

Bravo Martín, S., & García-Peñalvo, F. J. (2013). Electronic Government Systems for E-Procurement Procedure in EU. In P. Ordóñez de Pablos, J. M. Cueva Lovelle, J. E. Labra Gayo, & R. D. Tennyson (Eds.), *E-Procurement Management for Successful Electronic Government Systems* (pp. 29-51). Hershey, PA, USA: Information Science Reference. doi: 10.4018/978-1-4666-2119-0.ch003

## **ELECTRONIC GOVERNMENT SYSTEMS FOR E- PROCUREMENT PROCEDURE IN EU**

### **Authors**

Dr. Francisco José García Peñalvo

Professor of the University of Salamanca, Faculty of Science

Plaza de los Caídos s/n, 37008 Salamanca (Spain)

Tel. +34 923194400 Ext. 1302

Fax +34 923294514

fgarcia@usal.es

Sergio Bravo Martín

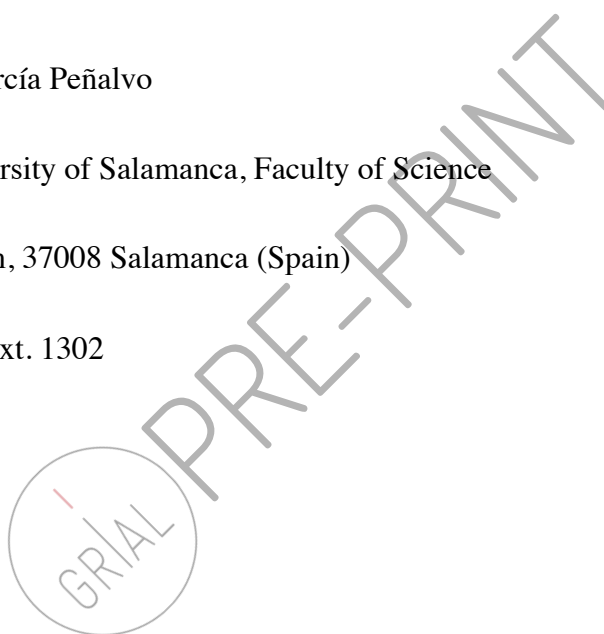
Associate Professor of the University of Salamanca, Faculty of Science

Plaza de los Caídos s/n, 37008 Salamanca (Spain)

Tel. +34 923194400 Ext. 1926

Fax +34 923294514

ser@usal.es



Bravo Martín, S., & García-Peñalvo, F. J. (2013). Electronic Government Systems for E-Procurement Procedure in EU. In P. Ordóñez de Pablos, J. M. Cueva Lovelle, J. E. Labra Gayo, & R. D. Tennyson (Eds.), *E-Procurement Management for Successful Electronic Government Systems* (pp. 29-51). Hershey, PA, USA: Information Science Reference. doi: 10.4018/978-1-4666-2119-0.ch003



## **ELECTRONIC GOVERNMENT SYSTEMS FOR E-PROCUREMENT PROCEDURE IN EU**

**Abstract.** Public Electronic Procurement provides a new means of communication between contracting authorities and economic operators, as well as being one of the most important areas in the development in the Business-to-business (B2B) e-commerce like buyers and suppliers entities respectively. The European Union (EU) has been working hard for the adoption of e-Procurement in the governments of Member States, over all Action Plans for the Development of e-Government occurred during the new millennium. However, this transition, from the traditional model of procurement management procedure to electronic format, is very complicated, on one side by the impact of what any new technology brings and the required regulatory policies, both within the EU and in Member States. This study presents the e-Procurement from the e-Government regulatory contexts in EU. Then, it outlines the basic pillars of both the Public e-Procurement process and the management systems, and finally, introduces large-scale pilot projects by the European Commission (EC) that provide technology solutions for many of the stages of the procurement process.

**Keywords.** Public Administration, Electronic Procurement, Electronic Commerce, Electronic Government, Cross-border European Union Pilot Project, PEPPOL, e-CERTIS, Open e-PRIOR, SPOCS, SPORK

## INTRODUCTION

The **Information Society** is part of the policies of the **European Union** that promotes an open and competitive society with a focus on **e-Government**. The development of these policies was marked for the period 2000-2010 through the **Lisbon Strategy** (EC, 2000) and the **Action Plans: e-Europe 2002** (EC, 2002), **e-Europe 2005** (EC, 2005b) and the **i2010 Strategy** (EC, 2010a). However, the global economic crisis has significantly affected the results, which are very different than had been expected. This is the reason that has prompted a redesign of the political strategy of the European Union and which results in **Europe 2020** (EC, 2011), a strategy for smart growth, sustainable and inclusive.

Europe 2020 again makes a commitment to the development of the Information Society as a cornerstone of an inclusive, intelligent and sustainable strategy. This has led to the inclusion among the seven key initiatives<sup>1</sup> in Europe 2020, "**A Digital Agenda for Europe**", adopted by the Commission during the Spanish Presidency of the European Union in the first half of 2010 (EC, 2010c). The purpose of the Digital Agenda is to achieve the sustainable economic and social benefits to be derived from a single digital market based on ultrafast Internet and interoperable applications.

The implementation of **e-Procurement** should be based on a gradual enrollment in the plan of development of e-Government in the field of public administration. Such is the importance of e-Procurement that the European Digital Agenda foresees the adoption of a White Paper

which will outline the measures the Commission intends to take to establish an infrastructure of networked electronic **public procurement**.

An acceptable definition of the public electronic procurement, may be found in the *Green Paper on expanding the use of e-Procurement in the EU* (EC, 2010d, pp. 1-2), referring to the term as "use of electronic communications and transaction processing by government institutions and other public sector organizations when buying supplies and services or tendering public works". It is not simply a conversion of a system on paper to electronic form. Electronic Procurement, as mentioned in the various European Digital Agendas and Action Plans, can contribute substantial improvements in contracting **goods and services**, public management and operation of public procurement in internal markets in the field of national contracts.

The development of e-Government in the European Union particularly arises from a consensus reached by Member States in the **Ministerial Declarations** which has occurred since 2001 in **Brussels**, and especially from **Manchester** (Ministers of European Union, 2005), with the creation of the i2010 e-Government Action Plan (EC, 2006). This action plan focused on five major objectives<sup>2</sup> for e-Government with specific objectives, three of which related directly to e-Procurement:

- Deploying high-impact e-Government services like e-Procurement can save billions of Euros for European public administrations, which means more taxpayers money available for essential services<sup>3</sup>. Member States committed themselves to the goal that,

by i2010 Action Plan, 100% of public procurement will be available electronically and 50% of actual use of procurement procedures above the legal European Union thresholds (from 50.000 Euros for simple services and 6 million for public works).

- Turning efficiency and effectiveness into fact, contributing significantly to greater satisfaction, greater transparency and responsibility, reduced administrative burden and increased efficiency.
- Developing essential tools, enabling citizens and businesses that benefit from an authenticated access, comfortable, secure and interoperable public services across Europe.

The Action Plan i2010 highlights the importance to expedite the establishment of the electronic administration in Europe, in order to answer a series of challenges and requirements:

- Modernizing and doing more effective public services.
- Offering services of higher quality and more insurance to the population.
- Responding to demand from companies who desire minus bureaucracy and more efficiency.
- Ensuring the continued cross-border services.

All of these Ministerial Declarations agree on the idea of promoting e-Government and identify it as a key tool, available to citizens and entities from public and private sector, which allow the construction of a single market and the arrival of a more sustainable government.

However, in the Lisbon strategy evaluation document (EC, 2010b), there were suggestions for more research, development and innovation. The system of standards remains fragmented and too slow given fast technological developments. The use of demand driven instruments such as public procurement has brought some improvements although the system has not developed to its full potential.

Today, after the **Malmö** Ministerial Declaration (Ministers of European Union, 2009), there is a new e-Government Action Plan in Europe (EC, 2010e) for the period 2011-2015 based on the experience gained in the Action Plan 2006, and subtitled “Harnessing ICT to promote smart, sustainable & innovative Government”. In accordance with this subtitle, e-Government goes from being seen as a key tool for supporting to an element to promote the public administration. It is a large scale Action Plan, even with a major presence of e-Procurement, although some of its actions are included in the Digital Agenda for Europe<sup>4</sup>. This Action Plan aims to support the transition to a new generation of open, flexible and seamless e-Government services at local, regional, national and EU levels. More specifically, the Plan aims to make services work as well in other EU Member States as they do at home and to open the way to allowing users to actively shape the online public services which suit their needs best.

Regarding electronic procurement in 2010, October 18, EC was published the *Green Paper on expanding the use of e-Procurement in the EU*, which provides among other things, that the effective implementation of public electronic procurement, in most countries individually and in the European Union as a whole remains low and is estimated at less than 5% in value of total public procurement (EC, 2010d, pp. 8-9). Portugal is the exception in this respect because in that Member State from November 1, 2009, the use of electronic means is required to develop all phases of procurement processes, including the award for most government contracts.

Public procurement is still a relatively untapped area of e-Government. Given the promise it holds to generate new business and innovation opportunities – as well as what it implies in terms of economic growth and job creation – e-Procurement is a priority under the e-Government action plan. Such systems open up the possibilities for companies to sell their goods and services to public agencies and governments, thanks to better publicizing opportunities and reducing the costs of bidding. The five-year e-Government Action Plan 2011-2015 outlines a list of measures to benefit citizens and businesses (EU, 2010a).

Specially, in the field of business, the aim of the new Action Plan is that 80% of enterprises will be using online public services by 2015. Businesses should be able to sell goods and services to public administrations all across the EU, through easy electronic public procurement. By 2015, a number of key cross-border services, such as **e-Tendering**, should



be available online and enable entrepreneurs to set up and run a business anywhere in Europe more quickly and easily, independent of their original location.

This section has introduced the concept of public electronic procurement and has surveyed the state of it in the context of e-Government. The following section discusses the basic legal framework in the context of the European Union. A third section explores the key elements of a public procurement system by electronic means from the viewpoint of the **contracting authorities** and from **economic operators**. The fourth section presents the electronic systems of publicizing notices in the **Official Journals of the EU**. The fifth section discusses the problems of cross-border e-Procurement systems, to continue in the next section with the large scale European projects, which have efficient operational solutions to other phases of e-Procurement management in the public sector and in the context of an internal market and network. The chapter ends with some reflections about the technological solutions presented in previous sections and ways forward for effective and efficient extension of them.

## **LEGAL FRAMEWORK FOR PUBLIC E-PROCUREMENT IN THE EU**

Public procurement is the knowledge base that regulates the procedures that public and private organizations must continue to manage the needs of public goods and services with a commitment to ensure compliance with the principles of free access to **tenders**, publicity and transparency of procedures and, non-discrimination and equal treatment of candidates. Public procurement is a key sector in the European economy, as recalls the Digital Agenda for Europe when it says that this service represents 19.4% of **GDP** in the European Union.

Studies from consulting firms have been shown that proper use of e-Procurement helps reduce costs, improve efficiency and destroy barriers that ultimately result in savings for the taxpayer, which could provide between 2 and 5% decrease offers and between 40 and 60% improvement in resources and time spent in management. It would also allow a better fiscal policy since the saving of between 2 and 5% of the budget is a useful increase in spending for the administration, and also could be used between 40 and 60% of the resources now devoted to too bureaucratic management. Hence, the modernization and opening of electronic borders is sufficiently justified and crucial for European competitiveness and for creating new business opportunities, particularly on the side of SMEs. The traditional procurement process is long and protracted, as well as resource-intensive. For this reason, the various action plans that have occurred have reinforced the use of ICT in achieving the public e-Procurement. Furthermore, conducting public procurement by electronic means would be an orderly and expeditious progress towards e-commerce between the government and its suppliers, and even within their own public authorities (systemic interaction or Business-to-business, B2B). The effort to create standards that ensure full interoperability between different procurement systems of the member states is postulated as one of the highlights of the current Action Plan in achieving an internal market. Do not forget that associated with the B2B e-Procurement, encompasses not only the relationship between public authorities and suppliers of goods and services, but also to other authorities in their various fields of action (national, regional and local) with each other, and between authorities of different Member States.

The creation of the legislative package of procurement directives by the European Commission, **2004/17/EC** (European Parliament, 2004a) and **2004/18/EC** (European Parliament, 2004b) provides a **legal framework** for open electronic procurement, transparent and non discriminatory, that states for **electronic bidding** and the conditions of new **purchasing techniques** based on electronic means. Member States, based on article 80 of Directive 2004/18/EC, undertake to bring into force the laws, regulations and administrative provisions, necessary to provide its management with the necessary means for implementing e-Procurement, taking advantage of new technologies and adapting legal frameworks as necessary<sup>5</sup>.

### **Directives 2004/17/EC and 2004/18/EC**

Article 1.13 of Directive 2004/18/EC defines the **electronic means** as those using electronic equipment for processing (including digital compression) and storage of data and those that use the media, sending and reception cable, radio, by optical or other electromagnetic means. The introduction of electronic means in public procurement incorporates a number of legal issues relating mostly to the electronic organization of the procedures originally designed for processing in paper format. Public procurement bases its regulatory framework primarily on selection procedures and award of tenders. The transition to electronic public procurement should not change any phase of the existing procurement procedures. Simply it is intended that any economic operator in the European Union can participate, with simple electronic equipment, in a procurement procedure to be performed wholly or partly by electronic means.

The advantages of the incorporation of electronic means on public procurement process are notable; however one of the most remarkable is the speed in the publication of notices by contracting authorities and the reduction of procedural deadlines. Not only because of the nature of the electronic means itself but also by the articulated policies. According to articles 38.6 of Directive 2004/18/EC (corresponding provision, Article 45.6 of Directive 2004/17/EC), there will be a reduction of five days of the deadline for the receipt of tenders, provided that the contracting authority offers full access, direct and unrestricted by electronic means to the contract documents and additional documents (the text of the notice should specify the internet address of this documentation). According to this approach, define the buyer profiles as a set of data on procurement activities of contracting authority, and the option to include notices and any other general and pertinent information, for example, contact points (point 2.b) of Annex VIII of Directive 2004/18/EC and point 2.b) of Annex XX to Directive 2004/17/EC.

On the other hand, some of these procedures (for example, receipt of **tender**), by including the electronic media in its regular process, are forced to incorporate an advanced electronic signature, as stated in Articles 42.5.b) and 48.5.b) of Directives 2004/18/EC and 2004/17/EC respectively, to guarantee the authenticity and integrity of the information provided.

In turn, these policies have optionally, two new electronic procurement procedures leaving Member States the decision to implement them. These are the dynamic purchasing systems (Article 1.6 of Directive 2004/18/EC and Article 1.5 of the 2004/17/EC) and electronic

auctions (Article 1.7 of Directive 2004/18/EC and Article 1.6 of the 2004/17/EC). First, **dynamic purchasing system** (DPS) is a completely electronic process for making commonly used purchases, limited in time (the duration shall not exceed four years, with some exceptions) and open throughout its validity to any economic operator which satisfies the selection criteria and has submitted an indicative tender that complies with the specification. Meanwhile, **electronic auction** (e-Auction) is a repetitive process involving an electronic device for presentation of new prices, revised downwards, and/or new values concerning certain elements of tenders, which occurs after the initial full evaluation of the tenders and has an impact on their classification using automatic evaluation methods. The auction may be based either solely on prices when the contract is awarded to the low (current auction) or on prices and / or values of the elements of tenders indicated in the specification, awarded to the most economically advantageous tender (actual competition).

The **electronic catalogues** are another key point of these policies (Articles 12 and 20 Directives 18 and 17 respectively). These **e-Catalogues** are defined as instruments that facilitate the procurement, specifically as a way to participate in tenders with framework agreements or when a dynamic purchasing system is being used with regards to rules that are applicable to communication (Articles 42 and 48 Directives 18 and 17 respectively).

Finally, **electronic notification** (**e-Notification**) is another key (Articles 36.2, 36.3 and 36.6 of Directive 2004/18/EC and Articles 44.2 and 44.3 in 2004/17/EC), to be conducted using standard forms but not necessarily by electronics means; in accelerated procedures, notices

should be sent by fax or electronic means. The electronic notification allows abbreviated publication and increases the permitted extent of advertisements.

Given that these directives do not include the standards "detail" of electronic procedures, the Commission adopted in July 2005, a **working paper** on the requirements of using electronic means in public procurement, in order to clarify the rules on electronic contracting. This paper presents the practical application of the principles of **accessibility**, **availability**, non-discrimination and **interoperability** in the different phases and types of procedures (interpretation of Articles 42.4 and 48.4).

The document clarifies that entities may choose to provide that all communications are done electronically or live through the paper medium, possibly with a relationship in parallel or in stages. However, the right of choice of the contracting authority is limited under the Directive. Such is the case of electronic auctions procedures and dynamic purchasing systems in which the processing is limited only by electronic means. Also, the directive includes in its Articles 42.3 and 48.3, the conditions of integrity and information security aspects that are not derived from electronic procurement, but the traditional. These aspects may require ad-hoc solutions to meet them in a purely electronic means. It is important not to forget and to ensure traceability aspects in the procurement process and the publication of notices.

## KEY ELEMENTS FOR PUBLIC E-PROCUREMENT SYSTEMS

Managing all the phases of the procurement process is an important and complicated job.

Firstly, because almost all services involved are vertical and cross services for a public organization, and it also requires them to adapt the legal framework of the European Union and the particulars provided by contracting authorities in the Member States (local level, regional, national, supranational or even dependent organisms).

In this sense, it is crucial that **procurement procedure management solutions** cover the entire life cycle associated with the procurement process, from the need for an acquisition of a good or service, or (from the contracting unit or from the proponent department which is the origin of the need), through to the publication in the buyer profile and the final award and ending in electronic archiving and document custody.

There are several different procedures available for public authorities. These include the **open, restricted, negotiated and competitive dialogue procedures**. Each of these procedures sets its own limitations on the contracting authority, which must be considered when choosing the appropriate procedure. The procedure of public procurement is intended to be fully **transparent** with the intention of creating a free and competitive Europe-wide **market**. So, projects above a certain financial **threshold** must publish in the Official Journal of the European Union (**OJEU**) a contract notice. Buyers can advertise the contract more widely, but cannot do so before it has dispatched a notice for publication in the OJEU, and is forbidden from including information that isn't given there. After the prescribed date, the bids

are opened and assessed, and either the "lowest cost" or "most economically advantageous tender" is chosen. The contract award must also be reported in the OJEU.

However, beyond the reduction of administrative costs of contracting entities and economic operators, it is the opportunity to rationalize, review and streamline (where possible) the hiring process and to not make the transition to electronic form a simple copy of the traditional paper-based procedures (EC, 2010d, pp. 3-5).

Once the basic process of e-Procurement is clear the following phases can be identified:

- **e-Sourcing:** preparatory activities conducted by the contracting authority to collect and reuse information for the preparation of a need.
- **e-Noticing:** advertisement of calls for tenders through the publication of contract notices in electronic format in the relevant Official Journal of the European Union and in the buyer profile of the contracting authority.
- **e-Tendering:** bidding stage developed on the side of tenderers covering the e-Access and e-Submission phases:
  - a) **e-Access:** electronic access in a non-discriminatory way to tender documents and specifications for the preparation of an offer, e.g. clarifications, questions and answers.
  - b) **e-Submission:** submission of offers in electronic format to the contracting authority (i.e. through e-Register).



- **e-Awarding:** opening and evaluation of the electronic tenders received, and award of the contract to the best offer in terms of the lowest price or the most economically advantageous bid. Once awarded another e-Noticing phase is necessary.
- **e-Contract:** conclusion, enactment and monitoring of a contract (or agreement) through electronic means between the contracting authority and the winning tenderer.
- **e-Orders:** preparation and issuing of an electronic order by the contracting authority and its acceptance by the contractor.
- **e-Invoicing:** preparation and delivery of an invoice in electronic format.
- **e-Payment:** electronic payment of the ordered goods, services or works.

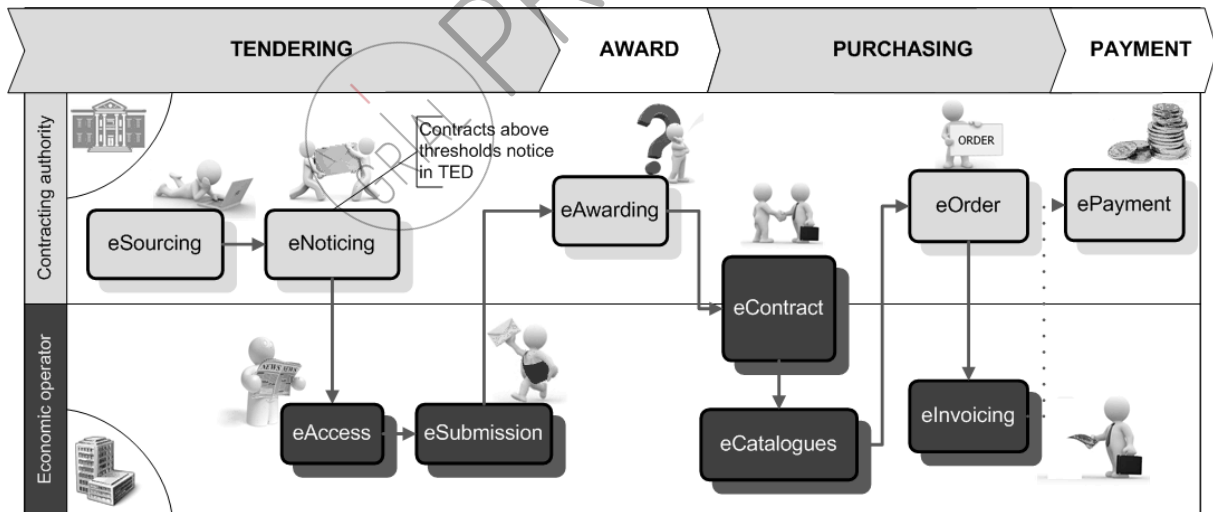


Figure 1. Functionalities covered in the public e-Procurement process

Figure 1 shows the features or phases in the electronic procurement process, from the viewpoints of contracting authorities and economic operators. According to these phases, it is important that procurement management solutions include mechanisms which include the following:

- **Automate** the processing of procurement procedures with at least the following features:
  - a) **Generation** of official documents from default and customizable templates (for example: resolutions, proposals, communications, letters and so on).
  - b) **Control data** entry forms in accordance with the current legal framework at European level and state level (for example: classifications, CPV codes, guarantees, deadlines, award amounts and so on).
  - c) Generation of many kinds of reports about procurements (for example, global reports of records, global reports of bidders, reports by procurement, dates, amounts and so on).
- Define the steps of the **workflow** associated with each type of contract.
- **Guide** the staff processing the procedure throughout its life cycle, regardless of the nature of the procurement process (including the water, energy, transport and postal services).

- **Notify** the procedure owner or supervisor, through a system of alarms triggered by proximity or expiration of the defined time period on procedures, and for the supervisor to allow access to tracking and condition monitoring of files in progress.

Similarly, a system for processing procurement procedures must be able to interact with other additional external modules (for example, the buyer profile and the contracting registry), to provide greater automation and optimization for the process to obtain a global, efficient and inclusive solution.

Therefore, to make legally valid and operational electronic management of procurement procedures across borders, e-Procurement systems rely on the following elements:

- An **electronic office** of the public authority justified by the need to clearly define the electronic administrative office with which relationships are established, promoting a regime of identification, authentication, minimum content, legal protection, accessibility, availability and responsibility.
- A **buyer profile**<sup>6</sup> that allows electronic access, to tender documents and specifications as well as additional related documents, in a non-discriminatory way, included in the electronic office of the public authority (or the link/integration to the State or Region Procurement Platform under current regulations of the Member State), to publish information and documents associated with the public offering procurement. The buyer profile gives legal effect to the publications (i.e. pending and final awards) as

well as ensuring a reliable way to establish the date of the publication of information on procurement notices contained.

- All information and contractual documents published must be **time stamped** by a **certification service provider**<sup>7</sup> that must irrefutably prove the start time for public internet publication relating to the procurement notices.
- Means of **identification, authentication and integrity** of the contract documents will be displayed with the electronic signature.
- A **tenderer's website** to present and consult all the documentation associated with an electronic procurement procedure by any provider (suitably qualified).
- An electronic procurement management system, integrated with the electronic services available in its own e-Government, and the ability to electronically manage a portion of the procedures (dynamic purchasing system) or all of them (electronic auctions).

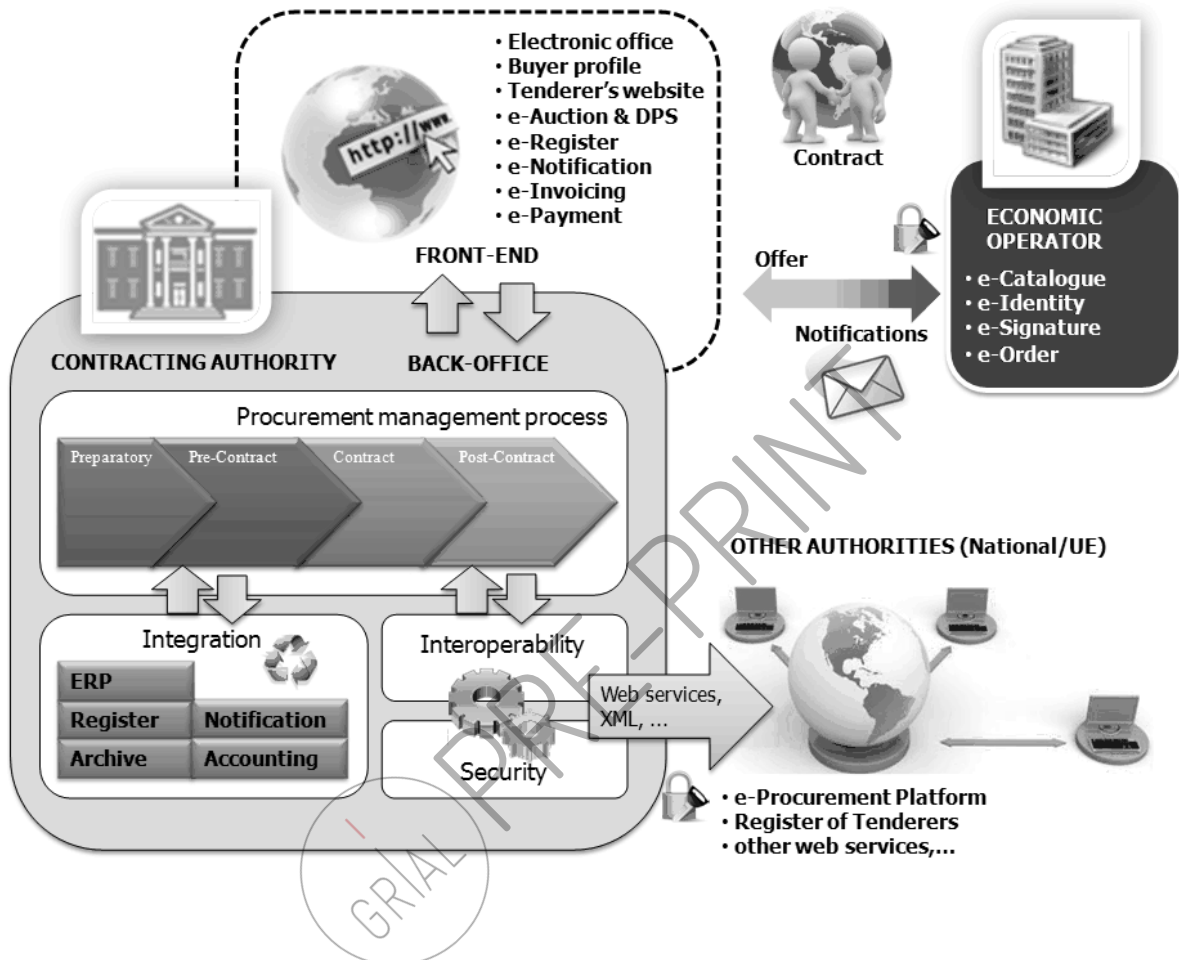


Figure 2. Knowledge base of e-Procurement

Other key enablers for effective electronic procurement systems (shown in Figure 2) are the following:

- **e-Signature:** as an electronic means to ensure the electronic identity of bidders (electronic identity) and integrity of information received.

- **e-Register:** to receive offers and get a receipt proving the presentation.
- **e-Attestations:** to prove compliance with the selection and exclusion criteria of a procurement procedure<sup>8</sup>. Tenderers and contracting authorities access to special websites in the manner as "Single Point of Contact" solution for Business Certificates and attestations required in the procurement process.
- **e-Catalogues:** used to prepare and submit offers or parts of them.
- **e-Archiving** and custody: as an electronic means for long-term preservations of documents in digitalized format, ensuring that they can be easily retrieved without conversions.

All these elements, shown on Figure 5, represent the knowledge base of e-Procurement and should be based in open technological **standards**, modular in approach and scale, open and based on integrations, functional standards (EC, 2005a) and really knowledge of the environment.

To face the issue of the public procurement process, from the viewpoint of economic operators, there is also a set of activities from which we can identify the following:

- a) access to information of tenders<sup>9</sup> published in Official Journals (for example TED in UE), as well as the additional documentation in buyer profile,
- b) study the selected procurement process (both preparation and evaluation),

- c) prepare documents (and envelopes) adapted for the type of offer and indications of the specifications,
- d) prepare the requested attestations<sup>10</sup>, documents and payment of taxes,
- e) submit the bid and additional documentation (if required later) by any available means (preferably by electronic means),
- f) And, in case of the winner, sign the contract, perform the requirements to deliver successfully the goods or services required, issue and submit the invoice (preferably by e-Invoice).

There are many issues that vary depending on the contracting authority involved, and the ways of approaching the process also vary considerably too, depending on whether the size of the business is big or small.

## **ADVANCES USING INTERNET TO ADVERTISE PROCUREMENT NOTICES**

The information system for European public procurement is based on three web services (see Figure 3): **e-Notices**, **SIMAP** and **TED**.

First, tender notices are published on TED<sup>11</sup> (Tenders Electronic Daily), the website of the Supplement to the Official Journal of the European Union. TED is the single official source for timely information on public procurement opportunities in the European Union, the European Economic Area and beyond. The contracting authorities for tenders can be central

governments, local or regional authorities, bodies governed by public law, or associations consisting of authorities or bodies governed by public law. In compliance with EU directives and international agreements, notices for public works, services and supply contracts above certain thresholds<sup>12</sup> must be published in the Supplement to the Official Journal of the European Union.

Second, e-Notices<sup>13</sup> are formerly SIMAP on-line forms located, in a web-based tool, for preparing public procurement notices and sending them for publication in the Supplement to the Official Journal of the European Union. This tool is a free service that simplifies and speeds up preparation and publication of tender notices. E-Notices also help to check for possible errors in notices and for the compliance with the EU directives regulating public procurement procedures. Another available publication mechanism is a service named **e-Senders** that allows qualified organizations to submit public procurement notices directly as **XML** files.

Finally, SIMAP<sup>14</sup> provides access to information about public procurement in Europe, for buyers (the public purchasers) as well as for suppliers. The SIMAP project has developed the buyer profile that allows contracting authorities to facilitate, by electronic means of communication, technical specifications and other necessary documents for preparing the contract notices. These buyer profiles provide more information on procurement procedures of buyer entities, responsible for procurement, pending bids and the economic (and/or technical) specification documents among others.



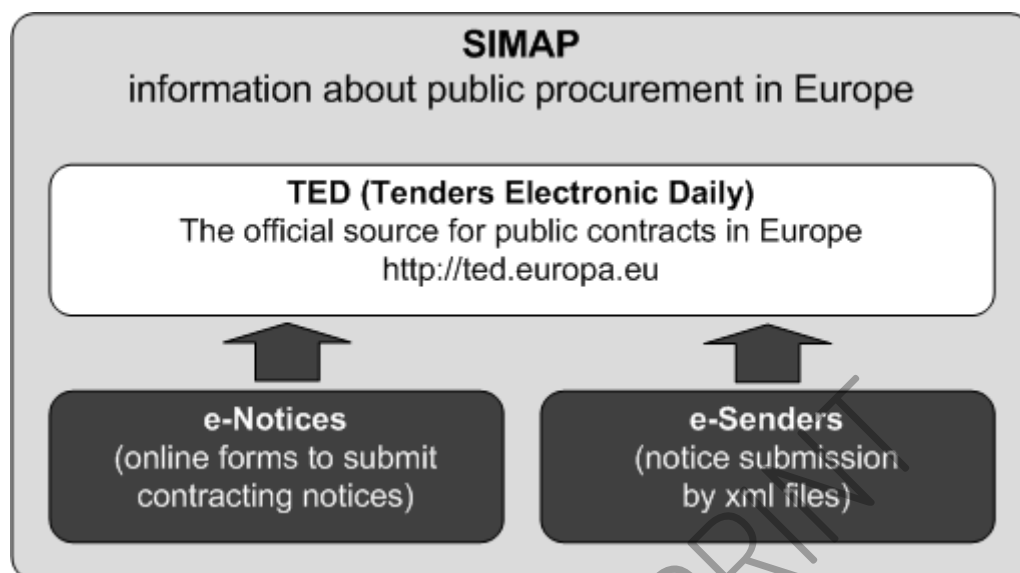


Figure 3. Information system for European public procurement

TED provides free access to business opportunities by a multilingual search interface and browse and sort procurement notices by country, region (**NUTS**), business sector (**CPV**), RSS and other interactive tools. Figure 4 shows a typical session in TED filtering search results by NUTS (e.g. the NUTS code for Salamanca, Spain, is ES415). Information about every procurement document is published in the 23 official EU languages. It is updated five times a week with approximately 1.500 new public procurement notices from the European Union, the European Economic Area and beyond.

The screenshot shows the TED search interface. At the top, it says 'This site is a part of Europa' and 'Ted-tenders electronic daily Supplement to the Official Journal of the European Union'. The search results page displays a list of 25 items found, with the first three items visible in a table. The table has columns for Document number, Description, Country, Publication date, and Deadline. The first three items are all from Spain (ES) and have a publication date of 03-06-2011 and a deadline of 07-07-2011. The descriptions are 'E-Salamanca: medical consumables', 'E-Salamanca: ophthalmologicals', and 'E-Salamanca: fire-brigade uniforms'.

Document number	Description	Country	Publication date	Deadline
173824-2011	E-Salamanca: medical consumables	ES	03-06-2011	07-07-2011
173821-2011	E-Salamanca: ophthalmologicals	ES	03-06-2011	07-07-2011
173074-2011	E-Salamanca: fire-brigade uniforms	ES	03-06-2011	

Figure 4. TED search interface

The documents published on TED are about the following topics:

- Contracts from all EU Member States and candidate countries.
  - a) Public contract notices for works, supplies and services.
  - b) Utilities contract services (water, energy, transport and postal services).
- Contract notices from the European institutions:
  - a) Public works, supplies and services.
  - b) External aid and European Development Fund contract notices.

c) Phare, Tacis and other contracts in central and eastern Europe.

- European Economic Area contract notices. The contracting parties to the EEA Agreement are three of the four EFTA States (Norway, Liechtenstein and Iceland) and the 27 EU Member States.
- Contract notices from Switzerland pursuant to the Government Procurement Agreement (GPA), concluded within the framework of the GATT/World Trade Organization (WTO).
- Projects financed by the European Investment Bank, the European Central Bank and the European Bank for Reconstruction and Development.
- Notices concerning European economic interest groupings (EEIGs), European groupings for territorial cooperation (EGTCs), European companies (SEs), European cooperative societies (SCEs).
- Public contract notices for air services.

## **Common Procurement Vocabulary (CPV)**

The CPV establishes a single classification system for public procurement aimed at standardizing the references used by contracting authorities and entities to describe the subject of procurement contracts.

Bravo Martín, S., & García-Peñalvo, F. J. (2013). Electronic Government Systems for E-Procurement Procedure in EU. In P. Ordóñez de Pablos, J. M. Cueva Lovelle, J. E. Labra Gayo, & R. D. Tennyson (Eds.), *E-Procurement Management for Successful Electronic Government Systems* (pp. 29-51). Hershey, PA, USA: Information Science Reference. doi: 10.4018/978-1-4666-2119-0.ch003

The screenshot displays the TED interface for a contract award notice. The main content area shows the following details:

- Date:** 03/06/2011
- Reference:** S106
- Member states:** -
- Procedure type:** Supply contract - Contract award - Open procedure
- Language:** I.II.V.
- Title:** E-Salamanca: fire-brigade uniforms
- Reference:** 2011/S 106-173074
- Notice type:** CONTRACT AWARD NOTICE
- Supplies:** Supplies

The notice is divided into two main sections:

- SECTION I: CONTRACTING AUTHORITY**
  - I.1) NAME, ADDRESSES AND CONTACT POINT(S)**

Excmo. Ayuntamiento de Salamanca  
plaza Mayor, s/n  
Attn: Servicio de Contratación  
37002 Salamanca  
SPAIN  
Tel. +34 923279100  
E-mail: listacontratacion@aytosalamanca.es  
Fax +34 923279114  
**Internet address(es)**  
General address of the contracting authority <http://listacontratacion.aytosalamanca.es>  
Address of the buyer profile <http://perfildecontratante.aytosalamanca.es>
- SECTION II: OBJECT OF THE CONTRACT**
  - II.1) DESCRIPTION**
    - II.1.5) Common procurement vocabulary (CPV)**  
35811100, 35811200  
**Description:**  
Fire-brigade uniforms.  
Police uniforms.
  - II.2) TOTAL FINAL VALUE OF CONTRACT(S)**
    - II.2.1) Total final value of contract(s)**  
Value 203 553,79 EUR  
Excluding VAT

The left sidebar contains navigation and utility links such as 'Login', 'My TED', 'News', 'EUR-Lex', and 'EU Bookshop'. The top navigation bar includes 'TED', 'SIMAP', 'eNOTICES', and a search function.

Figure 5. Expanded view of a contract award notice

The CPV consists of the main vocabulary for defining the subject of a contract, and a supplementary vocabulary for adding further qualitative information. The main vocabulary is based on a tree structure comprising codes of up to 9 digits (an 8 digit code plus a check digit)

associated with a wording that describes the type of supplies, works or services forming the subject of the contract:

- The first two digits identify the divisions (XX000000-Y).
- The first three digits identify the groups (XXX00000-Y).
- The first four digits identify the classes (XXXX0000-Y).
- The first five digits identify the categories (XXXXX000-Y).
- Each of the last three digits gives a greater degree of precision within each category.
- A ninth digit serves to verify the previous digits.

Figure 5, shows an expanded view of a typical contract award notice: section I shows information about contracting authority (e.g. the address of the buyer profile), section II describes the object of the contract (e.g. CPV codes assigned to the current notice: 35811100 code means “Fire-brigade uniforms” and 35811200 means “Police uniforms”) and finally the section V, the award of contract with the tendering winner.

The supplementary vocabulary may be used to expand the description of the subject of a contract. The items are made up of an alphanumeric code with a corresponding wording allowing further details to be added regarding the specific nature or destination of the goods to be purchased.

The alphanumeric code is made up of:

- a first level comprising of a letter corresponding to a section,
- a second level comprising four digits, the first three of which denote a subdivision and the last one being for verification purposes.

The use of the CPV is mandatory in the European Union as from 1 February 2006 and the version 2008 is the current CPV version<sup>15</sup>.

### **Nomenclature of Territorial Units for Statistics (NUTS)**

The NUTS was established by Eurostat<sup>16</sup> in order to provide a single uniform breakdown of territorial units for the production of regional statistics for European Union.

The NUTS classification<sup>17</sup> is a hierarchical system for dividing up the economic territory of EU for the purpose of:

- The collection, development and harmonization of EU regional statistics.
- Socio-economic analyses of the regions (major, basic and small socio-economic regions for specific diagnoses).
- Framing of EU regional policies.

## **PROBLEMS OF CROSS-BORDER ELECTRONIC PUBLIC PROCUREMENT**

Electronic public procurement has an enormous potential for the integration of procurement markets in the EU. Potentially, electronic contracting has the advantage of shorter distances, saving gaps in information and encourages greater participation by increasing the number of potential suppliers and the possible expansion of the markets. While e-procurement does not allow minimizing the importance of factors such as proximity or distance in the effective implementation of business activity covered by the contract clearly provides the opportunity to reduce the costs of geographical distance in order to participate in the recruitment process (EC, 2010, October 18). Furthermore, the benefits of this transparency becomes even more within the borders of a country, because the providers in a region can take advantage of business opportunities that arise in other regions. Although there are certain structural factors and costs that may discourage companies to participate in the procurement, other services can be provided wholly or partly at a distance<sup>18</sup>.

Achieving a single market in the European Union implies full generalization of electronic public procurement. This generalization requires some guidelines that allow, firstly the government and secondly the companies to make the right decisions about IT for the transformation of this business system (the public procurement) to electronic form (Caño & Folgueras, 2011). The challenges for extending e-Procurement at national and supranational levels are **interoperability** and **generalization**.

## **Interoperability**

Interoperability between information systems appears to be reduced to the area of technological support for the exchange of information. However, the processes, content and systems cannot operate together in supranational markets, without identifying other expressions of interoperability: semantic and organizational (CEPAL, 2007).

On one hand, organizational interoperability refers to the coordination and alignment of business objectives and processes involved in contracting activities that are considered common both within the government and its public entities, as compared to other procurement systems of other nations. In this sense, the EU has made a major effort through the signing of treaties and international cooperation agreements to eliminate trade barriers before facing interoperability between national electronic public procurement.

In addition, semantic interoperability means, among other things:

- To use common vocabulary, that is precise and unambiguous about what is being contracted and under what conditions,
- To identify ways to label the cross-phases and stages of the procurement process and
- To identify the types of existing procurement processes.

Technical interoperability refers to the development of technological solutions that enable connection and data transfer between systems and services, including key areas such as open communication interfaces, middleware, accessibility and security services. In this sense, the



technical challenge faced by the European Commission is already delivering results, through standards (**CEN BII**<sup>19</sup>), pilot projects (**STORK** and **SPOCs**), reusable components (**e-PRIOR** and **e-CERTIS**) and a public network, secure and affordable recruitment (**PEPPOL**).

An e-Procurement system cannot be a separate island to achieve its objectives alone. This translates into the need to further develop methodologies to create interoperable procurement systems, that is, enjoying the "ability to exchange data and enable sharing of information and knowledge". This type of interaction, also named systemic interaction, technically interconnect information systems of contracting authorities in the nation with the Official Platform for Procurement (local, regional, national or supranational) to exchange electronic documents involved in the procurement, through standards and web services supported by an infrastructure with stable and secure communications<sup>20</sup>.

## **Generalization**

Generalization is an adaptive challenge to be faced for all Member States, and it requires an understanding and governance of those technologies that implement public e-Procurement and, in some cases, exceeds the capacity governments have to develop the implementation plans themselves. This is a task of leadership with conceptual and technical support, to be primarily driven by the European Commission and then by the central and regional administrations of Member States. To achieve this task it is necessary to develop guidelines

with the heads of each government and public authorities in ensuring e-Government projects within the stipulated periods<sup>21</sup>.

In any case, the transition to electronic procurement from all Member States, takes place at different speeds. The clearest example is shown in Portugal, where the legal framework requires the use of electronic means in public procurement procedures, in whole or in part, in all matters relating to purchases.

## **CROSS-BORDER PILOT PROJECTS**

Electronic procurement starts to become an operational reality. Today there is hardly a single technology or tool that supports all phases of the procurement process. In this sense, the European Commission has launched several pilot projects at European level that provide effective solutions for very specific stages. Some of these projects are currently in operation and are being used by various countries. Others, however, are still under development and some others are very difficult to face up to because of the inherent limitations of the electronic mean<sup>22</sup>.

Some Member States, through its central and regional governments have also made great efforts and developments with significant results. For example, Spain includes the State Procurement Platform in the general Government levels (all Ministries), and at regional levels, there are many other platforms that are gaining strength and support in smaller areas

Bravo Martín, S., & García-Peñalvo, F. J. (2013). Electronic Government Systems for E-Procurement Procedure in EU. In P. Ordóñez de Pablos, J. M. Cueva Lovelle, J. E. Labra Gayo, & R. D. Tennyson (Eds.), *E-Procurement Management for Successful Electronic Government Systems* (pp. 29-51). Hershey, PA, USA: Information Science Reference. doi: 10.4018/978-1-4666-2119-0.ch003

(e. g. the Government Procurement platform from Euskadi, awards finalist for European e-Government Awards 2009).

The following sections present some **large-scale pilot projects** from 2006 European e-Government Action Plan, centering on the needs of citizens and businesses making life easier through better access to more efficient and cost effective public services. These pilot projects provide the foundation of the new e-Government Action Plan 2011-2015 (EU, 2010b).

### **PEPPOL and e-PRIOR**

First PEPPOL (Pan-European Public Procurement OnLine) is a major cross-border e-Procurement project intended to provide large-scale, standards-based IT infrastructure and services to set up and run on-line pan-european public procurement operations. PEPPOL<sup>23</sup> runs by public-sector organizations from various EU countries and co-funded by the European Commission. The project will support practical solutions to the pre-awarding phase of Public e-Procurement by key-enablers like e-Attestation.

Existing national systems of electronic public procurement will be linked so that all participants can enjoy the full benefits of a single European market. PEPPOL is operated under the European Commission's Competitiveness and Innovation Framework Programme's ICT Policy Support Programme.

The broader vision of PEPPOL is that any company in the EU can communicate electronically with any EU governmental institution for pre-award and post-award electronic

procurement activities. PEPPOL will allow any supplier in the EU to respond to any European public tender and conduct any activity utilizing their existing national infrastructure. The immediate benefits of PEPPOL will allow for businesses to widen their markets and carry out cross-border transactions, making it easier and more efficient for public procurement. There is an important objective to standardize electronic procurement process from e-Catalogue to e-Invoice in order to have more economic and secure interoperability for enterprises and SMEs.

Figure 6 shows the components of PEPPOL that provide support on different activities for pre-award and post-award electronic procurement procedure.

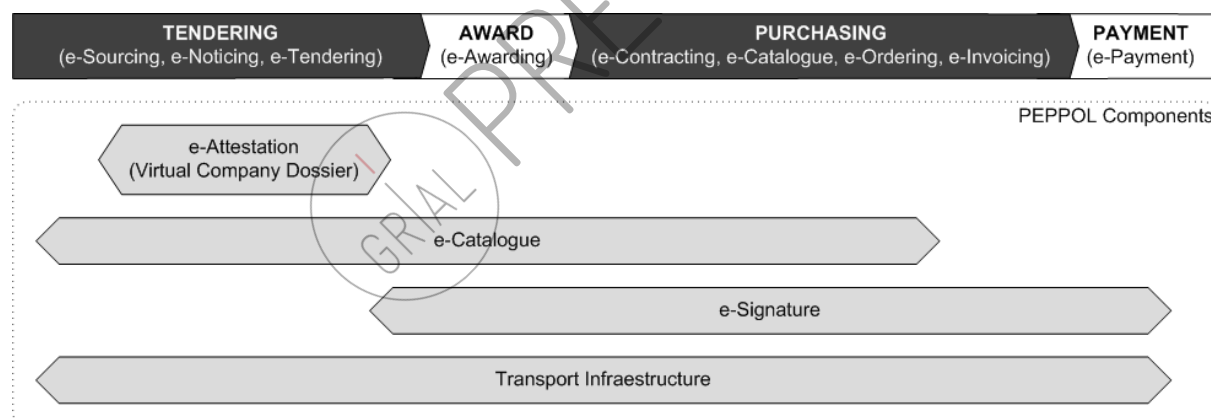


Figure 6. PEPPOL Components

An interesting project in the activities linked to the pre-award phase, is the Virtual Company Dossier (VCD). The objective of the VCD is to replace paper certificates with electronic

attestations by a special Single Point of Contact solution. The VCD shall enable suppliers to collect business certificates and attestations from existing registries and to submit those evidences electronically and assembled as an information package to any public sector awarding entity in Europe. This is the origin of some voluntary state or regional registry of suppliers<sup>24</sup>.

For the post-awarding phase of Public Procurement, there is the IDABC e-Invoicing and e-Ordering project. It started in 2007 by the Directorates-General for Internal Market (DG-MARKT) and for Informatics (DIGIT) of the European Commission. One major accomplishment of this project was the go-live of the e-Procurement platform named e-PRIOR (electronic PRocurement Invoicing and ORDERing)<sup>25</sup> on October 2009. This platform was funded by the ISA Programme of the EC and its goal is to stimulate the implementation of interoperable e-Procurement by public administrations in Europe, including the European Institutions. It is using European standards - based on the CEN/BII business profiles and the data model of UBL2.0, thus enabling interoperability in a cross-border environment. Now, e-PRIOR is being used by the EC to automate procurement processes such as e-Catalogue, e-Ordering and e-Invoicing.

At the same time, there is an open-source version named Open e-PRIOR, with the same functionalities that the abovementioned e-PRIOR platform. It aims at accelerating the implementation of e-Procurement, at lower cost and in less time, by European Member States in general and the participation to the PEPPOL project in particular. It uses European

Bravo Martín, S., & García-Peñalvo, F. J. (2013). Electronic Government Systems for E-Procurement Procedure in EU. In P. Ordóñez de Pablos, J. M. Cueva Lovelle, J. E. Labra Gayo, & R. D. Tennyson (Eds.), *E-Procurement Management for Successful Electronic Government Systems* (pp. 29-51). Hershey, PA, USA: Information Science Reference. doi: 10.4018/978-1-4666-2119-0.ch003

standards based on the CEN/BII business profiles and the data model of UBL2.0 and is connected to PEPPOL. This open-source initiative is currently in production<sup>26</sup> at the European Commission and it is freely available at the website of the Open Source Observatory & Repository of Europe (OSOR Community) located at <http://www.osor.eu/projects/openeprior>.

Both Open e-PRIOR and e-PRIOR are connected to the PEPPOL network via their own PEPPOL Gateway. Every supplier connected to PEPPOL is thus automatically connected to the EC and to whomever will have Open e-PRIOR implemented.

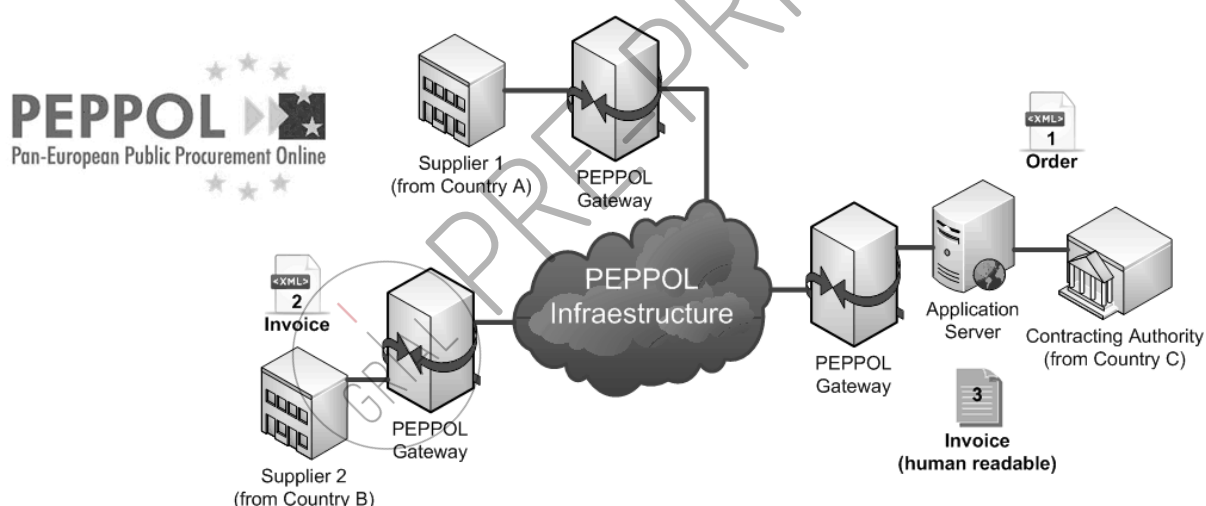


Figure 7. e-PRIOR Scenario

Figure 7 shows the steps in a typical e-PRIOR scenario (DIGIT, 2010):

1. The Buyer creates the Order in its own systems and transmits the Order to the Supplier via e-PRIOR and PEPPOL.

2. The Supplier (same/other country than the buyer) receives the Order and creates the Invoice in its own system.
3. The Supplier transmits the Invoice to the Buyer via PEPPOL and e-PRIOR. e-PRIOR: Validates the message; Applies business rules; Routes it to the receiver; makes available a human readable version of the invoice and the status of its processing (additionally).

## **STORK and e-CERTIS**

One of the main challenges identified in the Green Paper (EC, 2010d, pp. 9-11) that prevents and blocks the successful transition to e-Procurement is the onerous technical requirements, particularly for bidder authentication and the lack of cross-border interoperability of electronic signatures and recognition of electronic identification. These problems are not specific to the e-Procurement context but arise in any situation where electronic authentication and signatures are required. The main hopes for these challenges are based in two pilot solutions supported by PEPPOL: STORK (Secure idenTity acrOss boRders linKed) and e-CERTIS (electronic Certificates Information System).

STORK<sup>27</sup> is a competitiveness and innovation framework programme, co-funded by EU. It aims at implementing an EU wide interoperable system for recognition of electronic ID and authentication that will enable businesses, citizens and government employees to use their national **electronic identities**<sup>28</sup> in any Member State. It will also pilot transborder e-

Government identity services and learn from practice on how to roll out such services, and to experience what benefits and challenges an EU wide interoperability system for recognition of e-ID will bring.

The other problem encountered so far relate to the requirement for contracting authorities to assess evidentiary documents submitted by tenders to prove eligibility for selection. This problem is closely related to the Virtual Company Dossier project in order to expedite and facilitate the certifications required by the contracting authority in competitive tendering. These documents are issued at national or local levels in accordance with the relevant conventions, formats and languages. e-CERTIS<sup>29</sup> is a free and on-line information tool for companies and contracting authorities, developed by the European Commission, to assists on:

- different documents required when tendering for a public contract in another country,
- certificate most frequently requested in procurement procedures across the EU<sup>30</sup> to understand what information is being requested / provided and identify mutually acceptable equivalents. It provides details of the different certificates and attestations frequently requested in procurement procedures.

### **Simple Procedures Online for Cross-Border Services (SPOCS)**

Finally, other large-scale pilot project named SPOCS<sup>31</sup>, aims to build the next generation of online portals (Point of Single Contact, PSC<sup>32</sup>), through the availability of high impact cross-border electronic procedures. The SPOCS pilot project aims to enhance the quality of these



procedures, with more interoperable and user-friendly systems, making it easier for businesses to offer their services abroad. This project was launched in May 2009 after the European Parliament and the Council adopted the Directive on services in the Internal Market and will benefit from the results achieved by the STORK (electronic identity) and PEPPOL (electronic procurement) projects. The Services Directive<sup>33</sup> requires the Member States to simplify procedures and formalities that service providers need to comply with. In particular, it requires Member States to remove unjustified and disproportionate burdens and to substantially facilitate:

- the establishment of a business (for example, cases in which a natural or legal person wants to set up a permanent establishment in a Member State), and
- the cross-border provision of services (for example, cases in which a business wants to supply services across borders in another Member State, without setting up an establishment there).

## CONCLUSIONS

Broadly, the effective implementation of electronic public procurement, in most countries individually and in the European Union as a whole remains low and is estimated at less than 5% in value of public procurement total. Some countries have chosen to force the use of

certain support tools on specific phases of the procurement process (for example, e-Noticing), and others, even opted for the mandatory use of electronic means to cover all phases.

From the technological point of view, various systems emerge to provide effective solutions to the electronic procurement process. However, these systems show little in common, since they consist of isolated solutions in which business processes, types and formats of documents and forms of communication are not sufficiently standardized. Since no standard and predefined components appear to guarantee an interoperable environment, the generalization of electronic public procurement across borders will be difficult and slow. This is why many economic operators feel apprehensive when participating in e-Procurement procedures in other Member States where the way to face up to the process is very different.

It has been observed that electronic trading has a lot of partners and independent systems to exchange information. It is necessary to apply a common approach to rules and normalized formats, at least for most common procurement procedures, in order to encourage the reuse of technology solutions in this area. So, it is a key moment to assess the current technological solutions in electronic public procurement, and encourage the adoption of certain tendencies to generalize and reuse the use of them in Member States, both in national and regional levels. Adopt a fragmented model where each nation, region or locality has its own electronic procurement platform does not help to cross border interoperability. Actually exacerbates the problem because of the complexity lies in gateways to interconnect other platforms. Also life becomes very difficult both to economic operators and contracting authorities, (especially

employees of hiring authorities). They are forced to understand and use different technological solutions. At least if this normalization only affects the most common procurement procedures, economic operators could take part in procurement procedures of different systems with minimal effort and cost, and with a simple readjustment of the tender offer on course.

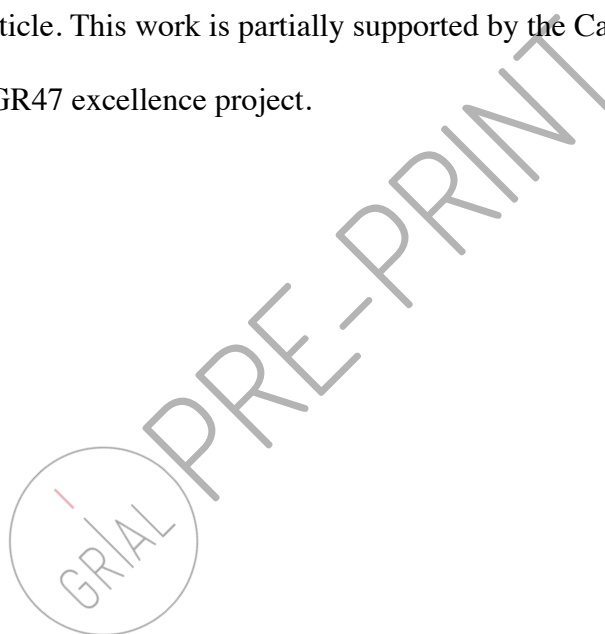
The European Commission has made great progress on actions related to electronic procurement processes particularly in the chapter on infrastructure and interoperability by large-scale projects (PEPPOL is the most relevant). They are also remarkable progress both in the pre-award phase (with the publication and dissemination by electronic means of announcements concerning contracting opportunities at TED) and post-award phase (with pilot projects such as e-PRIOR to the electronic catalog creation, formalization of online orders and sending electronic invoices). In Fact, the EC's Efforts to expand e-Procurement to the Member States is even more important in today's Economic context WHERE cuts in Government Spending are required at all levels (for example, in the liberalization of the Open e-PRIOR platform and a dedicated team providing assistance to Member States, European Institutions and Agencies to help them reuse this technology).

However, less progress has been made in the unification and standardization for the presentation and management of online offerings. As the Green Paper (EC, 2010d) warns about widespread use of electronic procurement in the EU, here is where real benefits (and challenges) of electronic procurement arise.

Bravo Martín, S., & García-Peñalvo, F. J. (2013). Electronic Government Systems for E-Procurement Procedure in EU. In P. Ordóñez de Pablos, J. M. Cueva Lovelle, J. E. Labra Gayo, & R. D. Tennyson (Eds.), *E-Procurement Management for Successful Electronic Government Systems* (pp. 29-51). Hershey, PA, USA: Information Science Reference. doi: 10.4018/978-1-4666-2119-0.ch003

## **ACKNOWLEDGMENT**

We want to thank members of the Group of Research in Interaction and eLearning of the University of Salamanca for their collaboration in the form of critical feedback in the development of this article. This work is partially supported by the Castile and Lion Regional Government through GR47 excellence project.



## REFERENCES

- Caño, M. J. & Folgueras, A. (2011, May 25). *IT Governance for e-Procurement. Applicability of the norm ISO/IEC to reach the interoperability and generalization*. Retrieved May 31, 2011, from <http://es.scribd.com/doc/56447197/iT-Governance-for-E-Procurement-6>
- DIGIT, Directorate-General for Informatics (2010, February 9). *The value of e-PRIOR, the European e-Procurement platform offered by the European Commission*. Retrieve June 10, 2011 from [www.epractice.eu/files/e-PRIOR%20v1.0.ppt](http://www.epractice.eu/files/e-PRIOR%20v1.0.ppt)
- European Commission (2000). *Lisbon strategy for growth and jobs*. Retrieved May 30, 2011, from [http://ec.europa.eu/archives/growthandjobs\\_2009/](http://ec.europa.eu/archives/growthandjobs_2009/)
- European Commission (2002). *e-Europe 2002 Action Plan*. Retrieved May 30, 2011, from Information Society website [http://ec.europa.eu/information\\_society/eeurope/2002/index\\_en.htm](http://ec.europa.eu/information_society/eeurope/2002/index_en.htm)
- European Commission (2005a, January). *Functional requirements for e-Procurement (Volume I, main requirements)*. Retrieved June 8, 2011 from (IDABC / e-Procurement / Guidelines and functional requirements) <http://ec.europa.eu/idabc/servlets/Doc1ad3.pdf?id=22191>
- European Commission (2005b). *e-Europe 2005 Action Plan*. Retrieved May 30, 2011, from Information Society website [http://ec.europa.eu/information\\_society/eeurope/2005/index\\_en.htm](http://ec.europa.eu/information_society/eeurope/2005/index_en.htm)

Bravo Martín, S., & García-Peñalvo, F. J. (2013). Electronic Government Systems for E-Procurement Procedure in EU. In P. Ordóñez de Pablos, J. M. Cueva Lovelle, J. E. Labra Gayo, & R. D. Tennyson (Eds.), *E-Procurement Management for Successful Electronic Government Systems* (pp. 29-51). Hershey, PA, USA: Information Science Reference. doi: 10.4018/978-1-4666-2119-0.ch003

European Commission (2005c, July 8). *Requirements for conducting public procurement using electronic means under the new public procurement directives 2007/18/CE and 2004/17/CE*. Retrieved June 3, 2011 from the EU Single Market website (chap. Public Procurement)

[http://ec.europa.eu/internal\\_market/publicprocurement/docs/eprocurement/sec2005-959\\_en.pdf](http://ec.europa.eu/internal_market/publicprocurement/docs/eprocurement/sec2005-959_en.pdf)

European Commission (2006, April 25). *i2010 eGovernment Action Plan: Accelerating eGovernment in Europe for the Benefit of All*. Retrieved May 30, 2011, from Information Society website (chap. Activities :: eGovernment :: Policy :: Action Plan)

[http://ec.europa.eu/information\\_society/activities/egovernment/policy/action\\_plan/index\\_en.htm](http://ec.europa.eu/information_society/activities/egovernment/policy/action_plan/index_en.htm)

European Commission (2009, December 1). *Commission Regulation (EC) No 1177/2009, of 30 November 2009, amending Directives 2004/17/EC, 2004/18/EC and 2009/81/EC of the European Parliament and of the Council in respect of their application thresholds for the procedures for the award of contracts*. Retrieved Jun 4, 2011 from [http://eur-](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:314:0064:0065:EN:PDF)

[lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:314:0064:0065:EN:PDF](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:314:0064:0065:EN:PDF)

European Commission (2010a). *e-Europe 2010 Action Plan*. Retrieved May 30, 2011, from Information Society website (chap. i2010 - A European Information Society for growth and employment) [http://ec.europa.eu/information\\_society/eeurope/i2010/index\\_en.htm](http://ec.europa.eu/information_society/eeurope/i2010/index_en.htm)

Bravo Martín, S., & García-Peñalvo, F. J. (2013). Electronic Government Systems for E-Procurement Procedure in EU. In P. Ordóñez de Pablos, J. M. Cueva Lovelle, J. E. Labra Gayo, & R. D. Tennyson (Eds.), *E-Procurement Management for Successful Electronic Government Systems* (pp. 29-51). Hershey, PA, USA: Information Science Reference. doi: 10.4018/978-1-4666-2119-0.ch003

European Commission (2010b, February 2). *Lisbon Strategy evaluation document*. Retrieved May 30, 2011, from

[http://ec.europa.eu/archives/growthandjobs\\_2009/pdf/lisbon\\_strategy\\_evaluation\\_en.pdf](http://ec.europa.eu/archives/growthandjobs_2009/pdf/lisbon_strategy_evaluation_en.pdf)

European Commission (2010c, August 26). *A Digital Agenda for Europe*. Retrieved 30 May. 2011, from <http://eur->

[lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0245:FIN:EN:PDF](http://lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0245:FIN:EN:PDF)

European Commission (2010d, October 18). Green paper on expanding the use of e-Procurement in the EU. Retrieved June 1, 2011 from the EU Single Market website (chap.

Consultations) [http://ec.europa.eu/internal\\_market/consultations/docs/2010/e-Procurement/green-paper\\_en.pdf](http://ec.europa.eu/internal_market/consultations/docs/2010/e-Procurement/green-paper_en.pdf)

European Commission (2010e, December 15). *The European eGovernment Action Plan 2011-2015. Harnessing ICT to promote smart, sustainable & innovative Government*. Retrieved May 30, 2011, from Information Society website (chap. Activities :: eGovernment :: Action Plan 2011 - 2015)

[http://ec.europa.eu/information\\_society/activities/egovernment/action\\_plan\\_2011\\_2015/docs/action\\_plan\\_en\\_act\\_part1\\_v2.pdf](http://ec.europa.eu/information_society/activities/egovernment/action_plan_2011_2015/docs/action_plan_en_act_part1_v2.pdf)

European Commission (2011). *Europe 2020*. Retrieved May 30, 2011, from

[http://ec.europa.eu/europe2020/index\\_en.htm](http://ec.europa.eu/europe2020/index_en.htm)

European Parliament, Council (2004a, March 31). *Directive 2004/17/EC of the European Parliament and of the Council of 31 March 2004 coordinating the procurement procedures of*

Bravo Martín, S., & García-Peñalvo, F. J. (2013). Electronic Government Systems for E-Procurement Procedure in EU. In P. Ordóñez de Pablos, J. M. Cueva Lovelle, J. E. Labra Gayo, & R. D. Tennyson (Eds.), *E-Procurement Management for Successful Electronic Government Systems* (pp. 29-51). Hershey, PA, USA: Information Science Reference. doi: 10.4018/978-1-4666-2119-0.ch003

*entities operating in the water, energy, transport and postal services sectors*. Retrieved Jun 2, 2011 from [http://eur-](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32004L0017:EN:NOT)

[lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32004L0017:EN:NOT](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32004L0017:EN:NOT)

European Parliament, Council (2004b, March 31). *Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts*.

Retrieved Jun 2, 2011 from [http://eur-](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32004L0018:EN:NOT)

[lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32004L0018:EN:NOT](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32004L0018:EN:NOT)

European Union (2010a, December 15). *Digital Agenda: e-Government Action Plan - what would it do for me?*. Retrieved May 31, 2011 from the official website of the European Union

<http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/10/681>

European Union (2010b, December 15). *Digital Agenda: pilot projects show the way in easy access to online public services across the EU*. Retrieved June 10, 2011 from the official website of the European Union

<http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/10/680>

Head of State of Spain (2007a, June 22). *Law 11/2007, of 22 June, on Citizen's Electronic Access to Public Services*. Retrieved May 31, 2011, from Official State Gazette of Spain

<http://www.boe.es/boe/dias/2007/06/23/pdfs/A27150-27166.pdf>



Bravo Martín, S., & García-Peñalvo, F. J. (2013). Electronic Government Systems for E-Procurement Procedure in EU. In P. Ordóñez de Pablos, J. M. Cueva Lovelle, J. E. Labra Gayo, & R. D. Tennyson (Eds.), *E-Procurement Management for Successful Electronic Government Systems* (pp. 29-51). Hershey, PA, USA: Information Science Reference. doi: 10.4018/978-1-4666-2119-0.ch003

Head of State of Spain (2007b, October 30). *Law 30/2007 of 30th October, on Public Sector Contracts*. Retrieved May 31, 2011, from Official State Gazette of Spain

<http://www.boe.es/boe/dias/2007/10/31/pdfs/A44336-44436.pdf>

Head of State of Spain (2011, March 4). *Law 2/2011, of March 4, Sustainable Economy*.

Retrieved May 31, 2011, from Official State Gazette of Spain

[www.boe.es/boe/dias/2011/03/05/pdfs/BOE-A-2011-4117.pdf](http://www.boe.es/boe/dias/2011/03/05/pdfs/BOE-A-2011-4117.pdf)

Ministers of European Union (EU) Member States, Accession States and Candidate Countries and Ministers of the European Free Trade Area (EFTA) Countries, responsible for eGovernment policy (2005, November 24). Manchester, United Kingdom. *Ministerial Declaration*. Retrieved May 30, 2011, from

[http://ec.europa.eu/information\\_society/activities/e-Government/docs/pdf/manchester\\_declaration.pdf](http://ec.europa.eu/information_society/activities/e-Government/docs/pdf/manchester_declaration.pdf)

Ministers responsible for eGovernment policy of the European Union (EU) Member States, the Candidate Countries and the European Free Trade Area (EFTA) (2009, November 18).

Malmö, Sweden. *Ministerial Declaration on eGovernment*. Retrieved May 30, 2011, from

[http://ec.europa.eu/information\\_society/activities/e-Government/events/past/malmo\\_2009/press/ministerial-declaration-on-e-Government.pdf](http://ec.europa.eu/information_society/activities/e-Government/events/past/malmo_2009/press/ministerial-declaration-on-e-Government.pdf)

*Official e-Government Website of the Ministry of Territorial Policy and Public Administration of Spain*. Retrieved May 31, 2011 from (chap. Initiatives)

<http://administracionelectronica.gob.es>

Bravo Martín, S., & García-Peñalvo, F. J. (2013). Electronic Government Systems for E-Procurement Procedure in EU. In P. Ordóñez de Pablos, J. M. Cueva Lovelle, J. E. Labra Gayo, & R. D. Tennyson (Eds.), *E-Procurement Management for Successful Electronic Government Systems* (pp. 29-51). Hershey, PA, USA: Information Science Reference. doi: 10.4018/978-1-4666-2119-0.ch003

Suarez, G. & Laguado, R. (2007, April). *Public e-Procurement Manual for Latin America (conceptual and legal model, indicators, interoperability)*. United Nations Publication.

Retrieve May 31, 2011 from <http://www.eclac.org/publicaciones/xml/8/28648/DocW130.pdf>



## CHAPTER ENDNOTES

---

<sup>1</sup> These seven initiatives classify in three reinforcing priorities: Smart growth (Digital agenda for Europe, Innovation Union and Youth on the move), Sustainable growth (Resource efficient Europe and An industrial policy for the globalization era) and Inclusive growth (An agenda for new skills and jobs and European platform against poverty).

<sup>2</sup> The 5 targets for the EU in 2020 are following: Employment (75% of the 20-64 year-olds to be employed), Research, Development and Innovation (3% of the EU's GDP, public and private combined, to be invested in R&D and innovate), Climate change and energy (greenhouse gas emissions 20%, or even 30%, if the conditions are right, 20% of energy from renewable resources, 20% increase in energy efficiency), Education (reducing school drop-out rates below 10% and at least 40% of 30-34-year-olds completing third level education), Poverty and social exclusion (at least 20 million fewer people in or at risk of poverty and social exclusion).

<sup>3</sup> Government revenues account for some 45% of GDP and public authorities purchase services and goods to the value of some 15 to 20% of GDP or €1.500 to €2.000 billion in Europe every year. Electronic procurement and invoicing could save 5% in total procurement costs and reduce transaction costs by 10% or more, leading to savings of tens of billions of Euros annually (EC, 2006).

<sup>4</sup> Some Member States have created new action plans to relaunch e-Government. Spain, for example, through the Council of Ministers approved on July 16 (2010), in the agreement by approving the 2011-2015 Strategy named Plan Avanza 2, which continues the previous Avanza Plan, incorporating the actions implemented and updating its initial objectives to suit the new challenges (<http://www.planavanza.es>).

<sup>5</sup> In the case of Spain, this legislation transposing the EU directives on e-Procurement is reflected in two rules enforced by Law. First, the Law 11/2007, of 22 June, on Citizen's Electronic Access to Public Services (Head of State of Spain, 2007a), establishes the general framework of the E-Government in Spain, and computers to access information and departments of the government by civil society (citizens and businesses) in a virtual environment to access existing traditional far. This Law has been one of the major challenges within the modernization of the Spanish e-Government in recent years. On the other hand, Law 30/2007, of October 30, Public Sector Contracts (Head of State of Spain, 2007b), is the specific rule that sets the general framework for public procurement in Spain, as well as the changes described in the Law 34/2010, of 5 August, and subsequent Royal Decrees for developing it. Both rules apply to the Public Administration of the State and its related agencies and advocates promoting the use of a computer, electronic and data communications in their dealings with citizens and economic operators. More recently, Law 2 / 2011, of March 4, Sustainable Economy (Head of State of Spain, 2011), instigates on Chapter V, the

efficiency in public procurement and public-private collaboration as fundamental elements of relationship between public government and the business. In the area of procurement initiatives, like Green Public Procurement (GPP), are postulated in both public and private sectors. The GPP offers a process of investment and expenditure based on a sustainable procurement and acquisition (or green procurement) to get their needs for goods, services, works and not by a private cost-benefit analysis, but with a vision to maximize real benefits for themselves and rest of the world.

<sup>6</sup> In Spain, Article 42 of the Law 30/2007, of October 30, Public Sector Contracts (Head of State of Spain, 2007b), regulates the buyer profile, through which the contracting authorities should notice information on the Internet on its contracting activity.

<sup>7</sup> In compliance with the obligations of the e-Government some Member States have made available to their respective state, regional and local governments IT platforms to use electronic signatures and time stamping services. Spain, in line with the above, made available to all governments a Platform for Validation and Electronic Signature (@firma). Integrated with this platform is a time stamping authority (TS@) in order to provide sealing services, validation and resealing of time stamps.

<sup>8</sup> Member states in compliance with e-Procurement legislation have complementary registers of bidders (i.e.: in Spain, the General Directorate for State Assets, is responsible for

Classifying Contractors and keeping the Official Register of Bidders and State Classified Companies and the Register of Public Sector Contract, <http://registrodelicitadores.gob.es>).

<sup>9</sup> There are internet platforms that allow registration and to receive alerts about new tender notices or updates to existing ones. These alerts are based mainly on internet messaging services (electronic mail) and mobile telephony (short message service).

<sup>10</sup> Some member states, at the state level and even regional, have created Registry of bidders, in order to exonerate the companies to present, in certain processes of recruitment, documentation of his personality, ability to act, representation, classification and other certifications provided for in the procurement process. In cases belonging to the record where it is not sufficient; at least the certificates issued by these records are also supported like electronic evidence of such attestations.

<sup>11</sup> TED (Tenders Electronic Daily) is the official source for public contracts in Europe. This service is available on the website <http://ted.europa.eu>.

<sup>12</sup> Depending on the nature of the contract, the thresholds for publication on TED are the following (EC, 2009, December 1): supplies and services for central government authorities: 125.000 €; supplies and services for non-central government authorities: 193.000 €; supplies and services in water, energy, transport and postal services: 387.000 €; works: 4.845.000 €.

<sup>13</sup> Service available on the website <http://simap.europa.eu/enotices>.

<sup>14</sup> Service available on the website <http://simap.europa.eu>.

<sup>15</sup> The CPV, adopted by Regulation (EC) No. 213/2008 is in use since 17/09/2008. Available on <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:074:0001:0375:EN:PDF>.

<sup>16</sup> Service available on the website <http://epp.eurostat.ec.europa.eu>.

<sup>17</sup> The list of current NUTS codes is available on the website [http://simap.europa.eu/codes-and-nomenclatures/codes-nuts/codes-nuts-table\\_en.htm](http://simap.europa.eu/codes-and-nomenclatures/codes-nuts/codes-nuts-table_en.htm).

<sup>18</sup> System and software development, consulting, design or advisory services and online help.

<sup>19</sup> Business Interoperability Interfaces for Public procurement by European Committee For Standardization.

<sup>20</sup> Spain is an example of unity in the General Administration through the State Procurement Platform (available on the website <https://contrataciondelestado.es>). This technological solution is based on a component architecture and standard electronic documents, called CODICE (Interoperable Components and Documents for Electronic Procurement), enabled for the development of e-Procurement applications, according to European directives and Spanish legislation procurement. The services offered by this platform are mainly focused on phases of the contracts (and other documents relating to the bid) and receive (and forward) of

electronic bids. Notably, the automatic integration with the Official Journal at national/regional (e.g. BOE) and at European level (e.g. TED) as indicated.

<sup>21</sup> The strategic Action Plans to promote the development of e-Government in general and, in particular e-Procurement, are clearly shown in Spain at the official e-Government website (<http://administracionelectronica.gob.es>). Almost all Spanish regions have developed their own Strategic Plan. However, some technological solutions deployed resolve electronic procurement effectively, but also a very focused and isolated.

<sup>22</sup> See chapter “Automatic evaluation strategies in complex procurement” on Green Paper on expanding the use of e-Procurement in the EU (2010, October 18).

<sup>23</sup> The website of PEPPOL is located at <http://www.peppol.eu>

<sup>24</sup> For example, at national level in Spain there exists an Official Registry of Tenderers and Classified named ROLECE (<http://registrodelicitadores.gob.es>), created pursuant to the provisions of articles 301-307 of Law 30/2007 (Head of State of Spain, 2007b). Suppliers can enroll in the data referred to in article 303 of the mentioned Law and their certificates (obtained from the platform) and test them against all the organs of public sector procurement. The Registry is of an electronic nature, and both applications for registration and obtaining certificates are in electronic means by crediting the applicant's identity through the use of electronic ID.



<sup>25</sup> The website of e-PRIOR is located at <http://www.epractice.eu/cases/ePRIOR>

<sup>26</sup> Recently a version of Open e-PRIOR has been deployed in Greece as a test implementation in the context of the PEPPOL initiative.

<sup>27</sup> The website of STORK is located at <https://www.eid-stork.eu>

<sup>28</sup> This project is the seed for a future to permit the acceptance of digital Spanish certificates, such as electronic DNI in e-government services in other countries, thus facilitating the connection of our citizens and businesses with other European public administrations. Spain is an active member of the STORK project by the initiative: “Pan-European recognition of electronic identities” (retrieved June 8, 2011 from the official e-Government website of Spain <http://administracionelectronica.gob.es>).

<sup>29</sup> The website of e-CERTIS is located at <http://ec.europa.eu/markt/ecertis>

<sup>30</sup> e-CERTIS operate across 27 Member States, two Candidate Countries (Turkey and Croatia) and the three EEA countries (Iceland, Liechtenstein and Norway).

<sup>31</sup> The website of SPOCS project is located at <http://www.eu-spocs.eu>

<sup>32</sup> The Spanish Point of Single Contact (located at <http://www.eugo.es>), is a project run by the Ministry of Public Administrations and Public Administration of the Government of Spain.

This website answers to established obligations for the Services Directive which was

incorporated into the Law 17/2009 of November 23 on the free access to and exercise of service activities.

<sup>33</sup> Directive 123/2006/EC.

