labs can be used by policy makers and users/citizens for designing, exploring, experiencing and refining new policies and regulations in real-life scenarios in order to evaluate their potential impacts before actual implementation.

5.2. LIVING LABS: CO-EFFICIENT APPROACH AND EXPERIENCES



In CO-EFFICIENT project the partnership opted for Business Model Canvas approach. Living Lab set-up methodology consisted of 6 phases that supported the formation of two Living Labs - Transport optimization (eServices) Living Lab and Energy efficiency Living Lab based on following phases:





1. Connect

- Find people and organizations with positive innovation attitude.
- Find complementary skilled people to cover the diversity of innovation process.
- Form knowledge base of stakeholder's competencies and expertise.
- Use web portal to share information.
- Use social networks to enable formation of sub networks.
- Prepare and sign the Memorandum of understanding (MOU) to define and understand the obligations of the involved stakeholders.

2. Plan

- Push stakeholder to define a problem/opportunity (User Driven definition).
- Define strategy, goals, objectives and expectations.





- Define performance indicators for LL process evaluation.
- Define time frame.
- Determine commitments and leadership, resources.
- Plan how to establish trust among network members and engage them.
- Identify and form knowledge base of best practice cases.

3. Communicate and support

- Define network sponsorship/financing.
- Determine role of meetings, workshops and seminars.
- Define key knowledge and information input.
- Define external expertise needed.
- Determine required ICT support.
- Use dissemination activities (conferences, newsletters) to extend partnership network and share experiences.

4. Act and manage

- Conduct workshop to engage stakeholders in the process of finding the solution.
- Develop or use an existing solution.
- Present the solution process to stakeholders.
- Perform on-site training of stakeholders.
- Run one or more User Driven, Open Innovation pilots.
- Test if the solution's are in compliance with the defined goals and objectives.
- Measure performance indicators.
- Review responsibilities and commitments of stakeholders.

5. Deploy

- Deploy developed solutions.
- Communicate and share knowledge.

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6. Improve

- Evaluate the process based on performance indicators, goals and objectives.
- Push stakeholders to generate ideas for improvement of the process.
- Evaluate contribution and consolidate network of stakeholders.
- Expand network of stakeholders based on identified knowledge gaps.
- Consolidate knowledge database.
- Summarize the results.

In phase 1, stakeholders were connected in a network with a clear insight and role to play in the Living Lab. In phase 2, plan of the Living Lab including objectives, activities, roles, agreements, responsibilities, cost/profit issues and risk management was agreed among partners. This was done via Memorandum of Understanding (MoU) which defined roles and responsibilities of participants. As the Living Lab was established and financed within project, there were no financial issues. The MoU was kept rather simple not to drive away stakeholders. For those participants who were not interested to participate in the Living Lab but they were willing to test proposed solutions, a Declaration of Participation (DoP) was used. The DoP specified the scope, responsibilities, right and data protection (very important) for those participating in the testing of solutions.

Inputs, schedules and dissemination activities were defined in phase 3, followed by the process of solution development and continuous improvement of the user driven innovation process defined in the Living Lab in phase 4. The deployment of the solution, presented in phase 5, aims at sharing knowledge in participating regions and





gaining sustainability of the Living Lab which is continuously improved in phase 6, with the aim to support user-driven open innovation process in continuous activities.

For each of the Phases listed above basic information table with responsibilities, aims and methodologies was prepared and used.

Table 1: Example of basic information table for CO-EFFICIENT Living Labdevelopment Phase 2 - Plan.

Responsible	Initiator of the LL
Contributors	All participating stakeholders.
Aim	The Communicate and support phase determines the inputs, schedules and dissemination activities.
Methodology	The presented phase consists of six detailed steps which enable transparent communication and support the LL activities.
How to start	Following the outputs presented in Gantt chart of the LL, determine the role of meetings, seminars and workshops.
Where	In all involved regions.
Deliverables	Defined financing, prepared and conducted events (workshops, meetings, seminars), reports about events, defined key knowledge and information input, defined needs for external expertise, dissemination activities.





CO-EFFICIENT living Lab practical implementation sequential

- Desktop research on existing methodologies, approaches, and tools for energy efficiency improvement and use of renewable resources in production and operations;
- Identification of key stakeholders, associations, clusters (and SMEs) and identification of key added values for each participant;
- 3. **Definition of strategy**, aims, and objectives of the living lab;
- 4. Definition of terms of collaboration, ownership of resulting tools, rules for use and further modifications;
- Via workshops, conferences, in-company visits, one-on-one meetings, consultations and interviews involving key stakeholders and SMEs;
- Identification of areas with large unused capacities within the energy assemblies installed in SMEs; identification of typical areas with potentials for improved maintenance and management, identification of areas for instalment of renewable resources;
- Joint development of analytical tool and indicators for improved energy efficiency and use of renewable resources in production processes (SMEs closely collaborate in the process);
- Testing of the beta version of the analytical tool on a panel of 50 SMEs to test its quality and relevance;

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- 9. **Design** of final version of analytical tool; and
- 10. **Individual consultations** and advices to SMEs in Living Labs on improving energy efficiency and use of renewable resources.

5.3. GRASPINNO LIVING LAB METHODOLOGY

In GRASPINNO the above described concept of Living Lab will be applied in each participating country. Two types of stakeholders in particular are to be targeted - namely public sector and product providers (especially SMEs). Through Living Lab approach, stakeholders (public sector, SMEs as well as other interested participants) need to be involved not only as observed subjects but active contributors and as a source of creation. Namely, innovations (including new approaches and tools) generally face resistances from the users especially if users are not sure about benefits to be gained this might be especially true for public sector. Experiential learning is one of the most powerful teaching and learning tools to overcome this reluctance and to facilitate the change in people behaviours. Experiential learning involves: (i) a "reflective learning phase"; (ii) a learning phase coming from the experimentation; and (iii) a learning phase coming from feedback. These phases well aligned with the three waves (act, deploy and improve) of the iterative living lab spiral cycles.

In order to implement the Living Lab approach in GRASPINNO, an informal "Living lab forum" or "cluster" of stakeholders (mainly organisations from public sector however SMEs, R&Ds, policy makers and other interested stakeholders) are to be organized. This "Living Lab forum" will take over the role of Living Lab implementing activities without formalisation in terms of legal commitments,





formalisation of procedures and management. The informal establishment of Living Lab, which is not requiring the establishment of new legal entity but only formal commitment to participation (Memorandum of Understanding or similar), should facilitate the involvement of stakeholders.

Nevertheless, the work in "Living Lab forum" is structured and led by project partners following joint methodological approach. One "Living Lab forum" per partner country is mobilized bringing together organisations which are actively involved in GRASPINNO implementation and also, other organisations which are interested to observe but not to actively participate. The activities of "Living Labs forum(s)" follow the phases of Living Lab as shown below.





Table 2: GRASPINNO Living Lab approach







Some activities above are open to all participants, while other activities (individual consultations and individual support with implementation) are given only to organisations which actively participating in GRASPINNO activities.

The national "Living Lab forums" will work together following the same methodology and exchanging experiences. Still the final methodology for Living Lab implementation will remain open in order to adapt to national/regional specifics.

The final detailed methodology for Living Lab implementation based on above depicted approach will be developed within "4.1.1 Living Lab approach for GRASPINNO".

