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2	Oslo Kommune	OSLO KOMMUNE	PUBLIC PROCURER	Norway
4	Landratsamt Enzkreis	ENZKREIS	PUBLIC PROCURER	Germany
5	ATC Torino	TORINO	PUBLIC PROCURER	Italy
6	Sestao Berri 2010 Sociedad Anonima	SESTAOBERRI	PUBLIC PROCURER	Spain
7	ASM Market Research and Analysis Centre	ASM	DISSEMINATION EXPERT	Poland
8	Getica Srl	GETICA	PUBLIC PROCURER	Italy



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Acronyms

PPI	Public Procurement of Innovation
SME	Small and medium-sized enterprises
PCP	Pre-Commercial Procurement
R&D	Research & Development
GPP	Green Public Procurement
SPP	Sustainable Public Procurement
EU	European Union
LCC	Life-Cycle Costs
PIN	Prior Information Notice
JCBET	Joint Cross-Border Evaluation Team

1. Executive summary

This deliverable was developed during the course of Work Package No.4 “VALIDATION OF PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS” of PAPIRUS project.

In this document the methodology followed during the PAPIRUS PPI process is validated. Critical factors for success and challenges of the whole process are identified, in order to generate general instruments that facilitate future innovative procurements in the public sector. A main focus lies on the lessons learned from the legal and technical experts from PAPIRUS project.

The PAPIRUS tenders are related to the construction sector. The experiences of the PAPIRUS partners, however, are not restricted to construction projects only. They equally apply to technically innovative procurements in other sectors – regardless of the envisaged contract value or type of contract to be procured.

In the end of the document, the PAPIRUS consortium provides practical, hands-on recommendations on how to use some or all PPI tools.

The legal framework of the coordinated PAPIRUS tender has been set by all partners in the deliverable 2.4 “Legal analysis” (October 2014) and has been followed during the public procurement of innovative solutions since March 2015.

This document also shows that the main goals of PAPIRUS in the light of an innovative public procurement process have been widely met:

- to promote the strategic dual role of public procurers (yes);
- to develop a new procurement strategy (yes);
- to change the “purchase price only” mind-set (yes);
- to transfer from a local market to European market and promote SME (no);
- to launch a coordinated public procurement in all four pilot sites in Spain, Italy, Germany and Norway (yes).

2. Public Procurement of Innovation (PPI)

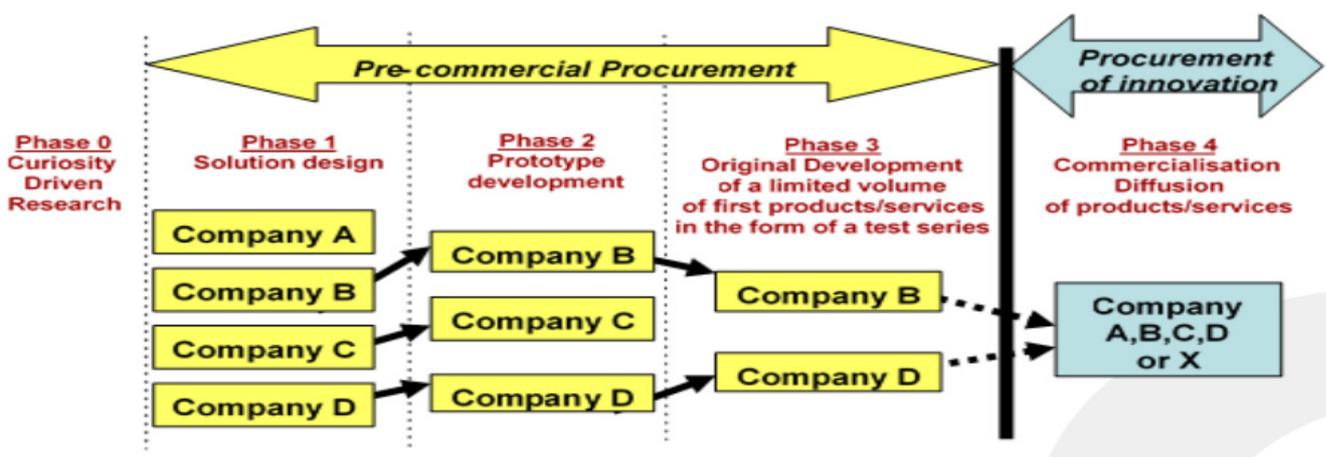
PPI is neither a new form of procurement procedure nor a new type of contract. PPI is a strategy helping public authorities to achieve more efficient and effective services and technologies by utilizing their considerable purchasing power to foster innovative solutions.

2.1 Definitions

Public authorities that consider strategic procurement as a key success factor to purchase economic and sustainable solutions, can rely on different tools like PPI, PCP, GPP and SPP. Those acronyms are currently also used in the framework of the Horizon 2020 program by the European Commission.

- The term “**PPI**” applies when innovative solutions already exist, but are not yet available on a large-scale commercial basis. PPI supports companies bringing their new solutions earlier to the market; public procurers act both as market drivers as well as early adopters;
- Pre-Commercial Procurement (**PCP**) is a process where new innovative solutions have yet to be developed, requiring Research & Development (R&D);
- Green Public Procurement (**GPP**) and Sustainable Public Procurement (**SPP**) specifically aim at achieving environmental policy goals relating to climate change, resource use and sustainable consumption and production. Both tools not necessarily involve innovation;
- **Innovation** refers to “the implementation of a new or significantly improved product, service or process, including but not limited to production, building or construction processes, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations inter alia with the purpose of helping to solve societal challenges or to support the Europe 2020 strategy for smart, sustainable and inclusive growth” (Article 2.22 of Directive 2014/24/EU).

PAPIRUS project implements PPI to procure technical solutions that have impact on the building's energy performance in order to achieve more sustainable constructions, focusing on Nearly Zero Energy buildings.



2.2 Benefits of PPI

PPI contributes to achieving best value for public money as well as wider economic, environmental and societal benefits in terms of generating new ideas, translating them into innovative products and services, to the advantage of European enterprises and SME. The public sector nowadays faces the trend that public procurement is becoming more strategic and technology-dependent than ever. Henceforth public authorities cannot avoid changing their mindset and serving as front runners in supporting and carrying out innovative procurements – in favour of a value-based society.

Specifically, the most beneficial aspects of PPI are:

- PPI empowers public authorities to obtain pioneering, innovative solutions that fully meet their specific needs – even if those solutions are not yet available in large scale;
- PPI helps public authorities to modernize its services and provide the best possible quality services for tax payers' money;
- Suppliers and service providers gain the opportunity to introduce new products to the market on a larger scale;
- By presenting needs rather than ready solutions to suppliers and service providers during the procurement process, public authorities reach out to new target groups and encourage them to develop or commercialize new products or even invest in new technologies – ultimately for the direct benefit of the public procurer as well as in the interest of society;
- While in some cases the up-front purchase price for procuring innovation may be higher than conventional products or solutions, considering the life-cycle costs (LCC) and the quality of the innovative product might eventually lead to the most economically advantageous offer.

3. PPI process implemented in the frame of PAPIRUS

Based on the legal frame of the European Procurement Directives and the respective national regulations on construction, building and contract law in Spain, Italy, Germany and Norway, the legal and technical experts of the PAPIRUS project implemented a coordinated procurement of innovative solutions in the construction sector in the year 2015.

This “PAPIRUS methodology” is explained in this chapter – step by step. This methodology also applies to the new EU Directives from April 2014 - mainly 23/2014, 24/2014 and 25/2014 -, even though the PAPIRUS tenders have been launched under the previous EU Directives 2004/18 and 2007/66. The current Directives leave even more room to involve innovation aspects in the procurement process.

Firstly, this chapter outlines the particularities of the PAPIRUS coordinated tender, followed by the general characteristics of the PPI process.

The PAPIRUS coordinated tender in a nutshell

The PAPIRUS partners launched four Open Procedures in Germany, Italy, Norway and Spain – all at the same time. The tender documents of each tender introduced the particularities of each procuring entity’s national legislation as well as the technical requirements of each case study, while following a similar structure and frame (procedure, timeframe, division into lots, evaluation of the bids, terms of contract). The award proposals were prepared by a “Joint Cross-Border Evaluation Team”, composed of members from the four pilots and the project coordinator Tecnalía.

The four PAPIRUS tenders were:

Contracting Entity	Tender & Type of building	Contracts/ Lots	Locality & Case Study
Landratsamt Enzkreis, Germany	Mühlacker Vocational School / Workshop Building, Roof refurbishment	Works contracts incl. supplies: Lot 1 Opaque envelope (roof) Lot 2 Windows (roof)	Mühlacker, Germany (refurbishment)
ATC, Torino, Italy	Residential building in the Municipality of Rivalta (Via Monte Ortigara Street)	Supply contracts: Lot 1 Opaque envelope (façade) Lot 2 Opaque envelope (roof) Lot 3 Windows	Rivalta, Italy (refurbishment)
Omsorgsbygg Oslo KF, Oslo, Norway	Lindeberg nursing home	Supply contracts: Lot 1 Opaque envelope (façade) Lot 2 Windows Lot 3 Internal partitions	Oslo, Norway (new building)
SESTAO BERRI 2010, S.A., Spain	Residential building in the Municipality of Sestao (Txabarri street 33-35)	Supply contracts incl. installation: Lot 1 Opaque envelope (façade) Lot 2 Windows	Sestao, Spain (2 new buildings)

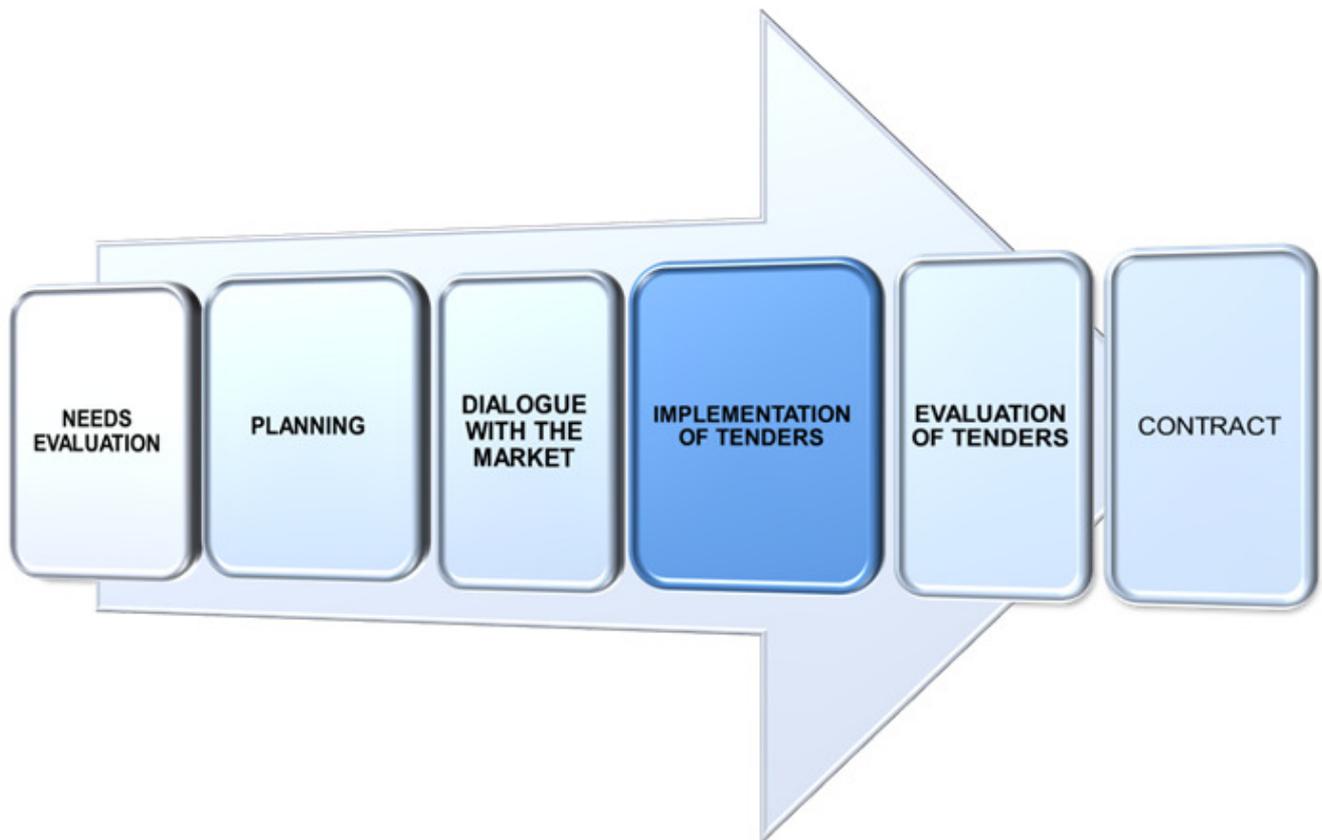
In Germany and Spain the tenders included supply and installation services; due to specific national regulations the German tender was carried out as a works tender, the Spanish tender as a supplies tender. The Italian and Norwegian tenders were supplies tenders while the installation services were envisaged to be procured in a follow-up works or general contractor tender.

Each tender procedure was performed in the respective national language and in English. All the documents, agreements and forms, possible corrections, additional information and/or public hearing announcements were also published and stored at the project website (<http://papiirus-project.eu/>).

Bidders had the possibility to offer bids in more than one PAPIRUS tender. Companies interested in building a consortium with others could find contact information and companies’ descriptions on the PAPIRUS Project website.

PPI – step by step

The main phases of the public procurement of innovation are shown in this figure and explained in detail on the following pages.



The PAPIRUS coordinated tender followed the timeframe presented in the table below:

Activity	Timeframe
Evaluation of procurement needs for each pilot	Nov. 2013 – July 2014
Dialogue with the market, Market Events in five countries	May – Nov. 2014
Implementation of the tender & tender documents	June 2014 – March 2015
Notice of the four Open Procedures	March 2015
Deadline for submitting offers	May 2015
Evaluation of the offers (Joint Cross-Border Evaluation Team)	June 2015
Contract award	July 2015 (earliest date)
Technical validation before the construction (tests, simulations)	Sept. – Nov. 2016
Construction works (different in each pilot)	2015 / 2016
Technical validation after implementation or purchase (tests, simulations)	Sept. – Oct. 2016
Validation of the innovative procurement process	May – Oct. 2016

3.1 Evaluation of procurement needs

When identifying the procurement needs the contracting public body has a broad discretionary power. The PAPIRUS partners approached their construction tenders with an open mind and without fixed expectations about what the solutions should look like. Consequently, the needs were evaluated in terms of **performance and function**. This approach prevented the public procurers from committing early to services, goods and technologies that are common and already known to them. The PAPIRUS consortium decided to implement a coordinated PPI tender, as plenty of possible solutions for energy-efficient constructions in the pilot buildings were almost or already on the market small-scale, which is why R&D was not considered necessary.

Technical and legal experts of each partner were involved in this process from the very beginning. The market was analyzed about the **state-of-the-art of potentially available solutions** and energy audits (refurbishments) and simulations (new buildings) have been performed. End-users of the buildings to be refurbished were included from an early stage.

3.2 Planning ahead

Procurement projects require **time**, especially when innovation is involved. Each public procurer needs to set himself enough time for the procurement, starting from the needs evaluation until the contract award and finally the execution of the contract. The project therefore should be scheduled with respect to the desired start date of the contract execution.

With PPI most of the time is required for the previous dialogue with the market, for creating the tender documents including useful award criteria and for the evaluation of the bids. Also the consultation of (internal and/or external) **technical and legal experts** very likely needs more time than in conventional procurements.

The **target groups** and potential addressees of the tender have to be defined (suppliers, manufacturers, construction companies, developers, ...). In case of PAPIRUS the partners had to decide whether the intended tender covers the material supply and/or transportation and/or installation services, and if manufacturers or construction companies will be considered as potential bidders.

Moreover it was necessary to secure **political backing** for the proposed PPI – regarding the time and resources needed for the process and the purchase. Taking into account the life-cycle costs (LCC) and quality aspects rather than the purchase-price only requires a long-term commitment of the public procurer. Planning ahead is also needed regarding the timeframe of the PPI process, as they take longer than the **budget period** of one year.

All in all it can be stated that the PAPIRUS coordinated tender took additional time for the synchronization between all partners and the cross-border focus of PAPIRUS project. The whole process took nearly two years, starting from the evaluation of needs until the award of the contract. Without the need to cooperate with other public entities from different countries, individual public procurers can operate a lot faster than that.

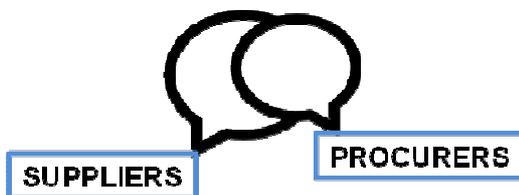
3.3 Dialogue with the market

The early market consultation prior to the intended tender is the most important element of PPI. The previous dialogue with the market as a **key to a successful procurement** has two main objectives:

- to gain a deep knowledge of the market, e.g. the availability, costs and possible practical implications of other alternatives;
- to inform the market in advance about the upcoming tenders.

The PAPIRUS partners have executed an extensive market research on the technological solutions relevant to PAPIRUS by conducting **market events and one-to-one meetings with suppliers** and other interested parties before compiling the tender documents and launching the tenders, thus allowing the interaction between public procurers, suppliers, experts and end-users. Five public market events have been conducted in total: four of them in the public body's home countries (Spain, Italy, Germany and Norway) and one in Brussels, to provide the international dimension of the project to the market.

This market approach to the tender at hand usually is not done by public bodies so extensively when they procure works contracts or supplies. Especially the **direct contact of the public procurers with suppliers and manufacturers** was very fruitful for all participants and showed clearly that there is a need for dialogue.



These meetings have given both sides, the companies and the procurers, a clear understanding of the role expected of them as a part of the implementation of the public procurement of innovative solutions. Through the technical dialogue conducted in the market events procurers have gained early and specific knowledge of the market, on innovations, project feasibility and market capacity/capability, which has been included into the following tender.

Besides, the uptaken dialog has been an excellent way of overcoming the common barriers which often discourage private entities to participate in public tenders – while giving public procurers invaluable knowledge and advice.

Most manufacturers found the innovative approach to finding innovative solutions for construction challenges propagated by PAPIRUS project new and appealing. They found it surprising and very gratifying that the public body researched the market extensively before launching the tender and even before finalising the tender documents. Very often, if not mostly, public bodies decide what to purchase without prior market research or market notice and potential bids have to fit the requirements of the tender without being able to influence the procedure or to suggest other solutions; that way suitable new and innovative solutions can easily be missed.

When refurbishments are involved there is always the possibility to organize a market event directly in the respective building, making it much easier for the companies to understand the technological and structural challenges of the tender. One PAPIRUS partner has made very good experiences with this approach; all participants of the German market event appreciated that it was located in the pilot building.

Formally, the previous consultation of the market is not part of the procurement procedure. However, special attention has to be paid to **treat all potential bidders equally** in order to ensure that no bidder finds himself in a better position with regard to the following tender. The market consultation therefore has to be totally transparent.

After the market consultation it is highly recommended to **maintain contact** with the dialogue partners and suppliers to keep up their interest in the upcoming tender. The public procurer should keep record of all interested parties (database) and regularly inform them about the development of the project and the timeline for the upcoming tender.

3.4 Implementation of the tender & tender documents

Apart from the market dialogue, preparing the administrative and technical specifications including the evaluation criteria and weights is the most time-consuming element of the PPI process. Special care has to be taken into creating complete, precise and detailed documents, supplemented with clear instructions for the bidders how to submit the offers and means of verification. This helps increase the quality of the bids and avoid that incomplete or inaccurate offers have to be excluded.

The PPI-related particularities with the creation of tender documents are presented here.

- Type of contract / division into lots

The following table pictures the type of **contract** each pilot procured in the frame of the PAPIRUS project and how the tender was classified according to the national regulations.

Type of Tender / Contract	Pilot sites			
	Enzkreis (Germany)	Torino (Italy)	Oslo (Norway)	Sestao Berri (Spain)
Works tender: Supplies and installation	X			
1 st tender: Supplies tender 2 nd tender: Works tender		X	X	
Supplies tender: Supplies and installation				X

Two of the tenders (Germany and Spain) covered supply and installation services, and the other two tenders (Italy, Norway) comprised only supplies; the installation services were supposed to be procured in follow-up works or general contractor tenders. PPI is always possible, no matter which type of contract shall be procured or which kind of tender – supplies or works – will be carried out.

Each tender in the four pilots was composed of **different lots** per technology. Bidders were allowed to submit a tender for more than one lot.

- Choice of procurement procedure

All PAPIRUS tenders were carried out as **Open Procedures**, even though in some cases the estimated value of contract was below the EU threshold. The Open Procedure was chosen as the common ground for the coordinated tender after having considered all options. The execution of a Negotiated Procedure or a Competitive Dialogue was not permitted in all partner countries in 2015, as the technical and organizational procurement needs and the pricing of this specific tender could be described accordingly before the start of the tender process.

Therefore an unlimited number of companies could participate to tender for contracts. Negotiations were strictly not allowed.

▪ Technical specifications

The tender documents were created based on **functional descriptions** of the different technologies and solutions (**performance-based** specifications). The technical specifications were consistent with the particularities of each pilot case and national regulations. During the development of the technical specifications the PAPIRUS partners took into account the information they had gained through the previous dialogue with the market.

Minimum requirements and the desired core functionality were described in detail. The documents clearly and unequivocally indicated that proposing a technical solution which exceeded the technical performance features requested in the technical specifications (**over-fulfillment of the minimum requirements**) was permitted and desired and would lead to a better evaluation of the offer.

It is advisable though, not to over-specify the technical descriptions in order to leave the bidders enough room for innovative and new solutions. Depending on the procurement in question **alternative tenders and variants** should be accepted.

Concerning possible interdependences of different technologies there must be a special emphasis on the predictability and foreseeability for the bidders so there is no undue risk on them.

▪ Property rights

PAPIRUS project has been based on the purchase of solutions already available in the market, although not on a large scale, or never used before by the awarding authority. Thus a specific regulation concerning **intellectual property** has not been essential. Still, a regulation of privacy and commercial secrets has been considered according to European and National legislation of each country.

Especially in PPI tenders very often it is appropriate to acknowledge the aspect of confidentiality regarding the content of the potentially innovative bids. Depending on the national regulations bidders may be warned to identify any confidential information or business secrets in their bids. The Contracting Entity shall ensure the confidentiality of any information so designated expressly.

▪ Award criteria and weights

The PAPIRUS contracts were awarded upon **the most economically advantageous tender, based on both the quality and the purchase price of the bid**. There was a clear statement towards quality aspects, energy efficiency, sustainability and the LCC of the products. All partners agreed on weighing the price with 30% in all four tenders, which complies with the lawful minimum percentage for the economic price criteria in one partner country.

Innovation itself was not established as an award criterion. No legally certain way to ensure a fair competition for all bidders allowed to integrate a fair and transparent methodology for evaluating the innovations in the award process, to determine the level and degree of innovation and to compare different innovative solutions on equal grounds. Innovation was implicit in the establishment of minimum requirements set out in the technical specifications and the appreciation of offers that exceeded those requirements.

All award criteria and subcriteria for the evaluation of each lot were described in detail, as well as the weight of all criteria and the respective evaluation method. Each contract was awarded to the bid with the highest score.

The scheme of evaluation, the weighting of the selected criteria and subcriteria were disclosed in the tender notice and the tender documents.

The following table shows exemplarily all criteria and weights of the PAPIRUS coordinated tender. The award criteria and their weights were the same in all four tenders, whereas the weight and content of the subcriteria differed slightly in each pilot site, taking into account their specific characteristics.

Award criteria	Weight	Subcriteria	Weight	Criteria of valuation
Energy efficiency	30%	Thermal transmittance	20%	Mathematical formula (proportional score)
		Opaque envelope: Thermal bridges Windows: Capacity to reduce solar gains in summer and to increase them in winter	10%	Judgement value (rating)
Sustainability	10%	CO ₂ -equivalent value	10%	Mathematical formula
Installation, maintenance and others	30%	Reduction of weight	10%	Mathematical formula
		Installation process and method	10%	Judgement value
		Maintenance requirements and lifetime	10%	Judgement value
Economic criteria	30%	Price	30%	Mathematical formula

- Launching and disseminating the tender

Initially, Prior Information Notices (PIN) have been published in the OJEU to inform the market about the upcoming tenders.

In addition to the obligatory publication in the OJEU, the Open Procedures were also launched on the respective national eProcurement platforms, partners' webpages and on the PAPIRUS webpage.

In order to reach suppliers and manufactures that are not present on these usual platforms, media coverage, press releases, newsletters, articles and direct contact were used to spread information about the tenders.

All information about the tenders was freely and widely available.

3.5 Evaluation of the offers

The evaluation process was as follows: After checking the bids if all **formal requirements** like signature, timeliness, completeness were fulfilled, the bidders and, if applicable, their subcontractors were examined if they possessed the necessary skills, efficiency, experience and reliability for the performance of the contract.

The bids of all bidders that could prove their **qualification** were then reviewed if all minimum requirements requested in the technical tender documents were met; if not all minimum requirements were met the respective offers had to be excluded. Afterwards, the most economically advantageous offer was determined among all remaining offers, on the basis of the award criteria described in the tender documents.

The evaluation of the technical content of the bids have been carried out by the PAPIRUS "Joint Cross-Border Evaluation Team" (JCBET). The composition of the JCBET was aligned with the national regulations of each contracting entity.

The process of evaluating the technical bids and the means of verification provided by the bidders **requires time and expertise**.

3.6 Contract design and execution

The design of the contract is essential for the success of the innovative procurement. The PAPIRUS partners determined the contractual terms based on the respective national regulations and practices.

Risks should be assessed and anticipated, their impact evaluated and a backup plan should be included in the contract.

The contract treats aspects like payment arrangements, essential securities, insurance costs, transfer of risk and risk of transport, minimum wages and the language regarding the performance of the contract. The contractor must ensure that its representatives, contact persons, its subcontractors or other parties involved in the fulfillment of the contract are expected to have the appropriate language skills. The contractor must also comply with all national laws and provisions applicable to the sector, in particular those governing security and surveillance activities, insurance (civil and professional liability) and taxation. He also shall bear all risk of loss or damage to the purchased elements until the effective delivery to the Contracting Entity, and shall be solely responsible for procuring adequate insurance to protect the purchased elements against any such loss.

Special care has to be taken regarding warranties and the limitation for claims arising from defects, especially when the supplier of the innovative solution and the performer of the works are different subjects. In this case the cooperation and the interfaces between supplier and construction company or general contractor should be closely defined in each contract, specifying the responsibilities and warranties. If a tender involves supply and installation services the risks and liabilities regarding the new product are minimized.

After the installation of the supplies it has to be checked if the actual performance is equal to the statement in the bid. A difference between the actual qualitative performances and the declared qualitative performances would represent a non-fulfillment of the contract. The contracts should include penalty clauses to deal with this.

4. Challenges of the PAPIRUS PPI process and lessons learned

In the frame of the PAPIRUS coordinated tender many different tools to include innovation in the procurement process have been applied and even more have been considered. Most tools proved to be expedient. However, the PAPIRUS partners faced and overcame several obstacles and barriers during the innovative procurement process – leading to fundamental insights and conclusions with respect to future PPI projects.

This chapter focuses on the barriers and solutions during the coordinated tender - legally, technically and organizationally.

4.1 Barriers and solutions

4.1.1 PPI process prior to the coordinated tender

In the pre-tender stage the main difficulties lay in finding a common ground for the coordinated tender in four different countries. That legal frame was defined in the **Deliverable D2.4**.

The development of common tender documents was very challenging because of the national differences in construction law and practice and in procurement law. Even if there is a EU legislation (Directives) national legislation was found out to be a barrier for joint procurement.

Due to the coordinated nature of the PAPIRUS procurement national legislation limited the type of procedure to an Open Procedure (in Italy it is mandatory to launch an Open Procedure, before going for a negotiated procedure). Issues that had to be considered were the potentially different standards and needs in the different pilot sites, especially different energetic demands of the pilot buildings (f.ex. different light transmission demands in Northern Europe and Southern Europe), making it inevitable to define the demands and the award criteria differently in some of the pilots.

Moreover, as each demo building is located in another European country and are used differently, specific needs for each pilot had to be analyzed.

It was difficult to describe the specifications for the tender like functional specifications because the partners didn't know what kind of product could be on offer and if the product for the façade and the product for the windows could have some kind of incompatibility between them. Also if the kind of product is not known at that time, the technical specifications must anticipate any possible problem, like, for example, the solutions for the façade may consist of either a single insulating material in a partial solution for the envelope or a comprehensive solution for the entire façade which also includes interior finishes, the union between two lots and the minimum technical requirements of both lots. The schedule of the procurement of different lots would require being launched one after the other, not all at once. This way problems on how they fit together could have been prevented.

Among the most-discussed aspects were:

- With the aim of searching common specifications to launch a joint procurement, the first approach was to define common needs, but adapted to the particular needs of each pilot case;
- Difficulties to define needs as functional specifications instead of defining specifically the solutions or products;
- The definition of the desired improvement in quantitative terms through simulation was based on reference solutions. Is this already limiting the scope of new innovative solutions?
- Potentially different standards and needs in the different pilot sites;
- Too many requirements limit the number of proposals;
- Too detailed definition of requirements narrows the possibility for bidders to offer innovative solutions;
- Definition of innovation: both, to define what innovation is as well as evaluating how innovative a solution is; some solutions may even be more innovative in some countries than others;
- Difficulties on setting means of proof for the solutions since they may be different: what information is required to be all equal and comparable?
- Who is the target group of the tender: suppliers/manufacturers or constructors? All manufacturers attending the German market event explained their interest in the PAPIRUS tender and in offering their products. Most of them did not want to submit bids themselves, but wanted to be part of the tender through construction companies offering to implement their products. Also manufacturers of glazing do not manufacture the framing as well and vice versa so that they are interested in finding companies offering windows built by using their components;
- Procurement of supplies and installation, or supplies only? Characterization as supplies or works tender?
- Difficulties in finding a legally certain way to compare different innovative solutions (fair competition) and to integrate a methodology for evaluating the innovations in the award process. Does the “innovation” lie in the description of the minimum technical requirements?
- Innovative solution = approval needed for specific use?
- While it was found very appropriate to include quality criteria in the awarding of the public contracts and get away from the price-only mindset, it was considered not helpful to weigh the transportation costs and hereby build up barriers for bidders from other countries.

4.1.2 Results of the coordinated tender

The period between the launch of the coordinated tender and the opening of the bids passed without any special incidents. No appeals were lodged during and after the tender.

The response from the market regarding number and quality of the offers was very weak. Ultimately a very low number of offers were submitted in all four countries, but not for all lots – in spite of the huge interest and participation in the five market events beforehand. One bidder' groups formed, no actual international participation was detected.

Submitted	Lot	Admitted
TORINO	1	Window
	2	Window
	3	Window
OSLO	1	Wall
	2	Wall
	3	Internal partitions
	4	Window
ENZKREIS	1	Roof
	2	Roof
	3	Roof
	4	Roof
	5	Window
	6	Window
	7	Window
	8	Window
	9	Window
	10	Window
SESTAO	1	Wall
	2	Wall
	3	Window
	4	Window
	5	Wall
	6	Wall

Twelve offers had to be excluded...

- because they were incomplete:
 - o formal errors;
 - o insufficient means of proof for qualification; bidders have to prove that they possess the necessary skills, efficiency, experience and reliability to guarantee continuous and satisfactory performance of the contract throughout the envisaged lifetime of the contract;
 - o insufficient means of proof regarding technical aspects of the offer;
- or didn't comply with the minimum technical requirements.

In case of the incomplete or inaccurate offers there was no room for negotiations and not many possibilities to claim additional information from the bidder.

However, the quality of all solutions awarded by the JBCET has been good – even if in some cases, due to the weight of the price with 30%, not the most technically innovative solution offered was awarded.

4.1.3 Execution of the contracts awarded in the coordinated tender

All but one contract awarded after the PAPIRUS coordinated tender have been executed smoothly and reliably.

One of the companies awarded by Sestao Berri (Spain) had a financial crack, so they proposed the cession of the contract to another company which could fabricate, supply and install the same product. It was difficult because it is a non-extended material for the construction of the windows. Finally another company was found and it was possible to make the cession of the contract. Sestao Berri took special care with the fulfillment of all the requirements of the tender (administrative and technical requirements) by the new company and SESTAO BERRI authorized the cession under article 226 of the public procurement Law in Spain.

4.1.4 Follow-up tenders

Sestao launched their envisaged second tender in order to award the works of the building (general contractor). This second tender provided special rules about the obligation of coordinating the auxiliary media and the schedules. This tender also provided that the general contractor must assume the latest liability in case of doubt about the reason of eventually fails.

As a result of the few offers Torino and Oslo launched new tenders for some lots.

Torino has only awarded the PAPIRUS contract for one lot (glazing). Afterwards they implemented a second tender – this time as a works tender including the supply and installation of the façade and, in addition, the installation of the windows. In this tender, owing to the need of urgent action, only the price was awarded.

In the PAPIRUS tender **Oslo** received no offers that could have been evaluated. In the repetition of this tender no bids were received at all, in spite of extensive dissemination beforehand. The targeted suppliers didn't respond to the call, possibly due to bad timing or lack of interest in contracting directly with public procurers. Suppliers often prefer to deal directly with the construction companies, not the end-users.

4.1.5 Lessons learned

The preparation of the coordinated tender was the most time-consuming and challenging phase of PAPIRUS project. The PAPIRUS consortium not only established convincing tender documents and manageable means of awarding the offers, but also created a climate that aimed to facilitate cross-border procurements and the participation of SME and bidder's consortia. Still, despite all the efforts the participation in the tender was disappointing, and many bids had to be excluded.

The consortium drew the following key conclusions from the low number of bids:

- ▶ The tender documents were too demanding, the requirements were not specified clear enough and included too many criteria; the bidders were discouraged and not ready for this kind of justification package they had to provide;
 - Create the tender documents (especially the technical specifications and the description of the evaluation process) **clearly and unmistakably** to make it easier for bidders to submit the bids and supporting documents - especially when no further supporting documents are allowed after the submission of the bid;
 - Don't choose too many different award criteria. **Award criteria and proof of qualification must be reasonable and manageable;**
 - **No excessive demands regarding proof** shall be placed. Limit the request for information and verification to the extent absolutely necessary to evaluate the offers and the qualification of the bidders; public procurers should only request verifications they are able to review, and requested documents have to be surveyed!
 - To make it easier for the bidder a simple **checklist** with all requested documents and verifications should be provided;
 - Bilinguality doesn't help!
- ▶ Use **dissemination** arenas and channels that cover the relevant target groups (f.ex. suppliers of construction materials don't use the common eProcurement platforms).
- ▶ **Involve all important actors from an early stage**, like end-users, technical and legal experts, policy makers, officials;
- ▶ Too many award criteria and requirements disrupt the focus of really important objectives and the functionality required;
- ▶ PPI requires subjective award criteria; mathematical formula limit the freedom to propose different innovative solutions;

- ▶ The outcome of the supplies tenders that have not included installation services indicates clearly, that **suppliers usually don't deal directly with public procurers** and are not interested in making business with them. Also they have no or not much knowledge about public procurement in general – let alone public procurement of innovation. The safest way therefore is to conduct a works tender including innovative supplies. Anyway, we don't know why some suppliers didn't grab the chance to find a partner construction company on an international level offering to implement their products in PAPIRUS tenders; the PAPIRUS database was provided on the webpage.

Most suppliers (and construction companies) prefer tenders which specify clearly and in detail what the public procurer is looking for. For all bidders, introducing other award criteria than just the price means more effort in providing good solutions, calculating costs and risks and submitting the verifications – which most bidders don't like. More effort means less offers, meaning less competition.

Anyhow: the suppliers appreciate the direct contact to the public procurers during market consultations – even if they prefer to present their products through a construction company.

Bidders seemingly prefer the possibility (but not the duty!) to submit alternative offers.

- ▶ **Lessons learnt regarding cross-border procurements and the role of SME: see below (4.2.2)**

4.2 Conclusions

Towards the end of the project the PAPIRUS partners examined not only the profitability of the PAPIRUS PPI process and results, but also how the objectives of PAPIRUS have been met. Moreover, they make plans about future implementations of PPI in their entities.

4.2.1 PPI process and results: Economics and profitability

Regarding the time and resources needed for the accomplishment of the PAPIRUS coordinated PPI tender all partners drew the same conclusions:

You really need **extra time** and at least up-front extra expenses to carry out an innovative public procurement. Products to improve the energy efficiency of a building may prove to be very cost-effective on the long run if you take into account the life-cycle costs, but most possibly come with relatively **high up-front investments** – which in cases when innovation is involved are hard to calculate. Because of that problem the evaluation of the offers was based on quality (70%) and purchase price (30%), considering quality aspects with financial impact like low follow-up costs (maintenance, lifetime, saving heating and cooling), thus minimizing the financial risk on the long run. Still, the demanding minimum technical requirements and the fact that warranties for the purchased products may be limited due to their innovativeness requires the backing of the public authority officials.

Also PPI needs more time than a “traditional” procurement for the preparation and the implementation of the tender - for conducting previous market consultations, defining the technical and administrative specifications, establishing award criteria and weights, for considering legal issues and eventually evaluating the offers. In the PPI process, more people are involved – including technical and legal experts. That leads to longer processes. However, future PPIs should be much easier and quicker for all partners, as thanks to PAPIRUS they are experts in this field now. And individually, without the need to cooperate with other European partners and the necessity to coordinate the procurement process, each partner can operate and decide very quickly.

4.2.2 How the objectives of PAPIRUS have been met

The following survey shows that the main goals of the PAPIRUS project in the light of an innovative public procurement process have been widely met.

<p>“To promote strategic dual role of Public Procurers. Acting both as market drivers for innovative technologies as well as early adopters enabling the deployment of new directives (EPBD) and leading the transformation for new and existing buildings.”</p>	<p>This objective has been fulfilled. PPI is very important for public sector authorities as a strategic goal; it doesn't primarily aim at enterprises directly, but it helps public procurers to build bridges to innovative enterprises. The PAPIRUS consortium received many responses by other public procurers, architects, engineers and trade organisations claiming PAPIRUS to be one of the most interesting and ambitious projects in the area of building construction. However, the sequential format of the PAPIRUS project may not be the most suitable process to lead innovation - the PPI process took nearly two years.</p>
<p>“To develop a new procurement strategy focusing on the identification and assessment of innovation. In addition the new process will integrate a methodology for common evaluating of the tenders from different administrations and different countries.”</p>	<p>This objective has been fulfilled. The joint effort of four coordinated tenders in different countries led to the development of a PAPIRUS methodology to procure innovation. And all four tenders had a common technical evaluation thanks to the establishment of a Joint Cross-Border Evaluation Team.</p>
<p>“To change the ‘purchase price only’ mind-set. A key challenge identified by many public sector organizations is changing behavior within purchasing departments – in particular using purchase price alone to decide between offers, rather than the full life-cycle cost of the product or service.”</p>	<p>This objective has been fulfilled. The price was weighed with 30% (quality 70%) which is the lowest possible percentage in some partner countries following national regulations.</p>
<p>Partnership between suppliers/ bidding consortia</p>	<p>One partnership was created for the Spanish tender: The manufacturer of the awarded façade, AISLAMIENTOS KODAXTER, is the result of an association between KNAUF INSULATION and KNAUF which were operating in the market as two different countries. They joint to make a new product with better insulation and energy efficiency performance.</p>

<p>“To transfer the operational area of enterprises from local to European market. PAPIRUS will develop economies of scale, making special emphasis on innovative SME.”</p>	<p>This objective has not been fulfilled.</p> <p><u>Barriers regarding cross-border tenders</u></p> <ul style="list-style-type: none"> - Only national enterprises submitted offers in each tender; - Place of delivery, cost and risk of transport; - Language (tender and contract execution) - Different legal regulations, customs and practices in each country (esp. difficult with construction sector, f.ex. installation, warranties, language); - Place of jurisdiction; - Uncertain currency value (NOK / EURO); - Too many technical solvency criteria. On the one hand the bidders shall ensure a purchase with all the guaranties, but on the other hand encroach innovation. - Training for economic operators in terms of "ordinary" public procurement has been missed. <p><u>Barriers regarding the involvement of SME</u></p> <ul style="list-style-type: none"> - Construction suppliers (SME) often act locally and don't have the capacity (nor the skills) to expand to international markets; no interest in cross-border procurements; - Suppliers usually don't take part in public procurements; they supply to submitting construction companies; - No bidding consortia were installed (too much effort for these procurements?); - The coordinated procurement had a dissuasive effect on SME; - Bilinguality of the tender and national language for the performance of the contract; - Long and complex tender documents; - The data and verifications had been difficult to collect, especially for innovative SME; - The terms “PPI” and “Innovation” also discourages SME and other potential bidders, as there is no clear, universal definition of the term “innovation” – and as suppliers are not used to public procurements in general – all the more they don't know PPI. If anything, they are interested in clear technical specifications in which the public procurer indicates his detailed demands.
<p>“All these objectives will be developed through the launch of a Public Procurement of Innovative Solutions in four European countries: Spain, Germany, Norway and Italy.”</p>	<p>This objective has been fulfilled.</p> <p>The PAPIRUS partners launched a coordinated tender: four Open Procedures for the purchase of innovative solutions in Germany, Italy, Norway and Spain – all at the same time, with the same structure, criteria, specifications and the same joint cross-border evaluation team.</p>

4.2.3 Future implementation of PPI by the different partners

Encouraged and motivated by the results and lessons learned of the PAPIRUS project the four partners who are public procurers will definitely use PPI for further suitable procurements in the future – not only in the construction sector.

All partners agree that under the new EU Procurement Directives from April 2014 other procurement procedures than the Open Procedure will be used for future PPIs. The PAPIRUS coordinated tenders were carried out as Open Procedures, as this was the common grounds of the different national regulations. In future more flexible procedures will be chosen that can comply better the requirements of innovation in the tenders: the Negotiative Procedure, the Competitive Dialogue ore even an – not yet customary - Innovation Partnership.

Sestao Berri (Spain) is especially interested in trying out the Competitive Dialogue and even the Innovation Partnership – a procedure that is suitable for big, complex projects and has not been implemented very often in Europe. Currently no Sestao Berri PPI strategy exists, but there is a change of behavior in the purchases. Previous steps have been established in order to raise questions to the market in the future, previous to any tender of works or for the refurbishment or the realization of the execution project. Experts from Sestao Berri have collaborated in several conferences and groups around Spain of innovative public procurement in order to disseminate their experience and to make relationships for any doubt or joint project in the future.

In **Enzkreis (Germany)** future procurements will benefit from the characteristic elements of the PAPIRUS methodology. This applies especially when complex or challenging supplies or services have to be purchased, but also in more ordinary procurement projects when exceptional prior market research is suitable. Regarding the procurement of construction services the German approach to these tenders worked already well before PAPIRUS, but since then the extensive, above-average market consultations before the tender has been discovered as a very useful tool to improve the quality of future tenders. Due to the success of the German PAPIRUS tenders political backing for PPI is easier to get.

German public procurers are already used to take special account to the interests of SME for many years. Most contracts have to be subdivided into partial lots and by type or trade (technical lots). Usually one lot does not only comprise the purchase of the product, but also covers the procurement of the fitting of this product.

Torino (Italy) plans to use PPI for future suitable projects. In case of construction projects PPI will possibly be used to procure works contracts including the supplies. In suitable construction projects the division into lots will be considered instead of procuring the services of a general contractor.

For **Oslo (Norway)** the dialogue process has proven to be very useful for public procurements, which is why it has been reused in Oslo. The one-to-one meetings with the suppliers after the market event provided useful information that Oslo has utilized in other procurements, for example that one can ask for windows with a better LCC than are already used in the majority of projects today. The feedback from the suppliers has been that they want an arena to influence the procurers and raise awareness on new solutions and materials. However the bidders claimed that they want the public procurers to put this as requirements in procurements of contractors. The interest to supply directly to buildings owners was and is low.

After the transformation of the EU Directives of 2014 public authorities in Norway are forced to prove if tenders can be splitted into lots in each procurement project. It will be seen if SME profit from this regulation. PAPIRUS opened new ways of procurement. Oslo also plans to implement an Innovation Partnership in the near future.

5. Recommendations for future PPI projects

Future PPI projects can profit from the experiences of PAPIRUS with the application of numerous tools to include innovation in the procurement process.

In this chapter the PAPIRUS consortium provides practical, easy-to-implement recommendations for legally certain innovative procurements – concentrating on the most important issues to consider in the process. With this “toolkit” public authorities are equipped to find their very own approach to procure innovation and finally design their own PPI process, tailor-made to match their procurement needs.

The most valuable insights from PAPIRUS

- ▶ “Innovation” is not an end in itself, but is always associated with direct benefits for the procuring entity, the users and customers. It creates added value. Therefore PPI aims at finding the best solution or a better product or service, for instance in terms of energy performance, sustainability, profitability, user-friendliness. This solution may be new to the procuring entity even if it does not fit the EU definition of “innovation”, or if the services and products in question are already marketable;
- ▶ Innovation lies in the procurement process (previous market consultation, wider focus on various technical solutions, new target groups and dissemination activities, risk management, ...);
- ▶ Innovation lies in the technical specifications and the award process (functional descriptions, minimum technical requirements, evaluation of quality and price, ...);
- ▶ In general it can be stated that PPI and especially an extensive prior market consultation is particularly - but not only – fertile with regard to complex projects and technical issues;
- ▶ All in all: Public procurers should see themselves as front runners in the field of strategic procurement. They have a lot to gain: obtaining new solutions customised to their specific needs while at the same time aiming at cost-effectiveness on the long term.

Each public authority and institution should have and promote a roadmap with a clear procurement strategy including a long-term commitment towards innovative and sustainable, energy efficient procurements. They should plan ahead investments and raise awareness with their staff and representatives involved in procurements.

The PAPIRUS toolkit

- ▶ Set yourself enough time for the procurement procedure – PPI may need more time than conventional procurements;
- ▶ Involve all important actors from an early stage, like end-users, technical and legal experts, policy makers, officials;
- ▶ Consult the market prior to the procurement. Dialogue and communication is the most integral and expedient element of PPI:
 - research extensively per web/mail/phone/events/publications and get inspired;
 - and/or conduct a market event or face-to-face-meetings.
- ▶ Create the tender documents thoroughly, especially the technical specifications and the description of the evaluation process:
 - Use functional specifications and performance-based criteria;
 - Divide into lots;
 - Admit alternative tenders and variants;
 - Consider aspects like quality and life-cycle costs besides the purchase price, but don't choose too many different award criteria to keep the submitting of the bids and the evaluation process manageable;
 - Involve technical and legal experts – internal or external;
 - Draft the tender documents clearly and unmistakably to make it easier for bidders to submit the bids and the verifying documents;
 - Limit the request for information and means of proof to the extent absolutely necessary to evaluate the offers and the qualification of the bidders;
- ▶ Spread information about the upcoming tender as early as possible and use all arenas to reach all relevant target groups, more than the usual channels (EUOJ, national eProcurement platforms, webpages, newsletter, press releases, articles in scientific and trade journals), and approach trade associations and other multipliers.
- ▶ Involve technical experts in the evaluation process and consider involving them also during the execution of the contract.

Public procurers interested in PPI can be advised to just try out some of those tools and find out which work best for them. PPI is not distant; it is practicable and helps get better products and services.