

CEN Workshop Agreement
CEN/ISSS Workshop on
Discovery of and Access to eGovernment
Resources (CEN/ISSS WS/eGov-Share)

**"Sharing eGovernment resources: a practical
approach for designers and developers"**

Part 0: Introduction and overview

1 Introduction

Over the years, eGovernment programmes and projects across Europe have been describing services and other resources (e.g. document collections) for use by systems and applications to serve citizens, business and administration agencies. One of the challenges across those programmes and projects is to bring together information that is created and maintained in different places under different mandates and authorities and offer that information in an integrated way to the various audiences. Providing eGovernment services involves a substantial amount of co-operation and sharing.

The CEN/ISSS eGov-Share Workshop¹ was established in February 2008 with the aim to help designers and developers of these eGovernment systems and applications by developing approaches and tools to facilitate the sharing of information across agencies and across borders. In earlier work at CEN, the European Committee for Standardization, participants in the eGovernment Focus Group² showed a great interest in increasing co-operation and sharing, which led to the establishment of the eGov-Share Workshop.

2 Benefits of resource sharing

While the concrete fabric of government varies from country to country, it always comprises a number of hierarchical levels such as local authorities, possibly regions and a central government. Many of the services that governments provide to citizens, businesses and other public authorities involve a number of government levels or even cross the borders of individual countries. The Service Directive 2006/123/EC³ will increase the need for transparent cross-organizational processes and services including cross-border processes and services. The end users must be able to interact with a point of single contact. In order to successfully operate a single point of contact, one agency needs to have access to information about services and other resources that are provided by other agencies. This would make it possible to create the kind of joined-up government that users are increasingly expecting.

The increased cooperation between government agencies on all levels needs to be supported by Information and Communications Technology (ICT). The systems and tools that have been developed over the years to manage information provide a possibility to create an appropriate level of interoperability enabling exchange of information describing services and other resources.

Many portal solutions, especially on the local and regional levels, do already aggregate information on services and other resources and publish this information to a wide audience. By now many local authorities in Europe make many of their services and contact details publicly accessible. Some countries have even built national registries that allow aggregation of information on a national scale. However, there is at present no standardized way to exchange such information between portals and registries and to bring it together behind centralized interfaces.

¹ <http://www.cen.eu/cenorm/sectors/sectors/iss/wshops/wsegovshare.asp>

² <http://www.cen.eu/CENORM/sectors/sectors/iss/activity/e-government.asp>

³ http://www.europarl.europa.eu/comparl/imco/services_directive/061227_oj_services_en.pdf

As an important side effect, such aggregated information about existing eGovernment resources allows to spot different realizations for functionally similar or, indeed, identical resources. Discovering and accessing existing service implementations and/or process descriptions promises significant savings and quality improvements through reuse and continuous improvement of existing solutions and processes where feasible and in line with government policies.

Resource sharing hence facilitates the reuse of existing resources or collaborative work towards creating new ones. It

- provides added value for administrations
- responds to current eGovernment objectives
- can be done within existing or foreseen projects
- can be managed and sustained

Resource sharing in turn needs:

- On a political level: a recognition of the need for and role of cross-border and pan-European services
- On a organizational level: "collaboration by design": ensuring that services and systems are able to interoperate from the outset, at design stage
- On a cultural level: building a collaborative mentality into the organizing principles of eService project management

Traditionally, many portals and repositories have attempted to increase visibility through centralizing information in one portal or repository. This approach can make a lot of sense at a pan-organizational level where a local authority, an agency or a ministry maintains one portal which give access to all of the organization's resources. However, it does not scale. An organization strives to retain control over its resources and their descriptions and to present them to their customers. This is sensible: the best knowledge about individual resources usually resides with the maintainers of those very resources themselves. It is something inherently decentral.

That said, there is also a need for centrality, or, more exactly, one or more central interfaces that aggregate this information in one or more places. Regions want to present or evaluate information about the resources that are held in their area, and so often does the central government. On an even larger scale, the European Union needs such data on a pan-European scale to implement pan-European eGovernment Services (PEGS).

Linking up existing resources by labelling and identifying them can bring many of the benefits of a centralized repository without the cost. A uniform and standardized mapping for the descriptions of services and other eGovernment resources across Europe permits to make eGovernment retrievable across Europe and plays, hence, an important part in realizing an ecosystem of national and pan-European government services.

3 Use cases

To demonstrate some of the drivers and benefits of resource sharing, two use cases are outlined below.

The first is a situation where, in a regional co-operation structure that crosses borders (a so-called Euroregion), several local authorities want to share information about the government services that are available throughout the region.

The second is a case where a government official needs to plan a specific eGovernment project and wishes to research the subject prior to a possible implementation phase.

3.1 Regional cooperation

In the context of a project to provide a regional portal, all agencies involved need to agree on a common reference ontology to which they can map their descriptive information, supported by a common terminology base and select an exchange and notification mechanism to create and maintain the aggregated information.

As a result, each of the regional partners can establish a portals containing information of the services across the whole region. Each of the portals maps the concepts and actors that are involved in the other regions to the local terminology thereby giving its users access to the local federated repository within their own cultural and linguistic context.

Precisely the same mechanisms lend themselves of course to building regional or national information bases within a country.

3.2 Inner-Administration Information Base

In order to be able to determine how to structure and plan a new eGovernment project, a government official may need access to relevant laws (especially for his/her own jurisdiction), policy documents, possibly requirement documents specified by other administrations and existing implementations of particular approaches and technologies, while other resources such as general documentation on the subject and experience reports could be equally beneficial. In addition to leveraging the experience of others on similar projects, this information would help to re-use existing resources and to avoid unnecessary and costly duplication of work.

To support such a decision process, an agency may want to aggregate information from many of the federated registries in- and outside of its own administrative context into one inner-agency information base on resources that are relevant to the agency's field of operation. Officials will then be able to use specific "expert" interfaces to freely query the information bases and to extract the necessary information.

4 Objectives of the Workshop

4.1 Scope

The results of the workshop consist of specifications, guidelines and a practical demonstrator that are intended to assist designers and developers of eGovernment systems and services to be able to exchange descriptions of eGovernment resources in the widest sense and to build and maintain federated repositories that integrate resources created and managed by several agencies creating a single point of access to users.

The Workshop proposes a formal specification of terms in the eGovernment domain and the relations among them, i.e. a reference ontology, and it specifies a protocol for exchange of information. In addition to that, the Workshop also pays attention to different terminologies that are being used across agencies and countries, and to cultural elements that play a role in the use of information in different cultural contexts.

In its activities, the Workshop acknowledges that approaches may differ in various systems so that there are no one-size-fits-all solutions. As such, the work concentrates on enabling exchange of information, without attempting to standardize local, regional and national solutions across Europe. Furthermore, the focus is on federation of resource descriptions, not on distributed searching. The reasons why agencies choose to share and exchange information and what information they want to share is out of scope for the project, as these decisions are in many cases based on bilateral agreements or governed by European Directives or Regulations.

The main target groups for this work are managers and information specialists involved in eGovernment activities on all levels (European, national, regional, local). They are involved as both users and contributors of the collection of descriptions of eGovernment resources that can be built on the basis of the specifications resulting from this Workshop.

As a consensus platform within the open context of CEN, the Workshop solicits participation and contributions from the community of programme managers, designers and developers of eGovernment systems and services, to ensure that the specifications, guidelines and tools meet the needs of the community.

Being a practical activity, the Workshop particularly aims at those managers and information specialists who are currently involved in development of eGovernment services. It will also aim towards a larger group of people who are working in other areas (e.g. eBusiness) that may have an interest in developments in eGovernment.

4.2 Intended results

This Workshop creates specifications that are published as a multi-part CEN Workshop Agreement (CWA), including:

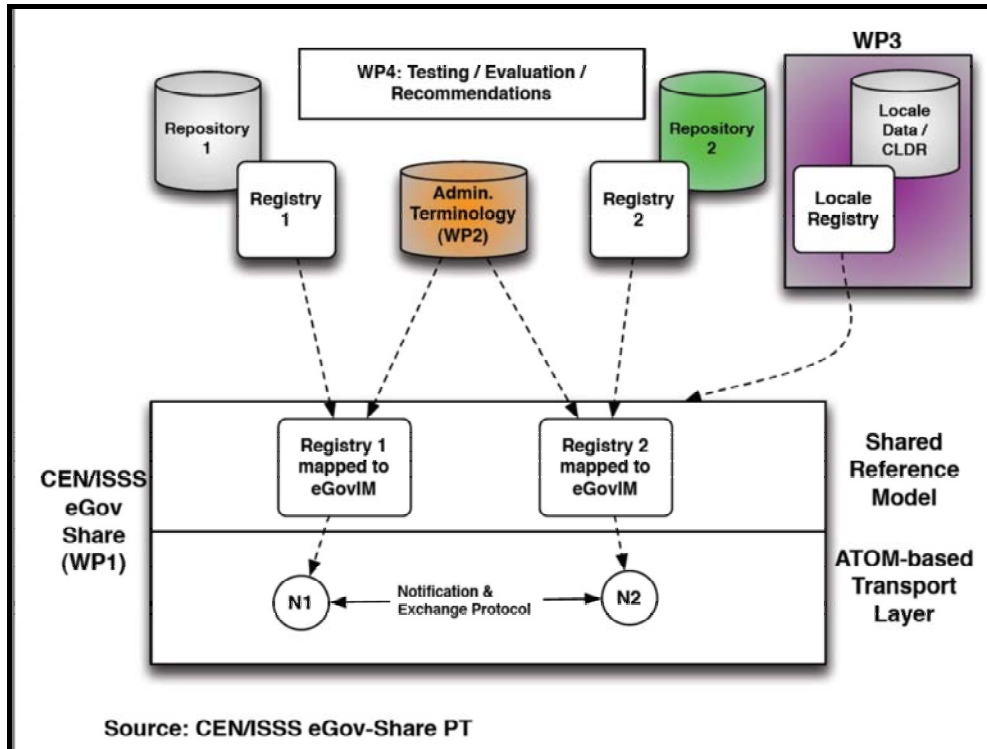
- a standardized minimum description of eGovernment resources (leveraging existing federated terminological assets);
- mechanism(s) for the exchange and notification of new/updated information about eGovernment resources;
- common agreed approach(es) to facilitate the discovery of, query of, access to, and federation of (information about) eGovernment resources.

These are specified in a way that makes eGovernment resources sharing a realistic objective, at the same time respecting each individual administration's autonomy. These eGovernment resources should meet the cultural and linguistic requirements of both human consumers and automated systems (for also systems embody specific local requirements). Concrete implementation guidelines with regards to these requirements are out of scope of this Workshop, however.

The Workshop results thus constitute a basis for developing services that allow both public officials and citizens/businesses to locate and access relevant eGovernment

resources more easily, irrespective of their location or of the ownership of the resources.

4.3 Outline of the work



The diagram above sketches the relationships between the various areas of work packages covered in the CWA (WP1-4).

A first important issue to note is that this CEN Workshop Agreement (CWA) does not attempt to achieve standardization of local, regional or national approaches to resource description and management of resources and associated information and services, such as asset lists or search facilities. The basic consideration is that those local, regional and national approaches continue to be the responsibility of the local, regional and national administrations, and that standardization of those approaches would not be a realistic aim. Rather, the work aims at providing tools for exchange of information about eGovernment resources held and managed in many locations around Europe and possibly even beyond.

The work in the eGov-Share Workshop does also not aim to provide a solution based on distributed searching, e.g. allowing a user to search concurrently in multiple distributed repositories. Instead, the approach described in this CEN Workshop Agreement (CWA) is based on resource federation. This means that if an organisation A decides that it would be interesting for its user base to be able to find information held and managed by organization B, it then 'harvests' the information that is made available from the repository of organization B and includes that information in its own repository. Users of organisation A can then use their local search facilities to also find information about resources held by organization B. Organization B, it needs to be noted, decides which part of the information in its repository it makes available for harvesting by others.

This CEN Workshop Agreement (CWA) supposes that the relationship between organization A and organization B is established outside of the tools and approaches described in this CWA, and also does not describe how repositories are discovered. This CWA describes a mechanism to exchange information between two organizations that have agreed to co-operate in this way.

The diagram therefore includes two Repositories of eGovernment-related information, with their associated Registries that constitute the mechanisms of how this information is exposed to the outside world. These Registries need to be mapped to the general ontology of the Shared Reference Model as described in CWA Part 1a.

The mechanism by which the information conformant to the Shared Reference Model is exchanged between two communication partners is described in CWA Part 1b that specifies the notification and exchange protocol based on an ATOM-based transport layer.

In doing the mapping between the information exposed by Registry 1, specific attention needs to be given to the 'translation' of specific terminologies being used in specific eGovernment environments. Workpackage 2 and CWA Part 2 describes mechanisms by which this terminology can be translated so the results make sense to both communication partners.

A further issue that is being addressed by the CWA is the different way that information is interpreted in different cultural environments (countries, languages). Workpackage 3 and CWA Part 3 propose an approach to describing these so-called soft cultural elements in such a way that they can be integrated with the general ontology defined in CWA Part 1a.

Finally, the testing and evaluation of the tools and approaches proposed by the Workshop is covered by Workpackage 4 and CWA Part 4. This also includes a set of recommendations for the operational phase of the approach described and for further work that could be considered to improve and enhance the approaches for the future.

5 Structure of the CWA

This CWA is structured in 5 parts with Part 1 made up of two subparts. The titles and short outlines of the parts are included below. After discussion at the Workshop meeting on 12 June 2008, the Steering Committee proposed to change the structure of the CWA to focus on an "output perspective" (what result would help the audience most) without changing the content agreed by the Workshop in the business plan. This proposal was accepted by the Workshop as the basis for the structure presented below.

5.1 CWA Part 0: Introduction

This part describes the overall objectives and approach for the work and provides a glossary and links that are relevant for the understanding of the other parts of the CWA. This part is intended for anyone who wants to get information on the rationale and objectives of the work and any user of one of the other parts of the CWA to get an overview of the relationships of the various aspects of the work.

5.2 CWA Part 1a: Reference Ontology and Metadata Schema

This part presents the ontology for the description of eGovernment resources and the metadata schema that is used in the work. The reference ontology is intended to work with existing metadata schemas. In Par1a, there is a table that proposes a mapping from commonly known metadata standards and approaches. This table can be extended based on contributions from the community. This part is aimed at implementers and information modelling experts.

5.3 CWA Part 1b: Protocol for the Syndication of Service Descriptions

This part describes the protocol to be used for the exchange of information about eGovernment resources, with examples of its usage and test cases for the implementation of the protocol, and deployment guidelines for the tools developed as a reference implementation. This part primarily addresses architects and implementers of eGovernment-oriented information systems, especially registries. It is equally pertinent for implementers of registries and data federation solutions in other domains.

5.4 CWA Part 2: Federated Terminological Resources

This part addresses the interoperability issues related to terminology that occur when different authorities use different terms to describe resources, different interfaces to publish them and different ways of semantics to understand and interpret data that has been exchanged. In addition to using different terms for the same service, there is also the possibility that terms that are not 100% identical but only similar or overlapping in their meaning. Based on the specification of a data model, this part describes the realisation and integration of the Terminological Resource Network with a hands-on description of instances of terminological resources and their relationship with real-world examples. It also contains the description on how existing terminological data sources may be included, especially ebXML RR systems as defined in the ADNOM CWA. A demonstrator will be included in the reference implementation that is the result of the work by the Project Team.

5.5 CWA Part 3: Establishment of a set of Soft Cultural Elements

This part specifies the structure for the formalized description of cultural elements and its integration with the general ontology of part 1 and an initial taxonomy of soft cultural elements capturing the ten elements that are identified as the most urgent ones. This part is elaborated in close collaboration with the Unicode Consortium, notably with the TC on the Common Locale Data Repository, and in continuous discussions with LISA. This part is relevant for architects of eGovernment information systems as well as experts in software localization and internationalization across domains.

5.6 CWA Part 4: Evaluation and Recommendations

This part documents the test data registration, analysing the pros and cons of the registration process. It will also propose an approach for ensuring continuous operation and contain a report on findings and outcomes of the workshop with recommendations and a roadmap for the future. As such, this part is intended for specifically those managers of eGovernment resources and repositories who want to know how the tools

delivered by the Workshop can be used and how they can be developed and maintained in the future.

6 Next steps

6.1 Metadata mappings

The Project Team is soliciting contributions from the community on the mappings of existing metadata approaches to the reference ontology in Part 1a of this CWA. In a final version, we hope to cover the main approaches used in the various national eGovernment programmes.

6.2 Availability of the tools and guidelines

The tools and guidelines described by the various parts of this CWA will be available without restrictions for use by government agencies across Europe.

6.3 Implementation and testing

As the intention of the Workshop is to facilitate sharing of information on government resources, the results of the work are a starting point. The exchange and notification mechanism is already implemented in a proof-of-concept environment but the real test is of course in real-world environments. The Workshop encourages implementation of the results of the work and welcomes feedback to the authors of the CWA that may lead to further clarifications and improvements.

7 Contributors

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8 Glossary

Cultural Element	A data item for computer use that may vary dependent on language, territory, or other cultural circumstances (ISO/IEC 15897: http://www.iso.org/iso/catalogue_detail?csnumber=29452)
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eBusiness	Electronic business may be defined as the utilization of information and communication technologies (ICT) in support of all the activities of business. (http://en.wikipedia.org/wiki/Electronic_business)
eGovernment	Refers to the use of internet technology as a platform for exchanging information, providing services and transacting with citizens, businesses, and other arms of government. (http://en.wikipedia.org/wiki/E-Government)
eServices	A highly general/generic term usually referring to the provision of services via the Internet. (http://en.wikipedia.org/wiki/E-Services)
Locale	An identifier that refers to a set of user preferences that tend to be shared across significant swaths of the world (Unicode TR35: http://unicode.org/reports/tr35/).
Metadata	"Data about data", of any sort in any media. An item of metadata may describe an individual datum, or content item, or a collection of data including multiple content items and hierarchical levels, for example a database schema. In data processing, metadata is definitional data that provides information about or documentation of other data managed within an application or environment.(http://en.wikipedia.org/wiki/Metadata)
Ontology	In computer science and information science, an ontology is a formal representation of a set of concepts within a domain and the relationships between those concepts. (http://en.wikipedia.org/wiki/Ontology_(information_science))
Portal or Web portal	A site that provides a single function via a web page or site. Web portals often function as a point of access to information on the World Wide Web. Portals present information from diverse sources in a unified way. (http://en.wikipedia.org/wiki/Web_portal)
Protocol	A convention or standard that controls or enables the connection, communication, and data transfer between two computing endpoints. In its simplest form, a protocol can be defined as the rules governing the syntax, semantics, and synchronization of communication. (http://en.wikipedia.org/wiki/Protocol_(computing))
Registry	a storage location in where metadata definitions are stored and maintained in a controlled method. A registry can be compared to a phone book registering many different entries and their references. It is typically used for describing and discovering elements (see http://www.oasis-open.org/committees/regrep).
Repository	A database which is containing and managing data entities which are often described by registries. Repositories typically support a message store that can be queried, and functionality for versioning, logging and auditing (see http://www.oasis-open.org/committees/regrep).
Resource	Following the Oxford American Dictionary, resources are seen as assets that can be drawn on by a person or organization in order to function effectively. Resources may include services, process descriptions, standards, interoperability frameworks and documents. Note that the term "resource" is polyvalent. The RDF Primer understands it as all "things that can be identified on the Web, even when they cannot be directly retrieved on the Web". This includes many types of entities (e.g. organizations, people, concepts) that are not resources according to our definition of the term.
Service	According to the European NESSI Initiative, a service is an abstract entity consisting of a set of capabilities offered by one or more providers to consumers. The service is provided by means of consumer service requests. The capabilities of the service and information how to use these capabilities are described in a service description. It can be realized by living beings, information systems, machines, etc. (source: http://www.nexof-ra.eu/node/212)
Soft Cultural Element	A cultural element that is not currently part of typical locale data.
Taxonomy	Taxonomy (from Greek taxis meaning arrangement or division and nomos meaning law) is the science of classification according to a pre-determined system, with the resulting catalog used to provide a conceptual framework for discussion, analysis, or information retrieval. (http://searchcio-midmarket.techtarget.com/sDefinition/0,,sid183_gci331416,00.html#)
Terminology	Words and phrases used in a certain context to identify concepts and their meaning.
TRN	Terminological Resource Network. A TRN is a network of terms.

9 References and links

ADNOM	European Network for Administrative Nomenclature (http://www.cen.eu/cenorm/businessdomains/businessdomains/iss/activity/adnom.asp). CEN/ISSS Workshop that was active from April 2005 until February 2006. Its results were published in CWA 15526:2006 (ftp://ftp.cenorm.be/PUBLIC/CWAs/e-Europe/ADNOM/CWA15526-00-2006-Mar.pdf)
CEN	European Committee for Standardization (http://www.cen.eu/).
CEN/ISSS	CEN Information Society Standardization System (http://www.cen.eu/ISSS/). CEN/ISSS is the name given to CEN's ICT sector activities. It provides market players with a comprehensive and integrated range of standardization services and products, in order to contribute to the success of the Information Society in Europe.
CLDR	Common Locale Data Repository (http://unicode.org/cldr/). Unicode project providing key building blocks for software to support the world's languages.
CWA	CEN Workshop Agreement (http://www.cen.eu/cenorm/sectors/sectors/iss/cen+workshop+agreements/index.asp). Consensus-based specifications, drawn up in an open Workshop environment.
Dublin Core	Cross-domain metadata standard (http://dublincore.org/).
ebXML	Electronic Business using eXtensible Markup Language (http://www.ebxml.org/). A modular suite of specifications that enables enterprises of any size and in any geographical location to conduct business over the Internet.
ebXML RR systems	Registry and Repository solution specified by the ebXML consortium (http://www.ebxml.org/).
eGovernment Focus Group	Group established by CEN/ISSS to map the various activities in the field of eGovernment standardization and to discuss a roadmap for the future (http://www.cen.eu/CENORM/sectors/sectors/iss/activity/e-government.asp). In early 2008, the Focus Group published its final report (http://www.cen.eu/CENORM/sectors/sectors/iss/activity/finalreport1.pdf).
FOAF	Friend Of A Friend (http://www.foaf-project.org/). Project creating a Web of machine-readable pages describing people, the links between them and the things they create and do; it is a contribution to the linked information system known as the Web. FOAF defines an open, decentralized technology for connecting social Web sites, and the people they describe.
ICT	Information Communication Technology, an umbrella term that includes all technologies for the manipulation and communication of information. (http://en.wikipedia.org/wiki/Information_communication_technology)
INSPIRE (Directive)	European Directive establishing an Infrastructure for Spatial Information in the European Community (http://inspire.jrc.ec.europa.eu/). Directive 2007/2/EC (http://eur-lex.europa.eu/JOHtml.do?uri=OJ:L:2007:108:SOM:EN:HTML) of the European Parliament and of the Council of 14 March 2007 was published in the official Journal on the 25th April 2007 and entered into force on 15 May 2007.
LISA	Localization Industry Standards Association (http://www.lisa.org/). Consortium of companies and organizations involved in localization, globalization and related industries.
ONIX	The ONIX for Books Product Information Message is the international standard for representing and communicating book industry product information in electronic form (http://www.editeur.org/onix.html).
OWL	Web Ontology Language (http://www.w3.org/2004/OWL/). Ontology language that is compatible with the World Wide Web in general, and the Semantic Web in particular.
PEGS	Pan-European eGovernment Services. See for example the study assessing stakeholder requirements (http://www.epractice.eu/document/960).

PSI Directive	Directive on the re-use of public sector information (http://ec.europa.eu/information_society/policy/psi/docs/pdfs/directive/psi_directive_en.pdf) that deals with the way public sector bodies should enhance re-use of their information resources. The Directive 2003/98/EC of 17 November 2003 was published in the Official Journal (L345/90) on 31 December 2003. See also: http://ec.europa.eu/information_society/policy/psi/actions_eu/policy_actions/index_en.htm .
RDF	Resource Description Framework (http://www.w3.org/RDF/). RDF integrates a variety of applications from library catalogs and world-wide directories to syndication and aggregation of news, software, and content to personal collections of music, photos, and events using XML as an interchange syntax. The RDF specifications provide a lightweight ontology system to support the exchange of knowledge on the Web.
REST	Representational State Transfer is a style of software architecture for distributed hypermedia systems such as the World Wide Web. An important concept in REST is the existence of resources (sources of specific information), each of which is referenced with a global identifier (e.g., a URI in HTTP). In order to manipulate these resources, components of the network (clients and servers) communicate via a standardized interface (e.g., HTTP) and exchange representations of these resources (the actual documents conveying the information). (http://en.wikipedia.org/wiki/Representational_State_Transfer).
Semantic Web	A common framework that allows data to be shared and reused across application, enterprise, and community boundaries (http://www.w3.org/2001/sw/). It is a collaborative effort led by W3C with participation from a large number of researchers and industrial partners. It is based on the Resource Description Framework (RDF).
Services Directive	European Directive 2006/123/EC (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006L0123:EN:NOT) with the objective to achieve a genuine Internal Market in services by removing legal and administrative barriers to the development of service activities between Member States. See also: http://ec.europa.eu/internal_market/services/services-dir/proposal_en.htm
SKOS	SKOS Simple Knowledge Organization System (http://www.w3.org/2004/02/skos/). SKOS is a specification to support the use of knowledge organization systems (KOS) such as thesauri, classification schemes, subject heading systems and taxonomies within the framework of the Semantic Web.
SPARQL	Query language for RDF (http://www.w3.org/TR/rdf-sparql-query/). SPARQL can be used to express queries across diverse data sources, whether the data is stored natively as RDF or viewed as RDF via middleware. SPARQL contains capabilities for querying required and optional graph patterns along with their conjunctions and disjunctions. SPARQL also supports extensible value testing and constraining queries by source RDF graph. The results of SPARQL queries can be results sets or RDF graphs.
Topic Maps	International Standard (ISO 13250) providing a standardized notation for interchangeably representing information about the structure of information resources used to define topics, and the relationships between topics. (http://www.isotopicmaps.org/).
Unicode (Consortium)	The Unicode Consortium is a non-profit organization devoted to developing, maintaining, and promoting software internationalization standards and data, particularly the Unicode Standard, which specifies the representation of text in all modern software products and standards (http://unicode.org/).
Web Service	A software service designed to support interoperable XML based machine-to-machine interaction over a network (http://www.w3.org/TR/ws-gloss/). It has an interface described in a format that can be processed by machines (specifically WSDL).
XTM	XML Topic Maps (http://www.topicmaps.org/xtm/). Specification that provides a model and grammar for representing the structure of information resources used to define topics, and the associations (relationships) between topics.