

International Technical Standards for e-Government

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Abstract: This paper provides an overview of the work currently being undertaken at an international level by the OASIS e-Government Technical Committee on developing ICT standards for interoperability to support the work of putting government services on-line. The work of the committee is on-going and this paper provides a snapshot of current progress as at the date of this paper and assumes a certain level of awareness on the part of the reader of the new set of Internet technologies.

Keywords: ICT standards, e-Government Services, Interoperability, International co-operation

1. Introduction

Many, if not all governments worldwide, are now developing and implementing strategies to a) deliver e-government services to citizens and businesses, and b) to support the modernisation of government. For the public services, the real opportunity is to use information technology to help create fundamental improvement in the efficiency, convenience and quality of service. The plan is not only to offer more convenient access to services but also to transform how governments organise mainstream delivery.

When people interact with government, in either their role as a citizen or a member of a business, they want to do so on their own terms. They want high quality services which are accessible, convenient and secure. People should not need to understand how government is organised, or to know which department or agency does what, or whether a function is exercised by central, regional or local government.

New ways of doing business will change the relationship between individuals and government. At the same time, it will be vital to make sure that people can trust the systems being used, by ensuring that their personal data is protected and that systems are secure.

Better public services tailored to the needs of the citizen and business, as outlined above, require the seamless flow of information across government organisations. This requires technical policies and specifications for achieving interoperability and information systems coherence across the public sector. Interoperability and data integration are the key to success. Governments have many databases built on various hardware

and software platforms and these cannot be replaced overnight or even in the medium term so the task is how to join them up and make them work together to provide the citizen and business facing services.

The main thrust nowadays is to adopt open, international standards, including the Internet and World Wide Web specifications, for all government systems, and to adopt XML and XSL as the core standards for data integration and the presentation of data.

The main benefits of using open standards are:

- More choice of products and suppliers
- Less dependency on a single supplier
- Avoid proprietary lock-in
- Stability or reduction in costs
- Accommodate future changes more easily

However deciding which are the most appropriate open standards and how to deploy them is one aspect that all governments are finding difficult. Through the work of the OASIS e-Government Technical Committee we are addressing those issues and others, and providing roadmaps and good practice for all, particularly for those countries who are new to e-Government work.

2. Open standards

What is an open standard? The marketplace is rife with instances of a single vendor declaring its work to be a standard or of a closed collective of vendors proclaiming the combined weight of their customer base constitutes 'de facto standard' status.

To truly be an open standard, however, a specification must be developed and approved under a published, transparent process that is democratic and fully exposed to public review and comment. Open standards development is conducted without non-disclosure agreements and is subject to explicit, fully revealed IPR terms. An open standard is publicly available in stable, persistent versions.

Because no single vendor or closed alliance of companies can dictate an open standard, the results are more likely to meet the needs of the entire community, not just the largest players. Initial work may begin in a private setting, but until it is submitted and vetted through an open standards process, it remains a proprietary specification.

3. OASIS

OASIS (Organization for the Advancement of Structured Information Standards) produces global standards that have both the traction of widespread marketplace adoption and the sanction of a trusted, open process. OASIS is a not-for-profit, international consortium that drives the development, convergence, and adoption of e-business standards. The consortium is best known for its work in Web services, security, e-business, and standardization efforts in the public sector and for application-specific markets.

OASIS is distinguished by its transparent governance and operating procedures. Founded in 1993, OASIS has more than 3,000 participants representing over 600 organizations and individual members in 100 countries. Members themselves set the OASIS technical agenda, using a lightweight process expressly designed to promote industry consensus and unite disparate efforts. Completed work is ratified by open ballot. Governance is accountable and unrestricted. Officers of both the OASIS Board of Directors and Technical Advisory Board are chosen by democratic election to serve two-year terms. Consortium leadership is based on individual merit and is not tied to financial contribution, corporate standing, or special appointment.

The OASIS open standards process enables collaboration, embraces full

participation, and ensures a level playing field for all. Unfair first-to-market advantage for any one participant is eliminated. OASIS encourages convergence but does not mandate it. The consortium provides fair data about projects being standardized, but doesn't pick winners. OASIS believes widespread adoption can only be achieved when all those affected by a standard participate in its creation. The consortium takes pride in an inclusive, international, and balanced member base, where users and vendors, governments and universities, trade groups and service providers all have a seat at the table. By participating in OASIS, organisations ensure their business requirements are met and their staff stay informed on key developments. Members play an active role in minimizing duplication of standards efforts and unifying fragmented initiatives. Government agencies, in particular, take an active role in OASIS standards development in order to reduce the risk inherent in recommending new technology to their constituencies.

4. The e-Government Technical Committee

The purpose of the e-Government TC within OASIS is to:

- provide a forum for governments internationally to voice their needs and requirements with respect to XML-based standards which can:
 - be handed off to relevant OASIS TCs if they exist, or,
 - cause the formation of new TCs, or sub-committees of this TC, for needs that are not currently addressed, or,
 - cause the formation of Joint Committees within OASIS, or,
 - cause the formation of liaisons with other international standards bodies.
- provide a mechanism for the creation of best practice documents relative to the adoption of OASIS specifications/standards and other related standards within Governments internationally;
- promote the adoption of OASIS specifications/standards within Governments which could include the creation of implementation-oriented

pilot projects to involve software vendors and participating government agencies to demonstrate the use of OASIS specifications/standards;

- work with other OASIS channels and other international standards bodies' channels (e.g. XML.org for schema registry and/or information portal), to act as a clearinghouse of information related to applicable specifications/standards as well as activities and projects being conducted by Governments in the adoption of XML-based systems and standards.

To meet the objectives, the Committee has identified the following as its list of deliverables:

- co-ordinated input from Governments to the development of emerging standards, eg ebXML, Web Services, to ensure the standards are not just developed for the benefit of the private sector
- the identification of new standards required to support e-government and plans for development of those standards either by the e-Gov TC or other more appropriate standards bodies
- the channel and process for Governments to press for all relevant standards bodies to co-ordinate their activities
- co-ordinated input from EU countries to deliver aspects of the eEurope 2005 plan.

For more information about the TC, its membership and the work that it is doing see www.oasis-open.org/committees/egov

5. Membership

The committee has a very wide membership including many governments and their agencies from countries in Europe, North America, the Far East and Australasia. In addition most of the major international suppliers of ICT to governments are represented on the committee. The current membership is over 150 which makes this TC one of the largest in OASIS.

6. Who will benefit from this work and how?

If the work of the committee is successful there should be a win-win situation for all

parties who have a stake in e-government, ie

- Governments that plan to deliver electronic services to citizens and businesses using Internet technology.
- Governments who are planning to develop inter-agency and/or inter-government transactions.
- Governments that are seeking to promote the interoperability of current and future computer systems.
- Coordinated input from Governments to the development of emerging standards (e.g. ebXML, Web Services) will ensure the standards are not just developed for the benefit of the private sector.
- The suppliers of government computer systems should be able to contain their development costs because of standardisation.
- Citizens and businesses will benefit from a more coherent delivery of government services both within and across national boundaries.

7. Current Projects

The work of the Committee is structured into a number of projects, each dealing with a specific aspect of putting e-government services on-line. Some of the projects are very technically focussed on ICT infrastructure issues whilst others are more business orientated. The following sub-paragraphs give a brief overview of each project.

7.1 Search Service Interoperability

Governments at all levels worldwide are major producers and consumers of data and information. Governments and the publics they serve have long invested heavily in enhancing the discovery and use of government data and information resources, thereby serving goals such as government transparency and accountability, efficiency of commerce, education, scientific research, and a range of other societal objectives. As the Internet becomes ever more essential to the dissemination of data and information resources held by governments, interoperability of information search mechanisms is a major issue. To address

this need the TC has published the following Recommendation:

“Governments are recommended to enhance interoperability among their networked systems by adopting a common search service. The search service should be based on the ISO 23950 international standard that features a high degree of interoperability across many communities of practice and types of data and information holdings. Governments should implement the search service as a supplement to other search mechanisms, as these may be required for reasons other than broad scale interoperability.”

7.2 ebXML Messaging for use within e-Government

The initial ebXML Message Specification was designed primarily for Business-to-Business communication, (see www.oasis-open.org/committees/ebxml-msg), therefore a number of Government specific service delivery requirements will not have been considered. The TC has produced a requirements document that identifies additional elements that will need to be added to allow for complete compliance with Government issues. With these additional Government elements the ebXML messaging specification can be used for:

- Citizen to Government
- Business ‘line of Business’ applications to Government
- Agency to Agency Communications
- Agency to Government Common Service
- Government to Government

The requirements document has now been handed over to the ebXML Messaging TC for them to include the additional elements into the ebXML Messaging Specification.

7.3 Harmonising Taxonomies

One of the keys to successful sharing and interchange of information between governments is the consistent use of terminology. For example, there are a variety of terms used for the welfare and benefit payments functions. This is compounded in the international arena where translation into multiple languages makes this consistency even harder to

achieve. Many Governments are or have developed taxonomies for use in e-service delivery, and this project aims to review the scope for harmonising these taxonomies. This harmonisation could take a number of forms, eg linking them together or producing a master one that all governments use. The technical solution is a secondary aspect, first there needs to be agreement on the business terminology and to that end a Glossary of Terms is being produced. The next phase will be to analyse the content of a number of government taxonomies to establish what common content there is between them. From this analyse a decision can then be made on the viability of either creating a single master taxonomy or whether a mapping of existing taxonomies is more appropriate.

7.4 Common Data Definitions

As with 7.3 above, there is a need to have common definitions of data so that when data is exchanged in support of a process both parties know exactly what the data is and how it should be processed. For example, there are a variety of formats for the names and addresses of Taxpayers. This project will examine the Core Components already defined as part of UBL, (see www.oasis-open.org/committees/ubl), and either seek to refine them or identify new government components that need to be added to the list.

7.5 Use by Governments of ebXML Registries

Governments currently use a mixture of data dictionaries, XML schema repositories and other registries to store information about the IT components they use in the delivery of their e-services. There is a need for these all to be based on the same standards and to inter-operate to help governments meet their interoperability aims both within their own jurisdictions and across boundaries.

The TC is running a proof of concept / showcase project to demonstrate how the ebXML registry, (see www.oasis-open.org/committees/regrep), with suitable client applications, can meet the needs of governments to store these components. The UK Government is hosting the trial site and using its corporate data dictionary and that of the Ministry of Defence to show

how a federation of dictionaries can be built and linked together.

7.6 Use by Governments of the eprXML Standard

This standard was developed by the Norwegian Government and covers electronic processes (EPR). It is used to describe how data support can be organized in a unified and standardised matter. This means that data support to such different areas as health care and housing construction can be modelled in the same way and use the same basic components. The standard describes how:

- information is presented to the users
- tools and supporting materials are implemented
- communication with legacy systems will take place
- roles, processes and routines will be organised
- general functions can be standardised

The TC is considering the use of this standard to support the delivery of e-Government services.

7.7 Workflow Standards

An increasingly important component of delivering e-Government services is the need for a workflow system to underpin the e-service, particularly where the service needs input from across organisational boundaries. From the customer perspective, i.e. the citizen or business organisation, they will want to enquire on-line at any point what the latest situation is with their request for the service and who is currently dealing with it.

To meet these needs Governments want products that support open, interoperable standards to enable different workflow systems to work together and also interface with their e-service applications. Currently there appears to be a number of standards in this category but with no clear indication of which should be used for what aspects and how they relate to each other. Within this project the TC will hope to clarify which standard(s) should be used and in what circumstances.

7.8 Records Management in Government

This project aims to develop and record the requirements and issues for records management that are specific to the context of e-Government, particularly long term archiving. The focus is on when, where and how (the right bits of) the information involved in e-style government interactions (G2G, C2G, B2G) become formal records (an aspect of record declaration); and identifying, & getting hold of, all the right information to constitute an authentic record (aspects of capture). Following on from this initial requirements definition the TC will seek to develop a standard for use in this context.

7.9 Semantic Interoperability – Business Implementation Guidelines

XML has clearly proven itself as a standard that enables *syntactic* interoperability between information systems. However on its own it cannot improve and enable *semantic* interoperability, i.e. systems that can talk to each other and understand each other. In an effort to reap the benefits of an XML-centred and semantically interoperable information architecture, this project will look to establish a set of Business Guidelines that will help prepare enterprises address the issues early and up-stream of any technology based initiatives.

7.10 Naming and Design Rules for XML Schemas

Many of the advantages of XML can only be realized if common Naming and Design Rules for use in XML schemas are followed. This is not only a regional or a national issue since services on the Internet are available to anyone. Therefore rules have to be developed in an international context. This project will set out the standard set of naming and design rules to be used by governments.

8. Future Plans

The work of the Technical Committee will continue for some considerable time and this paper only gives a snap shot of work to date. Further projects are already being scoped and prioritised to cover the very wide agenda of e-government. The

Committee is continuing to engage with other governments, international organisations, ICT suppliers and other standards organisations to take forward its work and to this end has recently formed an Asia/Pacific branch to ensure full participation from that part of the world.

9. Summary

e-Government strategies are about harnessing the information revolution to improve the lives of citizens and businesses, and to improve the efficiency of government. Delivering e-government,

building the knowledge economy and delivering pervasive access requires the use of pervasive technologies, eg the Internet, XML and Web Services, based on open standards. The delivery requires the involvement of, acceptance by and partnership with the public and private sectors, in the development and implementation of those standards and technologies. That activity and partnership is being enabled through the work of the OASIS e-Government Technical Committee.