



# PEPPOL Deliverable D4.1 Standard Basic eOrdering Format and Data Structure



*Version 1.2*



PEPPOL WP4 2009-07-07



**Borderless eProcurement**  
Let's make it happen!

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### 3 Interoperability Issues in eOrdering

Despite the merits and possibilities of linking individuals, organisations and governments by use of advanced IT technology together, the practical technicalities involved in the exchange of information have turned out to be a major challenge in the procurement area. However, these obstacles do not only apply to procurement processes but to a large number of electronic services, especially eGovernment services. IDABC has therefore addressed interoperability issues from the perspective of pan-European eGovernment services and created the following definition:

*“Interoperability means the ability of information and communication technology (ICT) systems, as well as, of the business processes they support in order to exchange data and enable the sharing of information and knowledge<sup>10</sup>.”*

Although one of IDABC’s goals states that IDABC will “support the European Union’s strategy of providing user-centred eServices between public administrations, as well as between administrations and the public (citizens and enterprises), at a pan-European level”, the principles developed by IDABC can also be applied to information exchange between public administrations and their suppliers, i.e. for the public procurement process.

One of IDABC’s major achievements was the development of the European Interoperability Framework (EIF), which will be described in more detail in the next chapters, including a discussion of its relevance for eOrdering interoperability issues.

#### 3.1 The European Interoperability Framework – EIF

The first version of EIF (EIF v1.0) was published in 2004<sup>11</sup>. Following IDABC’s goals, it focused on the implementation of pan-European Government services. It quickly turned out that interoperability stretched far beyond this approach and specifically also includes non-governmental parties. This fact has been taken into consideration when IDABC started to develop the second version of EIF. External parties (industry, NGOs) were actively involved to provide input and participate in the development of the revised version of EIF. The involvement of external parties clearly showed some shortcomings of EIF v1.0, like:

- The original interoperability model could be more complete (only three levels)
- More attention to the question of legacy systems and the evolution of standards is needed (in addition to the long-term focus on open standards introduced in the original EIF)
- Unclear responsibilities (the cataloguing of which adds up to the absence of strong governance)
- Insufficient attention was paid to the question of legal barriers to interoperability, which are both numerous and serious.

These conclusions led to the set up of EIF v0.2, which has been published in a draft version for public review in 2008. Although not officially released, all further discussions in this document refer to that updated version of EIF.

It should be noted that the Interoperability Framework itself is not a standard; it rather provides a framework (policies and guidelines) for a structured selection or definition of standards. EIF is made up from three dimensions as shown in the illustration below:

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<sup>10</sup> IDABC Homepage: <http://ec.europa.eu/idabc/en/chapter/5883>

<sup>11</sup> European Communities IDABC, Draft document as basis for EIF 2.0, 2008 (<http://ec.europa.eu/idabc/servlets/Doc?id=31597>)

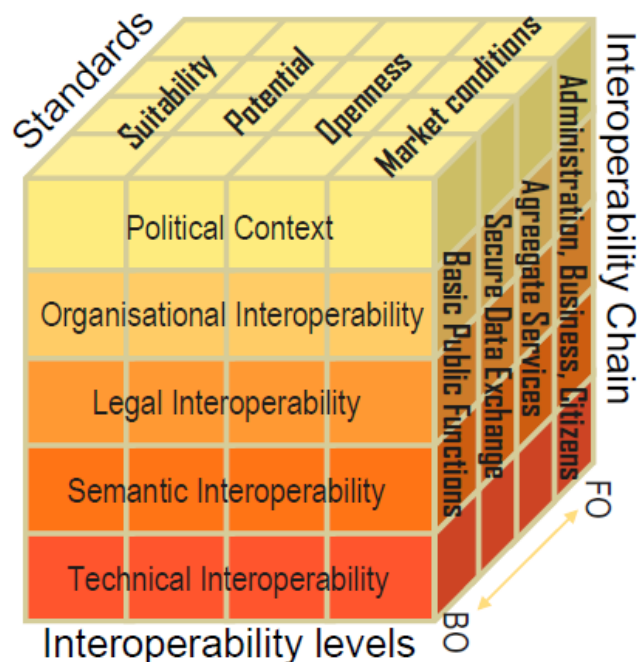


Figure 2: The European Interoperability Framework

The interoperability levels refer to the different dimensions that are affected by the interoperability discussion, their relevance in the eOrdering area will be explained in more detail in the following chapters.

The interoperability chain describes the building blocks to be implemented for providing the infrastructure necessary to enable interoperability. For PEPPOL, many of these technical common components will be defined and/or built by WP8. Furthermore, PEPPOL will have to develop a governance model to ensure the sustainability of that infrastructure.

The interoperability standards define the agreements that have been made by the process participants in order to ensure the same understanding of the exchanged information. In PEPPOL WP4 context, these agreements are mostly reflected in eOrdering profiles (see chapter 7.3).

### 3.2 Political Context

Political support is a basic condition for creation of interoperable structures as this does not only involve efforts, resources and costs; politics on different levels specifically come into play when legal and/or organisational change has to be addressed.

As described in chapter 7, a certain number of technical and non-technical elements will have to be created or adapted for the pilot on European and national level. WP4 members have different experiences with the extent of political support: taking part in the PEPPOL project itself can surely be seen as important political commitment. In some countries, the change of political sponsors has proved to be a challenge for the continuous support and funding of the national part of PEPPOL. It is therefore imperative, that PEPPOL is consequently marketed on national and EU-level. This task is assigned to WP7.

### 3.3 Legal Interoperability

From a WP4 point of view, legal interoperability provides the framework in which the exchange of eOrdering data has the same meaning and the same legal weight (both, obligations and rights derived from the order documents).

Many aspects of public procurement are heavily regulated, both on European and on national level. This applies to most of the pre-award phase of public procurement (supplier selection, i.e. tendering) and to some elements of the post-award phase (e.g. invoicing).

An analysis of the elements covered by WP4 has shown that there is little regulation of this part of the procurement cycle:

- EU-level: no relevant legal regulations for electronic Ordering
- National level: some countries did set up certain requirements, especially in the field of signature requirements of order and order-related documents.

The details of these different national legal requirements are discussed in chapter 6 in more detail.

### 3.4 Organisational Interoperability

Organisational interoperability aspects focus on the process, i.e. the synchronization and cooperation of the process partners.

The eOrdering process is rather straight-forward and has been transposed into an electronic environment long after similar processes have been used in a non-digital world (unlike for example the process for eCatalogues where processes for information exchange differ heavily between the paper-based and the electronic version). Furthermore, the order-relevant parts of the process have very similar requirements in both, public and private sector (unlike the pre-award phase / supplier selection that differs due to heavy legal restrictions in the public procurement area).

However, as described in chapter 6, the order processes and the existing tools to support the process are different to some extent in the existing national solutions, which leads to the necessity of organisational alignment. The basis for this alignment is the process that is defined in the eOrdering relevant profiles described in chapter 7.3.

In contrast to many initiatives in the past that have tried to incorporate a “100%-approach” into their alignment (and have not yet succeeded to achieve the long-term sustainability intended by the PEPPOL project), WP4 has decided to approach this alignment from a very pragmatic point of view: the focus of the first part of the design, implementation and pilot phases will be on the simplest available process specifications, assuming that these will have the highest potential to be supported by all (or at least the majority) of pilot participants. Details on the chosen profile(s) are discussed in chapter 7.

### 3.5 Semantic Interoperability

By realizing semantic interoperability, the process partners agree on the format and meanings of data exchanged and therefore reach a common understanding / interpretation of the exchanged information. The reduction of semantic mismatch between sender and receiver of information will allow minimizing errors and manual interventions and enable efficient re-using of the exchanged data.

Applied to the work concerning eOrdering in PEPPOL project, this interoperability aspect is catered for by two work packages:

- WP8 establishes the basic framework in which data will be exchanged. This framework consists of technical building blocks or specifications (e.g. specifications of web services linking access points to the PEPPOL infrastructure).
- WP4 will provide semantic definitions of the data to be exchanged for the eOrdering process. These definitions are defined in co-operation with CEN ISSS WS/BII and comprised in the document specification part of the order-relevant CEN profiles (being the second important definition of a CEN profile in addition to the process specifications mentioned before).

The WP4 analysis of existing national applications has shown that a variety of semantic frameworks currently exist. Given the time frame of PEPPOL project, it is not realistic (and not a PEPPOL goal)

that semantic interoperability will be achieved by harmonizing all the existing applications. In a first step, this “common language” will therefore be implemented for information exchange within the PEPPOL infrastructure. This requires a mapping of existing data structures and data elements to the newly defined PEPPOL semantics.

In former initiatives (e.g. IDABC, 2005<sup>12</sup>) the feasibility of centralized services of pan-European Clearing Houses was analyzed. PEPPOL has a different approach in that it tries to avoid the set-up of centralized services and/or infrastructure components for multiple reasons (e.g. responsibility, maintenance and governance). Instead, these mappings will have to be cared for by the individual process participants (either directly or by using third-party service providers – e.g. VANs). It is, however, PEPPOL’s goal to provide these specifications in a way that not only public services will incorporate them into their applications but also commercial suppliers of e-Procurement software and middleware components.

### 3.6 Technical Interoperability

The technical linkage of IT systems and services cover many aspects, such as: interfaces, data integration, security, accessibility, storage, non-repudiation, etc. In PEPPOL, the technical interoperability is catered for by WP8. Their specifications have been set up based on requirements that were analyzed and aligned with the other PEPPOL work packages.

### 3.7 Benefits

Benefits of the introduction of e-Procurement systems are numerous and cover aspects like:

- Removal/minimization of paper-based processes
- Reduction of manual, error-prone process steps
- Increase of transparency, security and traceability
- Shift of work description from operative to strategic purchasing activities

By its nature, e-Procurement systems have to integrate into a supply chain that again interconnects internal and external process parties. In order to raise their full potential, the different elements of the supply chain have to be interoperable in the sense of a minimum need for manual intervention. If achieved, all parties involved can benefit from these advantages.

In the context of public procurement the direct beneficiaries are:

- Administrations and
- Businesses

Indirectly, practically every citizen / tax-payer can benefit, e.g. when public procurement becomes more efficient and thus save costs.

The following table gives an overview of potential benefits derived from interoperability in the area of eOrdering:

Beneficiary	Benefits of Interoperability
Administrations	<ul style="list-style-type: none"> <li>• Facilitate cross-border cooperation with international suppliers</li> <li>• Raise efficiency of purchasing process</li> <li>• Lower IT costs through replacement of bilateral (point-to-point) integration with interoperability that is based on open standards</li> </ul>

<sup>12</sup> IDABC Semantic Interoperability Strategy: The European XML Clearinghouse Feasibility Study

- Businesses
- and supported by open software
- Easier access to public demand
  - Reduce cost and complexity of information exchange with different public sector organisations; alignment of common eOrdering processes
  - Potentially re-use interoperability capabilities in private sector business operations

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