STATE OF THE ART REPORT

VOLUME II

CASE STUDIES ON EUROPEAN ELECTRONIC PUBLIC PROCUREMENT PROJECTS

JULY 2004

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Abbreviations / Acronyms

Abbreviation or Acronym	Term
AGM	Agency of Government Management (Danish administration)
API	Application Program Interface
APM	Agency of Public Procurement (Swedish administration)
CA	Certification Authority
CPP	Centralised Public Procurement (Hungarian administration)
CPV	Common Procurement Vocabulary
cXML	Commerce XML
DFPS	Department of Finance and Public Administration (Basque administration)
DOC	Microsoft MS Word document (.doc)
DPS	Dynamic Purchasing Systems
EC	European Commission
EDI	Electronic Data Interchange
EU	European Union
FAQ	Frequently Asked Questions
FedICT	Federal Public Services of Information and Communication Technologies
GAS	Government Administration Services (Norwegian administration)
GPC	Government Procurement Card
GUI	Graphical User Interface
HTTP / HTTPS	HyperText Transfer Protocol / Secure HyperText Transfer Protocol
ICT	Information and Communication Technology
IDA	Interchange of Data between Administrations
IT	Information Technology
ITT	Invitation to Tender
MEAT	Most Economically Advantageous Tender
MINDEF	Ministry of Defence (French administration)
MoD	Service Public Fédéral of the Ministry of Defence (Belgian administration)
MS	Member States
OGC	Office of Government Commerce (UK administration)
OJEU	Official Journal of the European Union
OSS	Open Source Software
PDF	Portable Document Format
PIN	Prior Information Notice
PQQ	Pre-Qualification Questionnaire
Q&A	Questions & Answers
RFP	Request for Proposal
RFQ	Request for Quotation
RTF	Rich Text Format
SLA	Service Level Agreement
SME	Small-Medium Enterprises
SMTP	Simple Mail Transfer Protocol
SSL	Secure Sockets Layer
UN/SPSC	Universal Standard Products and Services Code
VPN	Virtual Private Network
XLS	Microsoft MS Excel spreadsheet (.xls)
XML	eXtensible Markup Language

Glossary

Term	Description
Advanced Electronic Signature	Means an electronic signature which meets the following requirements: (a) it is uniquely linked to the signatory (b) it is capable of identifying the signatory (c) it is created using means that the signatory can maintain under his sole control (d) it is linked to the data to which it relates in such a manner that any subsequent change of the data is detectable
Authentication	Proving a user's identity. To be able to access a Website or resource, a user must provide authentication via a password or some combination of tokens, biometrics and passwords.
Authorisation	The act of granting approval. Authorisation to resources or information within an application can be based on simple or complex access control methods.
Basic Internet Security	Typically employed in low value, low sensitivity applications using Secure Sockets Layer (SSL) for confidentiality, with the possible addition of UserID and Passwords for user authentication.
Browser Based	This term describes software that does not require any client software to be installed or configured on users' systems, except of the commercially supported Web-browsers (IE, NS, Mozila and Opera). Unlike a browser plug-in, browser based applications do not require manual download and execution of an installation program prior to Web site access; Unlike an ActiveX control or some Java applets, browser based applications do not force the user to agree to potentially confusing security warning dialogs. Unlike other client applications, browser based applications do not have a noticeable download time. In fact, download is transparent to the end-user.
Certificate	An electronic "passport". A certificate is a secure electronic identity conforming to the X.509 standard. Certificates typically contain a user's name and public key. A CA authorises certificates by signing the contents using its CA signing private key.
Certificate validation	The process of checking the trustworthiness of a certificate. Certificate validation involves checking that the certificate has not been tampered with, has not expired, is not revoked and was issued by a CA you trust.
Certification Authority (CA)	The system responsible for issuing secure electronic identities to users in the form of certificates.
Cryptography	The science to convert plain language into coded text and in reverse.
Decrypt	To decrypt a protected file is to restore it to its original, unprotected state.
Electronic signature	Data in electronic form which are attached to or logically associated with other electronic data and which serve as a method of authentication
Encryption	To encrypt a file is to apply a mathematical function that transforms character(s) in the file into some other character(s). Encryption renders the file unreadable. This means no one, including the actor, can read the file until it is decrypted. Only authorised recipients can decrypt the file.
Encryption key pair	This consists of the encryption public key and decryption private key. The public key portion of an encryption key pair is used to encrypt data which can be decrypted by the matching decryption private key.
Enhanced Internet Security	This is the required level of security needed for applications that deal with higher value and higher sensitivity transactions and information. This consists of enhanced levels of identification, entitlements, verification, privacy and security management.
Identification	see Authentication
National eProcurement Authorities	Refers to the public authority responsible for the eProcurement programme of a country, as well as, for compliant with the legislation operation of the offered systems. The information analysed in the current report has all been obtained by the National eProcurement Authorities of the participating countries.
Private key	The portion of a key pair that is kept secret by the owner of the key pair. Private keys sign or decrypt data.
Public key	The portion of a key pair that is available publicly.

Public Key Infrastructure (PKI)	A system that provides the basis for establishing and maintaining a trustworthy networking environment through the generation and distribution of keys and certificates. This is also the foundation technology for providing enhanced Internet security.
Secure Sockets Layer (SSL)	A secure session protocol used to maintain data confidentiality only between Web-browsers and Web servers. This is a fundamental component of basic Internet security.
Security Management	The act of effectively and efficiently managing identification, entitlements, verification and privacy such that there is less burden of administration for end users and administrators regardless of application or platform.
Security policy	An organisation's security policy governs the use of the appropriate infrastructure in the organisation to achieve security objectives.
Time Stamping	The validity of storing the official date and time a business transaction has occurred.
Web Portal	A Web portal is a single doorway for employees, customers and partners to access an organisation's content, data and services online. Also known as Enterprise portals, Web portals make it possible to establish online relationships by providing personalised content to different individuals and entities. Organisations are building portals not only to increase loyalty, but also to create competitive advantage, strengthen relationships, speed access to services and satisfy regulatory requirements. Portals also make it possible to increase revenue, efficiencies and cost savings by moving business processes online.
XML	XML is the standard messaging format for business communication, allowing companies to connect their business systems with those of customers and partners using the existing Internet infrastructure. Similar to HTML, XML uses tags (words bracketed by '<' and '>') and attributes (of the form name="value") to help place structured data into text files. XML is different from HTML in that it is a meta-language (a language for describing languages) and, therefore, does not define specific tags and attributes.

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1 Introduction

The current document provides the background analysis of the information gathered from various Member States that eventually led to interesting eProcurement Practices (presented in Volume I). The study considered 21 systems from 8 European countries (including 3 EC systems). The analysis of the Member States eProcurement programmes and their existing systems is performed through an established evaluation methodology, which standardises the way they are examined. The evaluation methodology used for the assessment of the reviewed systems is also presented in this document, with a view to provide a method for administrations evaluating the quality of their systems, or any proposals received from technology suppliers, for the development of components, tools, or complete eProcurement systems.

1.1 Document structure

The current document is structured in the following manner:

- **<u>Section 2 - Evaluation methodology:</u>** presents the methodology used for reviewing the eProcurement systems from the participating administrations. The purpose of the Evaluation Methodology is not to benchmark the analysed systems, but rather to provide a standardised mechanism in order to assess them and result in common conclusions. The Evaluation Methodology can be utilised by MS in order to objectively evaluate their own systems and/or contractor proposals for future developments.
- **<u>Section 3 - Reviewed countries:</u>** presents information related to the administrative structure of the official government bodies involved with the development of public eProcurement in each reviewed country. Furthermore, there is a high-level overview of existing and future eProcurement programmes and systems of the reviewed administrations.
- **<u>Section 4 - Electronic Procurement Systems:</u>** provides an analysis of the reviewed eProcurement systems. Systems are grouped into four main categories, depending on their functionality. The identified categories are:
  - <u>Individual Contract systems:</u> covering procurement of one-off contracts, through the open, restricted, or negotiated procedures
  - <u>Repetitive Purchasing systems:</u> covering systems employing electronic catalogues, through DPS or framework agreements
  - <u>eAuction systems:</u> covering eAuctions
  - <u>Supplementary systems:</u> enhancing functionality of existing eProcurement systems, without directly covering an eProcurement type or phase

2 Evaluation methodology

In order to analyse all reviewed eProcurement systems, the contractor has established an Evaluation Methodology; a structured procedure for assessing the procedural and technical capabilities of all eProcurement programmes and systems reviewed. The Methodology is utilised in order to evaluate the system functionality, compare it to the new EU public procurement legislation and identify eProcurement Practices; ideas that can be included in a State-of-the-Art programme/system.

The purpose for establishing the Evaluation Methodology is twofold. The first objective is to identify and collect the necessary information in order to understand the policy followed by the reviewed public administrations and analyse their eProcurement systems. The second objective is to apply a formalised analysis procedure, in order to identify interesting eProcurement Practices and recommend their implementation. The execution of the Evaluation Methodology requires a wide range of information for all systems, which was not always available to the contractor during the current analysis.

The established methodology can be used for analysing eProcurement systems, but it is not destined for evaluating and benchmarking systems. Benchmarking is not the purpose of this report and therefore reviewed systems are not compared one against the other with an intention to conclude the systems that are the "best-of-breed".

2.1 Evaluation methodology topics

The Evaluation Methodology is presented in the following sections, detailing the way the reviewed system were analysed. Interested parties can utilise this methodology for identifying "weak" areas that need improvement. Moreover, this methodology can be used for evaluating contractor's proposals for creating eProcurement systems, as well as, for further enhancing existing systems.

The analysis, based on the Evaluation Methodology, is carried out in three phases, each one focusing on a separate area of review. The three phases are executed in a sequential manner, in order to conclude concrete results. During the first phase there is an analysis of the policy followed by the reviewed administrations. In the second phase there is an analysis of the reviewed eProcurement systems. Finally, in the last phase there is a presentation of identified eProcurement Practices and a conclusion of the overall analysis. The following sections provide details for each phase, allowing the reader to better understand the analysis approach used according to the established methodology.

The contractor has also established a contingency plan in order to face possible disruptions during the collection of information by the various participating public administrations. This plan is presented at the end of this section.

2.1.1 Analysis of the status of eProcurement in reviewed countries

The first phase of the analysis considers the status of eProcurement in the reviewed administrations. There is a brief outline of the national legislative structure and a presentation of the most important bodies that define the eProcurement national environment in a country. This phase focuses on the analysis of the policies followed by the reviewed public administrations. There is a presentation of the current and ongoing eProcurement projects and an overview of the reviewed systems. The results of the analysis are summarised in a table with the following structure.

Feature	Description
Administration involved	*Name of reviewed public administration*

Project(s)	***Name of eProcurement project(s)***
	Objectives:
	  o *Objective 1*
	  o *Objective 2*
	  o *etc.*

Technology Provider
System(s)
	Name of technology provider(s)
	Name of reviewed eProcurement system *and year it was launched*
	  o *Characteristic 1*
	  o *Characteristic 2*
	  o *Characteristic 3*
	  o *etc.*

Step Forward	Further developments comprise:
	  o *Target 1*
	  o *Target 2*
	  o *etc.*

Table 1: *Reviewed public administration* **eProcurement approach**

2.1.2 Analysis of eProcurement systems

The second phase of the analysis, constituting a study of the reviewed eProcurement systems, is carried out in three stages. The first stage provides an overall picture of the eProcurement system under review, in the second stage there is a comparison of the system functionality with the new EU public procurement legislation and state-of-the-art aspects and the last stage presents the system functionality.

The first stage of the eProcurement system analysis provides an overview of the system in a form of a table. The first three rows of the table provide an overview of the functionality (row 1), presentation of the exploitation model (row 2) and description of the types of actors (row 3). The rest of the table grows depending on the system under review, as it lists the most interesting characteristics of the system. This obviously varies from system to system, although some characteristics are common to a number of them. Characteristics include technical, as well as, procedural and operational aspects. The table of the system overview can be used in order to quickly acquire a complete picture of the system under review. The structure of the table that provides the system overview is presented hereafter.

System feature		System implementation details
Functionality overview		- *Functionality 1* - *Functionality 2* - *Functionality 3* - *etc.*

Exploitation model		- *Financial policy*
		- <u>Contracting authorities</u>:
		  o *Cost for joining the platform*
		- <u>Suppliers</u>:
		  o *Cost for joining the platform*

Actors		- *Actor 1*: responsible for the:
		  o *Role 1*
		  o *Role 2*
		  o *etc.*
		- <u>*Actor 1*</u>: responsible for the:
		  o *Role 1*
		  o *Role 2*
		  o *etc.*

Interesting system characteristics	*Characteristic 1*	- *Description*
	Characteristic 2	- *Description*
	Characteristic 3	- *Description*
	etc.	-

Table 2: [*Name of eProcurement system*] system overview

The second stage of this phase performs a comparison of the system under review with the guidelines of the new EU public procurement legislation, as well as, other state-of-the-art aspects as identified during the analysis. The comparison is presented in a form of a table. A separate table is used for each one of the three identified eProcurement system categories (individual contracts, repetitive purchasing and eAuctions). There is no such analysis for the "secondary systems" category.

These tables consider two aspects of analysis, the coverage of the different eProcurement phases (upper part of the table) and the coverage of certain legal principles (lower part of the table). In the following chapters of this report, during the introduction of each eProcurement system category, there is a presentation of the table template that will be used for the comparison. This table explains the conditions that must be satisfied in order to conclude that the system supports a particular functionality. A typical example of a table is presented here.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eProcurement phase 1 support	✖ *Functionality 1*	• Reasons for not supporting the functionality •
	✔ *Functionality 2*	• Reasons for supporting the functionality •
	✖ *Functionality 3*	• Reasons for not supporting the functionality
eProcurement phase 2 support	✖ *Functionality 1*	• Reasons for not supporting the functionality
	✔ *Functionality 2*	• Reasons for supporting the functionality
	✖ *Functionality 3*	• Reasons for not supporting the functionality
Legislative principles	**Required Functional Details**	**System Implementation Details**
Principle 1	✔ *Functionality 1*	• Reasons for supporting the functionality •
	✔ *Functionality 2*	• Reasons for supporting the functionality
Principle 2	✔ *Functionality 1*	• Reasons for supporting the functionality
	✖ *Functionality 2*	• Reasons for not supporting the functionality •
Principle 3	✔ *Functionality 1*	• Reasons for supporting the functionality

Table 3: [*Name of eProcurement system*] coverage of the new legislative framework on eProcurement

The last stage of this phase provides a description of the system functionality. This is performed using a table that presents the list of the main system functionality. Each functionality is described by the name of the underlying system activity, the actor, and the description of the activity. This table has the following layout.

Activity	Actor	Description
Activity 1	*Actor 1*	• *Details of the actions performed by the actor*
Activity 2	*Actor 2*	• *Details of the actions performed by the actor*
Activity 3	*Actor 1*	• *Details of the actions performed by the actor*

Table 4: [*Name of eProcurement system*] functionality overview

2.1.3 Analysis of eProcurement Practices

The third phase of the analysis considers the eProcurement Practices that have been identified during the previous two phases and provides recommendations. There is a categorisation of the eProcurement Practices into four groups: organisational, procedural, technical and operational. The results of the analysis are provided at the end of the presentation of each category and following the same model. This analysis is performed and presented in Volume I of the State of the Art report.

For the coverage of the legal requirements of the new European public procurement directives, compliance with the following principles has been examined:
– Tenderers receive an equal amount of information at the same time (equality of treatment)
– Contracting authorities respect the confidential nature of information (confidentiality)
– Mechanisms are supported, in order to record all system events and user activities, as well as, attempts to gain access to sensitive information (transparency)
– Operation of the system improves competition conditions for the users (effectiveness)
– Use of interoperable (compatible) electronic means, generally available on the market or broadly used in MS, thus avoiding the use of country-specific or otherwise discriminatory technologies that restrict access to tendering procedures (interoperability).
– Use of technologies to ensure the secure communication of information and its storage in system data repositories (security)

– Use of technologies which are widely available and at low cost, as well as, mechanisms ensuring continuous operation of the system (general availability)

Each Good Practice is presented in the following way.

Description	*Brief description of the Good Practice*
Functionality to be supported	*Functionality that has to be supported in order to establish the Good Practice*
Implementation approach to follow	*Implementation steps that are necessary for the provision of the functionality*
System Module	*eProcurement module that provides the functionality (eNotification, eTendering, eAwarding, eInvoicing, ePayment)*
Principles satisfied	*(Equal Treatment, Transparency, Effectiveness, Interoperability, Security, General Availability, Confidentiality)*
Risks	*Principles that may be in risk by the implementation of the Good Practice*
Input from	*Public administrations or eProcurement systems that gave input for this idea*

Number and Title of the Good Practice

At the end of the presentation of each Good Practice category, there is a discussion of the deduced results. This discussion focuses on the coverage of the EU principles by the respective eProcurement Practices of the category. A typical example of is presented hereafter.

No	[*Name of the category*] eProcurement Practices	Equal Treatment	Transparency	Effectiveness	Interoperability	Security	General availability	Confidentiality
1	*Title of the Good Practice*			✓				
2	*Title of the Good Practice*	✓		✓	?		✓	
3	*Title of the Good Practice*			✓		✓		?
4	*Title of the Good Practice*	✓	?	✓				

Table 5: Coverage of the EU legislation principles by the [*Name of the category*] eProcurement Practices

Separate symbols indicate which EU principles are satisfied by the eProcurement Practices (✓) and which are in risk (?). This presentation helps the reader to understand the main EU rules that are covered by the eProcurement Practices in each category.

2.2 Support activity

As mentioned in section 1, the execution of the Evaluation Methodology requires a wide variety of information for the reviewed systems. Furthermore, from the beginning of the analysis, it was considered very difficult for all participating countries to be in a position to supply the contractor with the full documentation requested. Therefore, the contractor has established a contingency

plan for achieving the aims of the report, even if some countries would not be in a position to provide the minimum amount of information for conducting the analysis.

Before detailing the contingency plan, it should be noted that the contractor established two mitigating activities, which are believed to have minimised the risk of introducing complications during the collection of information for the analysis.

- **Assistance by the EC:** The cooperation between the contractor and the reviewed administrations was achieved with the help of the EC. The contractor was introduced to all MS during the 4[h] IDA eProcurement Working Group meeting on 20/01/2004, where an opportunity was given to the contractor to give a presentation to all participants and explain the objectives of the current project and report. Furthermore, it was possible for participants to ask for any clarifications, as well as, volunteer in contributing to the analysis for the current report.
- **Structured communication:** The communication with the reviewed administrations was attempted to be as structured as possible, avoiding ad-hoc communications and requests to contributors. A complete of list of required documents and a questionnaire were provided to administrations, minimising the disruption contributors had to undergo, in order to contribute to the current project. For completeness, the complete list of the requested documentation and the questionnaire are presented in ANNEX A: Structured Communication (page 95).

The aforementioned mitigating activities were put in place in order to minimise the risks for complications during the collection of information. Nevertheless, when a complication arose with regard to the lack of information for a reviewed system, the contractor adopted the following contingency plan, as demonstrated in Figure 1.
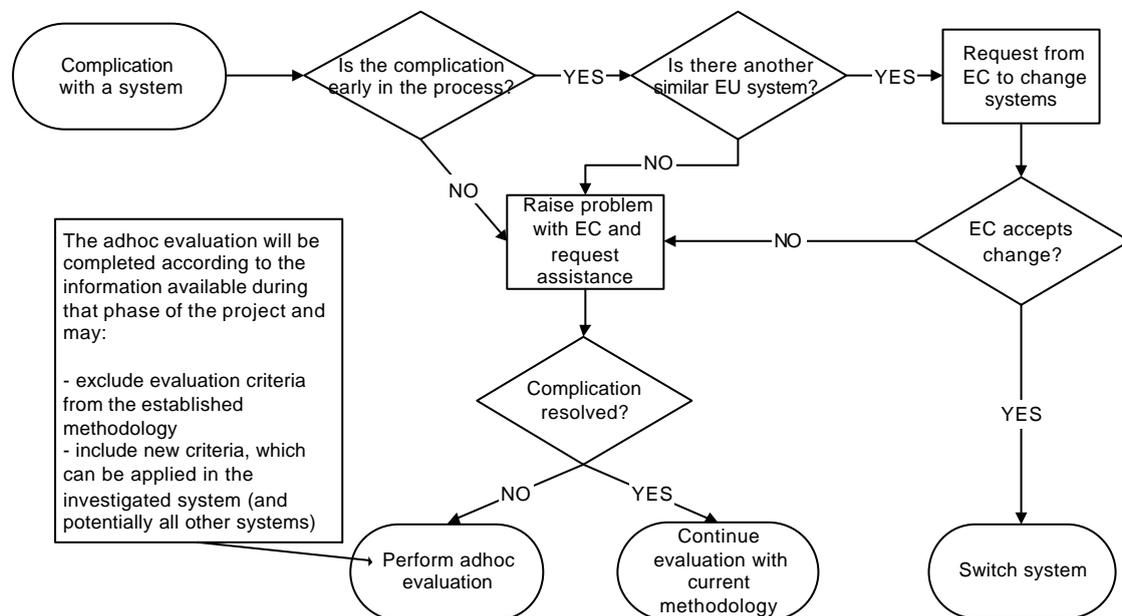
Figure 1: EU Evaluation contingency plan

3 Reviewed countries

This section provides an analysis of the public eProcurement programmes of the reviewed countries. The participating public administrations volunteered to explain the national procurement legislative framework in their countries, demonstrate the capabilities of their eProcurement systems during missions organised for this purpose, as well as, to provide technical documentation and complete a detailed questionnaire (Annex A, page 95).

The main purpose of the review was to present the various approaches followed in each country, in order to introduce eProcurement in the public sector. A lot of attention is given in understanding the reasons that led to the development of systems that support certain phases of eProcurement, the implementation strategy and the available funding of the project. This section presents a general overview of the findings in the areas of local legislation and eProcurement projects in each country.

3.1 Belgium

The Federal Public Services of Information and Communication Technologies (FedICT) is the Belgian public organisation responsible for defining the eProcurement federal recommendations. These recommendations are applicable in all three economically autonomous regions of the country (Brussels-Capital Region, Flemish Region, and the Walloon Region). In particular, the role of FedICT is summarised below:

- develop a common Belgian strategy for eGovernment projects
- establish uniform IT standards, including technical architecture and implementation methodology
- assist federal public departments to implement the strategy
- monitor the execution of eGovernment projects and services

Drawing on the laws and regulations sponsored by the FedICT, the Service Public Fédéral (SPF) of the Ministry of Defence (MoD) took the lead for the initial development and deployment of the first building bricks of the federal e-tendering initiative. This resulted in the deployment of a total of three portals. The first portal is operated by the Belgian MoD, whereas the second is implemented for all Pouvoirs Adjudicateurs du Niveau Fédéral (amongst other SPFs and equivalent federal bodies) under a wide FedICT's sponsorship. The third portal comes under the Bulletin of the Adjudications (BDA), a federal entity responsible for the publication of RFPs for all Belgian public entities, has a special role for hosting and providing an e-meeting place for all federal eNotifications. Currently, there is a common distributed government-wide portal named JEPP based on the integrated JEPP application.

In the context of this report, the approach to eProcurement followed by the Belgian MoD was reviewed and an analysis of the JEPP system was carried out. This was based on technical documentation and filled questionnaire provided by the Belgian MoD. Furthermore, an on-line demonstration of the platform was attended during a mission to the Belgian MoD, where discussion was carried out about its technical capabilities, the experiences gained through its operation, and the steps forward.

The JEPP platform provides a standardised toolbox for developing and hosting organisation-specific eProcurement portals. Through this platform, public organisations are enabled to establish a gateway to eProcurement, without significant upfront investments (software and/or hardware costs) using a "buy a little, test a little, yield a little" iterative strategy.

Feature	Description
Administration involved	Ministry of Defence (MoD)

Project(s)	**JEPP**
	Objectives:
	  o Replace paper-based public purchasing procedures
	  o Accelerate the traditional procurement processes

Technology Provider	Unisys Consulting

System(s)	**JEPP** launched during the last quarter of 2002
	  o Common platform capable of hosting several eNotification portals
	  o FedICT, MoD and BDA portals currently hosted
	  o Web-based approach
	  o Microsoft Technologies utilised
	  o Current version supports:
	    – electronic publication of notices and invitations to tenderers
	    – re-organisation of back-office processes

Step Forward	Further developments comprise:
	  o Electronic submission of tenders
	  o Secure opening, evaluation and ranking of tenders
	  o eCatalogues
	  o ePayment (referred as "ePayable")

Table 6: Belgian Federal eProcurement approach

3.2 Denmark

The Danish government bodies responsible for the development and expansion of eProcurement in Denmark comprise:

- The National Procurement Ltd (SKI), a limited company, partially owned by the Ministry of Finance (55% of ownership) and several local administrations, with main roles:
  - o To define public procurement procedures and perform procurement competitions for individual contracts and framework agreements, on behalf of the Danish public sector.
  - o To develop and maintain an eProcurement system (ETHICS), covering the full cycle of the classic procedures.
- The Agency of Government Management (AGM) under the Ministry of Finance. The primary objective of AGM is to develop systems and procedures for eAuctions and repetitive purchasing. The currently establish eProcurement platform accommodates purchases from suppliers that have framework agreements with Danish government.
- The National Audit Office of Denmark that is responsible for frequent auditing of procurement competitions and purchases within the Danish public sector.

According to a study made by AGM, Danish government agencies spend about $4 billion annually on public procurement.

In the context of the current work, the DOIP system (Den Offentlige Indkøbsportal, i.e. the Public Procurement Portal), developed and provided by gaterade.net Ltd for AGM, was considered and further analysed, for identifying interesting eProcurement Practices. DOIP supports electronic auctions and purchasing through electronic catalogues from suppliers that are under framework agreement with the Danish government. A recent extension to the system, called DOIPEI, provides advanced integration capabilities, facilitating the exchange of information between DOIP/DOIPEI and other governmental or supplier systems. DOIPEI is also developed and provided by gaterade.net Ltd.

Feature	Description
Administrations involved	Agency of Government Management (AGM)

Project	**DOIP**
	 Objectives:
	    o Model internal recurring procurement procedure workflows
	    o Integrate with governmental and supplier legacy systems
	    o Achieve savings of around $20-50 million annually

Technology Provider	gatetrade.net Ltd.

System(s)	**DOIP/DOIPEI** launched during 2002
	    o Web-based system
	    o Oracle exchange software
	    o Current version supports:
	      – electronic auctions
	      – electronic catalogues
	      – integration with back-office systems
	      – payment and logistics functionality

Step Forward	Further developments: o Integrate with ETHICS (an eTendering system)

Table 7: Danish AGM eProcurement approach

3.3 France

The government of France has set the target to modernise its public procurement mechanisms, through the enforcement of eProcurement throughout the whole French public sector. In this respect, the French parliament approved (in 2002) the New Code for the Public Procurement (NCMP), which came into force in January 2004. Furthermore, in March 2004, the French Ministry of Finance announced the creation of a Central Purchasing Body, aiming to assist contracting authorities for electronically purchasing their commodities (stationary, IT equipment, furniture, etc.), under centrally arranged framework contracts (initially effective only for the French Ministry of Finance).

According to the NCMP, all contracting authorities must be able to accept tenders submitted electronically by 1st January 2005. The NCMP defines four types of contract awarding procedures:
- Calls for tenders, foreseeing an open or restricted procedure
- Negotiated procedure, through competition with or without notification
- Simplified competitive dialogue, where the procurement agency specifies its needs with the aid of selected suppliers, before creating a competition
- Contracts without prior formalities, for low-cost standard recurring purchases for common frequent commodities

In the context of the current work, the e-achat platform was studied. e-achat is developed and operated by the General Delegation for the Armament (DGA), of the French Ministry of Defence (MINDEF). DGA is the most important purchasing authority in France, with a large volume of operations for 2002 (73 armament programmes, €11.8 billion of purchases, €7.2 billion of payments, and €905 million of intervention fees). Following significant re-structuring during the last three years, due to the re-engineering of their internal business processes with the adoption of eProcurement, DGA currently employs 18,000 personnel. The following table provides an overview of the platform.

Feature	Description
Administration involved	General Delegation for the Armament (DGA)

Project	**e-achat** launched in 2000
	Objectives:
	  o Provide a fully operational electronic procurement platform, for the 200 procurement agencies of MINDEF (initially used by the 40 agencies that are directly attached to DGA)
	  o Reduce administrative and bureaucracy costs
	  o Reform internal procurement procedures, by automating their paper-based processes
	  o Improve transparency of public procurement
	  o Secure exchanges between suppliers and procurement agencies
	Estimated gains:
	  o €10 billion from the costs of the armament programmes
	  o 31% reduction of the intervention fees

Technology Provider	Consortium led by:
	  o Capgemini France
	  o France Telecom

System(s)	The Defence Public Sector Marketplace (DPSM) which integrated two armament portals was launched in 2003, facilitating the organisation of competitions, the publishing of call for tenders notifications, and the submission of tenders:
	  o **ixarm.com**: used for the procurement of arms, ammunition and other combat related supplies
	  o **achats.defense.gouv.fr**: covering the remaining defence procurement needs (furniture, construction works, fuel, medical equipment, etc)
	
	There exists support for private network establishment, between all involved parties, for secure repetitive purchases (e.g. parts of Rafale fighting aircraft)
	
	eAuction and eCatalogues services are currently offered through a third party platform (Answork)

Step Forward	Further developments:
	  o Further promote the efficient use of eCatalogues services, by purchasing agencies
	  o Entice more suppliers to participate in eAuctions
	  o Implement eAwarding and eOrdering/eInvoicing functionality
	  o Create interfaces with internal back-office systems

Table 8: French MINDEF (DGA) eProcurement approach

The purchasing policy of MINDEF is based on open and fair competition. To enforce this principle for the procurement of defence equipment, there is a tendency for MINDEF selecting prime contractors without competition and assigning them responsibilities to organise a competitive tendering procedure on behalf of MINDEF. In such cases, the MINDEF negotiates with prime contractor the certain conditions, under which the competition will be organised between sub-contractors. This process aims at securing equality of treatment between all MINDEF sub-contactors.

During the last year, the use of the two eProcurement portals has been spread among the different procurement agencies of MINDEF. In this respect, e-achat platform has been recently proposed by the French Prime Minister services, as a global government-wide solution, to be used by the French pubic sector.

3.4 Italy

The body responsible for the development of eProcurement in Italy is an independent agency called Consip (Concessionaria Servizi Informativi Pubblici - Public Information Services Agency). Consip is a limited joint-stock company owned by the Italian Ministry of Economy and Finance that provides consultancy and IT solution management in the field of eProcurment. Consip's primary objectives comprise:

- Provide assistance in the development and optimisation of IT eProcurement solutions, for becoming available to all central and local contracting authorities in Italy
- Modernise the procurement procedures of the Italian public sector
- Renovate the internal IT systems of the Ministry of Economy and Finance

The 2000 Finance Act adopted by the Italian government presented opportunities for the Italian contracting authorities, by service level agreements with suppliers, by simplifying/automating their internal business processes. The Act introduced new procurement procedures for the Italian public sector and required the functionality to be supported for the electronic supply of goods and services by government contracting authorities. It formed the legal basis for the appointment of Consip (in February 2000) as the responsible body for the implementation of eProcurement systems for the Italian public sector. All central government agencies in Italy are obliged to use Consip's systems, whereas other public bodies (municipalities, hospitals, universities, etc.) are also offered the opportunity to utilise them.

An overview of the Italian eProcurement approach developed by Consip (based on the 2000 Finance Act and the DPR 101/2002 Act that regulates online auctions and eMarketplace systems) is presented below.

Feature	Description
Administration involved	Consip (Concessionaria Servizi Informativi Pubblici)

Project	**eProcurement** launched in 2000 with an initial investment of €25 million
	
	Main objective: to ensure "best value for money" for contracting authorities, through open and fair competitions
	
	Over 40,911 registered contracting authorities
	Orders handled between August 2002 and December 2003 exceed 91.200 for a value of €3,2 billion
	
	Estimated gains (cumulative savings at December 2003):
	   o 36% average savings when buying online
	   o €1,5 billion savings on administrative costs

Technology Providers	o EDS o IBM

System(s)	**Lotto 1 (Lottery 1)** launched in 2000
	   o Electronic Auctions
	   o Oracle Exchange
	   o Supports automatic evaluation of bids
	
	Lotto 2 (Lottery 2) launched in 2000
	   o Repetitive purchases system
	   o Oracle Exchange
	   o Supporting purchases through electronic catalogues, for contract values below EU threshold
	   o Supports Requests for Quotation (RFQs)

Step Forward	Further development of eProcurement systems to ensure that by 2005, half of total public procurement of goods and services is carried out electronically

Table 9: Italian Consip eProcurement approach

3.5 Norway

The Norwegian procurement legislation favours decentralised public procurements, with the largest volume of framework agreements procured solely by public sector entities, at local or regional level. Centrally procured framework agreements are applicable only under special circumstances. The underlying reasoning for this regulation is to enhance the procurement of goods and services from SMEs, since centrally procured framework agreements commonly include large product/service volumes that can be fulfilled only by large corporations.

The Norwegian Ministries of Labour and Government Administration (MLGA) and of Trade and Industry (MTI) are responsible for implementing public sector purchasing policies and developing/operating eProcurement systems for the public sector.

In the context of the current European State-of-the-Art report, the eProcurement project of the Government Administration Services (GAS) was analysed. GAS is an underlying entity of MLGA responsible for the definition and execution of the "Programme for Electronic Commerce in the Norwegian Public Sector". The main objective of this Programme is to introduce eCommerce into all governmental organisations. The main project launched under this Programme was the eMarketplace ehandel.no (launched in 2001), which is summarised in the table below.

Feature	Description
Administration involved	Government Administration Services (GAS)

Project	**eMarketplace ehandel.no** (ehandel) launched in 2001
	
	Limited initial investment of €1.9 million over five years
	
	Objectives:
	  o Provide public sector entities and their suppliers with easy access to an affordable and easy to use eProcurement solution
	  o Develop a modular application to be the cornerstone for any future extension
	  o Achieve self-funding operation due to limited budget

Technology Provider	Integrated Business Exchange (IBX)

System(s)	**ehandel - eOrdering** system became operational in 2002:
	  o Repetitive purchases system
	  o CommerceOne, SAP, Poet and others
	  o Currently supports
	    – purchases of goods and services under existing framework agreements or by free text search in catalogues and using round trip
	    – advanced reporting capabilities
	    – datawarehouse solutions

Step Forward	Further developments comprise customisation and pilots for **eSourcing** and **eAuctions** system supporting:
	  o eProcurement under individual contracts
	  o Supplier identification/sourcing
	  o RFIs, RFPs and RFQs (request for Invitations, Proposals and Quotations)
	  o eAuctions
	  o Framework agreements and dynamic purchasing system (DPS)
	  o Contract management

Table 10: Norwegian GAS eProcurement approach

3.6 Spain (Basque country)

The Basque Country is an autonomous community (2.100.000 habitants) of Spain, with its own regional government, which exercises several authorities including public finance, education, culture, health, security, industry, etc. The Basque Government has an annual budget of €2.25 billion for public procurement, which represents a 33% of the government budget (€1.9 billion of operational costs and €350 million of real investment).

The Royal Decree Law 2/2000 establishes the environment for public procurement in Spain. Three types of intermediaries are involved in the administrative procedure of public procurement of the Basque Government:

- Government Procurement Bodies (about 150): responsible for defining global government procurement needs for the Departments of the Basque government and decide on issues related to them
- Markets Commissions (about 100): responsible for assisting Government Procurement Bodies on legal issues
- Technical services (as many as the government departments and agencies): responsible for defining needs and consulting the previous two on technical issues

For all public procurement above a certain threshold the responsible market commission is the Central Commission for Public Procurement (CCPP) of the Department of Finance and Public Administration. Furthermore, the Consultative Council for public procurement administrative procedures acts as a central counselling body.

In 2000, the Department of Finance and Public Administration of the Basque Government launched the eContratacion (eContracting) project with prime objective to provide Basque contracting authorities with all necessary services for electronically performing their procurement activities. The following table presents an overview of the eContratacion project.

Feature	Description
Administration involved	Department of Finance and Public Administration (DFPA)
Project	**eContratacion** launched in 2000 Objectives: o Improve performance of public procurement and minimise administration costs o Improve level of public services o Standardise public procurement methods o Encourage competition in an open and efficient environment o Promote eCommerce and the use of digital signatures
Technology Provider	o EJIE (Basque Government Information Society)
System(s)	**- eContratacion eTendering** Currently supports contract notification and procurement of individual contracts **- eContratacion eMarketplace** A repetitive purchases system that currently supports purchases under framework agreements through supplier eCatalogues **- Suppliers Registry** Database of fiscal and juridical information about registered enterprises - **Procurement Procedure and Documentation File Manager** Tendering procedure management system
Step Forward	Further developments comprise: o Contracts Registry o Application for tracking online proposals status by tenderers

Table 11: Basque government eProcurement approach

3.7 United Kingdom

The UK public eProcurement rules, guidelines, and standards are primarily introduced by the Office of Government Commerce (OGC), an independent Office of the Treasury. The OGC was formed in 1999, with an aim to improve the efficiency of public procurement in the UK. The main activities of OGC comprise the following:

- Development of government market in UK following an efficient and transparent approach, for attracting both local and oversees suppliers
- Definition of guidelines and establishing of standards from existing eProcurement Practices, resulting in eProcurement platforms for the public sector, adopting the principles of equal treatment and openness
- Provision of efficient IT services for supporting the procurement business of contracting authorities
- Offering assistance to public administrations for developing their eProcurement systems in compliance with UK procurement legislation

In the context of the current work, the UK eProcurement policy and systems adopted by OGC have been examined, as summarised in the table below:

Feature	Description

Administration involved	Office of Government Commerce (OGC)
	
	OGCbuying.solutions agency created in 2000
	  o Providing legal and organisational support to contracting authorities
	  o Purchasing IT services from 3rd party companies
	  o Defining set-up and subscription fees for participating contracting authorities
	  o Ensuring that services offered follow UK government standards, with regard to security and interoperability
	  o Estimated gains: 20-25% average savings, when buying online through eProcurement service

Project	**eProcurement Strategy** launched in October 2002
	
	Three streams identified:
	  o eProcurement Tools: use of Commercial Off The Shelf (COTS) tools
	    – enable procurement and sourcing processes
	    – purchase IT service from providers to cover functionality needs
	
	  o Zanzibar (eHUB/Purchase-to-Pay)
	    – establish the Purchase-to-Pay system (eCatalogues system)
	    – develop transactional hub for system-to-system integration
	
	  o Change Management
	    – establish government supplier adoption programme
	    – develop the eProcurement Assessment Tool (ePAT) to conclude the status of eProcurement in the UK public sector

Technology Provider	N/A
System(s)	5 different 3rd party eAuctions services: - Currently supporting electronic auctions
Step Forward	Further developments: - Project for establishing eSourcing service, covering the procurement of individual contracts, following the same strategy of the existing eAuction services

Table 12: UK – OGC eProcurement approach

3.8 United Kingdom (Scotland)

Acting as the administrative arm of the Government of Scotland since its establishment, in 1999, the Scottish Executive is involved in different public sector management activities, comprising health, justice, education, rural affairs, and transport. The Ministry for Finance and Public Services of the Scottish Executive is responsible for the public spending in Scotland, as well as, for establishing the procurement policy applied for all public sector procurement.

In November 2001, the Scottish Executive launched the eProcurement Scotland (ePS) project, with main objective to provide contracting authorities with all necessary services for performing electronically their procurement activities. The following table presents an overview of the ePS project.

Feature	Description
Administration involved	Scottish Executive

Project	**ePS** launched in 2001
	
	Objectives:
	  o Develop an open eProcurement platform accessible to all public sector buyers and suppliers
	  o Cover all the phases of eProcurement lifecycle
	
	Supports a Supplier Adoption initiative: a methodology to assist suppliers convert their business procurement operations to electronic processes
	
	Applies set-up and subscription costs for participating contracting authorities

Technology Provider	o Cap Gemini Ernst & Young o Elcom
System(s)	**Dynamic Trade Centre** (DTC) Currently supports procurement of individual contracts **PECOS** A repetitive purchases system that currently supports purchases under framework agreements **Supplier Adoption Database** An application for assisting the adoption of suppliers to eProcurement following an established methodology **eCatalogues converter** An application used for transforming electronic catalogues maintained by suppliers into PECOS format

Step Forward	Further enhance the functionality supported by DTC:
	  – preparation of PINs
	  – Web Forms for PQQ and bid submission
	  – Automated scoring

Table 13: Scottish Executive eProcurement approach

3.9 Other Countries

This section summarises interesting eProcurement implementation approaches adopted in Finland, Hungary, and Sweden. These countries provided information in the context of the current State-of-the-Art review; however no systems were offered for further analysis and identification of eProcurement Practices. The details presented in this section are based on information transmitted by the reviewed administrations. Due to the limited information, the sections related to Finland and Hungary do not contain tables describing their current status.

3.9.1 Finland

The Trading House Hansel, a government-owned company, is responsible for the development of the Sentteri eProcurement system, which is based on the principles and procedures described in the Finish Public Procurement Act. Sentteri covers the complete procurement lifecycle. Approximately five thousand contracting authorities issue calls for tenders through Sentteri system, settling more than two hundred tenders per year and creating an annual total purchasing value of €168 million.

The system is developed in distinct modules. The two most important modules comprise:
- **Tenderi**: it fully supports the eTendering phase of eProcurement. It provides assistance to contracting authorities for preparing their tenders and sends automatic notification to suppliers, containing information about tenders matching their profile. Potential suppliers can also receive tendering forms electronically and submit their tenders using web-forms. The system automates procedures related with assessment and evaluation of tenders, produces administrative reports, and creates the necessary documents associated with contract awarding.
- **Merkaattori**: it is an electronic ordering system based on eCatalogues that facilitates the purchasing of goods and services under framework agreements, by Finnish public sector.

The main features of Sentteri are summarised below:
– Provides to suppliers access to call for tenders notices
– Facilitates contracting authorities to enter their notifications online
– Employs weighting factors and tendering criteria for evaluation of tenders
– Supports the online submission of tenders and their locking until the pre-defined tender opening time
– Facilitates the electronic opening of tenders only by an authorised person
– Creates all necessary administrative documents for the awarding authority
– Facilitates the automatic forwarding of the appropriate documents to recipients, including the selected and unsuccessful tenderers.

The use of the system does not impose any fees to suppliers, while contracting authorities pay fees only in case they require custom-made implementations (the "out of the box" operation of the system is offered at no cost to contracting authorities).

Even though the system was initially developed to serve the needs of public procurement in Finland, foreign suppliers expressed their interest to participate in public contests. This can be enabled by the fact that the system currently supports the English language; although at the moment the contracting authorities do not use this feature.

The system is implemented using Microsoft ASP technology. Special care was given to the development of security, aspects and in particular to the support of an enhanced auditing mechanism for all eProcurement activities.

3.9.2 Hungary

Comments of the Hungarian administration focuses in particular to product categorisation and the use of CPV codes. The Republic of Hungary introduced their current public procurement legislation in 1995. Drawing on this legislative framework, the government established the institute of Centralised Public Procurement (CPP) for supporting centralised procurement activities for all public entities that are directly dependent on government budget. In order for CPP to aggregate the volume of public procurement, all public entities are obliged to provide notices on their procurement requirements for CPP launching of procurement procedures.

During the preparation phase for the introduction of electronic procurement to the public sector, the Hungarian government realised that the lack of a clear classification hierarchy for goods and services prohibits the preparation of quality product catalogues and creates obstacles to the systematic statistical analysis of government spending. The technology provider of the Hungarian government attempted to utilise UN/SPSC classification schema; however the problem of combining products with existing contracts under a common classification schema remained unsolved.

Following this failed attempt, CPP decided to introduce a new classification hierarchy, which relies on the current structure and relevant practices followed in the Hungarian market, and correlates product categorisation codes with product attributes. This hierarchy is dynamic and display cross-references to other similar hierarchies (UN/SPSC, CPV, E-CLASS, etc). According to this, each product will be associated with product attributes, which will be used for classifying the products into 3 or 4 categories.

3.9.3 Sweden

Public procurement in Sweden is decentralised. At central level, the Swedish Agency for Public Management (Statskontoret) is charged by government to coordinate public procurement. County councils and municipalities, however, have an independent status and are generally free to organise procurement within their respective area of competence. They often act on their own, or sometimes they collaborate locally/regionally or through the national Associations/Federations.

When initiating the first large-scale public eProcurement project in Sweden, involving representatives for state counties and municipalities, it was recognised that one common system would not fit the Swedish procurement practice. Instead, the project set focus on the development of common specifications and engaged some IT suppliers to develop systems and services to compete on the market.

When the project terminated, the results were taken over by a Committee, representing all three levels of government, and the work has since then been carried on under the name of Single Face to Industry (SFTI). Its programme of work covers activities like awareness and promotion of eProcurement, identification of common requirements, development of standards and working practices and encouragement to IT suppliers to develop of systems and services supporting the specifications. The official web site is http://www.eh.svekom.se/.

Several IT suppliers developed additional or even alternative solutions based on their market expectations. One conclusion is that interoperability and integration issues have to be high on the SFTI agenda. Statskontoret's user questionnaires show that the SFTI organisation has achieved the best result, in terms of eProcurement implementations, at the local and regional levels According to a survey in May, 2003, 73 local authorities/municipalities out of 290 (250 answered the survey) had initiated eProcurement initiatives (mostly ordering-invoice process). Further 50 had taken a decision to begin with eProcurement and 70 others could consider beginning within the next few years. Many municipalities and county councils have also initiated eProcurement projects (e-tendering and e-awarding phases).

The SFTI (Single Face to Industry) initiative recently adopted standards for "simple" electronic invoicing targeting, among others, SMEs and other users that so far have been reluctant to engage in EDI. SFTI is not a "system", but support to systems. One of the cornerstones of the specification is a basic transport profile, the SFTI transport profile Bas.

The specification is based on the ebXML Message Service Specification and parts of the ebXML Business Process Specification Schema. Although developed for the "simple" e-invoicing purpose, it may be used for any kind of message as long as it is defined by a formatted specification schema.

The specification has intentionally been kept at the basic level, so that it has a potential for wide-spread implementation with limited resources on heterogeneous systems and based on knowledge and technology that is commonly available. Users, who require additional features, for example regarding security, can upgrade within the ebXML framework from this profile.

SFTI so far has given priority to the post-contract phases of eProcurement compared to the early ones. The argument for this decision is simply that they are transaction-intensive with only small variations in the data exchanged.

With regard to publication of notices, service providers already offer competitive solutions to contracting authorities, including significant electronic communication with OJEU. For invitation to tender and bidding, an in-depth SFTI study was carried out but not over implementation, pending the implications of new public procurement directives. Nevertheless, a couple of software suppliers offer tendering platforms based on vital parts of the concepts. The case of Ekerö municipality and the University of Lund can serve as an example of this type of developments. The system that is used by the University of Lund and other universities has functionality for electronic submission of tenders as well as automatic evaluation of tenders. The report from the study can be obtained from http://www.eh.svekom.se/english/reports.htm.

In Sweden framework agreements are common. The core of developments by SFTI relates to a scenario of interrelated transactions for price lists, orders, order responses, delivery advices and invoices exchanged under such framework agreements. Two approaches are supported: a) the use of a central catalogue/price list operated either by the buyer or a third party b) supplier-maintained catalogues. In the latter case orders can be placed directly on a supplier's web site or via a punch-out mechanism.

Another main scenario profile covers periodic invoicing of bills (energy, telephone, etc.).

In the initial work the emphasis was put on interface specifications, while in later work systems internal requirements and functionality has been given more attention. A general conclusion has been that establishing electronic data exchange itself is not enough; in order to tap the benefits of electronic public procurement, system functions and routines may need to be reviewed.

Another experience is the fact that the heterogeneous group of suppliers can not be expected to fit into one common way of working, with the same degree of automation – the incentives for switching over to eProcurement differ. The electronic scenarios that were first drawn up take care of high-volume relations but they are not cost-effective for the low-volume ones. In a recent development SFTI has developed a simple electronic invoice for use in such relations. It is based on XML technology and the plan is to encourage IT suppliers to implement it in their standard applications so that parties to trade can start invoicing in new relations with minimal set-up efforts.

Information about the IT solutions that are based on the SFTI standard for public sector and their suppliers are available at http://www.eh.svekom.se/.

One example from Sweden regarding the use of electronic signatures in the eProcurement phase is ChamberSign. ChamberSign is an international organisation with presence and associations with local Chambers in many countries within the EU. ChamberSign has created a secure international environment where certified enterprises can carry out online procurement. In Sweden the municipality of Ekero and the Third National Pension Fund (AP 3) are already using ChamberSign´s solution for eTendering.

The following table presents an overview of the Swedish eProcurement approach.

Feature	Description
Administration involved	The Association of Local Authorities, The Federation of County Councils and The Swedish Agency for Public Management
Project	SFTI – Single Face To Industry Objectives: o Development of common eProcurement specifications o Promotion / encouragement of the use of eProcuremnet in Sweden
Technology Provider	Several IT suppliers; each contracting agency/public buyer decides on its own eProcurement solution
System(s)	Joint **SFTI** specifications, current versions support - electronic catalogues under framework agreement - interaction with back-office systems - invoicing. Initiative by individual authorities or operators offer additional eProcurement features
Step Forward	Further SFTI developments comprise: − Involvement of more buyers and suppliers − New technology and simplified start-up processes

Table 14: Swedish eProcurement approach

4 Electronic Procurement Systems

This section provides an in-depth analysis of the selected eProcurement systems, summarising their main functional capabilities and noteworthy technical features, as well as, examining their level of compliance with the new legislative framework. For presentation purposes, the systems are classified under four different categories, according to the eProcurement procedures they support:

- **Individual Contracts**: systems that support the notification, submission, and/or awarding phases of eProcurement, under the open, restricted, or negotiated procedures.
- **Repetitive Purchasing**: systems that support procurement through framework agreements, eCatalogues, or marketplaces resembling the DPS mechanism. Main attributes of such systems presented include among others the order approval workflows, the integration with legacy systems of suppliers, eInvoicing, and ePayments.
- **eAuctions**: systems that support eAuctions, featuring the preparation of competition criteria, the definition of bid evaluation functions, the support for online bid submission, and the automated ranking of bids.
- **Supplementary systems**: they comprise peripheral systems that enhance the existing functionality of operational eProcurement systems; however, without modelling any specific eProcurement activities.

4.1 Individual Contracts

According to the new public procurement legislation, individual contracts can be awarded through the following procedures:
- **Open:** all interested suppliers can participate in an open procedure competition.
- **Restricted:** all interested supplier can request to participate in a restricted procedure competition. Only the ones invited by the contract authority may submit a tender.
- **Negotiated:** the procedure whereby contracting authorities consult the Economic Operators of their choice (three or more) to negotiate the terms of the contract. The negotiated procedure may be followed in exceptional circumstances, detailed in the EU public procurement directives.

The foreseen phases under the procurement of individual contracts comprise:
- **eNotification**: concerns the preparation and publication of tender documentation (including the definition of the tender evaluation criteria).
- **eTendering**: concerns the publication of Additional documents (Questions & Answers session), publication of corrigenda, supplier short-listing, safe and authenticated submission of tenders, and secure tender-locking until a pre-defined opening time.
- **eAwarding**: concerns the tender opening procedure, the subsequent evaluation based on per-defined criteria, and the publication of the contract award notice.

Table 15 summarises state-of-the-art functional features to be offered by an eProcurement system supporting individual contracts. The following notation is followed:
- First column displays the main phases of eProcurement life-cycle and primary principles to be satisfied. This column is common for all systems.
- Second column lists the required functionality associated with each phase or principle. This column is common for all systems under the same category. It also contains boxes to tick, in case the specific functionality is supported.

- Third column provides a description on how the reviewed system addresses the required eProcurement functionality. In the following table, the information available in the third column explains the functionality required under the new legislative framework.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eNotification support	? Documentation preparation	• Online preparation of tender documentation
	? Contract Notification	• Call for tenders notification publication
	? Integration to OJEU	• Automated publication of call for tenders notification to the OJEU
eTendering support	? Request to participate	• Online Expression of Interest (EOI)
	? Short listing of tenderers	• Online supplier qualification
	? Invitation to tender	• Online response to the EOI
	? Tender submission	• Online submission of tenders
	? Updating of tenders	• Online updating of submitted tenders
	? Locking of tenders	• Automated secure locking of submitted tenders, until predefined opening time
eAwarding support	? Tender opening	• Secure opening of submitted tenders
	? Tender evaluation	• Online evaluation of tenders
	? eAuctions	• eAuction competition
	? Contract Award	• Online process for awarding contracts
	? Award Notification	• Publication of contract award notification
Back Office support	? Pre-defined reports	• Reporting capability
	? Monitoring of logs	• Analysis of system logs (audit trailing logs)
	? Statistical analysis	• Sophisticated statistical capability
Legislative principles	**Required Functional Details**	**System Implementation Details**
Equal amount of information	? Automated notification	• Automated user alerting for important events
	? Questions & Answers	• Online execution of Q&A sessions
Pan-European standards	? International Coding	• Categorisation according to international hierarchical coding systems (CPV, UN/SPSC, etc.)
	? Document standards	• Standard document file formats
Unrestricted access to information	? Full competition documentation	• Publication of details for complete procurement process
Interoperability	? System accessibility	• Ease of access to the system
	? No software/hardware requirements	• No cost-related software/hardware prerequisites to access system
	? Multilingualism support	• Multiple character sets
	? Localisation parameterisation	• GUI parameterisation (currency, date/time format, units of measure, etc.)
Confidential nature of data	? User profiles	• Restricted access to data according to user profile
Restrict access to tenders	? Locking of supplier tenders	• Instant locking of submitted tenders
	? Encryption of stored tenders	• Secure storage of submitted tender
Four eyes principle	? Two officials to open tenders	• Opening of tenders by simultaneous action of at least two physical persons
Authentication	? Authentication of tenderers	• Proof of user identity
Call for Tenders specifications	? Tenders compliant with call for tender specification	• Acceptance of tenders which conform to the call for tenders specification
Security	? Usage of SSL	• Minimum security level for data transmission
	? Data encryption	• Secure storage of all sensitive information
	? Digital Signatures	• Application of digital certificates
Audit Trail / Traceability	? All user actions recorded in system logs	• Automated storage of all system event details
	? Detection of tampering attempts	• Mechanism for monitoring infiltration attempts
Time-stamping	? Official time	• Integration to 3rd party, for official guarantee

Table 15: Features that establish the uniformity of an Individual Contract system with the new legislative framework on public procurement

4.1.1 DTC – Scottish Executive (UK/Scotland)

The Dynamic Trade Centre (DTC) offered by the Scottish Executive is an eProcurement system currently covering the phases of eNotification and eTendering. DTC fully supports the processes of negotiated competitions with/without notification, the submission, and the opening of tenders for individual contracts. DTC is an "off-the-shelf" system (Elcom's eRFx), configured according to the workflows of the Scottish regulations on eProcurement. The system offers built-in functionality for automatically evaluating tenders and organising eAuctions. However, this functionality is not activated at the moment. The following table presents an overview of the most important features of the DTC system.

System feature		System implementation details
Functionality overview		- Negotiated with/without notification competitions - Submission of tenders - Opening of tenders - Online evaluation of tenders (not currently activated) - eAuctions (not currently activated)

Exploitation model		- Subscription fees for contracting authorities
		- <u>Contracting authorities</u>:
		  o Set-up fee of about £80.000
		  o Annual subscription is £60.000 in the first year, gradually reduced to £45.000 for the sixth year
		  o Fees include analysis of estimating expected savings, due to the utilisation of the system
		  o Fees also include the usage of PECOS and other ePS secondary applications
		- <u>Suppliers</u>:
		  o No cost

Actors		- <u>Buyer</u>: responsible for the:
		  o Creation of tender documentation
		  o Notification of supplier base for upcoming competition
		  o Answering to supplier questions
		- <u>Supplier</u>: responsible for the:
		  o Downloading of the Pre-Qualification Questionnaire (PQQ) and Invitation to Tender (ITT)
		  o Uploading of the completed PQQ and bidding documentation

Interesting system characteristics	**Technology used**	- Hosted service developed based on Java technologies
	Security policy	- Authentication is performed through the use of user credentials (username and password) - Use of SSL for secure communication - No use of digital signatures

	Means of communication	- Email is the primary communication medium used for:
		  o Reporting the stage of each competition (i.e. updated documents, new questions and/or answers, etc), but not for exchanging documents with sensitive information
		- Each supplier has a functional "inbox" within the system, allowing for the:
		  o trailing of all previous communications
		  o monitoring email communications that have not been read

	Documents	- System treats documents as attachments, which can be of any type - Call documentation and tenders are prepared offline utilising commercial programs - No technical solutions for virus infected or corrupted offers

	Tender box	- Submitted tenders are stored in a "tender box", which is used for the:
		   o Secure locking of tenders
		   o Denial of access to users, until pre-defined tender opening time
		   o Tenders are not encrypted while locked by the tender box
		   o Automatic opening of tenders
		 - Stored tender documents are not encrypted
		 - Tenders open automatically, not following the four eye principle

	Offline activities	- Both online and offline activities are supported during the tendering period - Suppliers can chose to download the call documentation online and then submit the tender offline, and vice-versa
	Multilingualism	- Uploaded call documentation can be in any language - The GUI of the system is provided only in English

Table 16: DTC system overview

4.1.1.1 DTC state-of-the-art features assessment

The following table presents an assessment of DTC features against the state-of-the-art, as required by the new legislative framework, or identified during the analysis of the current project. The upper part of the table presents all functional aspects in terms of the eProcurement lifecycle, while the lower part demonstrates overall technical qualities of the system.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eNotification support	✖ Documentation preparation	• Documents prepared offline • No workflow support • Document templates assist users to compose the PIN
	✓ Contract Notification	• Suppliers are notified via email • Suppliers can download the tender documentation from the relevant section • No build-in publication board
	✖ Integration to OJEU	• No automated publication to OJEU
eTendering support	✓ Request to participate	• Suppliers can prepare an RTP offline and then upload it on the designated upload section
	✖ Short listing of tenderers	• Short-listing is performed offline • The system can support automated evaluation of Web Forms, which is in the future plans of enrolment
	✓ Invitation to tender	• Achieved via email
	✓ Tender submission	• Suppliers can prepare tender documentation offline and then upload it on the designated upload section
	✓ Updating of tenders	• Suppliers can update their tender documentation offline and then upload it on the designated upload section. The previous version of the tender documentation is automatically deleted
	✓ Locking of tenders	• "Tender box" functionality locks the tenders • Tenders remain inaccessible by system users, until the tender opening time • Tenders are not encrypted - they can be accessed only by system administrators

eAwarding support	✓ Tender opening	• "Tender box" functionality opens tenders automatically, when the tender opening time arrives • Tender opening time can be modified by the buyer • The Four Eyes Principle is not supported. • The opening of technical and financial offers in two phases is not supported
	✗ Tender evaluation	• Evaluation is performed offline • The system can support automated evaluation if Web Forms are used, which is in the future plans of enrolment
	✗ eAuctions	• Not supported
	✗ Contract Award	• Not supported
	✓ Award Notification	• Performed manually and published on the bulletin board
Back Office support	✓ Pre-defined reports	• Can produce reports for a competition
	✗ Monitoring of logs	• Cannot create reports from system logs
	✗ Statistical analysis	• Does not support statistical analysis of data
Legislative principles	**Required Functional Details**	**System Implementation Details**
Equal amount of information	✓ Automated notification	• Achieved through email
	✓ Questions & Answers	• System supports a bulletin board for Q&A sessions
Pan-European standards	✓ International Coding	• Notifications abide to CPV standards
	✗ Document standards	• Does not support specific document standards • Tender documents are treated as attachments, which can be of any type • There is no virus protection mechanism
Unrestricted access to information	✓ Full competition documentation	• Competition details are published in the eNotification phase • Training and user manuals are available for educating suppliers on how to use the system
Interoperability	✓ System accessibility	• Web-based system
	✓ No software/hardware requirements	• Only an Internet-enabled PC is required
	✗ Multilingualism support	• System is only in English • Call documentation and tenders can be in any language (currently in English)
	✗ Localisation parameterisation	• Does not support localisation of GUI
Confidential nature of data	✓ User profiles	• User authentication is performed through the use of username and password • User profiles define the data that each user has access to
Restrict access to tenders	✓ Locking of supplier tenders	• "Tender box" locks tenders as soon as they are uploaded by suppliers
	✗ Encryption when tenders are stored	• Tenders are not encrypted
Four eyes principle	✗ Two officials to open tenders	• Tenders are unlocked automatically when the tender opening time is reached
Authentication	✓ Authentication of tenderers	• Through the use of credentials
Call for Tenders specifications	✗ Tenders compliant with call for tenders specification	• Tenders are free-text documents and there is no automated mechanism to ensure compliance with call for tenders specifications
Security	✓ Usage of SSL	• Enabled
	✗ Data encryption	• Not supported
	✗ Digital Signatures	• Not supported

Audit Trail / Traceability	✓ All user actions recorded in system logs	• Enabled
	✗ Detection of tampering attempts	• No mechanism to detect infringements
Time-stamping	✗ Official time	• Not supported

Table 17: DTC coverage of the new legislati ve framework on eProcurement

4.1.1.2 Analysis of DTC system functionality

This section presents in a systematic manner the functionality supported by DTC. The functionality is presented under a workflow of activities, from the creation of call documentation to tender opening, for the Buyer and the Supplier actors supported by the system.

Activity	Actor	Description
Creation of call documentation	Buyer	• Call documentation is currently created offline, usually in PDF files and then uploaded onto the system • No workflow support for assisting the user to create the required documentation • No workflow for the hierarchical approval of documentation • Pre-defined templates can guide the buyer into completing the required notification documents • DTC supports the online creation of call documentation and tenders, utilising customisable Web Forms (not currently used) • Web Forms will be considered as a future enhancement and will occur in a phased approach • Web Forms will allow the automated evaluation of tenders and Pre-qualification questionnaires (PQQs)
Notification for Negotiated with advertisement Procedure	Buyer	• Notification of suppliers achieved via email • Buyer needs to input all email addresses of the required suppliers • System emails the selected suppliers with details on how to register
Registration	Supplier	• Once receiving an email, a supplier can register into the system • Registration does not require any complicated information on behalf of the supplier. • No costs are involved
Browsing Questions and Answers / Posting Questions	Supplier	• System supports Q&A sessions by providing the functionality of a standardised bulletin board, moderated by staff of the buyers • Supplier can browse through the Q&A session and gain access to all published questions and answers • Supplier can post a question to the bulleting board • All questions are moderated by the buyer (if a question is not approved by the buyer, it is not accessible by suppliers)
Answering Questions	Buyer	• Buyer needs to validate (approve or modify) a question, as posed by a supplier before providing an answer (for ensuring confidentiality) • As soon as a question is replied by the buyer, it is visible by all suppliers, thus ensuring equal treatment
Updating call documentation	Buyer	• When call documentation is modified, all participating suppliers are notified via email, as the system is aware of all suppliers that downloaded previous versions
Tender submission	Suppliers	• Tenders are prepared offline and then uploaded to the system • Tender documentation is usually prepared in PDF format but system can accept any file format • Once a tender is uploaded onto the system, it is locked and inaccessible until the tender submission deadline and the opening of tenders
Updating tender documentation	Supplier	• Tender documentation can be updated by the supplier any time before the tender submission deadline • System automatically disregards previous versions of tenders and

		considers the latest version as the only valid one
Tender submission deadline extension	Buyer	• Tender submission deadline can be extended by the buyer at any time, during the submission period • All participating suppliers are automatically notified via email for any extension of submission deadline, as their email addresses are available to the system
Tender opening	System	• Uploaded tenders are locked into the system and are inaccessible until the tender submission deadline is reached • When the tender submission deadline is reached, all tenders are opened automatically and made available to the contracting authorities staff • The system allows for the setting of different times for tender submission deadline and tender opening date/time, the former being the deadline for system accepting tenders and the latter being the exact time when all tenders are opened (this functionality is not currently activated)

Table 18: DTC functionality overview

A small number of interoperability aspects with regards to Web-browser compliance are currently addressed, whereas an analysis of eAuctions is performed, in order for the associated module to be activated. Furthermore, Capgemini assists Scottish Executive to define the specifications for utilising the built-in Web Forms functionality, thus facilitating the more efficient and controlled collection of tenders. The use of Web Forms will facilitate automated validation for submitted tenders. Hence only tenders that are compliant with the call specification will be acceptable. On top of this, the use of Web Forms for submitting tenders will facilitate their automated evaluation.

4.1.2 DPSM – Ministry of Defence (FRANCE)

The French Ministry of Defence (MINDEF) has realised the e-achat project led by the Directorate for Programs and Procurement Methods (DPM), of the Directorate General for Armament (DGA). The initial achievement of the e-achat project was the development of an eProcurement platform, called the Defence Public Service Marketplace (DPSM).

Currently, DPSM is endorsing two eProcurement portals, dedicated to the electronic procurement of the defence public sector. ixarm.com, is used for the procurement of defence systems, and achats.defense.gouv.fr, is used for other procurements within MINDEF (infrastructure, gas, health, support, etc).

The following table provides an overview of the most important features of the DPSM system.

System feature	System implementation details
Functionality overview	- Public area by providing their company name, family name, and a valid personal e-mail address, visitors gain access to: o Defence news o Public notices of MINDEF o Download facilities for calls documentation - Tendering room: registered suppliers have access to published calls for tender. They can download call documentation and respond, by submitting their tenders electronically. Three types of procurement procedures are supported o open (anyone can participate) o restricted (only invited suppliers can participate) o negotiated (with or without notification) - e-Auctions room: registered suppliers can participate in electronic auctions - e-Catalogues room: buyers can purchase from electronic catalogues, published by suppliers

		- <u>eBilling/invoicing</u>: suppliers can invoice the contracting authority and buyers can fulfil their payment obligations electronically (not currently operational) - SMEs can make unsolicited proposals for the acquisition and maintenance of defence equipment, based on innovative ideas with defence flavour, and/or be given the opportunity to win contracts

Exploitation model		- <u>Contracting authorities</u>:
		   o No cost
		- <u>Suppliers</u>:
		   o No cost
		   o Only companies registered in EU Member States are accepted
		   o Applications must be authorised by MINDEF. This process takes up to three working days

Actors		- <u>Administrator</u>: responsible for attributing roles to users of a procurement agency (one person for each one of the 203 MINDEF procurement agencies) - <u>Procurement officer</u>: responsible for creating a public notification for a call for tenders and for organising electronically submitted bids - <u>President of the awarding committee</u>: responsible for the electronic opening of the submitted tenders - <u>Supplier</u>: any SME operating in the area of defence systems can be registered at the DPSM database of defence suppliers. An administrator has to be assigned for each SME

Interesting system characteristics	**Technology used**	- The two portals share the same toolbox
		   o Broadvision software package used for the development of the web portals
		   o Trace and Capgemini developed the eTendering module
		   o CommerceOne software was used for the eAuctions and eCatalogues modules
		   o Portals are optimised for Microsoft Internet Explorer 5.0 or greater and Netscape 6.1 or greater or any other compatible Web browser
		   o Some pages need Flash player 5.0
		   o Java^{TM} 2 Runtime Environment, Standard Edition 1.4.1 is necessary for the electronic submission of tenders
		- All necessary tools are available for downloading
		- All contracts between MINDEF and its contractors concerning the eProcurement platform are expiring at the end of 2004. The next phase will keep the core of the platform intact and transform the portals in OSS technology

	Security policy	- Time-stamping of the tenders
		- Use of digital signatures for the encryption (HTTPS)
		   o Acquisition of a certificate that is recognised by MINDEF (actually Certinomis – Socieposte or Credit Lyonnais – Authentys)
		   o Average time for obtaining a certificate is two to three weeks
		   o Electronic tools used for the signing of tenders are downloaded when a tender is submitted for the first time
		   o Supplier signs the tender before submission
		   o Tenders must be transmitted at least 24 hours after they have been signed
		- Use of SSL for secure communication
		- Tenders are locked, encrypted, and checked for virus upon reception
		   o If a virus is detected, an email is sent to the supplier, requesting for the virus to be removed and the document to be resubmitted
		- Decryption of tenders made via key that becomes available only to the president of the contract awarding committee, after tender submission deadline

	Alerting mechanism	- Available mechanism for creating alerts to inform suppliers by email for any new suitable business opportunities that come up and satisfy their pre-selected criteria and profile
		   o Customisation of supplier's home page and filtering of news and available call for tenders notifications
		   o Q&A sessions operating via email

Document treatment	- Use of the EU's CPV standard - All document formats are accepted - Complete call documentation package sent in an archived and compressed format
Online help	- Help documentation, user manuals, glossary, and a FAQs are available online - Online information for the MINDEF's procurement agencies, the current legislation in force, and explanation of the procedures for public procurement
Offline activities	- Both online and offline activities are supported during the tendering period - Supplier can chose to download the call documentation online and then submit a tender offline and vice-versa - Procurement officers use an offline workflow tool for organising the procurement procedure and templates for creating call documentation. In future, these tools will be integrated with the eProcurement platform.
Reporting capabilities	- Provision of a robust reporting mechanism for statistical analysis, regarding the use of the platform by procurement agencies (upload of tenders), the use of the system by suppliers (downloads from members and non-members), etc.

Table 19: DPSM system overview

During the first year of platform's operation, all 203 procurement agencies of MINDEF have been integrated into the system, thus accounting for more than 600 users. About 2,300 suppliers have become members of the two armament portals. Currently, 150 to 200 new solicitations are available electronically every month. Especially for the last quarter of 2003, the percentage of electronic procurement processes reached 50%. There have been about 1,400 downloads of electronic documentation, 80% of which coming from unregistered suppliers, with an average of 11 downloads per call documentation. During the first two months of 2004, the number of call documentation put online increased (from 140 at the end of December 2003 to 320 at the end of February 2004). During the same period, the number of downloads increased from 1400 to 2200.

As there is still an 80% of call documentation downloads, which are initiated from unregistered tenderers that eventually submit their tenders offline, the next challenge for MINDEF is to encourage these tenderers to use the electronic platform. Furthermore, a next phase of the project will focus on the other end of the eProcurement pipeline, namely the eInvoicing and ePayments. The objective will be to automate the invoicing and payment processes from a single-point of access, i.e. the armament portal. This has already been achieved through the private network of the MINDEF only for some specific procurement needs (section 3.3).

4.1.2.1 DPSM state-of-the-art features assessment

The following table presents an assessment of DPSM features against the state-of-the-art, as required by the new legislative framework, or identified during the analysis of the current project. The upper part of the table presents all functional aspects in terms of the eProcurement lifecycle, while the lower part demonstrates overall technical qualities of the system.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eNotification support	✕ Documentation preparation	• Documents prepared offline • Form fill and workflow support from external tools
	✓ Contract Notification	• Publication of call for tenders notices, after their official publication to OJEU
	✕ Integration to OJEU	• No automated publication to OJEU • Currently under development
eTendering support	✓ Request to participate	• Suppliers can submit a RTP
	✕ Short listing of tenderers	• Short-listing is performed offline manually
	✓ Invitation to tender	• Achieved via email
	✓ Tender submission	• Suppliers can prepare a tender offline and then upload it in the designated section
	✓ Updating of tenders	• Suppliers can update their tender documentation offline and then upload it in the designated section (previous version is also maintained)
	✓ Locking of tenders	• Tenders are locked • Tenders are encrypted and become inaccessible by system users, until tender submission deadline
eAwarding support	✓ Tender opening	• Tenders are unlocked when tender opening time is reached • Tender opening time can be modified by buyer • Tenders are opened in two phases (technical offers first and financial offers later)
	✕ Tender evaluation	• Evaluation is performed offline manually
	✓ eAuctions	• Registered members have access to the electronic auctions room
	✕ Contract Award	• Not supported
	✓ Award Notification	• Performed manually and published on a designated area of the portal
Back Office support	✓ Pre-defined reports	• Pre-defined reports available for monitoring purposes
	✓ Monitoring of logs	• Logs from all user actions are stored and used for producing reports
	✓ Statistical analysis	• Statistical analysis on the use of the system is performed by administrators
Legislative principles	**Required Functional Details**	**System Implementation Details**
Equal amount of information	✓ Automated notification	• Supported via email
	✓ Questions & Answers	• Supported via email
Pan-European standards	✓ International Coding	• Support of CPV standards
	✕ Document standards	• No specific document standards are supported • Tender documentation treated as attachments, which can be of any format
Unrestricted access to information	✓ Full competition documentation	• Competition details are published in the eNotification phase • Tutorials and user manuals are available for educating suppliers on how to use the system
Interoperability	✓ System accessibility	• Web-based system
	✓ No software/hardware requirements	• Only an Internet-enabled PC is required • Every tool that is necessary for the good functioning of the system can be downloaded
	✕ Multilingualism support	• System supports only French and English
	✕ Localisation parameterisation	• Localisation of the GUI is not supported
Confidential nature of data	✓ User profiles	• All users need to use their credentials in order to be authenticated

		•	User profiles define what data each user has access to
Restrict access to tenders	✓ Locking of supplier tenders	•	Tenders are locked when uploaded
Four eyes principle	✓ Encryption when tenders are stored ✗ Two officials to open tenders	• • •	Tenders are encrypted when uploaded Tenders are unlocked automatically when the tender opening time is reached Only the president of the awarding committee can decrypt tenders
Authentication	✓ Authentication of tenderers	•	Through the use of digital certificates
Call for Tenders specifications	✗ Tenders compliant with call for tenders specification	•	Tenders do not always conform to the call for tenders specifications, as they are free-text documents
Security	✓ Usage of SSL	•	Enabled
	✓ Data encryption	•	Supported
	✓ Digital Signatures	•	Supported
Audit Trail / Traceability	✓ All user actions recorded in system logs	•	Enabled
	✓ Detection of tampering attempts	•	No mechanism to detect infringements
Time-stamping	✓ Official time	•	Enabled

Table 20: DPSM coverage of the new legislative framework on eProcurement

4.1.2.2 Description of DPSM system functionality

The DPSM portal contains notices published by the MINDEF, covering all levels of publication (European, national, regional, or local). The portal operates as a complement to BOAMP (Bulletin Officiel des Annonces de Marchés Publics), the official publications mechanism for France. European notices are also published on the OJEU and TED.

The following types of notices are published in the ixarm portal:
- **Invitation To Tender (ITT):** contains the characteristics of the contract (type, schedule, work packaging, special conditions, etc.) and of the contract award procedure (person responsible for the contract-PRM, awarding authority, point of contact for additional information, etc.). Publication is mandatory above €90K.
- **Non-Official Notices:** When it is not required from the MINDEF to publish an ITT (i.e. below the threshold of €90K), a Non-Official Notice is published. These notices are equivalent to ITT for the non-formalised and negotiated procedures.
- **Prior Information Notices (PIN):** in accordance with the New Code for the Public Procurement (NCMP), a PIN must be published to the S supplement of OJEU for contracts above the threshold of €750K (tax not included) for supply of goods and €5M for services. Their purpose is to inform companies as early as possible with the essential characteristics of the contract: the PRM, the awarding authority, the type of procedure, forecast key dates, service characteristics, cost forecasts, possible work packages and similar information.
- **Contract Award Notices:** when the award procedure comes to an end, a notice on the outcome of the competition is published. An Award Notice is published when the contract is awarded to a supplier. A "Non-Award" Notice is published if no action is taken and the procedure is declared adjourned, by decision of the PRM.

The following table gives an overview of the DPSM system's functionality, by presenting the different activities performed by users (actors) of the system, during the classic procedure.

Activity	Actor	Description
Creation of call documentation	Procurement Officer	• Call documentation created offline, using a form filling tool (it will soon be interconnected with the eProcurement platform) • The procurement officer uploads the documentation onto the portal the same day it is published on the OJEU
Notification	System	• Notification is performed with the use of email • Suppliers are also informed for tender invitations through their personalised home page
Registration	Supplier	• Suppliers must be companies registered in a European country • Registration does not require any complicated information from the supplier, no costs involved • After validation and approval of candidate suppliers details, user credentials are forwarded to them • Suppliers are obliged to acquire a digital signature, (software or hardware) [1]
Browsing Questions and Answers / Posting Questions	Supplier	• Suppliers can post their questions by email • Suppliers can see every answer provided by the procurement agency concerning a call, as it is sent by email to all candidates that downloaded call documentation
Answering Questions	Procurement Officer	• Answer supplier questions by an email sent to the person who posted the question, as well as, all the other tenderers who have downloaded the associated call documentation
Updating call documentation	Procurement Officer	• Modifications of call documentation are uploaded onto the portal, under the appropriate call documentation area • All participating suppliers are automatically notified via email
Tender submission	Supplier	• Tenders are prepared offline and then uploaded onto the system • Before their uploading, tenders have to be signed digitally • Tender documentation is composed of two documents (candidature with administrative information and offer), both signed by tenderers • For volume capacity considerations, suppliers first submit the digital signing on the documents and later the documents themselves. The timeframe between the two actions is 24 hours[2] • Automated emails are sent to suppliers, confirming the receipt of their tenders • When a tender is uploaded onto the system, it is locked, time-stamped, and encrypted
Updating tender documentation	Supplier	• Tender documentation can be updated by suppliers any time before the tender submission deadline • Previous versions of the tender documentation are kept for reasons of proof in a case of dispute
Collection of tender documentation	Procurement Officer	• Can see the number of tenders that have been uploaded into the system • Must accept tenders first and then download them locally
Closing of tender submission period	Procurement Officer	• Receive an email when eTendering deadline is reached • Downloading locally all non-downloaded tenders • Close the tender submission period manually • Any offers received after the deadline are considered non-valid, as their time-stamp refers to a later date
Tender opening	President of awarding	• Tenders are unlocked • Obtain decryption keys after authentication to the system (one key-

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[1] In order to avoid making the use of digital signatures a serious constraint in the use of the system, the DGA accepts the same format to the ones utilised for the online tax declaration, which is compulsory in France. Potentially, this forms a restriction for non-French suppliers.

[2] The reason for this two-phased approach is because tenderers usually submit their bids just before the closing of the eTendering phase, thus creating system overloading and increasing the risk for system failures. Therefore, the bidding documentation, which is the most voluminous, can be sent after the closing deadline is passed.

	committee	set for decrypting candidature documents from all different suppliers and a different key-set for the offer documents for each supplier)
		• Decrypt and open all candidature documents. The awarding committee will decide which tenderers qualify for submitting an offer.
		• Decrypt and open the offer documents of the tenderers that qualified

Table 21: DPSM functionality overview

4.1.3 JEPP – Federal Government Ministry of Defence (BELGIUM)

The Belgian Federal Government has created the Joint Electronic Public Procurement (JEPP) platform, which forms a web-based parametric environment supporting the processes of the eNotification phase. JEPP supports the creation of a portal hierarchy and is based on Microsoft.NET technologies. Initially, the Belgian government portal has been created and hosted on JEPP platform. This portal is administrated by the Bulletin of the Adjudications (BDA), a federal entity responsible for the publication of RFPs for all national entities, as well as, for the creation and maintenance of other portals to be hosted on JEPP system. BDA portal constitutes the root structure of the portal hierarchy and all other portals are integrated with it.

Initial coordination process is on-going between Federal Government and the Wallonne Region aiming at interconnecting the region's deployed eNotification system with the federal JEPP system. A similar approach is under consideration with the Brussels Region. Currently, there are two portals created within JEPP and integrated under BDA portal, one for the Belgian MoD and another for all Pouvoirs Adjudicateurs du Niveau Fédéral under the FedICT's umbrella. Different approaches have been explored for the creation and hosting of the above two portals:

- MoD initially installed JEPP platform on its own infrastructure and the platforms were maintained/hosted by MoD. To increase synergies with the other JEPP platforms, the MoD decided to host this service together with the other SPF platforms
- FedICT outsourced the creation and maintenance/hosting of its portal to Unisys Consulting
- BDA outsourced the creation and maintenance/hosting of its portal to Unisys Consulting

Furthermore, smaller federal agencies are offered the opportunity to group together and use the eProcurement facilities of the FedICT portal, for publishing their RFPs on an one-off basis.

The following table provides an overview of the most important features of the JEPP platform.

System feature		System implementation details
Functionality overview		- Tools for online preparation and publication of call for tenders notices - Publication of call for tenders notices and periodical schedules of procurement needs - Management of the terms of references and other related documents (e.g. answers to particular questions received by fax or email)

Exploitation model		- Hosted service
		- Contracting authorities: two models:
		  o Hosted Application Service Provider (ASP):
		    - Portal hosted by Unisys Consulting's facilities and infrastructure
		    - Based on an annual subscription and maintenance fee
		    - Fees may be related to the utilisation of the system resources provided by the hosting authority
		    - For small administrations publishing very few tenders per year, the possibility of paying per publication could be offered
		    - This model was chosen by the FedICT
		  o Self-supporting ASP:
		    - Portal hosted under the contracting authority's own facilities and infrastructure
		    - Administrations are responsible for hardware and software costs, the licensing and maintenance of the application
		    - This model was chosen and explored by the MoD
		- Suppliers:
		  o No cost

Actors		- Procurement officer (UA): accredited users - Supplier (NUA): not accredited users - Local management cell (CP): responsible for the management of local users - System management cell (CPP): responsible for the management of every possible federal contracting authority - Statistical users: responsible for eNotification statistics
Interesting system characteristics	**Technology used**	- Microsoft .NET technology utilised - XML could be used as the communication interface between the BDA portal and the different public sector portals (ministries, regional, and municipal governments) - JEPP portals uses mainly Microsoft Windows 2000 and Microsoft SQL Server 2000
	Security policy **Means of communication**	- Authentication is performed through the use of user credentials (username and password) - A central user authentication module associates users with roles and access/privilege rights - Only authorised users can gain access to restricted system resources, based on their role/access rights - Exchange of information between the different portals and the common portal is achieved using SQL synchronisation mechanism - Email is the primary communication mean between the system and the suppliers (building on Extended SMTP protocol) - XML on ESMTP will be the main data exchange mean between OJEU, BDA and the JEPP system. - All users have access to a notification engine, for retrieving existing or new opportunities, either within a single portal or across all portals. This could be done through web-browsing or through tailored e-mail notification with appropriate URL links
	Document treatment	- System supports mainly two document standards: Microsoft Office Suite and PDF - Call documentation is published in the two official languages of Belgium - Supports CPV and NUTS (Nomenclature des Unités Territoriales Statistiques)

Interface with external systems	-	Interface with external legacy systems utilising the built-in XML integration capabilities
	-	MoD portal is studying the integration of the ILIAS back-office system (Integrated Logistic and Information Automated System) with JEPP system
Advanced search capabilities	-	It supports search based on the type of publication, CPV code, NUTS code, and on free text
Multilingualism and localisation	-	Current version supports Dutch, French, English, and German
	-	Multilingual aspects for supporting all European languages are incorporated
	-	Customisation of the logo of each administration is possible

Table 22: JEPP platform overview

4.1.3.1 JEPP state-of-the-art features assessment

The following table presents an assessment of JEPP features against the state-of-the-art, as required by the new legislative framework, or identified during the analysis of the current project. The upper part of the table presents all functional aspects in terms of the eProcurement lifecycle, while the lower part demonstrates overall technical qualities of the system.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eNotification support	✓ Documentation preparation	• Tool for preparing call documentation online
	✓ Contract Notification	• Suppliers can download published call documentation
	✘ Integration to OJEU	• Automated publication to OJEU (ongoing)
eTendering support	✓ Request to participate	• Through email provided by supplier for downloading tender documentation
	✘ Short listing of tenderers	
	✘ Invitation to tender	
	✘ Tender submission	
	✘ Updating of tenders	
	✘ Locking of tenders	• Not currently supported
eAwarding support	✘ Tender opening	
	✘ Tender evaluation	
	✘ eAuctions	
	✘ Contract Award	
	✘ Award Notification	
Back Office support	✓ Pre-defined reports	• Pre-defined reports for a competition
	✓ Monitoring of logs	• Create reports using system logs
	✓ Statistical analysis	• Performed through statistical user profile
Legislative principles	**Required Functional Details**	**System Implementation Details**
Equal amount of information	✓ Automated notification	• Achieved through email
	✘ Questions & Answers	• Answers provided within call supported documentation
Pan-European standards	✓ International Coding	• Use of CPV and NUTS standards
	✓ Document standards	• MS Office and PDF formats currently used
Unrestricted access to information	✓ Full competition documentation	• Competition details are included in the published notices
Interoperability	✓ System accessibility	• Web-based system
	✓ No software/hardware requirements	• Only an Internet-enabled PC is required
	✓ Multilingualism support	• System is in Dutch, French, English and German
		• Support for all European languages

	✖ Localisation parameterisation	• Only customisation of logo • Parameterisation is supported by the system, but currently not used
Confidential nature of data	✓ User profiles	• User authentication is performed through the use of username and password • User profiles define what data each user has access to
Restrict access to tenders	N/A Locking of supplier tenders	
	N/A Encryption when tenders are stored	• eTendering phase not currently supported
Four eyes principle	N/A Two officials to open tenders	
Authentication	N/A Authentication of tenderers	
Call for Tenders specifications	N/A Tenders compliant with call for tenders specification	
Security	✓ Usage of SSL	• Enabled
	✖ Data encryption	• Not supported
	✖ Digital Signatures	• Not supported
Audit Trail / Traceability	✓ All user actions recorded in system logs	• Enabled
	✖ Detection of tampering attempts	• Not fully supported • Deployment of Firewalls, Proxies, IDS andr AntiVirus applications
Time-stamping	✖ Official time	• Not supported

Table 23: JEPP coverage of the new legislative framework on eProcurement

4.1.3.2 Description of JEPP platform functionality

The following table summarises the functionality supported by JEPP system.

Activity	Actor	Description
Creation of call for tenders notice	Procurement officer	• Online preparation of call documentation using a form filling tool • Online forms compatible with the definition provided by OJEU • Notices created in French and Dutch (Belgium's official languages)
Terms of Reference & other call related documents	Procurement officer	• Uploaded in the two official languages by authorised users • Documents uploaded in two formats DOC and PDF
Publishing of a call for tenders notice	Local management cell	• Call documentation can be scheduled for publication by authorised users using the scheduler tool
Notification during call publication	System	• Supplier defines a set of multiple criteria (e.g. market activities and preferences) • An algorithm matches published business opportunities (i.e. calls) with criteria pre-defined by suppliers
Browsing call for tenders notices & Downloading terms of reference	Supplier	• Perform quick or advanced search on a specific JEPP portal or on all available JEPP portals • For calls of tenders under the open procedure, documentation is available to all users (public and registered). Provision of email allows for the downloading of call documentation. • For calls under the restricted procedure, a secret code is communicated to participating suppliers, to be used for downloading tender documentation • System facilitates the use of notifications, in case of modifications on call documentation
Updating call documentation	Procurement officer	• Published notices and documentation is locked by the system • Call documentation can only be modified by authorised users only by use of a corrective notice • Suppliers that have selected the automated notification option are

		notified by email
Registration of Procurement Agency	Procurement officer	• Performed by BDA's CPP personnel
Supplier Registration & User Preferences	Supplier	• Required information comprises login name, family name, company name, preferred market activities, and industrial preferences/ specialities • User profile stored on common portal
Procurement Officer Authentication & Authorisation	Procurement officer	• Authorisation performed at the portal level, authentication is performed at the application level • Access to resources is granted based on user identity (access rights)
Supplier Authentication & Authorisation	Supplier	• Optional central authorisation and authentication performed at the common portal (application level) • Suppliers can access all JEPP portals freely and at no-cost

Table 24: JEPP functionality overview

4.1.4 EPSS – CORDIS (EUROPEAN UNION)

The EPSS (Electronic Proposal Submission System) is an eSubmission system developed to support the preparation and submission of proposals for RTD and associated activities. The development of the system was aimed to cover the needs of the 6th Framework Programme 2002-2006, the research and technology development programme of the European Commission.

There is a wide the range of research areas, activities and themes that are addressed. Potential "Proposers" can view FP6 calls for proposals and download all the relevant documentation in order to prepare their proposal. Proposers can be individuals or legal entities such as companies, consortia, and universities. The following table presents an overview of the main features of the EPSS.

System feature		System implementation details
Functionality overview		- Tool for online preparation and submission of a proposal - Tool for offline preparation of a proposal

Exploitation model		- <u>Contracting authorities</u>:
		   o No cost
		- <u>Suppliers</u>:
		   o No cost

Actors		- <u>Coordinator</u>:
		   o register for a specific call for proposals
		   o define the participants of the proposal
		   o edit electronic forms
		   o send usernames and passwords to partners
		   o upload files/annexes and submit proposal
		- <u>Partner</u>: receive usernames and passwords for a specific call for proposals from the coordinator, edit the forms and send their annexes to the coordinator
		- <u>System operator</u>: responsible for creating calls for proposals documentation and publishing them on the CORDIS-FP6 website

Interesting system characteristics	**Offline activities**	- System supports both online and offline activities. Offline or online preparation of proposals and electronic or hard copy submission - Part A contains high-level information, including company details, partners involved and financial offer. - Part B is the technical proposal, including documentation and annexes to fully define the offer of the partners - EPT (Electronic Proposal Tool) allows the coordinator to define Part A and Part B of a proposal and validate the complete package before uploading
	Security policy	- User authentication performed using credentials - Credentials sent to users via the post. Only exceptionally and following a request by the user, transmission is made via email. - SSL is enabled - Submitted proposals are locked by the system and remain inaccessible until the proposal opening deadline - Coordinator may resubmit a revised version using the same credentials, the last version is regarded as valid
	Means of communication	- Automated email alerting mechanism - Users specify areas of interest and receive emails notifying for published calls for proposals
	Document treatment	- Two document type standards are accepted: Rich Text Format (RTF) and PDF - Supported by the majority of platforms, and are rarely related to virus attacks
	Online help	- Online help to complete proposals - Complete user guide explains in detail the GUI of both the online and offline functionality
	Multilingualism	- Website in English - System supports multilingualism - Uploaded documents, and Calls can be in any of the 11 official languages of the EU
	Interoperability	- The web application is browser independent and the Offline Tool is platform independent

Table 25: EPSS system overview

4.1.4.1 EPSS state-of-the-art features assessment

The following table presents an assessment of EPSS features against the state-of-the-art, as required by the new legislative framework, or identified during the analysis of the current project. The upper part of the table presents all functional aspects in terms of the eProcurement lifecycle, while the lower part demonstrates overall technical qualities of the system. Although EPSS is not an eProcurement system as such, the following table provides an overall view of the uniformity of EPSS to the EU guidelines.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eNotification support	✓ Documentation preparation	• Web forms for preparing a proposal online • Offline tool for preparing a proposal
	✓ Contract Notification	• Carried out via CORDIS web-site
	✓ Integration to OJEU	• Via CORDIS
eTendering support	✓ Request to participate	• Proposers can express their intention to participate to a competition
	✗ Short listing of tenderers	• This process is performed offline
	✓ Invitation to tender	• Achieved via email alerting mechanism
	✓ Tender submission	• Online submission of proposals
	✓ Updating of tenders	• Online updating of proposals
	✓ Locking of tenders	• Submitted proposals are locked
eAwarding support	✗ Tender opening	
	✗ Tender evaluation	• This phase is not currently supported
	✗ eAuctions	
	✗ Contract Award	
	✓ Award Notification	• Carried out via CORDIS web-site
Back Office support	✗ Pre-defined reports	• Not supported
	✗ Monitoring of logs	• Not supported
	✗ Statistical analysis	• Not supported
Legislative principles	**Required Functional Details**	**System Implementation Details**
Equal amount of information	✓ Automated notification	• Achieved through email
	✓ Questions & Answers	• Achieved through email
Pan-European standards	✗ International Coding	• Not supported
	✓ Document standards	• RTF and PDF format currently accepted
Unrestricted access to information	✓ Full competition documentation	• Complete competition details are included in the published notices
Interoperability	✓ System accessibility	• Web-based system
	✓ No software/hardware requirements	• Only an Internet-enabled PC is required
	✓ Multilingualism support	• System is in English • Support for all European languages
	✗ Localisation parameterisation	• Not supported
Confidential nature of data	✓ User profiles	• User authentication is performed through the use of username and password
Restrict access to tenders	✓ Locking of supplier tenders	• Submitted proposals are locked until call for proposals deadline
	✗ Encryption when tenders are stored	• Not supported
Four eyes principle	✗ Two officials to open tenders	• Not supported
Authentication	✓ Authentication of tenderers	• User credential and specific code foe participating to a call for proposals
Call for Tenders specifications	✗ Tenders compliant with call for tenders specification	• No automatic filtering of proposals according to pre-defined criteria
Security	✓ Usage of SSL	• Enabled

	✗ Data encryption	• Not supported
	✗ Digital Signatures	• Not supported
Audit Trail / Traceability	✓ All user actions recorded in system logs	• Enabled
	✗ Detection of tampering attempts	• No mechanism to detect infringements
Time-stamping	✗ Official time	• Not supported

Table 26: EPSS coverage of the new legislative framework on eProcurement

4.1.4.2 Description of EPSS system functionality

The following table provides an overview of the EPSS functionality by presenting the different activities performed by its users (actors) during the classic procedure.

Activity	Actor	Description
Notification of intention to submit a proposal	Coordinator	• Send notification of intention to submit a proposal, either electronically or on paper • Receive a unique reference number, to use for the proposal
Registration	Coordinator	• Proceed to registration procedure, in order to be able to participate to each call • Provide company details of coordinator and partners • Receive credentials (login/password) sent by post or email/fax (if requested) • Password can be changed by the Coordinator after the first use. Credentials can be used for the whole period of a specific call
Questions and Answers session	Coordinator/ Partner / Operator	• Suppliers can submit questions by e-mail • Operator responds by email
Proposal submission	Coordinator	• Offline submission: download call for proposals package (including relevant documents), prepare offer using the EPT, upload proposal • Online submission: complete offer online through web forms and automatically submit proposal
Updating proposal documentation	Coordinator	• After a proposal has been submitted, an automatic eligibility check is performed by the system, in order to validate whether all uploaded documentation has been received correctly • If the check is negative, coordinator is automatically informed via the web page or email • Proposal documentation can be updated at anytime before the deadline of the call for proposals
Acknowledgement of receipt	System	• Acknowledgement of receipt of a proposal is performed via a web page or email which informs the coordinator of the unique identifier number of the proposal, the time of submission and a check sum which guarantees the correct reception of the proposal package

Table 27: EPSS functionality overview

After the closure of a Call, all valid submitted proposals are transferred to the Commission's Evaluation Service Provider, where they are evaluated by EU experts.

4.1.5 SYSLOG Market – DG ADMIN (EUROPEAN UNION)

The Informatics Directorate (DI) of the Personnel and Administration DG (DG ADMIN) of the European Commission is responsible for the management and co-ordination of Information Technology and telecommunications services for the EC. The DI's mission is to identify, formulate and realise a modern and dynamic Information Technology vision and strategy for the EC.

The DI has developed corporate information systems in order to support the administrative processes of the EC. SYSLOG is a set of business applications comprising three main areas: Training, Logistics and Credit Management. A part of the third area is the SYSLOG Market module, which is dealing with the administration of Calls for tenders.

The system was set operational in October 2003. It was implemented by ADMIN-DI.4 PFD (Information Systems Support: Planning, Financial management, Documents management) which is also responsible for the technical support. The system is an intranet application and therefore operating only inside the EC's secure infrastructure. Tenderers may view Notices, Q&As published on the DI's website but they do not interact with the system online. The following table presents an overview of the most important features of the system.

System feature		System implementation details
Functionality overview		- Management and planning of tendering procedures - Complete workflow from the creation of a business need definition, until the call for tenders notification is published - Cover procurement procedures for open, restricted and negotiated individual contracts, as well as, framework contracts

Exploitation model		- <u>Contracting authorities</u>:
		   o No cost
		- <u>Suppliers</u>:
		   o No cost

Actors		- <u>Tenderer:</u> can view call notices at the DI's website and participate in calls for tenders after being registered - <u>Technical administrator:</u> can express a business need, which must be supported with the relevant tender documentation - <u>Juridical officer:</u> is responsible for the detailed planning of the procurement procedures, primarily focusing on the organisation of the relations and contacts with suppliers - <u>Juridical manager:</u> responsible for the global planning of the procurement procedures, mainly focusing on the identification of new needs and the assignment of tasks to juridical officers
Interesting system characteristics	**Technology used**	- Web-based application developed using ColdFusion - Back-office environment based on Oracle database server - Operates on both MS Windows and UNIX platforms - DI currently recommends only Internet Explorer browser
	Customisation	- Customisation/modification of workflows according to internal DI procedures - Customisation of particular fields of the application in order to have a different behaviour depending on the user profile
	Security policy	- System operates on the secure EU infrastructure - Utilisation of LDAP authentication using database security to restrict user access rights based on user roles
	Advanced reporting mechanism	- Complete monitoring facility offered to authorised DI personnel - Dedicated Oracle tables used to log errors and system events - Full audit trailing facility - Statistical analysis of all competitions - Automated alerting in case of system failures.
	Document treatment	- Document standards supported include MS Office documents, PDF, HTML and XML

Table 28: SYSLOG Market system overview

4.1.5.1 SYSLOG Market state-of-the-art features assessment

The following table presents an assessment of SYSLOG Market features against the state-of-the-art, as required by the new legislative framework, or identified during the analysis of the current project. The upper part of the table presents all functional aspects in terms of the eProcurement lifecycle, while the lower part demonstrates overall technical qualities of the system.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eNotification support	✓ Documentation preparation	• Web forms for preparing a call online • Offline tool for preparing call documentation
	✓ Contract Notification	• Suppliers can download published call documentation from DG ADMIN's website
	✓ Integration to OJEU	• Automated publication to OJEU
eTendering support	✗ Request to participate	
	✗ Short listing of tenderers	
	✗ Invitation to tender	
	✗ Tender submission	
	✗ Updating of tenders	
	✗ Locking of tenders	• This phase is not currently supported
eAwarding support	✗ Tender opening	
	✗ Tender evaluation	
	✗ eAuctions	
	✗ Contract Award	
	✓ Award Notification	• Publication to OJEU
Back Office support	✓ Pre-defined reports	• Pre-defined set of reports is available • Users can create their own reports
	✓ Monitoring of logs	• Monitoring of logs mechanism
	✓ Statistical analysis	• Advanced statistical analysis functionality
Legislative principles	**Required Functional Details**	**System Implementation Details**
Equal amount of information	✗ Automated notification	• Achieved through email
	✓ Questions & Answers	• Q&As are published on DG ADMIN's website • Corrigenda are also published online
Pan-European standards	✗ International Coding	• Not supported
	✓ Document standards	• Tender documentation is in RTF and PDF formats
Unrestricted access to information	✓ Full competition documentation	• Complete competition details are included in the published notices
Interoperability	✓ System accessibility	• Web-based system
	✓ No software/hardware requirements	• Only an Internet-enabled PC is required
	✓ Multilingualism support	• System is in English • Support for all European languages
	✗ Localisation parameterisation	• Not supported
Confidential nature of data	✓ User profiles	• User authentication is performed through the use of username and password
Restrict access to tenders	N/A Locking of supplier tenders N/A Encryption when tenders are stored	• eTendering phase is not currently supported
Four eyes principle	N/A Two officials to open tenders	• eAwarding phase is not currently supported
Authentication	N/A Authentication of tenderers	• eTendering phase is not currently supported
Call for Tenders specifications	N/A Tenders compliant with call for tenders specification	

Security	✓ Usage of SSL	• Enabled
	✗ Data encryption	• Not supported
	✗ Digital Signatures	• Not supported
Audit Trail / Traceability	✓ All user actions recorded in system logs	• Enabled
	✗ Detection of tampering attempts	• No mechanism to detect infringements.
Time-stamping	✗ Official time	• Not supported

Table 29: SYSLOG Market coverage of the new legislati ve framework on eProcurement

4.1.5.2 Description of SYSLOG Market system functionality

The following table provides an overview of the SYSLOG Market functionality by presenting the different activities performed by its users (actors) during the classic procedure.

Activity	Actor	Description
Publication of PIN	Juridical Manager	• The first quarter of each year, two global PINs are published on the OJEU, one for goods and one for services • PINs represent the FCLs[3] global annual planning of needs • PINs do not correspond to specific call notices
Expression of need	Technical Administrator	• Call specification is finalised by the technical unit in charge of the procurement procedure • A Technical Administrator is appointed responsible for the following up of the eventual call for tenders • Publish contract notice on the OJEU, and create a hyperlink to it at DG ADMIN's website
Approve a need	Juridical Manager	• Create a procedure plan for the call for tenders of expressed need • Procurement has to be approved by the authorising officer of ADMIN-DI-FCL representing the contracting authority
Request execution	Juridical Manager	• Initiate procedure plan by requesting its execution
Edit action planning	Juridical Officer	• Edit actions of procedure plan • In some cases it may be necessary to brake down initial plan to more than one phases
Validate action planning	Juridical Officer	• Validate procedure plan and attributes a Gamma Identifier (DI's internal codification of contracts) • Publishing contract notice to OJEU
Register for a Call for Tenders	Tenderer	• Download call documentation from DG ADMIN's website • It is recommended to register on-line in order to be able to submit a tender for a specific call
Request clarifications	Tenderer	• Questions are submitted offline
Provide Answers	Technical Administrator/ Juridical Officer	• Answers and corrigenda sent on paper via private courier to all tenderers that have expressed interest and published on the website
Complete GAMA Report	Juridical Officer	• Follow up the execution of the planning and generate a Gamma report at the end for the Direction
Generate global reports	Juridical Manager	• Generate reports for needs, actions by need, markets overview

Table 30: S YSLOG Market functionality overview

The remaining phases for the completion of the procurement procedure are executed outside of the system. For completeness, the following list describes the activities performed for awarding the contract:

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[3] ADMIN-DI-FCL (IT Finances, Contracts and Logistics) is the responsible body of the EC for the procurement procedures related to Informatics and Telecommunications.

- **Submit Tender:** Tenderers submit their tenders to FCL via the post. Tenders are received at the Central mail office of the EC in order to have the packages scanned for security reasons. The Central mail office issues receipts to tenderers in case of delivery by hand as proof of compliance with the deadline date for submission
- **Open Tenders:** Tenders are forwarded to the contract section of FCL, where they are locked in a safe room, until the opening session of the specific procurement procedure
- **Exclusion of Tenderers:** The selection of tenderers is performed by both the Technical Administrator in charge (technical capacity) and the Juridical Officer (financial and economic capacity) and according to the competition pre-qualification criteria.
- **Evaluation of Tenderers:** The evaluation of the technical part of the proposal is assigned to the Technical Administrator. The evaluation criteria are communicated in the notification of the call for tenders. The technical administrator usually assigns weighting factors and a minimum threshold for each criterion and/or on the technical evaluation criteria as a whole. The financial evaluation is a responsibility of the Juridical Officer, who either evaluates on the global cost of the offer over the whole duration of the contract, or on a pre-defined scenario representing a significant part of the total cost. FCL mainly uses the "most economically advantageous tender" method and applies a 50/50 quality/price ratio.
- **Award Contract:** The contract is awarded by the Juridical Manager. When the contract is signed, a contract award notice is published on the OJEU. Furthermore, this contract award notice is added on the DG ADMIN's website in the "Closed calls for tenders" section.

4.1.6 eSourcing Service – Office of Government Commerce (UK)

The Office of Government Commerce (OGC) has recently published the contract notice for the eSourcing project; a project in order to purchase a service which will support the procurement of individual contracts for the UK public sector. The objective of the OGC is to establish a solution which will be compliant with the new EU public procurement legislation, conform to the UK laws and regulations for eProcurement and capable of satisfying the UK IT technology standards.

The OGC, like in the case of the eAuctions (section 4.3.1), is opting for an off-the-shelf IT service, which will be configurable to meet the needs of each contracting authority, but offered via a service provider who will also be responsible for the hosting and maintenance.

The eSourcing service is not currently operational; therefore this section only describes a number of implementation decisions of OGC, which can provide some valuable input for the current project. The following table presents an overview of the features the new system will have.

System feature		System implementation details
Functionality overview		- Submission of tenders - Q&A sessions - Collaborative environment - Tender evaluation - Advanced online library tool for templates

Exploitation model		- Expected to operate as a hosted service
		- <u>Contracting authorities</u>:
		   o Annual fee expected to be between £20.000 and £100.000
		   o Select preferred functionality
		   o Major implementation options will include workflow customisation
		- <u>Suppliers</u>:
		   o No cost

Actors		- Various user types/roles will exist for contracting authorities personnel
Interesting system characteristics	**Security policy**	- Use of username and password for user authentication - Use of digital signatures is investigated at the moment
	Means of communication	- Changes to published documentation will be communicated through the use of automated alerts - Configurable automated email notifications - Mobile Short Message Service (SMS) notifications - Q&A sessions through the use of a bulletin board functionality
	Document treatment	- Compliant with IT standards of the UK government (eGIF guidelines and the UKGOV XML) - Support of the EU's CPV standard
	Interface with external systems	- Integration to OJEU - Integration to other UK publication sites - Interface with the UK archiving system (under development)
	Tender box	- Creation of mechanism where tenders are locked until the tender opening time - At tender opening time, tenders will be automatically unlocked - Support of the Four Eyes principle is investigated
	Statistical analysis	- Data management and analysis - Historical data - Full auditing mechanism for all operations - Document version control

Table 31: eSourcing service overview

4.1.6.1 eSourcing Service state-of-the-art features assessment

As this service is not currently operational, the analysis for the current report did not assess its current state-of-the-art features. According to the OGC, a lot of attention will be given on the conformity of the system to the new EU public procurement legislation.

4.1.6.2 Description of the eSourcing Service functionality

The analysis of the functionality of the new service cannot be completed as the system is not currently operational. Therefore this section only provides a list of intended functionality to be developed:

- tendering (i.e. support for all phases of Individual Contracts)
- online tender evaluation
- contract management
- collaborative environment (i.e. workflow for preparation of tender documentation)
- integration with OJEU
- Interface with the Purchase-to-Pay (repetitive purchasing system) via the contract management solution and reception of data concerning the transactional activity

4.1.7 eContratacion eTendering – Department of Finance & Public Administration (SPAIN/Basque)

The Department of Finance and Public Administration (DFPA) of the Basque country developed their eProcurement system in the context of the eContratacion project which aims at the modernisation of the public procurement procedures. The system is compliant with the Basque and Spanish legislation for public procurement, while significant focus has been given in conforming also to the new EU public procurement legislation. Furthermore, significant effort has been devoted for guaranteeing security, using electronic signatures as described in the EU directive 1999/93/EC.

The DFPA assigned the development and hosting of the system to EJIE (Basque Government Information Society). The eTendering system is currently in the last testing phases and is planned to be deployed into production in the next few months. The legal regulations for establishing the system as the official electronic notification system of Basque Government have been approved by the Bureau for the Basque Public Service Modernisation (DOMA). As, the system is not currently operational, it is not fully analysed here, however the following table provides some interesting aspects.

System feature		System implementation details
Functionality overview		- Publication of call for tenders notices of governmental procurement needs - Coverage of individual contracts for open, restricted and negotiated (with or without advertisement) procurement procedures and framework agreements - Submission of tenders by suppliers - Management of tendering procedure

Exploitation model		- <u>Contracting authorities</u>:
		   o No cost
		- <u>Suppliers</u>:
		   o No cost

Actors		- <u>Purchasing officer</u>: manages the administrative process workflow, publishes call notices - <u>Tenderer</u>: submits tenders, tracks status, checks notifications in a provided mailbox
Interesting system characteristics	**Technology used**	- Web-based application developed using Java - Back-office environment based on Oracle database server - Application server is based on WebLogic - OCSP (Online Certificate Status Protocol) is the communication protocol with the certification authority server for signing and time-stamping documents
	Security policy	- Strong authentication mechanism through the use of digital signatures (supported by IZENPE the Basques Administrations Certification authority)
	Public Key Infrastructure	- An electronic contracting board is set up previous to the publication of a call for tenders - Board member public keys are included in the publication, as well as the minimum number of members that have to take part at the opening of tenders - Tenderer electronically signs tender file which is fragmented in several blocks (as many as board members). Each block is encoded with the corresponding public key - During the opening of tenders there is a verification of the date. Blocks are distributed to the relevant board members. Each member decodes his own block using his private key - The tender file can be only reconstructed with the simultaneous use of electronic signatures by the legal number of board members
	Central registry of suppliers	- All necessary legal administrative information (fiscal and juridical) about registered companies is stored in a central repository which is interconnected to several applications including the eTendering system - Registered tenderers are not obliged to submit administrative information about their company when submitting a tender
	Procurement Procedure and Documentation File Manager	- An independent application is acting as a file manager for procurement procedures and their related documentation - A future web-based application will allow suppliers to track online the status of their tenders

Table 32: eContratacion eTendering system overview

4.1.7.1 eContratacion eTendering state-of-the-art features assessment

As this service is not currently operational, the analysis for the current report did not assess its current state-of-the-art features. According to the system specifications the eContratacion eTendering system will be fully compliant with new EU public procurement legislation.

4.1.7.2 Description of eContratacion eTendering system functionality

The analysis of the functionality provided by eContratacion eTendering was not fully analysed as the system is not currently operational. However the following list provides a general view of the intended functionality:

- Preparation and publication of call for tenders notices
- Fragmentation and encryption of tenders by suppliers
- Submission of tenders
- Decryption, reconstruction and opening of tenders by the awarding board
- Management of procurement procedures and relevant documentation
- Classification of enterprises
- Registration of supplier administrative details
- Electronic signatures of contracts
- Virtual assistance to Procurement Board
- On-line publication of notifications
- On-line tracking of proposals status

4.1.8 ehandel eSourcing – Government Administration Services (NORWAY)

The Government Administration Services (GAS) of Norway, with the assistance of its service provider, is currently finalising the parameterisations of the new eSourcing functionality to be provided as part of the eMarketplace ehandel.no (ehandel) services. This new functionality will support both the creation of individual contracts and repetitive purchasing such as eAuctions, framework agreements and DPS. The system is sought to be compliant with the new EU public procurement legislation and the forthcoming national legislation. In this section, the ehandel eSourcing functionality is analysed for the procurement of individual contracts.

The ehandel eSourcing system is based on the Negotiations software of Emptoris, which is parameterised according to the GAS requirements, based on the national and EU procurement legislation. The software is purchased by IBX, who will offer it as an additional service to users of the ehandel. The system is not currently operational and therefore is not fully analysed in this report, however the following table provides some interesting aspects of the system.

System feature		System implementation details
Functionality overview		- Configuration of procurement procedures - Collaborative environment

Exploitation model		- Expected to operate as a hosted service provided by the GAS service provider
		- <u>Contracting authorities</u>:
		  o Annual fee (subject to final decision)
		  o Fees based on usage (subject to final decision)
		- <u>Suppliers</u>:
		  o No fees for basic use of the service (subject to final decision)

Actors		- Various types (roles) of system users will be available
Interesting system characteristics	**Parameterisation of procurement procedures**	- A competition is defined as a "Project". Project coordinator configures the project by adding "tasks" in order to complete the procurement lifecycle - Tasks include: RFx, Submission, Evaluation, eAuctions and Contracting - Tasks are also configurable (actors, task details, document templates) - Definition of Project templates which can have pre-defined tasks - Open, restricted and negotiated procedure for procurement of individual contracts can be modelled this way
	Security policy	- Simple authentication mechanism through user credentials - No use of digital signatures (supported by Emptoris software) - Usage of PKI is under preparation (time-plan for implementation is subject to final decision)

Table 33: ehandel eSourcing system overview

The Norwegian government has developed a centralised eNotification system as part of the National Gazette services. The National Gazette is an eSender to OJEU sending almost all Norwegian notices electronically. As an extension of the eNotification service provided by the National Gazette, a national database for public procurements – DOFFIN – has been established, which publish all public business opportunities in Norway above the national thresholds of €25.000. The National Gazette system provides users with the possibility to create notices online via document templates. Moreover the National Gazette eNotification system fulfils the requirements of the Norwegian and EU public procurement legislation. The existence of the National Gazette eNotification system prompted the Norwegian government not to develop this functionality into the eSourcing system.

4.1.8.1 ehandel eSourcing state-of-the art features assessment

As this service is not currently operational, the analysis for the current report did not assess its current state-of-the-art features.

4.1.8.2 Description of ehandel eSourcing system functionality

The full analysis of the functionality provided by ehandel eSourcing cannot be completed as the system is not currently operational. However the following list provides a general view of the intended supported functionality:

- Preparation of awarding criteria
- Request for Information (pre-qualification)
- Request for Quotation/Proposal
- Submission of tenders
- Automated opening of tender
- eAuctions (section 4.3.4)
- Tender evaluation
- Contracting
- Collaborative environment

4.2 Repetitive Purchasing Systems

This category includes all systems that support the repetitive purchasing of specific contracts within Framework Agreements or Dynamic Purchasing Systems (DPS), commonly implemented as electronic catalogues, as defined in the new EU public procurement legislation. According to these procurement methods, contracts can take the form of electronic catalogues that conform to standards of the contracting authority and include the categorisation of goods and services according to an international coding scheme (like CPV or UN/SPSC), as well as, the technical implementation usually utilising the flexible advantages of XML.

In order for a contracting authority to set up a Framework Agreement, a competition must be carried out first utilising the open, restricted or negotiated procedure for the procurement of individual contracts. After the awarding phase the contracting authority can include in the Framework Agreement the selected suppliers. A DPS on the other hand can be established by a contracting authority with the publication of contract notice, specifying details of the specific contracts to be created within the DPS, and also specifying the qualification criteria.

Electronic catalogues are not simplified electronic versions of paper based catalogues. Instead, eCatalogues may offer various benefits, taking advantage of their electronic nature. Therefore, multilingualism, multi-currency, pictorial descriptions, Internet links to products/services details, advanced search facilities and interoperability capabilities for maintenance can be foreseen. In particular for interoperability, an eCatalogue system can assist suppliers to create and maintain their catalogues with minimal effort, potentially through the integration with their websites, ERP/back office systems, or other supplier sources.

The following table considers all functional features to be supported by a Repetitive Purchasing system according to the new EU public procurement legislation. It is assumed that the pre-selection of suppliers to be included in the system can be done through a system that supports the procurement of individual contracts. The first column presents the main phases of eProcurement, as well as, the primary principles as deduced from the legislation. The next column lists the necessary functionality of each phase or principle. The last column describes in more detail the corresponding functionality.

This table is used in the subsequent sections of the reviewed repetitive purchasing systems, for comparing their supported functionality against state-of-the-art features for such systems, as concluded by the analysis of the public procurement legislative framework. The first two columns of these tables are uniform, while the third column explains how each reviewed system addresses the considered functionality.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eOrdering support	? eCatalogues	• Online maintenance of electronic supplier catalogues
	? Request for Quotation (RFQ)	• Ability to request for an RFQ from a number of suppliers
	? Place order	• Advanced searching of eCatalogues and placement of orders
	? Approval Path	• Workflow for online order approval
	? Order fulfilment	• Reception of goods/services
eInvoicing / ePayment support	? Order invoice	• Online creation of invoices or integration with supplier billing system
	? Order payment	• Online secure payment execution
Back Office support	? Accounting	• Integration with legacy financial system
	? Pre-defined reports	• Reporting capability
	? Monitoring of logs	• Analysis of system logs (audit trailing logs)
	? Statistical analysis	• Sophisticated statistical capability
Legislative principles	**Required Functional Details**	**System Implementation Details**
Pan-European standards	? International Coding	• Categorisation according to international hierarchical coding systems (CPV, UN/SPSC, NUTS, etc.)
Interoperability	? System accessibility	• Ease of access to the system
	? No software/hardware requirements	• No cost-related software/hardware prerequisites to access system
	? Multilingualism support	• Multiple character sets
	? Localisation parameterisation	• GUI parameterisation (currency, date/time format, units of measure, etc.)
	? Integration to other systems	• Interfaces with legacy systems (buyer, supplier, 3rd party)
Confidential nature of data	? User profiles	• Restricted access to data according to user profile
Security	? Usage of SSL	• Minimum security level for data transmission
	? Data encryption	• Secure storage of all sensitive information
	? Digital Signatures	• Application of digital certificates
Audit Trail / Traceability	? All user actions recorded in system logs	• Automated storage of all system event details
	? Detection of tampering attempts	• Mechanism for monitoring infiltration attempts
Time-stamping	? Official time	• Integration to 3rd party authority for official guarantee

Table 34: Features that establish the uniformity of a Repetitive Purchasing System with the new legislative framework on eProcurement

4.2.1 PECOS – Scottish Executive (UK/Scotland)

PECOS is an eCatalogues and workflow management system offered by the Scottish Executive. PECOS is used by contracting authorities for purchasing goods and services from suppliers that are in framework agreement with the Scottish public sector. It is an off-the-shelf system which provides several methods for uploading and maintaining data in the system.

The following table provides a general overview of the most interesting aspects of the PECOS system.

System feature		System implementation details
Functionality overview		- Purchasing from supplier catalogues - Definition of several procurement procedures (different approval paths) - "Punch-out" data from supplier website - Update supplier catalogues - Advanced audit trailing and reporting mechanisms

Exploitation model		- Hosted service (same model as DTC)
		- <u>Contracting authorities</u>
		  o Subscribed contracting authorities to the ePS Programme have access to both PECOS and DTC
		  o Optional advanced integration (charged) services with supplier systems including warehousing and financial applications

Actors		- <u>Buyer:</u> responsible for
		  o Placing orders and following purchasing approval paths until an order is sent to the supplier
		  o Updating the system when products or services are received
		  o Approving and uploading supplier catalogues
		- Definition of unlimited number of buyer user types, with customisable privileges which can ensure confidentiality of sensitive information

Interesting system characteristics	**Technology used**	- PECOS is an "out-of-the-box" system, utilising cXML eCatalogues - Supports product names, descriptions, images and prices per supplier - Products are classified according to the UN/SPSC hierarchical categorisation model and can by searched in a variety of ways
	Customisation of services	- Purchasing of customised products and services through the use of online Web Forms - Customisable commodities like catering services, or business cards, can easily be ordered through the system
	Reporting mechanism	- Reports on purchasing history, usage, performance, order status, etc. - Reports can be generated per cost centre, supplier, product, etc. - Statistical analysis and generation of graphs - Full audit trailing facility, recording all performed actions in text-based files
	Use of GPC	- Government procurement cards (GPC) define the upper limit of allowed purchases for each public sector employee, similar to a common credit card - System allows the ordering, automated approval and payment of goods and services
	Interface with external systems	- Integration with ERP systems - Support for outbound and inbound EDI (Electronic Data Interchange standard), FAX, email and XML
	Advanced search capabilities	- Quick search through free-text fields - Searching of synonyms - Automated spell-checking facilities - Advanced parameterised searching on specific fields - Users can review the complete eCatalogue of a supplier through a 'tree explorer view"
	Alerting mechanism	- Users are notified through an internal message box or "inbox" - When connected, users are presented with their pending tasks (review/approval of a non-approved order, update catalogues, accept/reject delivered goods or services) - Email is used as the outbound communication medium

Table 35: PECOS system overview

4.2.1.1 PECOS state-of-the-art features assessment

The following table presents an assessment of PECOS features against the state-of-the-art, as required by the new legislative framework, or identified during the analysis of the current project. The upper part of the table presents all functional aspects in terms of the eProcurement lifecycle, while the lower part demonstrates overall technical qualities of the system.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eOrdering support	✓ eCatalogues	• Maintenance of eCatalogues is performed online
	✗ Request for Quotation (RFQ)	• Not supported
	✓ Place order	• Advanced searching of eCatalogues and possibility of placing orders
	✓ Approval Path	• Approval of an order following online workflow
	✓ Order fulfilment	• Reception of goods/services online
eInvoicing / ePayment support	✓ Order invoice	• Online creation of invoices and integration with supplier financial system
	✓ Order payment	• Online payment execution through GPCs
Back Office support	✓ Accounting	• Integration with billing system
	✓ Pre-defined reports	• Advanced reporting mechanism
	✗ Monitoring of logs	• No automatic creation of reports from stored system logs
	✓ Statistical analysis	• Advanced reports for statistical analysis
Legislative principles	**Required Functional Details**	**System Implementation Details**
Pan-European standards	✓ International Coding	• Products are classified according to the UN/SPSC hierarchical categorisation model
Interoperability	✓ System accessibility	• Web-based application
	✓ No software/hardware requirements	• Only an Internet-enabled PC is required
	✗ Multilingualism support	• Not supported
	✗ Localisation parameterisation	• Not supported
	✓ Integration to other systems	• Use of XML, cXML, EDI and capability to integrate with ERP and other systems
Confidential nature of data	✓ User profiles	• User authentication is performed through the use of username and password
Security	✓ Usage of SSL	• Enabled
	✗ Data encryption	• Stored data is not encrypted
		• For procurement of specific commodities /services where personal information is required, transmitted data is encrypted
	✗ Digital Signatures	• Not supported
Audit Trail / Traceability	✓ All user actions recorded in system logs	• Enabled
	✗ Detection of tampering attempts	• No mechanism to detect infringements
Time-stamping	✗ Official time	• Not supported

Table 36: PECOS coverage of the new legislative framework on eProcurement

4.2.1.2 Description of PECOS system functionality

Overall, the PECOS system supports the functionality of an advanced eCommerce shop, with the additional element of user profiles and workflow execution for the approval of orders. The following table describes the functionality provided by PECOS in more detail. The first column lists the different activities listed in a logic sequence, the second column is the actor (in this case it is always the buyer) and the third column provides a description of the activity.

Activity	Actor	Description
Model a procurement procedure	Buyer	• Define approval paths • Approval process at contracting authority level (i.e. all purchases need to be reviewed/approved by the same individuals) • Approval process at commodity level (i.e. the purchasing of IT-related goods and services requires approval from an IT resource, while the purchasing of stationary requires approval from the Financial department)
Upload new eCatalogues	Buyer	• Review and approve eCatalaogue (check compliance with the terms and conditions of the corresponding framework agreement) • Use eCatalogues tool to convert incorrectly formatted catalogues to XML or XLS format • Compare old and new prices of products and services of a supplier
Integrate to supplier Website	Buyer	• Apply "punch-out" ("pull") mechanism by connecting to supplier Website, selecting products and automatically transferring relevant data to PECOS • Follow normal approval process in order to place an order

Table 37: PECOS functionality overview

4.2.2 Lotto 2 – Consip (ITALY)

Lotto 2 is the eCatalogues system of the Italian government, facilitating the purchasing (below threshold) of goods and services. The system is open to all suppliers, including those that do not have framework agreements with the Italian public sector. The system is available to all Italian public sector organisations. Buyers are provided with the functionality to purchase goods and services directly from suppliers, or issue a Request for Quotation (RFQ) first.

The system is maintained by Consip, who are responsible for attracting buyers and suppliers in using the system, as well as, uploading supplier catalogues onto the system. Supplier catalogues can be updated at any time, although manual intervention from Consip is necessary.

The following table presents an overview of the main aspects of the Lotto 2 system.

System feature	System implementation details
Functionality overview	- Purchasing from supplier catalogues - Issuing RFQs - Suppliers update theirs catalogues online, modify prices and perform catalogue's lines deletion - Full audit trailing

Exploitation model	- <u>Contracting authorities</u>:
	  o No cost
	  o Free training
	- <u>Suppliers</u>:
	  o No cost
	  o Upload eCatalogues for free

Actors	- <u>Standard User</u>: responsible for browsing through supplier catalogues, comparing commodities, adding commodities to a shopping cart and placing orders and prepare RFQ Drafts which require approval - <u>Super User</u>: can perform direct purchasing, place RFQs and approve pending orders - <u>Administrator</u>: responsible for uploading catalogues, reviewing logs, performing general maintenance of the database records - <u>Supplier</u>: upload catalogues and update, modify a catalogue's lines

	Technology used	-	Based on the Oracle Exchange software modified to some extend in order to comply with the Italian public procurement legislation (DPR 101 Act of 2002)
		-	Oracle Database is utilised for the back-end
		-	Oracle Portal is used for the front-end software
	Security policy	-	Limited use of digital signatures by suppliers outside the system in order to prepare their catalogues
		-	Orders are digitally signed before sent to suppliers by email
		-	Signed documents are also available in the Document Management System that is linked to Oracle Exchange)
	Uploading and updating of eCatalogues	-	Catalogue templates for all types of products in MS Excel format including technical and economic attributes
		-	Suppliers complete their eCatalogues and send via email to Consip
		-	Validation by Consip administrator and conversion into XML format (for uploading on the system) and PDF (for sending confirmation to supplier)
		-	Maintenance/updating of catalogues is performed in a similar process
		-	Single catalogue entries can be changed online
	Version control	-	Document Management service used for safe-storage of supplier catalogues
		-	Version control allows for the storage of current and previous versions of a supplier eCatalogue, useful for conflict resolutions
	Audit trailing / reporting mechanism	-	Recording of all system activities in logs
		-	Generate standard reports
		-	"Supplier Intelligent Reporting" facility generates customised reports

*(left vertical heading: **Interesting system characteristics**)*

Table 38: Lotto 2 system overview

4.2.2.1 Lotto 2 state-of-the-art features assessment

The following table presents an assessment of Lotto 2 features against the state-of-the-art, as required by the new legislative framework, or identified during the analysis of the current project. The upper part of the table presents all functional aspects in terms of the eProcurement lifecycle, while the lower part demonstrates overall technical qualities of the system.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eOrdering support	✓ eCatalogues	• The maintenance of supplier eCatalaogues is performed manually
	✓ Request for Quotation (RFQ)	• Buyers can issue RFQs online
	✓ Place order	• Advanced searching of eCatalogues and online placement of orders
	✓ Approval Path	• Workflows for online approval of placed orders
	✘ Order fulfilment	• Not supported online
eInvoicing / ePayment support	✘ Order invoice	• Not supported online
	✘ Order payment	• Not supported online
Back Office support	✘ Accounting	• No integration with billing system
	✓ Pre-defined reports	• Advanced reporting mechanism
	✘ Monitoring of logs	• No analysis of system logs
	✓ Statistical analysis	• Advanced reports for statistical analysis
Legislative principles	**Required Functional Details**	**System Implementation Details**
Pan-European standards	✓ International Coding	• Supports CPV coding
Interoperability	✘ System accessibility	• Web based application
		• Suppliers must acquire software digital signatures
	✘ No software/hardware requirements	• Suppliers must acquire software digital signatures
	✘ Multilingualism support	• Not supported
	✘ Localisation parameterisation	• Not supported
	✘ Integration to other systems	• Currently not supported

Confidential nature of data	✓ User profiles	• User authentication is performed through the use of username and password
Security	✓ Usage of SSL	• Enabled
	✗ Data encryption	• Not supported
	✓ Digital Signatures	• Supplier eCatalogues are digitally signed before entering the system
Audit Trail / Traceability	✓ All user actions recorded in system logs	• Enabled
	✗ Detection of tampering attempts	• No mechanism to detect infringements.
Time-stamping	✓ Official time	• Use of official time from 3rd party authority

Table 39: Lotto 2 coverage of the new legislative framework on eProcurement

4.2.2.2 Description of Lotto 2 system functionality

The functionality of Lotto 2 can be separated into two main operations: purchasing from an eCatalogue and issuing an RFQ. The following table presents the list of activities involved in both operations along with the actors and a detailed description of each activity.

Activity	Actor	Description
Search eCatalogues	Standard User / Super User	• Search by keywords, favourite items • Perform a complete catalogue search in a tree-exploring manner
Compare Products	Standard User / Super User	• Select two or more products from the same or different suppliers and compare them • System presents all attributes of the selected products in a form of a table
Place an order	Standard User / Super User	• Place one or more products into the shopping cart and define the necessary quantity • System automatically checks whether the actor is a Standard (approval steps need to be followed) or Super user (the order is directly send to the corresponding supplier via email after being digitally signed)
Approve an order	Super User	• If an order is placed by a Standard User, a Super User is required to approve the purchase • Once approved, the order is automatically sent to the corresponding supplier via email (needs to be digitally signed first)
Define RFQ	Standard User / Super User	• Name of the RFQ, whether the RFQ will be visible to the public or not, the ranking criteria, etc.
Invoicing/Delivery Details	Standard User / Super User	• Specify invoice and delivery addresses, delivery details, relevant notes • Upload any relevant attachments
Definition of attributes	Standard User / Super User	• Defined attributes cover both technical characteristics of the desired product and financial offer itself
Invitation of suppliers	Standard User / Super User	• Participation invitation must be sent to at least 5 suppliers • Select from suppliers that are defined in the system, or invite suppliers to register in the system before participating
Execution definition	Standard User / Super User	• Define start and end date of the RFQ and delivery date
Submit	Super User	• Confirm details and submit • All relevant emails are sent to suppliers for their notification

Table 40: Lotto 2 functionality overview

4.2.3 DOIP/DOIPEI – Agency of Government Management (DENMARK)

In Denmark there are two governmental organisations responsible for promoting and developing eProcurement in the country. The National Procurement Ltd (focused in developing the methods for procuring Classic Procedures) and the Agency of Government Management (AGM) focused in developing the methods for repetitive purchases. In their scope for eProcurement, AGM have developed the DOIP/DOIPEI system, an application intended to assist both buying and supplying entities in efficiently conducting their eProcurement business through advanced integration capabilities to their existing systems. DOIP/DOIPEI is used by governmental bodies and suppliers that are in framework agreement.

The DOIP/DOIPEI system was developed primarily for resolving issues with regards to the bureaucracy of public sector purchasing, as well as, automating ordering, invoicing and payment of government supplies. The benefits of the current system are not realised only by the buyers (i.e. the public sector), but also the suppliers, as a wide range of integration capabilities is provided for straight-through processing of the placed orders. The following table presents the most important aspects of the DOIP/DOIPEI system.

It is interesting to mention that other MS governments have also identified the benefits of a generic transactional system, like the BTS of Denmark. The UK government for instance, in March 2004 launched a Prior Information Notice for the realisation of the Zanzibar project; a project which is intended to create a platform similar to BTS, with the ability to allow for the easy integration of several systems. The new eProcurement system of the UK public sector will be based on OSS technologies and will utilise the recently established UKGOV XML schema, however the high-level functionality will be similar to the Danish BTS service.

System feature	System implementation details
Functionality overview	- Automated uploading of catalogues - Purchasing from supplier catalogues - Issue of invoices - Online payment - Integration with external systems - Customisable procurement procedures (approval paths) - Updating of supplier catalogues - Full audit trailing

Exploitation model	- Hosted service
	- <u>Contracting authorities</u>:
	  o Joining fee of €1.200 includes access to eCatalogues, ePurchasing, eInvoicing and eAuctions
	  o Annual maintenance fee of €150 per user
	  o Advanced integration functionality with supplier systems (financial, ERP, HR, etc.) require additional costs
	  o Fees paid per transaction
	- <u>Suppliers</u>:
	  o Fees paid per transaction
	- Fees include support/consultancy services by AGM's technology provider

Actors	- <u>Buyer</u>: workflows (approval paths) and personnel hierarchy of contracting authorities and application of different user roles with different access rights - <u>Supplier</u>: upload and maintain eCatalogues, issue invoices
Interesting system — **Technology used**	- DOIP is based on the Oracle Exchange - DOIPEI extension is based on the Officient eProcurement System and Open Source technologies - Business Transaction Service (BTS) is based on the MS BizTalk Server - Back-office database uses MS SQL Server

	Security policy	- Private network infrastructure linking all government institutions - Secure integration of DOIP/DOIPEI with the governmental financial system and other public sector applications - Suppliers can connect to the system through Virtual Private Networks (VPN) - Disaster Recovery (DR) plan, in order to handle significant failures of the system, featuring the main hosting environment and data replication to a "hot standby" data centre - Use of (software-based) digital signatures for performing significant activities (e.g. place or approve an order)

	Business Transaction Service (BTS)	- Identified issues involved in interconnecting multiple systems without a pre-agreed standard of communication led to the creation of BTS
		- BTS can perform
		   o Data format conversion from one format to another (including HTML, XML, EDI, plain text, spreadsheet, etc.) using the OIOXML UBL 0.7 standard
		   o Data routing, receiving data in a number of ways (including FTP, HTTP, HTTPS, SMTP, etc.) and distributing it according to message header. Transaction queues ensure the guaranteed delivery of the transmitted data
		- BTS transaction hub is a module that satisfies most of the interoperability objectives of the EU public procurement legislation

	Modular approach of system development	- Suppliers can select one or more modules from eAuctions, eCatalogues eInvoicing
		- More advanced features include:
		   o Invoice scanning service: issuing invoices
		   o Invoice service: automating matching of orders to invoices
		   o Complete integration: automated eCatalogue uploading and transactional capabilities

	Multilingualism / localisation	- Support of multiple languages - Can support multiple currencies and units of measurement of products - Utilisation of the UN/SPSC hierarchical codification
	Offline activities	- Suppliers can submit their catalogues in paper format. AGM upload them into the system - Invoices can be sent through the Danish Post Office in order to be converted to electronic format

Table 41: DOIP/DOIPEI system overview

4.2.3.1 DOIP/DOIPEI state-of-the-art features assessment

The following table presents an assessment of DOIP/DOIP EI features against the state-of-the-art, as required by the new legislative framework, or identified during the analysis of the current project. The upper part of the table presents all functional aspects in terms of the eProcurement lifecycle, while the lower part demonstrates overall technical qualities of the system.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eOrdering support	✓ eCatalogues	• Uploading and online maintenance of supplier eCatalogues
	✓ Request for Quotation (RFQ)	• Buyers can issue RFQs online
	✓ Place order	• Advanced searching of eCatalogues and placement of orders
	✓ Approval Path	• Workflows for online approval paths of placed orders
	✓ Order fulfilment	• Online storage of acceptance of received goods/services
eInvoicing / ePayment support	✓ Order invoice	• Online creation of invoices and integration with supplier legacy systems
	✓ Order payment	• Online payment of executed orders
Back Office support	✓ Accounting	• Integration with billing system

Legislative principles	Required Functional Details	System Implementation Details
	✓ Pre-defined reports	• Advanced reporting mechanism
	✓ Monitoring of logs	• Audit trailing mechanism and analysis of system logs
	✓ Statistical analysis	• Statistical analysis from reports
Pan-European standards	✓ International Coding	• Products are classified according to the UN/SPSC hierarchical categorisation model
Interoperability	✓ System accessibility	• Web-based application (ASP) • Use of software digital signatures for critical system actions only (outbound documents)
	✗ No software/hardware requirements	• Users must acquire software digital certificates
	✓ Multilingualism support	• Currently supports in Danish, Swedish, English and German. • Support for all European languages
	✓ Localisation parameterisation	• Currency, units of measure configuration
	✓ Integration to other systems	• Multiple integration solutions and use of BTS transaction hub module for integration with external public systems
Confidential nature of data	✓ User profiles	• User authentication is performed through the use of username and password
Security	✓ Usage of SSL	• Enabled
	✗ Data encryption	• Not Supported
	✓ Digital Signatures	• Use of digital signature for significant activities (e.g. placement, approval of an order)
Audit Trail / Traceability	✓ All user actions recorded in system logs	• Enabled
	✓ Detection of tampering attempts	• User accounts are deactivated for 10 minutes after 3 consecutive failed login attempts • Intrusion Detection Systems
Time-stamping	✓ Official time	• Guarantee of official time from 3rd party authority

Table 42: DOIP/DOIPEI coverage of the new legislative framework on eProcurement

4.2.3.2 Description of DOIP/DOIPEI system functionality

The DOIP/DOIPEI system is offering the possibility of customising workflows and user profiles. Depending on a contracting administration's exact needs, the functionality of the system can vary. However, the high-level functionality supported by the system allows for the full automation of the purchasing process. This obviously depends on the integration level of a supplier. The following table presents the high level functionality features of DOIP/DOIPEI.

Activity	Actor	Description
Upload and maintain eCatalogues	Supplier	• Automated updating of eCatalogues when there is a modification in the supplier's system through direct links
Send order	Buyer	• Electronic transmission of order information to supplier system
Create invoice	Supplier	• Creation of invoices in suppliers system (FakturaService.net) or online and transmission to buyer's billing system
Execute payment	Buyer	• Online execution of a payment after confirmation of goods/services acceptance
Compare orders, invoices, payments	Buyer	• Automatic matching of orders and invoices, immediately highlighting inconsistencies between a placed order and a non-matching invoice
Break down of orders	Buyer	• Break an order to more than one sub-order (when more than one suppliers are required) • Match multiple invoices to orders, allowing for the partial fulfilment of purchasing orders

Table 43: DOIP/DOIPEI functionality overview

4.2.4 ehandel eOrdering – Government Administration Services (NORWAY)

The Government Administration Service (GAS) of Norway has followed a similar approach to the Danish AGM, focusing on the repetitive purchases from suppliers through framework agreements. However, as analysed in section 3.5 and in contrast to most of the other reviewed countries, the Norwegian administration had to face the additional complication of implementing a system which could deal with the decentralised procurement policy of Norway.

GAS realised the ehandel eOrdering system, which can integrate to supplier and buyer systems and through its customisable workflows can support the internal recurring purchasing processes of the public sector. The following table presents the most important aspects of eHandel eOrdering.

System feature	System implementation details
Functionality overview	- Online maintenance of eCatalogues - Purchasing from supplier catalogues - Definition of customisable user roles - Issuing of invoices - Online payments - Integration with buyer and supplier legacy systems - Customise procurement procedures (approval paths) - Full audit trailing functionality and statistical analysis

Exploitation model	- Hosted service
	- Participating organisation (contracting authority or supplier):
	  o Joining fee
	  o Subscription fees based on
	    - Usage: number of users using the system (size of the organisation)
	    - Annual volume of transaction:
	    - For example 250 users and volume of transaction (purchasing/selling) of €20m will be subject to an annual fee of about €20.000
	  o Entities grouped into four categories (smaller, lesser, medium and large). Connection fees vary from no-cost to about €46.000

Actors	- Buyer: default roles for a buyer include:
	  o Requisitioner: responsible for searching through eCatalogues, selecting goods/services to be purchased, creating orders. Orders must follow internal approval paths before being authorised and submitted to supplier
	  o Approver: responsible for reviewing, modifying appropriately and

		approving/disapproving orders
		  o <u>Procurement Manager</u>: responsible for maintaining eCatalogues
		  o <u>System Administrator</u>: responsible for maintaining contracting authority's data (users, user roles, workflows, etc.)
		- <u>Supplier</u>: default roles for a supplier include:
		  o <u>Order Approver</u>: responsible for receiving and approving/disapproving an order placed by a contracting authority
		  o <u>Invoice Sender</u>: responsible for processing received orders, generating and submitting electronic invoices
		  o <u>System Administrator</u>: responsible for maintaining supplier data in the system (users, user roles, workflows, etc.)

Interesting system characteristics	**Technology used**	- Based on CommerceOne, SAP and Poet technologies - Configuration and development according to an implementation model, developed by PWC, GAS and IBX, of process, technology, supplier activation and change management - Interconnections with other systems achieved by employing xCBL 3.0 - Open Catalogue Interface from SAP is utilised
	Quality assurance	- IBX performs a catalogue quality check on behalf of the buyers at least twice a year - Review details of all supplier catalogues in terms of product categorisation, use of images, product name, product description and product attributes - Assist suppliers to better demonstrate their products (badly described products are identified and can be improved)
	Integration with other systems	- Interconnection between buyer and supplier financial systems - Interface with supplementary applications (e.g. supplier warehousing systems, supply chain management systems, etc.) - Fully documented APIs
	Flexibility in approval paths definition	- Pre-defined approval paths for specific users, business units, product types, price thresholds, etc. - User can review approval path and add reviewers/approvers - User can specify a time limit for selected approvers to approve an order. Upon expiration of time limit, the system automatically transfers the approval task to the superior of the selected approver, escalating the task for resolution - Reviewers/approvers are notified of a pending order and can modify, approve or disapprove it

	Use of charge cards	- Charge cards are not in common use in the Norwegian public sector as a main method for payment of goods and services. However, if requested by an individual public sector entity, Procurement Cards (PC) can be supported. In that case:
		  o Public sector employees can place orders using a PC
		  o According to the configuration, an approval process might still be required for products purchased through a PC

	Audit trailing mechanism / statistical analysis	- All user activities are recorded in securely stored system logs - System log files are "append only" - A log processing and reporting tool can analyse system logs and generate reports on historical user activity - A statistical analyser permits for the analysis of historical data in the system (details and rates of the procurement spending)

Table 44: ehandel eOrdering system overview

4.2.4.1 ehandel eOrdering state-of-the-art features assessment

The following table presents an assessment of ehandel eOrdering features against the state-of-the-art, as required by the new legislative framework, or identified during the analysis of the current project. The upper part of the table presents all functional aspects in terms of the eProcurement lifecycle, while the lower part demonstrates overall technical qualities of the system.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eOrdering support	✓ eCatalogues	• Online maintenance of supplier eCatalogues
	✓ Request for Quotation (RFQ)	• Will be supported from June 2004
	✓ Place order	• Advanced searching of eCatalogues and placement of orders online
	✓ Approval Path	• Configure user roles • Workflows for online approval paths of placed orders • Workflows can be modified real-time
	✓ Order fulfilment	• Online storage of acceptance of received goods/services
eInvoicing / ePayment support	✓ Order invoice	• Online creation of invoices and integration with supplier legacy systems
	✓ Order payment	• Online payment of executed orders through integration with buyer legacy systems
Back Office support	✓ Accounting	• Integration with buyer billing system
	✓ Pre-defined reports	• Advanced reporting mechanism
	✓ Monitoring of logs	• Audit trailing mechanism and analysis of system logs
	✓ Statistical analysis	• Advanced reports used for statistical analysis
Legislative principles	**Required Functional Details**	**System Implementation Details**
Pan-European standards	✓ International Coding	• Products are classified according to the UN/SPSC hierarchical categorisation model
Interoperability	✓ System accessibility	• Web-based application
	✓ No software/hardware requirements	• Only a PC with internet connection is needed
	✓ Multilingualism support	• Support for any language
	✗ Localisation parameterisation	• Not supported
	✓ Integration to other systems	• Integration with buyer and supplier legacy systems
Confidential nature of data	✓ User profiles	• User authentication is performed through the use of username and password
Security	✓ Usage of SSL	• Enabled
	✗ Data encryption	• Not supported
	✗ Digital Signatures	• Not supported • A project using PKI for authentication of users will be completed in June 2004.
Audit Trail / Traceability	✓ All user actions recorded in system logs	• Enabled
	✗ Detection of tampering attempts	• No mechanism to detect infringements other than virus check and recording of unauthorized attempts to login
Time-stamping	✗ Official time	• Not supported

Table 45: ehandel eOrdering coverage of the new legislative framework on eProcurement

4.2.4.2 Description of ehandel eOrdering system functionality

This section provides an analysis of the main functionality of the eHandel eOrdering system. The following table lists the main activities as performed by the corresponding actor, as well as a description of each activity.

Activity	Actor	Description
Search products	Requisitioner / Approver	• Search through available eCatalogues, identify commodities to purchase • A search can be done by free text or in a tree-exploring manner
Shopping cart	Requisitioner / Approver	• Identified products/services are added into a shopping cart • Specify required quantity, provide notes regarding the exact requirements • A shopping cart can be automatically populated by user pre-defined templates (i.e. usual commodities purchased by a user)
Placing the order	Requisitioner / Approver	• Specify delivery address, payment method (can include purchasing using a GPC) • Before submitting order, review approval path and add approvers if required
Approving an order	Approver	• Notified by email or view personal homepage in the system • Approve order and escalate to the next person in the approval chain • Can check order status at any point
Submission of an order	System	• Approved orders are automatically submitted to the identified suppliers • A notification is send via email and also appears at the supplier's homepage in the system
Order Acceptance	Order Approver	• Review transmitted order and accept/reject it • If approved, the order is passed to the Invoice Sender, otherwise an order rejection notification may be sent
Electronic Invoice	Invoice Sender	• Prepare invoice and send it electronically • System match invoice to initial order and inform relevant users

Table 46: ehandel eOrdering functionality overview

The aforementioned supplier functionality is available for the so called "integrated suppliers". However, ehandel eOrdering also allows for "hosted suppliers". The hosted suppliers do not have a real time connection to the system. The orders placed by contracting authorities are stored in the system and suppliers are required to access ehandel eOrdering in order to see them.

4.2.5 DPSM eCatalogues – Ministry of Defence (FRANCE)

The eProcurement portals of the DPSM of the French MINDEF, ixarm.com and achats.defense.gouv.fr, offer an eCatalogues module for the purchasing of goods and services from suppliers that are in framework agreement with the MINDEF. A framework agreement is valid for 3 to 5 years normally and contains specific products or services. Currently, about 50 electronic catalogues are available, but they concern small procurement areas and few orders are placed online. The service is hosted by the MINDEF's technology provider Answork. The available eCatalogues can be Answork's public catalogues or MINDEF's specific private catalogues.

The following table presents the most important aspects of the MINDEF eCatalogues system.

System feature		System implementation details
Functionality overview		- Purchasing from supplier catalogues - Approval workflows - Issue invoices - Match order with invoice details - Update supplier catalogues - Full audit trailing functionality and statistical analysis
Exploitation model		- Contracting authorities: o No cost
Actors		- Buyer: possibility of defining several user roles, responsible for updating, approving and uploading supplier eCatalogues
Interesting system characteristics	**Technology used**	- Based on CommerceOne software developed and adapted for the needs of the MINDEF by Answork - A link at the DPSM eCatalogues home page directs to Answork website where the dedicated space for the MINDEF's eCatalogues resides - Back-office database is a dedicated Microsoft SQL Server called EBO MINDEF (Enterprise Buying Organisation) containing information about the organisational structure of MINDEF, the catalogue data and the transactional data (purchase requests, purchase orders, history of transactions etc.)
	Security policy	- Purchase orders are time-stamped. - It is impossible to create purchase orders manually. Purchase orders are created automatically after validation of a purchase request - Authentication to the system is done through the use of user credentials
	Notification mechanism	- Users are informed about pending tasks (validation of an order, modification of a eCatalogue, review of an order sent to another officer for approval) when connecting to their homepage on the system
	International codification standards	- Use of XML eCatalogues in the norm xCbl CommerceOne containing product attributes (product name, description, product image, price etc) - UN/SPSC is used as the codification system of all catalogues - Nato code is also used in the private eCatalogues of the EBO - MINDEF has also its own classification of products which will be incorporated in the system
	Reporting mechanism / statistical analysis	- Reports concerning purchasing orders, purchasing requests, deliveries, product categories, suppliers' classification, etc. - Statistical analysis and generation of graphs - Administrators may monitor user actions
	Advanced search mechanism	- Quick search based on a free-text field - Advanced search by setting several criteria - Browse complete eCatalogue in a tree-exploring manner

Table 47: DPSM eCatalogues system overview

The next phase of further development of the eCatalogue module is its interconnection with external systems, especially supplier ERP systems, which will enable users to have their eCatalogues automatically updated.

4.2.5.1 DPSM eCatalogues state-of-the-art features assessment

The following table presents an assessment of DPSM eCatalogues features against the state-of-the-art, as required by the new legislative framework, or identified during the analysis of the current project. The upper part of the table presents all functional aspects in terms of the eProcurement lifecycle, while the lower part demonstrates overall technical qualities of the system.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eOrdering support	✓ eCatalogues	• Online maintenance of supplier eCatalogues
	✗ Request for Quotation (RFQ)	• Not supported
	✓ Place order	• Advanced searching of eCatalogues and placement of orders online
	✓ Approval Path	• Workflows for online approval paths
	✓ Order fulfilment	• Online acceptance of received goods/services
eInvoicing / ePayment support	✓ Order invoice	• Online creation of invoices
	✗ Order payment	• Not supported
Back Office support	✗ Accounting	• Currently no integration with billing system
	✓ Pre-defined reports	• Advanced reporting mechanism
	✗ Monitoring of logs	• No further analysis of system logs
	✓ Statistical analysis	• Advanced reports used for statistical analysis
Legislative principles	**Required Functional Details**	**System Implementation Details**
Pan-European standards	✓ International Coding	• Products are classified according to the UN/SPSC hierarchical categorisation model • Nato code is used
Interoperability	✓ System accessibility	• Web-based application
	✓ No software/hardware requirements	• Only a PC with internet connection is needed
	✓ Multilingualism support	• Support for any language
	✗ Localisation parameterisation	• Not supported
	✗ Integration to other systems	• Partial integration with supplier back-office systems for issuing invoices
Confidential nature of data	✓ User profiles	• User authentication is performed through the use of username and password
Security	✓ Usage of SSL	• Enabled
	✗ Data encryption	• Not supported
	✗ Digital Signatures	• Not supported
Audit Trail / Traceability	✓ All user actions recorded in system logs	• Enabled
	✗ Detection of tampering attempts	• No mechanism to detect infringements.
Time-stamping	✗ Official time	• Not supported

Table 48: DPSM eCatalogues coverage of the new legislative framework on eProcurement

4.2.5.2 Description of DPSM eCatalogues system functionality

This section provides a presentation of the DPSM eCatalogues functionality. The following table shows the activities performed by the actors (in this case the buyer is considered as the actor) along with a description for each activity.

Activity	Actor	Description
Generate purchase request	Buyer	• Browse private or public eCatalogues • Quoted prices in public eCatalogues are not modifiable • Submit purchase request for validation by the appropriate authority • Track an order in real-time
Create purchase order	Buyer	• Approve/reject request, create purchase order and submit it to supplier
Update eCatalogue	System administrator	• Suppliers submit their eCatalogues in XLS format • Answork super-administrator is responsible for uploading public eCatalogues • MINDEF private eCatalogues must be approved before a MINDEF administrator uploads them • The format of eCatalogues is CUP (Commerce One similar to MS Access)
Execute purchase order	Supplier	• Suppliers have also access to the service using the SupplyOrder module. This module allows the management of the supplier's private space. Suppliers can view and proceed to the execution of purchasing orders destined to them

Table 49: DPSMeCatalogues functionality overview

4.3 eAuctions systems

This section includes all systems which support the eAuction functionality, as described in the new EU public procurement legislation. According to the legislation, the eAuction is a new step of the eAwarding phase, where selected tenders are given the opportunity to participate in an electronic auction event.

The award of a contract can be based either on the best economic value, or on the Most Advantageous Economic Tender (MEAT), which can be concluded by a number of evaluation factors. The evaluation criteria which will be used in an eAuction, as well as, the fact that an eAuction event may take place during the eAwarding phase of the procurement are all elements that need to be included in the notification of the contract. The EU public procurement legislation also allows the contracting authorities not to award the contract to the winner of the eAuction, providing clear and specific justification.

The following table presents state-of-the-art for eAuction systems, derived from requirements of new EU public procurement legislation and their further analysis. These are used in the subsequent sections, for analysing the reviewed EU eAuctions systems. The upper part of the table contains functionality concerning the eProcurement lifecycle. The lower part contains functionality concerning legal aspects.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eNotification support	? Tenderers invitation	• Automated notification to qualified tenderers
	? Definition of parameters	• Definition of the procedure, criteria and evaluation function
eTendering support	? Bid preparation	• Online preparation of bids
	? Bid submission	• Online submission of bids
eAwarding support	? Bid evaluation and ranking	• Automated evaluation and ranking using the evaluation function
Back Office support	? Pre-defined reports	• Reporting capability
	? Monitoring of logs	• Analysis of system logs (audit trailing logs)
	? Statistical analysis	• Sophisticated statistical capability
Legislative principles	**Required Functional Details**	**System Implementation Details**
Equal amount of information	? Automated notification	• Automated user alerting of important events
	? Questions & Answers	• Online execution of Q&A sessions
Pan-European standards	? International Coding	• Categorisation according to international hierarchical coding systems (CPV, UN/SPSC, NUTS, etc.)
	? Document standards	• Standard document file formats
Unrestricted access to information	? Full competition documentation	• Publication of details of the full procurement process
Interoperability	? System accessibility	• Ease of access to the system
	? No software/hardware requirements	• No cost-related software/hardware prerequisites to access system
	? Multilingualism support	• Multiple character sets
	? Localisation parameterisation	• GUI parameterisation (currency, date/time format, units of measure, etc.)
Confidential nature of data	? User profiles	• Restricted access to data according to user profile
	? Classification notification	• Restricted publication of ranking information (i.e. not divulgation of bidders' identities)
Restrict access to tenders	? Locking of supplier bids	• Locking of bids, in case of not-instant bid evaluation and ranking
	? Encryption when bids are stored	• Secure storage of submitted bids
Four eyes principle	? Two officials to open bids	• Opening of bids by at least two physical persons, in case of not-instant bid evaluation and ranking
Authentication	? Authentication of tenderers	• Proof of user identity
Call for Tenders specifications	? Bids compliant with call for tenders specification	• Acceptance of bids which conform to the call for tenders specification
Security	? Usage of SSL	• Minimum security level for data transmission
	? Data encryption	• Secure storage of all sensitive information
	? Digital Signatures	• Application of digital certificates
Audit Trail / Traceability	? All user actions recorded in system logs	• Automated storage of all system event details
	? Detection of tampering attempts	• Mechanism for monitoring infiltration attempts
Time-stamping	? Official time	• Integration to 3rd party authority for official guarantee

Table 50: Features that establish the uniformity of an eAuction system with the new legislative framework on eProcurement

4.3.1 eAuction services – Office of Government Commerce (UK)

The OGC has opted for the provision of five different eAuction service providers, offering a wide range of potential functionality for the various contracting authorities. The OGC conducted the procurement to put in place a framework to allow contracting authorities to use the services. Each contracting authority that wishes to utilise the services establishes a contract with the provider. The five eAuctions service providers that have been employed for this purpose comprise:

- Achilles
- British Telecom
- BravoSolution
- Trading Partners
- Wipro

Significant effort has been given to support functionality in accordance to the UK procurement laws, as well as, the EU public procurement legislative framework. The following table provides the main aspects of the UK eAuctions services.

System feature		System implementation details
Functionality overview		- Submission of bids via online Web Forms - Define eAuction space (type of event, bidding fields, evaluation function, etc.) - Automatic evaluation of bids and ranking of bidders in real-time

Exploitation model		- Hosted service
		- <u>Contracting authorities:</u>
		  o Three "related" services for setting-up an eAuction competition:
		    - Market Sourcing: obtain in-depth information regarding specific goods/services, define bidding fields for eAuctions, define formula to be used for automated evaluation
		    - Marketing: utilise various means for notifying suppliers of the planned auction event
		    - Training: train participants (contracting authorities personnel and suppliers) on the functionality of the system
		  o Basic fee for organising an eAuction is between £3.000 and £7.000 depending on which "related" services are bought
		  o Possibility for bulk purchase of eAuctions for reducing costs

Actors		- <u>Procurement officer:</u> responsible for the creation of the eAuction space, definition of the evaluation criteria and format, answering to suppliers' questions - <u>Supplier:</u> responsible for placing bids, utilising online Web Forms
Interesting system characteristics	**Technology used**	- The services are hosted by five different technology providers according to OGC's technical specifications and their SLAs
	Security policy	- Security based on SSL - Bids are submitted via online Web Forms - User authentication is performed through the use of user credentials - No use of digital signatures
	Awarding procedure	- Automatic opening and immediate evaluation of bids allowing for real-time sorting of all bids according to either lowest price or the most economically advantageous tender (concluded based on more complex evaluation criteria)
	Technical support	- Operation of a helpdesk for both online and offline bidding - In case of technical problems which prevent the placement of bids, the helpdesk can place the bid instead of the supplier - A different helpdesk operator is made available for each supplier - Helpdesk operators under pre-specified procedures can pause, terminate and/or cancel the bidding process

Table 51: UK eAuctions services system overview

4.3.1.1 UK eAuctions services state-of-the-art features assessment

The following table presents an assessment of UK eAuctions services features against the state-of-the-art, as required by the new legislative framework, or identified during the analysis of the current project. The upper part of the table presents all functional aspects in terms of the eProcurement lifecycle, while the lower part demonstrates overall technical qualities of the system.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eNotification support	✓ Tenderers invitation	• Automated notification to qualified tenderers via email
	✓ Definition of parameters	• Definition of the bidding fields, bidding procedure, criteria and evaluation function
eTendering support	✓ Bid preparation	• Online preparation of bids via Web Forms
	✓ Bid submission	• Online submission of bids
eAwarding support	✓ Bid evaluation and ranking	• Automated evaluation of bids using the evaluation function and immediate ranking
Back Office support	✓ Pre-defined reports	• Service providers offer standard reports • Buyers can also define their own reports
	✓ Monitoring of logs	• Logs are fully audible and available to authorised personnel
	✓ Statistical analysis	• Buyers are assisted by service providers to perform statistical analysis
Legislative principles	**Required Functional Details**	**System Implementation Details**
Equal amount of information	✓ Automated notification	• Automated user alerting via email
	✓ Questions & Answers	• Online execution of Q&A sessions via email
Pan-European standards	✓ International Coding	• Product categorisation according to the UN/SPSC international hierarchical coding system
	N/A Document standards	• No files are transmitted as the bidding process is performed via the utilisation of Web Forms
Unrestricted access to information	✓ Full competition documentation	• Publication of full details of the eAuction process
Interoperability	✓ System accessibility	• Web-based systems
	✓ No software/hardware requirements	• An PC with internet connection • Digital signatures are not utilised
	✓ Multilingualism support	• Offered by some service providers
	✓ Localisation parameterisation	• Offered by some service providers
Confidential nature of data	✓ User profiles	• Restricted access to data according to user profile
	✓ Classification notification	• Selection of information to be visible by bidders
Restrict access to tenders	N/A Locking of supplier bids	• Bids are automatically opened, evaluated and ranked immediately after receipt
	N/A Encryption when bids are stored	• Bids are automatically opened, evaluated and ranked immediately after receipt
Four eyes principle	N/A Two officials to open bids	• Bids are automatically opened, evaluated and ranked immediately after receipt
Authentication	✓ Authentication of tenderers	• User authentication using user credentials
Call for Tenders specifications	✓ Bids compliant with call for tenders specification	• Acceptance of bids according to eAuction event specifications
Security	✓ Usage of SSL	• Enabled
	✗ Data encryption	• Not supported
	✗ Digital Signatures	• Not supported

Audit Trail / Traceability	✓ All user actions recorded in system logs	• Automated storage of system events in logs
	✗ Detection of tampering attempts	• Not supported
Time-stamping	✗ Official time	• Not supported

Table 52: UK eAuctions services coverage of the new legislative framework on eProcurement

4.3.1.2 Description of UK eAuctions systems functionality

As the OGC offers five different service providers with varied functionality, this section demonstrates high-level functionality, common for all services.

Activity	Actor	Description
Definition of eAuction space	Buyer	• Specify various parameters for defining the exact details of the auction event regarding the type and rules of the auction (i.e. number of rounds or real-time, auctioning with time limits, supporting documentation, etc.) • Set up the way confidentiality will be preserved (i.e. what information will buyers and suppliers be able to see during the bidding phase)
Creation of bidding fields	Buyer	• Define fields to bid upon • Group fields into offer types (economic offer and technical offer fields) • Create Web Form and relevant field validation rules to be used by suppliers for placing a bid
Define evaluation formula	Buyer	• Define evaluation formula to be used for the automatic assessment of bids • OGC offers consultancy services to assist buyers in constructing the most appropriate formula for achieving the best possible results from the eAuction
Communication of eAuction details	Buyer	• Communicate eAuction details (including evaluation formula) to all participating suppliers • Question and Answers session is utilised to clarify all suppliers' questions
eAuction event	Supplier	• Submit bids through online Web Forms • Submit a question • Contact helpdesk to report potential technical problems

Table 53: UK eAuctions functionality overview

4.3.2 Lotto 1 – Consip (ITALY)

Lotto 1 is an eAuctions system based on the Italian laws and regulations which mainly promote the principles of flexibility and customisation. Unlike the new EU public procurement legislation, the Italian legislation permits an eAuction to constitute a complete and stand-alone eProcurement procedure. Therefore, Lotto 1 is used for procurement of Individual Contracts without a full initial evaluation. The system is hosted by the Consip's technology provider, IBM.

The following table presents the main aspects of the Lotto 1 eAuctions system.

System feature	System implementation details
Functionality overview	- Submission of bids via online Web Forms - Define eAuction space (type of event, bidding fields, evaluation function etc.) - Automatic evaluation of bids and ranking of bidders in real-time

Exploitation model	- <u>Contracting authorities:</u>
	  o No cost
	- <u>Suppliers:</u>
	  o No cost
	  o Cost-free training on eAuctions events

Actors	- <u>Administrator:</u> responsible for defining the eAuction space, according to the contracting authority requirements, admitting/inviting participating tenderers - <u>Supplier</u>: responsible for submitting bids during the eAuction event
(Interesting system characteristics) **Technology used**	- Oracle Exchange
Security policy	- User authentication utilising smart cards and digital signatures issued from an Italian certificate authority - Submission of bids does not require a digital signature but only a 5-digit Personal Identification Number (PIN) - At the closure of the eAuction, a PDF document with the winner bid details is sent to the winner in order to be digitally signed, returned and stored - Authentication of submitted bids is guaranteed by supplier's digital signature
Evaluation function	- Possibility to include unlimited number of parameters and weights - Utilisation of Web Forms for the definition of eAuctions bidding fields - Definition of call specifications according (acceptable minimum/maximum numbers for each bidding field)
Supplier Intelligent Reporting	- Obtaining information of previous eAuctions, generated savings, supplier participation - Currently no automated methods for analysing system logs, it can be implemented

Table 54: Lotto 1 system overview

4.3.2.1 Lotto 1 state-of-the-art features assessment

The following table presents an assessment of Lotto 1 features against the state-of-the-art, as required by the new legislative framework, or identified during the analysis of the current project. The upper part of the table presents all functional aspects in terms of the eProcurement lifecycle, while the lower part demonstrates overall technical qualities of the system.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eNotification support	✓ Tenderers invitation	• Automated notification to qualified tenderers via email
	✓ Definition of parameters	• Definition of the bidding fields, bidding procedure, criteria and evaluation function
eTendering support	✓ Bid preparation	• Online preparation of bids via Web Forms
	✓ Bid submission	• Online submission of bids
eAwarding support	✓ Bid evaluation and ranking	• Automated evaluation of bids using the evaluation function
Back Office support	✓ Pre-defined reports	• Capability of producing pre-define reports
	✗ Monitoring of logs	• Not supported
	✓ Statistical analysis	• Advanced reporting mechanism used for statistical analysis
Legislative principles	**Required Functional Details**	**System Implementation Details**
Equal amount of information	✓ Automated notification	• Automated user alerting via email
	✗ Questions & Answers	• Not supported
Pan-European standards	✓ International Coding	• Product categorisation according to the UN/SPSC hierarchical coding system
	N/A Document standards	• No files are transmitted as the bidding process is performed via the utilisation of Web Forms
Unrestricted access to information	✓ Full competition documentation	• Publication of full details of the eAuction process
Interoperability	✗ System accessibility	• Web-based system • Users must have smart cards with digital signatures
	✗ No software/hardware requirements	• Users must have smart cards with digital signatures and smart card reader
	✗ Multilingualism support	• Not supported
	✗ Localisation parameterisation	• Not supported
Confidential nature of data	✓ User profiles	• User profile based access to data
	✓ Classification notification	• Information to be visible by bidders
Restrict access to tenders	✓ Locking of supplier bids	• Bids are locked when received • At the end of each auction round the system performs automatic evaluation and ranking
	✗ Encryption when bids are stored	• Bids are not encrypted when received • At the end of each auction round the system performs automatic evaluation and ranking • System will be upgraded to Oracle Exchange 6.2.4 to support bid encryption
Four eyes principle	✗ Two officials to open bids	• Not supported
Authentication	✓ Authentication of tenderers	• User authentication using digital signatures and PINs
Call for Tenders specifications	✓ Bids compliant with call for tenders specification	• Acceptance of bids according to eAuction event specifications
Security	✓ Usage of SSL	• Enabled
	✗ Data encryption	• Not supported • System will be upgraded to Oracle Exchange 6.2.4 to support bid encryption
	✓ Digital Signatures	• Enabled
Audit Trail / Traceability	✓ All user actions recorded in system logs	• Automated storage of system events in logs
	✗ Detection of tampering attempts	• Not supported
Time-stamping	✓ Official time	• Guarantee of official time by 3rd party authority

Table 55: Lotto 1 coverage of the new legislative framework on eProcurement

4.3.2.2 Description of Lotto 1 system functionality

This section provides an analysis of the basic system functionality. The following table presents a list of activities with information about the actor and a more detailed description of the activity.

Activity	Actor	Description
Creation of eAuction space	Buyer	• Select type of auction, define parameters, (e.g. single or multiple rounds eAuction, conditions for closing a round, time period between rounds, etc.)
Definition of bidding fields	Buyer	• Define bidding fields • Define call specifications (i.e. validation rules of bidding fields for maximum/minimum values)

Definition of the evaluation function	Buyer	• Define evaluation formula for determining the ranking of bids
		• Two types of evaluation formulae supported:
		  o Economic Evaluation + Technical Evaluation
		  o Technical Evaluation / Economic Evaluation
		• Economic and Technical Evaluations are defined using an unlimited number of variables and weights

Invitation of suppliers	Buyer	• Select suppliers to be invited to the eAuction
Place bids	Supplier	• Submit a bid utilising online Web Forms • Set the figures for all mandatory fields
Ranking of bids	System	• Automatically rank bids based on the evaluation function • No manual intervention is allowed
Closing a round	Buyer	• A round is closed, either automatically by a pre-set deadline or by manual intervention from the buyer if all participating suppliers have successfully submitted their bids
Closing of the auction event	System	• The auction event is automatically terminated when the number of pre-set rounds is reached • No manual intervention is allowed

Table 56: Lotto 1 functionality overview

4.3.3 DOIP eAuction – Agency of Government Management (DENMARK)

The DOIP eAuction system is a module of the initial DOIP system, abiding to the rules and regulations of the Danish legislation. The DOIP eAuction, as mentioned in section 3.2, is based on the "out-of-the-box" Oracle Exchange product. Furthermore, it has similar functionality to the Italian Lotto 1 system (section 4.3.2), which is also based on the same software package.

The following table presents the main aspects of the DOIP eAuctions system.

System feature	System implementation details
Functionality overview	- Submission of bids via online Web Forms - Definition of eAuction space (type of event, bidding fields, evaluation function etc.) - Automatic evaluation and ranking of bids in real-time
Exploitation model	- Hosted service - The exploitation model for the eAuction module is included on the overall DOIP/DOIPEI exploitation model as discussed in section 4.2.3
Actors	- <u>Administrator:</u> responsible for defining eAuctions spaces according to the contracting authority's requirements - Supplier: responsible for the submission of bids during the eAuction
Interesting system characteristics — **Technology used**	- gatetrade have sub-contracted the hosting of the system to a specialised hosting organisation, which apart from their obligations as defined by the AGM, accommodate also a Business Continuity Plan (BCP) through a "hot-standby" data-centre
Security policy	- User authentication is performed through the use of usernames and password - On submission of a bid, the Supplier ID, User ID and time-stamp are stored in the bid
Evaluation function	- Support for advanced flexibility in the definition the evaluation function - Support the use of Web Forms based on customisable bidding fields for the submission of bids
Supplier Intelligent Reporting	- Possibility to analyse competitions through the "Supplier Intelligent Reporting" module of the Oracle Exchange Server - Deduce information on previous auction events, savings generated by eAuctions, participation figures, etc.

Table 57: DOIP eAuctions system overview

4.3.3.1 DOIP eAuctions state-of-the-art features assessment

The following table presents an assessment of DOIP eAuctions features against the state-of-the-art, as required by the new legislative framework, or identified during the analysis of the current project. The upper part of the table presents all functional aspects in terms of the eProcurement lifecycle, while the lower part demonstrates overall technical qualities of the system.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eNotification support	✓ Tenderers invitation	• Automated notification to qualified tenderers via email
	✓ Definition of parameters	• Definition of the bidding fields, bidding procedure, criteria and evaluation function
eTendering support	✓ Bid preparation	• Online preparation of bids via Web Forms
	✓ Bid submission	• Online submission of bids
eAwarding support	✓ Bid evaluation and ranking	• Automated evaluation of bids using the evaluation function
Back Office support	✓ Pre-defined reports	• Capability of producing pre-define reports
	✓ Monitoring of logs	• Available functionality
	✓ Statistical analysis	• Advanced reporting mechanism used for statistical analysis
Legislative principles	**Required Functional Details**	**System Implementation Details**
Equal amount of information	✓ Automated notification	• Automated user alerting via email
	✓ Questions & Answers	• All questions are handled and answers are distributed online to all bidders
Pan-European standards	✓ International Coding	• Product categorisation according to the UN/SPSC international hierarchical coding system
	N/A Document standards	• No files are transmitted as the bidding process is performed via the utilisation of Web Forms
Unrestricted access to information	✓ Full competition documentation	• Publication of full details of the eAuction process
Interoperability	✓ System accessibility	• Web-based system
	✓ No software/hardware requirements	• Users must have software digital signature
	✓ Multilingualism support	• Currently operates in Danish, Swedish, English and German languages. • Support for all European languages
	✓ Localisation parameterisation	• Currency, units of measure configuration
Confidential nature of data	✓ User profiles	• Restricted access to data according to user profile
	✓ Classification notification	• Selection of information to be visible by bidders (including questions and answers)
Restrict access to tenders	✘ Locking of supplier bids	• Opening and evaluation of bids is performed automatically on receipt
	✘ Encryption when bids are stored	
Four eyes principle	✘ Two officials to open bids	• For "closed auction", access to and the bids evaluation is done at the auction closing
Authentication	✓ Authentication of tenderers	• User authentication using digital signatures
Call for Tenders specifications	✓ Bids compliant with call for tenders specification	• Acceptance of bids according to eAuction event specifications (i.e. pre-defined validation criteria based on Web Forms)
Security	✓ Usage of SSL	• Enabled
	✘ Data encryption	• Not supported
	✓ Digital Signatures	• Enabled
Audit Trail / Traceability	✓ All user actions recorded in system logs	• Automated storage of system events in logs
	✓ Detection of tampering attempts	• User accounts are deactivated for 10 minutes after 3 consecutive failed login attempts • Intrusion Detection Systems
Time-stamping	✓ Official time	• Guarantee of official time by 3rd party authority

Table 58: DOIP eAuctions coverage of the new legislative framework on eProcurement

4.3.3.2 Description of DOIP eAuctions system functionality

The functionality presented in the section is very similar to the functionality of the Italian Lotto 1 system (section 4.3.2), as both systems are based on the same software package. The following table presents a list of activities with information about the actor and a more detailed description of the activity.

Activity	Actor	Description
Creation of an auction event	Buyer	• Select the type and define exact parameters of the eAuction (e.g. conditions for closing a round, time period between rounds, etc.)
Definition of bidding fields	Buyer	• Define bidding fields • Define bidding fields specifications (i.e. validation rules on minimum/maximum figures for each field)
Definition of the evaluation function	Buyer	• Define precise evaluation formula for determining bid ranking according to the requirements of each eAuction • Define technical and financial evaluation mechanisms utilising an unlimited number of variables and weights
Invitation of suppliers	Buyer	• Select suppliers to be invited in the eAuction
Place bids	Supplier	• A bid is placed online, utilising online Web Forms • Set figures of their offer for all mandatory fields and submit the bid
Ranking of bids	System	• Automatic ranking of bids based on the evaluation function
Closing of the auction event	System	• Automatic termination of the eAuction

Table 59: DOIP eAuctions functionality overview

4.3.4 ehandel eAuctions – Government Administration Services (NORWAY)

As analysed in section 4.1.8, the ehandel eSourcing service supports the execution of electronic auctions. The functionality of the eAuctions module is the "out-of-the-box" functionality of the Emptoris eSourcing module.

The eAuctions module of the ehandel eSourcing service is not currently operational and therefore is not fully analysed in this report. However, the following table provides some interesting aspects of the module.

System feature		System implementation details
Functionality overview		- Submission of bids via online Web Forms - Definition of eAuction space (type of event, bidding fields, evaluation function, etc.) - Automatic evaluation of bids and ranking of bidders in real-time
Exploitation model		- Exact exploitation model not currently finalised - Some information regarding this model can be found in the exploitation model of the main eSourcing service (section 4.1.8)
Actors		- <u>Buyer:</u> responsible for the creation of eAuction spaces, definition of evaluation criteria and format, answering to supplier questions. During the eAuction, buyers can review statistics on the bidding history and pause or cancel the event - <u>Supplier:</u> responsible for the placing of bids utilising online Web Forms
Interesting system characteristics	**Security policy**	- Access to system via the Internet using SSL encryption - User authentication is performed using user credentials - No use of digital signatures - Usage of PKI based authentication, signatures etc. is under
	Multilingualism / localisation	- Possibility of defining multiple currencies and languages - Definition of data to be visible by users during eAuctions, the duration of the event, rules for extension, etc.
	Statistical analysis	- Advanced statistical analysis can be performed in real-time - Comparison of bids from different suppliers and identification of differences - Comparison of historical bids of a supplier and identification of reactions to bids from other suppliers - Generation of exportable statistics and graphs

Table 60: ehandel eAuctions system overview

4.3.4.1 ehandel eAuctions state-of-the-art features assessment

As this service is not currently operational, the analysis for the current report did not assess its current state-of-the-art features.

4.3.4.2 Description of ehandel eAuctions system functionality

Although the system is not fully operational yet the main functionality has been decided. The following table presents a list of the most important user activities, the actors and the details of each activity.

Activity	Actor	Description
Creation of an auction	Buyer	• Select type of eAuction (Standard Reverse Auction Module or Advanced Reverse Auction Module for multi-item procurement)
Definition of bidding fields	Buyer	• Define items to be procured: bidding fields and bidding field specifications (minimum and maximum allowed values) • Define non-mandatory bidding fields: assisting buyers to further understand suppliers' offer
Definition of the evaluation function	Buyer	• Define evaluation formula • Bids are automatically ranked based either on lowest price or on MEAT
Invitation of suppliers	Buyer	• Invite suppliers to take part in the eAuction
Place bids	Supplier	• Bids are placed online, utilising online Web Forms • Set figures on all mandatory fields and submit bid • A bid does not have to be placed for the complete business opportunity. For competitions that include more than one "item lines" (i.e. printers, cables and paper), a supplier can place a bid for only one "item line"
Ranking of bids	System	• Bids are automatically ranked based on the evaluation formula, including Best Total Offer (best offer for all "item lines") and Best Item Line (best offer for each "item line")
Statistical Analysis	Buyer	• Perform statistical analysis in real-time • Compare details of each bid in terms of bidding fields (i.e. quantity, quality, cost, etc) • Review bidding history and generate real-time graphs

Table 61: ehandel eAuctions functionality overview

4.3.5 DPSM eAuctions – Ministry of Defence (FRANCE)

The two French armament portals offer access to an eAuctions service where inverse auctions for the defence sector can take place. The so-called "Reverse Auctions room" (SEI) is a service that allows MINDEF procurement officers to conduct real-time electronic auctions with suppliers, in accordance to the New Code for the Public Procurement (NCMP). The NCMP allows the use of reverse auctioning for choosing a supplier for routine low-value purchases.

The service is hosted by the MINDEF's technical provider Answork. Currently the system is operational but not very utilised yet. A few "simulations" of eAuctions have been conducted by certain purchasing entities of the MINDEF. The primary objective of these events is to train MINDEF suppliers, as well as, validate the operation of the service. The following table presents the most interesting features of the DPSM eAuctions service.

System feature		System implementation details
Functionality overview		- Submission of bids via online Web Forms - Define eAuction space (type of event, bidding fields, evaluation function etc.) - Automatic evaluation of bids and ranking of bidders in real-time

Exploitation model		- <u>Contracting authorities</u>:
		   o No cost
		- <u>Buying administrations</u>:
		   o No cost
		   o Free training

Actors		- <u>Administrator</u>: responsible for the complete management of the SEI (attribution of user roles, configuration of SEI, system monitoring, etc.). This role is assumed by Answork personnel - <u>Promoter</u>: responsible for the configuration of eAuctions, selection of bidders according to the procurement agency requirements, sending of messages to participants and generation of reports - <u>Auctioneer</u>: responsible for submitting bids during the eAuctions
Interesting system characteristics	**Technology used**	- Based on CommerceOne software, developed and adapted for the needs of the MINDEF - Hosted by MINDEF's technology provider Answork, a link at DPSM eAuction home page redirects users to Answork's website, where the dedicated space for the MINDEF's eAuctions resides
	Security policy	- User authentication is performed through the use of specific user credentials for a particular eAuction - No use of digital certficates
	Evaluation function	- Use of the "handicaps" mechanism for eAuctions with one criterion (price). All other criteria are transformed into price "handicaps" before the start of the eAuction - Algebraic formula is used for multi-criteria eAuctions
	Reporting mechanism	- Generation of reports on past eAuctions, including information on participation of auctioneers, history of bids, SEI categories, etc. - Maintenance of logs for every user action
	Multilingualism	- Support of French, English, Portuguese, Italian, Spanish and German language - Other languages can be also added

Table 62: DPSM eAuctions system overview

4.3.5.1 DPSM eAuctions state-of-the-art features assessment

The following table presents an assessment of DPSM eAuctions features against the state-of-the-art, as required by the new legislative framework, or identified during the analysis of the current project. The upper part of the table presents all functional aspects in terms of the eProcurement lifecycle, while the lower part demonstrates overall technical qualities of the system.

eProcurement lifecycle	Required Functional Details	System Implementation Details
eNotification support	✓ Tenderers invitation	• Automated notification to qualified tenderers via email
	✓ Definition of parameters	• Definition of the bidding fields, bidding procedure, criteria and evaluation function
eTendering support	✓ Bid preparation	• Online preparation of bids via Web Forms
	✓ Bid submission	• Online submission of bids
eAwarding support	✓ Bid evaluation and ranking	• Automated evaluation of bids using the evaluation function
Back Office support	✓ Pre-defined reports	• Capability of producing pre-define reports
	✗ Monitoring of logs	• Not supported
	✓ Statistical analysis	• Advanced reporting mechanism used for statistical analysis
Legislative principles	**Required Functional Details**	**System Implementation Details**
Equal amount of information	✓ Automated notification	• Automated user alerting via email
	✓ Questions & Answers	• Suppliers can post questions via screen messages to buyer • Buyer decides which information will be available to suppliers
Pan-European standards	✓ International Coding	• Product categorisation according to the UN/SPSC international hierarchical coding system
	N/A Document standards	• No files are transmitted as the bidding process is performed via the utilisation of Web Forms
Unrestricted access to information	✓ Full competition documentation	• Publication of full details of the eAuction process
Interoperability	✓ System accessibility	• Web-based system • Users must have digital signature
	✓ No software/hardware requirements	• Users must have software digital signature
	✓ Multilingualism support	• Not supported
	✗ Localisation parameterisation	• Not supported
Confidential nature of data	✓ User profiles	• Restricted access to data according to user profile
	✓ Classification notification	• Selection of information to be visible by bidders
Restrict access to tenders	N/A Locking of supplier bids	• No files are transmitted as the bidding process is performed via the utilisation of Web Forms
	N/A Encryption when bids are stored	
Four eyes principle	N/A Two officials to open bids	
Authentication	✓ Authentication of tenderers	• User authentication using digital signatures
Call for Tenders specifications	✓ Bids compliant with call for tenders specification	• Acceptance of bids according to eAuction event specifications
Security	✓ Usage of SSL	• Enabled
	✗ Data encryption	• Not supported
	✗ Digital Signatures	• Not supported
Audit Trail / Traceability	✓ All user actions recorded in system logs	• Automated storage of system events in logs
	✗ Detection of tampering attempts	• Not supported
Time-stamping	✗ Official time	• Not supported

Table 63: DPSM eAuctions coverage of the new legislative framework on eProcurement

4.3.5.2 Description of DPSM eAuctions system functionality

This section provides an analysis of the functionality supported by the DPSM eAuctions service. The following table presents a list of the most important user activities described by actor and activity details.

Activity	Actor	Description
Configuration of the eAuction	Administrator	• Set category and sub-category, currency to be used, number of decimal digits to be shown, language, maximum period and the maximum number of extensions to be allowed • Define type of eAuctions (standard, multi-lot or multi-criteria)
Configure standard reverse auction	Promoter	• Define starting price, desired quantity, bid price step (minimum price change) and reserved price (minimum bid price defined in order to avoid very low biffing prices that can lead the auction to a dead-end) • Auctioneers are competing on price only and the lowest price is the winner of the auction • Decide which information will be communicated to the participating auctioneers • During the eAuction, each candidate can view the bids made by other candidates, though their identity is not revealed
Configure multi-lot reverse auction	Promoter	• Define lots by segregating global market of the eAuction • eAuction (mono or multi-criteria) lot phase will run for each lot of the market • Decide which auctioneers are able to participate in each lot phase • Possibility to assign a phase for the global market • Lot phases may run simultaneously or one after the other • Auctioneer may decide to bid for the global market or for just a particular lot
Configure multi-criteria reverse auction	Promoter	• Define criteria to be used and create bidding fields for the Web Forms • Define evaluation function

Table 64: DPSMeAuctions functionality overview

4.4 eProcurement supplementary systems

This section provides an overview of systems that although do not directly support any procedures or phases of eProcurement, they can significantly assist contracting authorities and suppliers in conducting eProcurement.

The growth of eProcurement and the benefits it can offer, heavily depend on how both public administrations and suppliers are able to adapt to the new environment of public procurement. The procedures that both types of organisations must exercise for utilising eProcurement are somewhat different to their current procedures. Therefore education and training to eProcurement procedures, change management, IT familiarisation and similar aspects may be considered by all Member States.

4.4.1 Supplier Adoption Database – Scottish Executive (UK/Scotland)

One area that the Scottish Executive has focused is that of assisting suppliers throughout the country to participate in electronic competitions. A significant hurdle in order for eProcurement to become efficient and fair, is that of supplier participation in electronic procurement. Therefore, assisting suppliers to utilise eProcurement solutions is of paramount importance.

Using eProcurement usually means that supplying organisations need to change their way they conduct their business with the public sector, which in turn involves costs in restructuring internal procedures, defining new roles and responsibilities to support the new procedures, as well as, educate their personnel in the new procurement methods. Therefore, suppliers and particularly SMEs, are sceptical in adopting eProcurement.

To overcome this hurdle, Scottish Executive has developed a methodology by which all public sector administrations joining their eProcurement programme, are immediately responsible for assisting their usual suppliers to understand the way they will be required from now on to conduct business with the Scottish public sector. Contracting authorities are also responsible for assisting suppliers to understand the considerable benefits from the use of eProcurement.

The methodology includes the following steps:
- **Validation of suppliers:** Each contracting authority selects eight suppliers, which best fit their roll out plan. Then, the central ePS team in conjunction with the buyer focus on executing the supplier adoption programme to these selected suppliers
- **Communication:** Scottish Executive contacts the selected suppliers through a "warm up call" in order to arrange for a meeting. Furthermore, suppliers are provided with a briefing of the concepts of electronic procurement, as well as, are given a "capability questionnaire" to complete. Through these questionnaires, Scottish Executive can decide on the details which will be presented to the supplier during their meeting (e.g. the next step in the Supplier Adoption Programme)
- **Conference:** During this meeting, Scottish Executive and the buyer introduce the supplier to the ePS eProcurement systems, as well as, the new methods they will be conducting their business in the future. Suppliers are requested to involve commercial/sales personnel, IT/technical resources, as well as, decision makers who can understand the new procedures and decide how eProcurement can best fit their organisation
- **Channel:** At another meeting between all parties, Scottish Executive and the buyer can present to the supplier various organisational aspects they can adapt, following their analysis from the previous step (e.g. the information they have been providing with during the Conference step)
- **Connect:** During this phase, the technical integration implementation takes place, where the supplier is provided access to the ePS eProcurement systems
- **Post Implementation / Supplier Development:** Scottish Executive and the contracting authority assist the selected suppliers in resolving any post-implementation technical or other issues. Furthermore, they can assist suppliers to further develop their implementation in order to achieve the most out of the ePS systems

To assist the supplier adoption programme, Scottish Executive has furthermore developed a simple but very informative Supplier Adoption Database, which allows at any time its users to find out at which step of the adoption methodology a supplier is. Furthermore, users can find out which public administration is responsible for introducing a supplier to eProcurement, which ensures that a supplier will be approached and introduced to the Scottish systems only by one administration rather than all administrations that conduct business with them. Therefore, duplication of effort is eliminated.

The Supplier Adoption Database does not directly support any phases of eProcurement, however it can assist administrations to make the Scottish eProcurement systems more appealing to suppliers, helping them to use and benefit from electronic procurement. Furthermore, it can provide a medium for Scottish Executive to evaluate how successful their provided services are, as this database can easily demonstrate how many suppliers are using the Scottish systems against the number of suppliers that have been through the adoption methodology.

4.4.2 eCatalogue Converter – Scottish Executive (UK/Scotland)

Another supplementary application used by the Scottish Executive, is the eCatalogues Converter, which functions in a similar way to the "converter functionality" of the BTS transactional hub of the Danish implementation (section 4.2.3). The PECOS system (section 4.2.1) is heavily based on the use of electronic catalogues. Despite its advanced integration capabilities with a variety of data sources for importing/generating supplier catalogues, the system still requires suppliers to submit their catalogues in pre-defined formats. This can in turn translate to costs for suppliers (especially SMEs that do not necessarily have in-house IT expertise). In order for no supplier to be discriminated by being enforced to modify their applications in order to integrate to PECOS, Scottish Executive realised the eCatalogue Converter.

The eCatalogue Converter, developed by Reqio, a sub-contractor of the CGEY, provides the online ability to ePS systems to accept supplier electronic catalogues in many formats and automatically convert them to the format required by the PECOS application (or any other format). Furthermore, this application is used as a "staging area", where buyers can review the products and prices of a new supplier catalogue against the old details, before accepting it in the PECOS system. The purpose of the "staging area" is to ensure that only catalogues that are in compliance with the framework agreements between the buyers and suppliers are uploaded in the PECOS application. The eCatalogue Converter can accept catalogues in various formats, including:

- eXtended Markup Language (XML)
- Microsoft Excel Spreadsheets (XLS)
- Electronic Data Interchange (EDI)
- Comma-separated values (CSV)
- HyperText Markup Language (HTML)

The import/export flexibility provided by the application can be utilised in future modifications of the ePS systems, without necessitating changes to the suppliers systems. Furthermore, such application can be further elaborated to an Open Source Software (OSS) tool, which can work as an add-on to most eProcurement systems that support eCatalogues.

4.4.3 Eureka Search – Interchange of Data between Administrations (EU)

Eureka is a search engine operating in a web-based environment, suitable for Internet/Intranet portals. The application is developed based on the mnoGoSearch search engine, an open source software covered by the GNU General Public License. Eureka is one of the tools of the IDA Common Tools set. It can be used with the Unix or Linux operating systems, however it is not freely available for MS Windows platforms, as this software is offered on Windows only under a commercial software licensing agreement.

Eureka was implemented by TRASYS, who aimed at offering a central point of reference for the search of information in any of the EU's Internet websites, irrespectively of the physical location of this information. The application comprises three main parts:

- **Indexer:** The primary functionality of the Indexer is to recursively search through HTTP servers, FTP servers, local files, etc. and capture all document information. Such information can be keywords and document meta-data (i.e. information describing the document). Following this operation, the Indexer stores the captured information in a database

- **Search facility:** This facility allows users to search all collected information from the Indexer through an easy-to-use web interface. There are two types of search available: the simple search, based on a simple string-based searches and the advanced search, incorporating searches using multiple search criteria (i.e. keyword, date, etc.)

- **Administration Interface:** Through this interface the system administrator or content manager can obtain statistics about the use of the application. Furthermore, the system administrator can obtain access to the index storage database allowing for alterations in the index configuration

The indexing priority is configurable. The priority that is assigned for certain attributes of a document such as the body, title, description, keywords, etc. by the Indexer can be modified by an authorised user (e.g. content manager). However basic authorisation must be applied for indexing password protected areas (usually by the system administrator). Another important feature of Eureka is the support of a wide range of character sets and languages. The character set and the language of documents allows for 70 character set/language combinations. It also includes 11 official languages of the EU, as well as, languages of candidate countries. The supported META tags by default are "keywords" and "description". However the application allows users to define their own META tags (i.e. category, classification, etc.). There is a "Re-entry capability", meaning that more than one Indexer and searching processes can be executed at the same time. This allows a big volume of data to be processed in a short time. The indexing depth can be limited depending on the user's needs and the volume of the indexed documents. Finally, the application supports boolean queries and fuzzy search (search by different word forms, synonyms, substrings).

Some of the most interesting technical features of Eureka are:

- Supports of single and multi-byte character sets including UTF8
- Support of HTTP/1.0, FTP and HTTP Proxy indexing, as well as, local file system indexing
- Support of different SQL databases for the backend including MySQL, Oracle, Sybase, MS SQL, IBM DB2 and others
- Capability of implementing a distributed database environment using several machines
- Support of several types of document types including HTML, plain text files, PDF, XLS, DOC and others

Eureka can be a useful tool for indexing eTendering systems which contain a lot of documents. An efficient search facility is necessary for allowing users to have quick access to the interesting information. Most of the current eTendering and eNotification systems provide a search based on the title of the call, the date, the department and other high-level information. However, it is important for suppliers to locate documents not only through searching the META data of a document, but on its contents as well. Therefore, Eureka can be a very positive add-on to such systems.

5 ANNEX A: Structured Communication

This section presents the document sent to all participating Member State administrations, requesting system documentation about their eProcurement initiative. Furthermore, the questionnaire utilised for obtaining the preliminary information from MS is presented in this Annex.

System Documentation

- System architecture
- Functional and technical design of system components and modules
- Documentation on any open source and proprietary software used
- Supported hardware and software platforms
- Information on Security aspects
- Operational Guide and User Manual
- Online Access to the system.

Questionnaire
Section A: Contact Information

In the following, please provide contact information for the person responsible to complete this questionnaire and contact for any adhoc queries.

A1. Name: _____

A2. Position: _____

A3. Organisation: _____

A4. E-Mail/Telephone/Fax: _____

Section B: Organisation Information

In the following, please provide information about your organisation.

B1. Sector the organisation belongs to:

- Federal Government

- State Government

- County/ Municipal Authority

- Other, please specify: _____

B2. Type of goods that are procured in the system and provision of an indicative list of them:

- Products _____

- Services _____

- Works _____

- Other, please specify: _____

B3. Contract types supported (please circle appropriately):

- Individual Contracts YES / NO

- Framework Agreement Contracts YES / NO

- Dynamic Purchasing System YES / NO

- eCatalogues YES / NO

- eAuctions YES / NO

B4. Procurement procedures supported:

- Open Procedure YES / NO

- Restricted Procedure YES / NO

- Negotiated Procedure YES / NO

B5. Further details about the organisation and the unit:

_____

_____

Section C: System Description

In the following, please describe in brief the functionality supported by the system.

C1. System Identification

- System name _____

- URL of operational system _____

- URL for online information _____

C2. Key Actors, Roles and Responsibilities

Please provide information on the key actors involved in your system (officers, agencies, suppliers, committees, etc), clearly presenting their roles and responsibilities.

_____

_____

_____

_____

C3. Pre–Conditions

Please specify any conditions that need to be satisfied before procurement can commence.

_____

_____

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_____

C4. Notification

Please describe the workflow of your call notification process, including the actors involved and the interactive procedure for Questions and Answers sessions. Furthermore, please mention other online, publicly-accessible systems that notices are published.

_____

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C5. Tendering / Submission

Please describe the workflow of your tender reception process, including information on administering materials received.

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_____

C6. Evaluation / Awarding

Please describe the workflow of your evaluation process and the procedures followed for the qualification and ranking of the different bids. In this context, please specify the relevant selection criteria and their corresponding weights, as well as, the ranking mechanisms involved (lowest price, most economically advantageous tender, etc).

_____

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C7. Invitation to Participate in Tendering

a) In case you are automating the restricted procurement procedure, please describe the workflow followed for inviting suppliers to express their interest in participating to calls for tenders.

_____

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b) Please, describe the workflow followed for the preliminary selection of candidates, providing information on the selection criteria.

_____

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C8. Invitation to Negotiate in Tendering

In case you are automating the negotiated procurement procedure, please describe the workflow followed for inviting suppliers to participate in the negotiation process.

_____

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C9. Framework Agreements

In case you are automating the procurement procedure under framework agreement, please describe all steps followed for awarding an individual contract within such framework.

_____

_____

_____

C10. Electronic Auctions

In case you are supporting the procurement procedure of electronic auctions, please describe all steps followed for the submission and awarding of the procedure.

_____

_____

_____

_____

C11. Monitoring
Please describe the monitoring mechanisms used, providing information for internal reporting, as well as, for reporting to the European Commission or other monitoring bodies. Please elaborate on the content of such reports (e.g. information, history, statistics, etc).

_____

_____

_____

_____

C12. Legal framework
Please provide information on the legal framework according to which the system is operating.

_____

_____

_____

_____

C13. Additional information

Please feel free to provide any further relevant information concerning the procurement procedures of the system.

_____

_____

_____

Section D: System Implementation

In the following, please provide information about the organisation that technically implemented the eProcurement system and your feedback for its performance in accommodating your needs.

D1. System Operation

Please provide information on the date that the system was set operational and describe in brief any major software releases that have taken place since then, the new functionality of each release and their corresponding dates.

_____

_____

_____

_____

D2. System Implementers

Please provide information on the organisation that technically implemented the system, clearly presenting the organisation name and website, as well as, the number of employees involved in the project (if known), the duration from the system conception to its realisation and any deviations from the original plan in terms of time and/or costs.

_____

_____

_____

_____

D3. Support services

Please provide information on the support services the implementing organisation is offering, explaining in brief the response times to critical software defects and its capability to support your eProcurement business.

_____

_____

_____

D4. Please provide any additional information you believe will be useful for evaluating the implementer's capacity to offer high standards of service to your organisation.

_____

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_____

_____

Section E: Technical information

In the following, please provide some technical information about the system.

E1. Technologies used
Please describe the technologies used for the implementation of the system.

_____

_____

_____

_____

E2. Legacy Systems

Please describe the external dependencies of the system and any necessary interconnections with legacy systems. For each of these systems, briefly describe the underlining technology in terms of hardware, software and networking facilities supported (EC databases, Email system, Web site, supplier and administrative databases, financial systems, etc).

_____

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E3. Standardisation

Please describe any eProcurement or technical standards used within your organisation (e.g. Common Procurement Vocabulary, XML Schemas, etc). Furthermore, please elaborate on capabilities of the system to support multiple languages, as well as, globalisation parameterisation (i.e. currency, date/time format, etc.)

_____

_____

_____

_____

E4. Electronic Documents

Please provide information on the type of electronic documents used within your organisation for supporting eProcurement procedures (MS Office, Postscript Documents (PDF), HTML, XML, etc).

_____

_____

_____

E5. Software adaptability
Please provide information on the flexibility of the software to be adjusted to your organisation's needs, as redefined since its operation by users' feedback.

_____

_____

_____

E6. Software stability
Please provide information on how often in the last 6 months the software changed and to what degree, in order to support your procurement procedures and organisation hierarchy. Please characterise all software changes by a Mission Critical, High, Intermediate or Low level. (Please provide a separate document if there are many changes to be reported).

_____

_____

_____

E7. Software reliability

Please provide information on how often in the last 2 months there have been problems with the application, causing inconveniences or complete system failures. Please characterise all software reliability issues by a Mission Critical, High, Intermediate or Low level. (Please provide a separate document if there are many changes to be reported).

_____

_____

_____

E8. Volume Capacity / Service Disruption

Please provide information on how the system handles capacity failures and in particular during the submission of tenders. Furthermore, please explain the procedures followed in the occurrence of service disruptions, focusing on the submission of tenders.

_____

_____

_____

E9. Costs

Please provide information on the necessary costs for the licensing and maintenance of the software, as well as, hardware components of the system.

_____

_____

_____

<u>Section F: Security</u>

In the following, please provide information in terms of the security setup used in the production environment of the system.

F1. Electronic Signature Devices

Please provide information concerning the use of electronic signature in the system.

_____

_____

_____

F2. Security Infrastructure

Please provide information on the use of any security technologies within your administration (e.g. Firewall, SSL, Encryption, Digital Certificates, etc).

_____

_____

_____

F3. Virus detection / Document corruption

Please provide any information on mechanisms for virus detection during the submission of tenders. Please elaborate on the procedures followed for virus infected or corrupted offers and in particular their validity during the awarding phase.

_____

_____

_____

F4. Traceability / Logging of events

Please provide any information related to the mechanisms used for tracing events in the system and in particular when a tender is being opened.

_____

_____

_____

F5. Economic Operator Security Prerequisites

Please explain any hardware/software components an economic operator must have and configure appropriately, in order to view and/or participate in a call.

_____

_____

_____

F6. Additional Information

Please provide any information you think might be useful in order to appreciate the security capability of the system.

_____

_____

<u>Section G. Comparison to EU principles</u>
Please provide information about the ability of the system to satisfy various legal requirements of the new EU public procurement legislation (circle where appropriate).

G1. <u>Equal Amount of Information:</u> Tenderers receive an equal amount of information at the same time.

YES / NO / PARTIALLY (if partially, please give details)

_____

_____

G2. <u>Pan-European Standards:</u> Authorities are required to use European standards in order not to favour domestic suppliers.

YES / NO / PARTIALLY (if partially, please give details)

_____

_____

G3. <u>Unrestricted Access to Information</u>: Participating companies must be furnished throughout the process with precise information concerning the conduct of the entire procedure.

YES / NO / PARTIALLY (if partially, please give details)

_____

_____

G4. <u>Non-Discriminatory Electronic Communication</u>: The tools to be used for communicating by electronic means, as well as, their technical characteristics, must not result in a discrimination of bidders. They must be generally available and interoperable, with the information and communication technology products in general use.

YES / NO / PARTIALLY (if partially, please give details)

_____

_____

G5. <u>Interoperability</u>: Use of electronic means that are interoperable (interchangeable) with electronic means generally available on the market or generally used in other Member States, without using country-specific or otherwise discriminatory technologies capable of restricting economic operators' access to the tendering procedure.

YES / NO / PARTIALLY (if partially, please give details)

_____

_____

G6. <u>Confidential Nature of Data</u>: Tenderers have the right to require a contracting authority to respect the confidential nature of information which they make available

YES / NO / PARTIALLY (if partially, please give details)

_____

_____

G7. <u>Electronic Signatures</u>: Tenders, requests to participate and the forwarding of plans and projects must comply with national provisions adopted pursuant to directive 1999/93/EC;

YES / NO / PARTIALLY (if partially, please give details)

_____

_____

G8. <u>Restrict Access to Tenders</u>: Contracting authorities must not be able to examine the content of requests to participate and tenders before the deadline for their submission has expired. If that access prohibition is infringed, then the electronic device for the receipt of tenders or requests to participate should detect the infringement. Also, only authorised persons may set or change the dates for opening the data received.

YES / NO / PARTIALLY (if partially, please give details)

_____

_____

G9. <u>Four-Eye Principle</u>: During the different stages of the contract award procedure, access to all data submitted must be possible only through simultaneous action by authorised persons. Simultaneous action by authorised persons must give access to data transmitted only after the defined date and the data received and opened in accordance with these requirements must remain accessible only to persons authorised to acquaint themselves therewith.

YES / NO / PARTIALLY (if partially, please give details)

_____

_____

G10. <u>Authenticate Tenders</u>: The requirement of ensuring the integrity of data entails the obligation for contracting authorities and suppliers to sign all submitted documents of requests to participate and tenders. This will provide the necessary authentication of the call, by validating the sender and its contents. If document contents are changed at any time, then the electronic device for the receipt of tenders or requests to participate should detect the infringement.

YES / NO / PARTIALLY (if partially, please give details)

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_____

G11. <u>Publish Notices</u>: Individual contracts are publicised as early as possible in a medium equally accessible to all interested parties (the Community's Official Journal).

YES / NO / PARTIALLY (if partially, please give details)

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G12. <u>Objective Criteria</u>: Procurement procedures should be formalised and transparent to the participants, by employing objective selection and award criteria.

YES / NO / PARTIALLY (if partially, please give details)

_____

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G13. <u>Call Specifications</u>: All offers to be considered during the selection stages of the award procedure should be in conformity with the call specifications.

YES / NO / PARTIALLY (if partially, please give details)

_____

_____

G14. <u>Pre-Stated Criteria</u>: The contracting authority shall state all the criteria intended to apply to the award in the contract documents or in the call notice.

YES / NO / PARTIALLY (if partially, please give details)

_____

_____

<u>Section H. Questions about this questionnaire</u>

For clarifications in completing this questionnaire, please contact European Dynamics on +30 210 8094500. Thank you for your help……

6 ANNEX B: Contact information from participating public administrations

Country	Public Administration	Contact person
Belgium	Ministry of Defence Service Public Fédéral	**Michel de Prijck** michel.deprijck@mil.be
Denmark	AGM	**Thomas Pedersen** tmp@oes.dk
France	Ministry of Defence (DGA)	**Michel Cadic** michel.cadic@dga.defense.gouv.fr
		Romain Berline romain.berline@dga.defense.gouv.fr
Italy	Consip	**Stefano Tremolanti** stefano.tremolanti@tesoro.it
		Luca Mastrogregori luca.mastrogregori@tesoro.it
		Alessandra Paccoi alessandra.paccoi@tesoro.it
Norway	GAS	**Andre Hoddevik** Andre.hoddevik@ehandel.no
		Peder Bentsen peder.bentsen@ehandel.no
	Ministry of Labour and Governmental Administration	**Sidsel Tonnessen** sidsel.tonnessen@aad.dep.no
Spain (Basque country)	Department of Finance and Public Administration	**Jaime Domiguez Macaya** j-dguez-macaya@ej-gv.es
United Kingdom	OGC	**Amabel Grant** amabel.grant@ogc.gsi.gov.uk
		Andrew Filer andrew.filer@ogc.gsi.gov.uk
United Kingdom (Scotland)	Scottish Executive	**Steve Murray** steve.murray@scotland.gsi.gov.uk
		Neil Stewart neil.stewart@scotland.gsi.gov.uk
European Commission	DG ADMIN	**Dimitrios Athanassiadis** dimitrios.athanassiadis@ceceu.int

Table 65: Contact information from participating public administrations