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ICA INFORMATION

An International Journal on Information Technology in Government

GENERAL ISSUE

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THE ICA

The International Council for Information Technology in Government Administration (ICA) is a non-profit making organisation established to promote the informal exchange of knowledge, ideas and experiences between Central Government IT Authorities on all aspects of the initiation, development and implementation of computer-based systems in and by Government. ICA's Home Page can be found at <<http://www.ica-it.org>>.

The Council's major event is the Annual Conference, held each year in a different country. Topics covered in recent conferences include; 'Anticipating the Citizen's Needs in the 21st Century'; 'Innovating & Transforming Government Through IT'; Government in the E World: To 'E' or not to 'E'; and 'E-Gov FAQs: Searching for the Right Answers'.

Between Conferences international Study Groups meet to consider, in depth, topics of special interest. The Council publishes their work. Recent published reports include 'ICA Portfolio Management'; 'Charging for Services'; 'Security: Policy, Technological and Operational Aspects' and 'Knowledge Management'.

The Journal of the Council, "ICA INFORMATION", contains articles of interest to those concerned with the use of IT in Government. Study Group reports are published as special editions of the Journal; and, once a year, the Proceedings edition provides a full record of the Annual Conference proceedings. Since January 2001 these have been displayed on the ICA Home Page at <www.ica-it.org>.

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ICA INFORMATION

An International Journal on Information Technology in Government

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ICA General Issue

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EDITORIAL

Welcome to the latest edition of ICA Information, the Journal of the ICA Council. The past year, apart from an extremely successful conference in Salzburg last September, has been marked by the adoption of an updated Strategic Plan for the period 2005 – 2100. This ensures that ICA remains focussed and ready to fulfil its mission as an effective international forum for the support of senior management in the formulation of policies for IT and as an instrument for improving the efficiency and effectiveness of government administration.

The General Issue, containing articles of wider interest to those concerned with the use of IT in Government has been a regular feature of ICA publications since 1970. Each year the ICA Conference selects a current or emerging theme on which to base its deliberations. The General Issue provides member countries and guests with an opportunity to present views and activities in a wider context.

This year we have no less than three articles that offer an approach to e-government cross-organisational strategies. They will be of great interest to members facing similar issues.

First, I am once again grateful to our colleagues in New Zealand, They have provided an insightful article which outlines the governance models New Zealand Public Service agencies have adopted to manage ‘transformational’ cross-agency e-government initiatives. Second, following its earlier work on Enterprise Architecture Denmark is now developing, and shares with us, what it calls its ‘OIO’ E-government Architecture; a cross-organizational enterprise architecture focusing on the public sector administration, service, procurement and other public sector activities. Third, we have a short article on how Transformational Government can work. This also directs the reader to further information on this ever more important issue. I am grateful to the UK e-Government Unit for their permission to reprint their article.

Australia have set up a Working Group to provide advice to government on the operation of automated systems in administrative decision making. This is a major undertaking, and through a statement to ICA, Australia provides access to a report on best practice principles and seeks input from other governments on the training of users of automated systems. Links are provided to the Working Group, its report, and to officers to contact.

A number of references have been made at recent conferences to the ‘FirstGov’ web site frequently referred to as “The U.S. Government’s Official Web Portal.” Here we learn about the history and problems facing the most comprehensive site in and about the U.S. government.

Once again, ICA is providing it’s General Issue in both web format and as a number of downloads in ‘PDF’ format providing a facility for the download of any particular article in hard-copy format to the desk. Please let me know how useful you find this arrangement. Ideas and innovations on improving the service to members are particularly welcome at any time. <mailto:ica@globalnet.co.uk>.

Larry Caffrey
Editor

Governance Arrangements for New Zealand Public Service E-government Transformational Initiatives.

State Services Commission, New Zealand

This article outlines the governance models New Zealand Public Service agencies have adopted to manage 'transformational' cross-agency e-government initiatives.

Introduction

The necessity of and tools for managing organisational governance have come a long way since the early 1990s when the Cadbury Report¹ was published. More recently, focus has shifted from financial governance to governance over information technologies with methodologies² *being developed to assist management to discharge their responsibilities*. This shift emphasises the increasing importance of information technology for modern organisational performance and the necessity to ensure its optimum ongoing deployment. Arguably, the necessity and tools for intra-agency information management technology governance is now well established.

What is less well established are models for the governance of information management and communication enabled services that span organisational boundaries - the realm of 'transformed government'.

Countries that have moved along the e-government sophistication scale³ from static web presence, through interaction to transaction, are confronted with the dilemma of how to manage services or service bundles that require the involvement of multiple agencies for their delivery. Along with citizen-facing services, there is also the matter of how common business process applications or shared services should be governed.

New Zealand has a decentralised public service model where considerable autonomy rests with individual agencies. According to a recent OECD report, New Zealand, "pursues what one might call *laissez-faire* centralisation. Matters perceived as 'common, generic or foundational to all agencies' (such as interoperability standards) are done in a uniform manner, but agency business is decentralised".⁴ The State Services Commission (SSC) is responsible for the stewardship of the E-government Strategy, the E-government Interoperability Framework standards and the development of 'foundation' services.

However, the SSC has no direct authority over how agencies implement the New Zealand E-government Strategy in terms of service or channel configuration. The SSC has provided strategic direction in these areas by developing a six point strategy for the New Zealand Public Services. The strategy provides a unified view of how people, technology and services will be utilised to develop, "A system of world class professional State Services serving the government of the day and meeting the needs of New Zealanders."⁵ The six goals focus on the State Sector being the 'Employer of Choice', and the development of 'Excellent State servants', 'Networked State Services', 'Coordinated State agencies', 'Accessible State Services', and 'Trusted State Services'.

¹ Cadbury, Adrian. 1992. *Report of the Committee on the Financial Aspects of Corporate Governance*. Great Britain. Burgess Science Press.

² CoBIT (Control Objectives for Information and related Technology), TOGAF (The Open Group Architecture Framework), ISO17799

³ Christopher Baum and Andrea Di Maio, *Gartner's Four Phases of E-Government Model*, 21 November 2000.

⁴ OECD. *E-government for Better Government*. 2005. OECD.

⁵ <http://www.ssc.govt.nz/display/document.asp?DocID=5270>

‘Shared Services’ governance

The SSC is managing two major ‘foundation’ e-government projects, the development of a common authentication service – the Government Logon Service (GLS) and a shared government network – the Government Shared Network (GSN). The GLS will provide a common logon service for those people using government services over the Internet. It will allow people to more conveniently access government online services by using the same logon, if they wish. The GSN will enable government agencies to share information with each other at higher speeds, more securely and more cost effectively, to enhance the delivery of services to the New Zealand public.⁶

In order to guide the development of the GLS and other related authentication services, a project steering committee was established. Membership consisted of Chief Executives from agencies involved in the development and implementation of the GLS. The inclusion of the top executives from participating agencies was seen as crucial to achieve the organisational commitment necessary to incorporate a common service into individual core agency online service delivery processes and functions.

Similarly, a steering committee was established to oversee the development of the GSN. This development was more a ‘back office’ or ‘support service’ function and as a consequence, it was considered that greater technical expertise was required. As a result, the members of the GSN Steering Committee are mainly Chief Information Officers drawn from early GSN adopters although it is chaired by an agency Chief Executive. The GSN Steering Committee also has external industry membership.

As these services move from development into production, responsibility will be transferred from the project teams to the All-of-Government Operations Group within SSC. This group will have ongoing operational responsibility for the services. Similarly, governance responsibility will move from the project steering committees to an All-of-Government Operations Advisory Board. Members of this Board will be drawn from government agencies but the Board will also have external industry expertise. The role of the Board will be to provide advice on the strategy and direction of the Operations, including advice on business models, as well as championing collective leadership and commitment to all-of-government operations.

While the two services differ - the GLS being an application and the GSN being a set of information technology network services - the basic business model is similar to that of a conventional supplier/customer arrangement. However, a major divergence from this business model is the common ownership of the services by agencies, by virtue of their relationship to the government – the owner of the services. Rather than acting as customer focus group, as would be the case in a private enterprise model, the Advisory Board is more aligned with the Board of Directors in a private enterprise model. The collaborative nature of e-government transformational services and Government’s oversight of the agencies involved, results in the requirement for the Advisory Board to influence SSC’s decision-making to a far greater extent than would be the case for a similar arrangement in the private sector.

The provision of the services themselves is governed by a variety of legal instruments dependent upon the legal relationship between SSC and the agencies using the services. Service Level Agreements, standard for such service provision, are used to document the quality aspects of the services.

⁶ See <http://www.e.govt.nz/> for further details.

This arrangement for 'shared services' is relatively straightforward in terms of governance, funding and accountability issues. Roles and responsibilities are clear. When agencies collaborate to provide an integrated service to a customer, the situation becomes far less clear.

Integrated Services governance

The first type of online transaction service developed in the e-government maturity model involves only one agency delivering a service to multiple customers. There is no necessity for any agency collaboration for the service delivery to occur. For many instances of service delivery, this case may be the most appropriate as the additional costs inherent with integration with other services, particularly within other agencies, outweigh the net advantages.

Integrated online services emerge as the move towards transformational government is made. With integrated services, the customer is presented with a seamless front end to a service or set of services where multiple steps are required to complete the service task. Integrated services - in this context - is also taken to mean that these steps are undertaken by different agencies. An integrated service involves multiple agencies delivering 'connected' services as illustrated below.

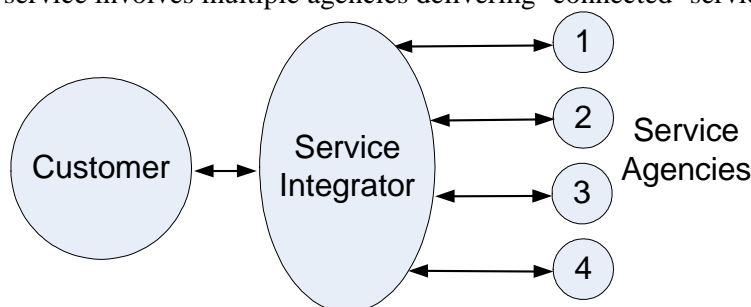


Figure 1: Integrated service model

Integration may occur at the presentation layer, that is, service steps are presented as a logical task unit. This is the common model for portals that group services by 'life events', roles or activities.

It is only when integration occurs at the actual service level that cross-agency governance issues become significant. The major characteristic that defines integrated transactions is the persistence of information from one step to another. This feature immediately introduces a raft of complexity. Who now 'owns' the service? Who manages the standards required for interoperability? Who manages the change control and how is the service funded? Who is accountable in the case of service failure?

New Zealand's initial steps towards integrated online services

In line with its public service management approach, New Zealand's approach to service integration has been to encourage service agencies to look for opportunities to integrate services so that customers receive better value. The rationale and general direction for such initiatives is documented in the E-government Strategy⁷. Standards support is also provided for such initiatives by the provision of a well developed E-government Interoperability Framework (e-GIF) that develops and prescribes standards for agencies to use when exchanging data and connecting together electronically.⁸

Two examples of where this has occurred are between the tax collection agency, Inland Revenue Department and the Company Registration Group within the Ministry of Economic Development;

⁷ <http://www.e.govt.nz/about-egovt/strategy>

⁸ <http://www.e.govt.nz/standards/e-gif>

and between the Customs Department and the Ministry of Agriculture and Forestry. These examples have been documented and published on the SSC website.⁹

Towards the future

Integrated services involve a matrix of processes that cut across the governance autonomy of each agency. Canada has addressed the issue by developing 'Service Canada' as the service integrator, with the Australian 'Centrelink' undertaking a similar role. Both of these initiatives involve the management of multiple services and have been driven from the centre. New Zealand has chosen not to implement a separate centralised service integrator such as Service Canada or Centrelink.

As the New Zealand examples to date involve the collaboration of only two agencies, the governance structures for the ongoing operations have been managed via memoranda of understanding between the agencies concerned. This is considered appropriate for such point-to-point initiatives. However, it is anticipated that more of these initiatives will emerge as agencies reach the limit of making single step, single agency transactions available online.

One of the lessons highlighted in e-government reviews is that 'one size does not fit all.' As the recent OECD report notes,

In the pursuit of e-government, countries' understandings of what needs to be done – and how to do it – is constantly changing. There is no one clear path to better government, or how to implement e-government, but global imperatives are leading to convergence in terms of the challenges to be faced.¹⁰

New Zealand acknowledges these challenges and intends to use the umbrella of the State Sector Development Goals to develop service and channel configurations that will help achieve these goals and fit with our public management philosophies.

New Zealand is currently revising its E-government Strategy. Among the key issues being considered are the funding, governance and accountability models required to support the ongoing transformation of New Zealand's government services. The models adopted will support agencies operating in a devolved, decentralised public management environment to deliver integrated services that provide real value to New Zealand's citizens and other recipients of government services.

⁹ <http://www.e.govt.nz/resources/research/case-studies/>

¹⁰ OCED, op cit., p15

Strategy for OIO Architecture for e-Government 2006-10

Ministry of Science, Technology and Innovation, Denmark

OIO E-government Architecture is a cross-organizational enterprise architecture focusing on the public sector administration, service, procurement and other public sector activities.

Introduction

OIO Architecture is a new term that covers the joint public work within e-government architecture and standardization. First and foremost, OIO Architecture is a common framework, i.e. a common paradigm that contains overall principals, methods, tools, and control frameworks. Nevertheless, OIO Architecture is also — and to an ever increasing extent — the embodiment of a concrete architecture including selection of standards, reference model design, establishment of common infrastructure elements, etc.

The work within OIO Architecture is rooted in the joint public Coordinating Information Committee (KIU), as well as the OIO Enterprise Architecture Committee and the OIO Data Architecture Committee. Furthermore, a range of processes and procedures related to this work are being established, examples of these being involvement, case work, consultations, and decisions. All results that are achieved in accordance with these processes and procedures constitute at part of OIO Architecture. OIO Architecture is communicated via the OIO.dk portal.

The Coordinating Information Committee issued the 2003 White Paper on Enterprise Architecture, which pointed out the necessity of a common overall approach to transition projects. The white paper defined IT architecture as a fundamental description of one or more IT systems, including the principles for design and development of the systems, as well as for the connections between them. Nevertheless, e-government architecture is about much more than IT systems. Specialist literature defines this as Enterprise Architecture (EA). This is a specific approach to architecture that focuses on the correlation between business/administration and technical resources, considering the elements as whole entities, e.g. when looking at an enterprise or across organizations.

Through the method-driven architecture work the joint public sector can benefit from transition projects and from investing in information technology. Enterprise and IT architects will collaborate closely to join the processes and the IT support, both within and across organizations.

This document constitutes an element in the follow-up to the White Paper, and contains a description of the overall, multi-year strategy for the work involved. The purpose of this document is to clarify the ambition for the OIO Architecture to the public sector decision-makers. The document also describes the overall work plan for the centrally coordinated architecture and standardization work under the Ministry of Science, Technology and Innovation.

The strategy has its foundation in the following overall goals:

- The OIO Architecture must be the foundation for management decisions and the link between visions and solutions.
- common public collaboration and cross-cutting exchange of data.
- architectural plans of agencies and development of IT.

The OIO Architecture must be operational. Strategy for OIO Architecture describes where the public sector architecture needs to go, and sets a frame for the next five years of architecture and standardization work in the public sector. The strategy concerns both central joint-public sector initiatives that define framework for the architectural work, as well as the actual architecture work with digitalization projects in sectors, in common public projects, and in the individual agency.

The Need for an OIO Architecture Strategy

The Challenge

Denmark is facing a large number of challenges in the years from 2006 to 2010. A range of societal factors are driving new initiatives, for example:

- With the ongoing and frequent changes in the framework conditions, agility in the shape of transformation readiness and adaptability is a core requirement for both private and public organizations, and the technologies they use.
- The accelerating technological development gives new possibilities, new investment needs, and increases demand for new competencies
- The sharpened international competition, including the strong pressure from low income countries, means that we must compete on non-wage parameters.
- The increasing number of senior citizens, and the decreasing number of taxpayers to finance the transfer incomes — combined with limitations in both resources and tax raises — call for higher efficiency in the public sector.
- To meet the demand for openness both in the administration and the IT solutions, digital solutions must meet a series of technical and architectural requirements, including a number of standards and legal provisions.

Initiatives

The multitude of challenges is met by a wide range of political initiatives that are critical for the future development and operation of the public sector. In addition, several projects directly influence how citizens and businesses use information technology for solving a number of tasks. Here are some examples:

- The Government's modernization program, which comprises a large number of projects
- The E-government Strategy, including e-day and a number of digitalization projects
- Sector strategies such as the strategy for the health sector
- The Danish Municipal Reform, by which authorities will be combined and tasks will be transferred
- The Globalization Initiative, which focuses on a wide range of strategic efforts.
- A large number of local development and innovation projects within the individual authorities, such as consolidation of the IT portfolio at enterprise level.

Direction Markers

OIO Architecture also has the direct task of supporting the e-government vision and direction markers that are described in the "E-government Strategy 2004-2006".

Throughout recent years, Project E-government together with initiatives such as the Government's modernization program and the Municipal Reform have introduced a shift in the paradigm for public service, communication, and administration. Meanwhile, a shift in the paradigm for the use of IT has occurred, not only in the public sector, but in society at large.

The e-government vision

Digitalization will contribute to the creation of an efficient and coherent public sector with a high quality of service in which citizens and businesses are at the centre of attention.

Overall direction markers

- Direction marker 1: The public sector must provide coherent services with the citizens and businesses as the center of attention.
- Direction marker 2: E-government must create an increased quality of service and liberate resources.
- Direction marker 3: The public sector must work and communicate digitally.
- Direction marker 4: E-government must be founded on a coherent and flexible IT infrastructure.
- Direction marker 5: Public sector management must spur the development and provide for the realization of the vision within their organizations.

The transition follows general tendencies, which are also found internationally. A rough sketch of the development shows a transition from what could be called the **silos paradigm** (stand-alone solutions), by which the individual player optimizes the one business process by means of dedicated IT solutions, to what could be called the **coherence paradigm**.

Working towards the coherence paradigm must lead to the actual creation of coherent digital services, through which, for example, citizens and businesses will have one portal to access to all public services. Neither should they have to submit the same data over and over again, faster case-handling and immediate decision should be available, and a much higher degree of transparency should be prevalent.

In practice, the realization of the coherence paradigm is supported by the architectural paradigm called the Service Oriented Architecture (SOA).

The Common Architectural Challenge

The aim of the OIO E-government Architecture is to establish and maintain the frameworks and foundations that we need to realize the vision for E-government on the basis of the defined direction markers, and formulated strategies.

The overall recommendations of the White Paper on Enterprise Architecture* were:

- The public sector — individual authorities and joint projects — should be more actively responsible for its own enterprise architecture.
- A common enterprise architecture framework should be established for the planning of public IT systems, especially with a view to ensuring interoperability.
- A considerable effort should be put into distributing knowledge about and developing competencies within enterprise architecture, and the joint-public sector initiatives.

The White Paper furthermore recommends that the common enterprise architecture framework, which is held to be a precondition for a successful implementation of the visions, should contain the following elements:

- Joint coordination, including the establishment of an Enterprise Architecture Committee that refers to the Coordinating Information Committee.
- Common methodology in the shape of process, terms, and specification standards for enterprise architecture.
- Common choices and principles within standards, infrastructure, etc., including a reference profile and the service oriented enterprise architecture.
- Common tools, for example in the shape of common databases and contract model libraries, process specifications, data definitions, software, and components, together with specifications of infrastructure solutions.

(*In this context the term enterprise architecture refers to the wider scope of a cross-organizational enterprise architecture).

The specific initiatives relating to the White Paper recommendations are presented graphically in section 9 below, core joint-public sector initiatives in the adaptation phase. Example: The Government's Globalization initiative, the Government's modernization program, the Municipal Reform, and Strategy for E-government

Specific architectural challenges for all public authorities

The public authorities, companies and institutions are all faced with great challenges. Be it at the European Union level, the national common public level across central, regional and local government, or within the individual authority, and be it a Ministry, a hospital, a local administration or a cross-local government power supplier.

There are different tasks involved at different levels, internationally, nationally and locally, yet at the same time these tasks are connected.

- **Internationally / EU**
In the years to come, the EU must provide the architectural foundation for trans-European services, which may be both citizen oriented and function as internal administration services. In other words, a consensus must be established on common principles and standards across all EU countries. The authorities of the member states must then conform to these if they wish to join the trans-European services.
- **National / cross-public sector**
At cross-public sector level, Denmark must realize a number of national initiatives such as the Municipal Reform and the Strategy for E-government. This will, for instance, require the establishment of a multitude of common principles, standards and common solutions, and also that the relevant authorities, businesses, and citizens join in with their local solutions. Examples of this are the business portal VIRK, Nemkonto, OIOXML, electronic invoicing, and FESD. Connected to this architectural work is also the determination of rules, legislation, framework tenders, etc.
- **Locally / the individual authority**
The individual authority or business must ensure that it can conform to the common principles and standards. In addition, they must establish a number of own principles and standards, such as a taxonomy for their own tasks, or enter into a sector collaboration to establish a common language. Or they must implement a common user control model,

consolidate the technical platform, and establish coherent documentation of their own system portfolio.

E-government requires the existence of both requirements and standards that apply within a specific sector, as well as requirements and standards that apply across multiple sectors (multi sector), and requirements and standards that apply to all sectors (general). In other words, the work involved must be coherent both vertically and horizontally.

- **Vertical collaboration between sectors**

The sector specific requirements and standards will ensure that the services, processes, and data can function across players/systems within the sector in question without any translation problems from one player/system to the other. One example could be pharmaceutical data, which is primarily related to the health sector as regards the prescription and use of pharmaceuticals.

- **Horizontal collaboration across sectors**

Multi-sector and general requirements and standards will ensure that services, processes, and data exchanges can function across sectors without translation defaulters from one sector to the other — otherwise, in worst case, the problem has simply been lifted to a higher level. In this case, the example of pharmaceutical data would mean that there may be a need for exchanging data that can also be used in other sectors, such as address details (reference data), prices (trade), account numbers (finance), etc.

The implementation of these tasks will take place in the years to follow. With their high level of complexity and their numerous correlations and interdependencies, these challenges may be compared to those of the industrialization or the development of the welfare society or similar groundbreaking societal changes. In this case, however, focus is only on the tasks, processes, language, and data of the public sector together with its use of technology.

Goals, strategies, and critical success factors

As mentioned in the introduction, the overall purpose is for the OIO Architecture to be the foundation for

- management decisions and coherence between visions and solutions
- common public collaboration and cross-cutting exchange of data
- architectural plans of authorities and development of IT.

This section will describe the targets, strategies, and critical success factors within each of the three main purposes of the OIO Architecture. A critical success factor for OIO Architecture describes a *state* or *ability*, which, if it is present, will increase the probability that the strategies will succeed, and the goals will be achieved.

The foundation for management decisions and coherence between visions and solutions

Goals

- *OIO Architecture must support the transformation and development of the public administration.*

Strategies

- OIO Architecture must assist the realization of the political visions and goals for which consensus has been achieved — in accordance with the subsidiary principle — in the

EU, in Parliament (Folketinget), and in the Government, or across central, regional and local government.

- Because OIO Architecture must conform with and support the strategic goals of the organizations, an explicit coordination must take place in the form of e.g. dialog, consultations, and reviews.
- The decision-making and communication procedures for working in committees and sector committees must be unified in order to establish a homogenous, efficient, and collaborative organizational framework for the OIO Architecture.
- Communication concerning architecture, including communication lines and orientations, must be streamlined and anchored in all public authorities, and among their suppliers.
- It must be monitored whether the key players and the public sector in general comply with and benefit from a joint OIO Architecture, for example through statistics, surveys, and dialog.
- Based on the common architectural methodology, requirements, and recommendations, the development projects of architectural relevance must be subject to review and approval.
- Projects that challenge the OIO Architecture must be identified, and any benefits, disadvantages, opportunities, and barriers must be uncovered, in order for the relevant decision-makers to make qualified decisions.
- Through specific tools OIO Architecture will enhance the transparency from decision to implementation.

Critical success factors

- The OIO Architecture is widely backed by the stakeholders.
- The relevant sections of the architecture, such as the principles, are formulated and communicated in a language that the top management of all authorities understands.
- The application area of the present and the desired OIO Architecture is well defined.
- A metric exists that "measures" the progress.
- A well-defined set of rules and processes exists that can verify whether projects comply with the OIO Architecture.

Foundation for the common public collaboration and cross-cutting exchange of data

Goals

- *OIO Architecture must support coherence across administrative borders.*

Strategies

- Common, cross-functional OIO Architecture projects must be initiated in order to link the existing with the desired architecture.
- The OIO Architecture work must focus on supporting interoperability. Hence, focus must be on common standards for processes, data, and technology, as well as common infrastructure elements.

- The choice of architecture must be as close to the general and international standards, and must be supported by the industry.
- The relevant architecture choices must be submitted to international forums for quality assurance, and a possible international adoption of the Danish choices and procedures.
- OIO Architecture choices should be developed in dialogue with the industry, which should be able to contribute, both to the OIO Architecture, and by developing and adjust products for the OIO Architecture. In the long term, this will ensure the development of a larger number of products that conform to the OIO Architecture.
- Results, decisions, standards, and documentation must be available via the OIO portal.

Critical success factors

- The OIO Architecture will be developed as a cross-public sector "project" in which everybody will contribute to a common pool of documented architecture.
- The authorities and players responsible within the individual sectors take responsibility over the development and establishment of consensus about the use of the relevant standards that are specific for a given sector, i.e. by establishing sector committees.
- The authorities and players within given sector areas take the responsibility for coordinating their work with comparable players within other sectors, thus ensuring the coherence of architecture and standards across sectors where this is relevant.
- OIO Architecture is easily accessible for all who wish to use it, among other places, and especially, through the OIO portal and OIO architecture tools.

The foundation for authorities' architectural plans and IT development.

Goals

- *OIO Architecture must consist of a common core architecture, which is identified, documented, consistent, updated, communicated, and used.*

Strategies

- The OIO Architecture must be designed to be operational and actually usable.
- OIO Architecture must guide and document strategy and technology choices.
- OIO Architecture must be mapped to competency requirements, and thus contribute to the competency management within all public authorities.
- Technologies and the systems and the project portfolio of the public sector must be monitored in order to ensure that sensible decisions are made when acquiring and replacing technologies and systems.
- OIO Architecture must support the technological aspects of the architecture, including systems components, platforms, performance, and security.
- Standards, policies, and guidelines from the OIO Architecture must be part of the standard contracts with external suppliers.

Critical success factors

- OIO Architecture is developed according to known and common principles under a common methodology.
- All stakeholders are able to access and understand the documentation and guidelines that are required to use the OIO Architecture.
- Stakeholders can easily provide documentation for the OIO Architecture.
- Stakeholders can easily submit change proposals for the OIO Architecture.
- The OIO Architecture is documented and maintained in formal EA tools / libraries.

Roadmap

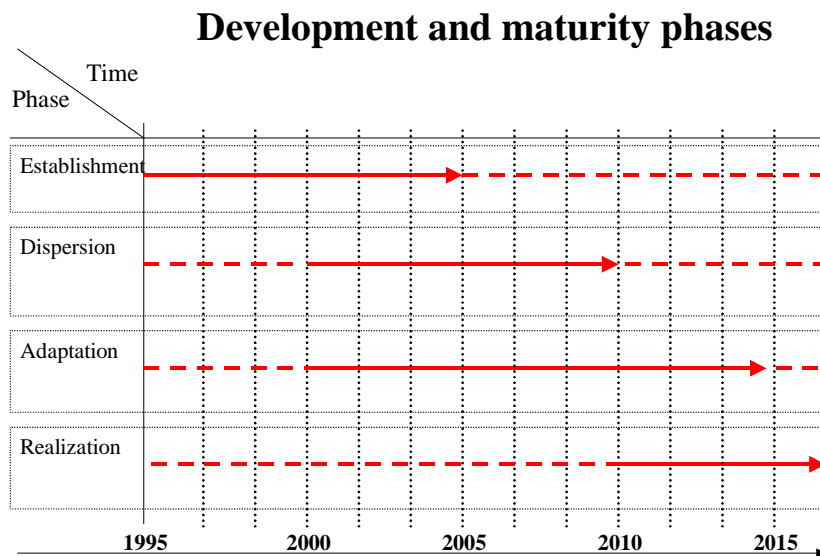
The transformation process

The visions for a coherent and flexible architecture must be fulfilled in a continuous process over many years to come. *The road to e-government* with a coherent architecture may, in very broad terms, be seen as four more or less overlapping phases of development and maturity pertaining to the application of new internet-related technologies (years in parentheses are periods in which activities and effects related to the properties of the phase are expected to be particularly significant):

- **Establishment phase (1995-2005)**
The need for coherent public information and services enters the agenda, the internet and related technologies are used as a supplement to the existing IT, stimulation of the widespread use of broadband, supporting software for development and building of knowledge, businesses and institutions enter the internet, establishment of the terms and language of the information society regarding IT.
- **Dispersion phase (2000-2010)**
IT enters all services, processes, and decisions, IT affects all parts of society through various platforms. Architecture for e-government enters the political agenda as part of large modernization and transition initiatives, which focus on accessibility and inclusion (IT for All). A significant build-up of new IT-related competencies occurs in the public sector authorities and businesses, including various architectural competencies.
- **Adaptation phase (2000-2015)**
The work of reorganizing the organization and the technologies according to known methods and measurable goals is widespread, integration of services across authorities, consolidation of e-services on fewer portals. Major changes are implemented in the public sector, and, simultaneously, the private sector adapts to the new conditions of the information society.
- **Realization phase 2010-2020**
The processes of the information society are exploited continuously within the frameworks and guidelines that have been established in the previous phases. The architecture and the applied standards are continuously developed and maintained.

Nevertheless, it is important to note that the realization phase should be viewed as a phase in which dispersion and maturity have reached a certain level. Most initiatives are effective and, hence, continuously provide achievement of goals. Accordingly, it is **not** the entire architecture and all standards that must be in place and implemented everywhere, before realization and effect have been achieved. The realization phase embodies the presumption that a large-scale collective transformation has taken place in core areas.

The four phases are presented graphically in the below figure:

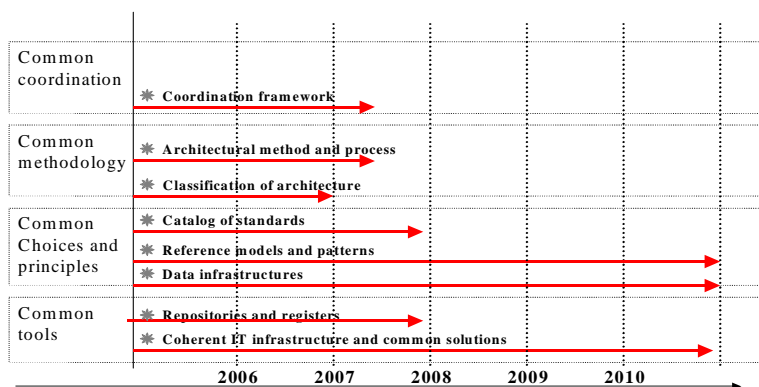


This strategy for OIO Architecture for e-government relates to the time period 2006-2010. In this time span, the architecture work will to a larger extent become organized, concretized, put into practice, and — as a result — begin to show results.

Development and dispersion of OIO Architecture

The figure below illustrates a roadmap of the core initiatives of the OIO Architecture work. The overview is divided into four areas which are covered by the White Paper recommendations for the establishment of a common architectural framework. The figure below illustrates a roadmap of the core initiatives of the OIO Architecture work. The overview is divided into four areas that are covered by the White Paper recommendations for the establishment of a common architectural framework.

Roadmap for the development and dispersion of OIO Architecture 2006-2010



Overview of central OIO Architecture initiatives

The below overview lists a number of core initiatives that should be realized in the period 2006-2010 as part of the joint public architecture work. The initiatives are distributed according to their support of the recommendations of the White Paper on Enterprise Architecture.

Main recommendation 1: Take active responsibility for own architecture

1. IT strategies (in progress)
2. Surveys / statistics (in progress)

Main recommendation 2: Common IT architecture framework

White Paper recommendation 1: Joint coordination

Organization and process

3. Overall coordination (in progress)
4. Coordination of EA/IT architecture competencies (in progress)
5. Coordination of data architecture competencies (in progress)
6. Coordination of sector architectures (in progress)

Governance and incentives

7. Incentive catalogue (in progress)
8. Standard contracts and requirement specifications (in progress)
9. Rule development within legislation etc. (ad hoc)
10. Project review (ad hoc)
11. Socio-economic aspects (in progress)
12. Cost-benefit analyses (ad hoc)
13. Economic issues related to open source and open standards (in progress)

White Paper recommendation 2: Common methodology

Common methodology

14. Architectural method (in progress)
15. Data architectural method (in progress)
16. Architectural framework (classification/terminology) (in progress)

White Paper recommendation 3: Common choices and principles

Standards

17. Common catalog of standards (in progress)
18. Decision and review support (in progress)

Reference models and patterns

19. Reference models for ESDH systems (FESD) (in progress)
20. Reference model for public portals (in progress)
21. Reference model for citizen oriented services (in progress)

- 22. Reference model for Service Oriented Architecture - the SOA initiative (in progress)
- 23. Reference model for web services (in progress)
- 24. Reference model for user control (in progress)

Coherent data infrastructure

- 25. Data architecture: Cross-public sector definitions of concepts and data (in progress)
- 26. e-Business framework (in progress)

Coherent IT infrastructure and common solutions

- 27. Common user administration services (in progress)
- 28. Common workflow broker (not initiated)
- 29. Common format brokers (in progress)

White Paper recommendation 4: Common tools

Common tools

- 30. Architecture library (Architecture documents) (in progress)
- 31. Component library (Software) (in progress)
- 32. Infrastructure base/XML repository (XML schema) (in progress)
- 33. Infrastructure base/UDDI (Web services) (in progress)
- 34. Database access (public databases/data registers) (in progress)

Main recommendation 3: Spread knowledge and develop competencies

Communication

- 35. OIO.dk (in progress)
- 36. OIO newsletter (in progress)

Dialogue forums

- 37. OIO Forum for architecture (in progress)
- 38. OIO Forum for data architecture (in progress)
- 39. Network of researchers (in progress)

Knowledge centers

- 40. Software (in progress)
- 41. Accessibility (in progress)
- 42. User-friendliness (in progress)

Competency development

- 43. University courses (in progress)
- 44. e-Learning (not initiated)
- 45. Certification (not initiated)

(Note: For further information please contact the author Michael Bang Kjeldgaard, mbk@itst.dk)

Annex A: Definition of OIO Architecture

OIO E-government Architecture is a cross-organizational enterprise architecture focusing on the public sector administration, service, procurement and other public sector activities.

OIO Architecture is a new term that covers the joint public work within e-government architecture and standardization.

In order for us to collaborate across administrative and professional borders between authorities, suppliers, sectors, etc., we need a common understanding of what is meant by OIO Architecture.

First and foremost, OIO Architecture is a common framework — i.e. a common paradigm that contains overall principles, methods, guidelines, tools, and control frameworks — which is documented.

Nevertheless, OIO Architecture is also — and to an ever-increasing extent — the embodiment of a concrete architecture including selection of standards, reference model design, establishment of common infrastructure elements, etc. When documentation takes place at this level, OIO Architecture is a description of the central and common elements that constitute e-government and e-business.

OIO Architecture has a wider scope than traditional IT or systems architectures. In many ways, OIO Architecture corresponds to Enterprise Architecture (EA), which is an approach that typically focuses on the perspective of a collective enterprise, and takes its offset in business development and IT support of the business. OIO Architecture can also in many ways be compared to, what in the US is referred to as Federal Enterprise Architecture (FEA), which emphasizes an approach that goes across the different departments and agencies at the Federal level. In this context, what is particular about OIO Architecture is certainly that it is cross-public sector and comprises central, regional, and local government.

OIO Architecture can be defined by five mutually complementary definitions of e-government architecture, which introduce significant aspects of the purpose of OIO Architecture, delimitation, framework, dynamics, basic properties, and rationality.

Business & administration:

”the process and documentation driven by the needs of the business and the administration, and whose purpose it is to ensure that the organization's use of IT optimally supports the needs within the business and the administration”.

Purpose and prerequisites:

”a description of process, data, and technology standards, guidelines, and components, including services, applications, and infrastructure elements, that are necessary prerequisites for realizing visions and specific objectives related to e-government and the development of the public business”.

Anchoring and cooperation:

”the common principles and guidelines for central, regional, and local government that are agreed in a common process in order to use IT coherently and efficiently, and hence offer the citizens and the business community better services, and facilitate administration.”

Communication and change:

”the communicated description and documentation of the present and the desired future relationship between the business and the supporting technology.”

Reasonability and functionality:

”a description of the most appropriate organization of one or more IT systems, including the principles for the design, development, and mutual relationship of these systems.”

The UK Strategy: Transformational Government - Enabled by Technology

An Article by the UK eGovernment Unit

What do DVLA's vehicle licensing online (www.vehiclelicence.gov.uk), NHS Direct and DWP's Payment Modernisation Programme have in common? They – in company with other recent developments using technology - helped to inform thinking on *Transformational Government: Enabled by Technology*, the strategic document which outlines how government plans to use the opportunities presented by modern technology to transform public services.

The Prime Minister asked the eGovernment Unit, based in the Cabinet Office, to drive work across the public sector to develop a strategy for using technology 'to transform government services'. Under the Unit's leadership the newly formed Chief Information Officer's Council was the focus for the collaborative work across departments, local authorities and other public bodies to generate and agree the strategy itself. The CIO Council acts as the forum for partnership between IT professionals across government and has a membership drawn from the wider public sector. It is charged with creating and delivering a government-wide CIO agenda to support the transformation of government and to build capacity and capability in IT-enabled business change, balancing this with accountabilities from individual CIOs' line organisations. So the strategy published in November 2005 is very much the product of the CIO Council, based on the input and knowledge of those actually delivering public services as well as input from the IT industry, from best practice in other sectors and experience in other governments internationally.

Since the launch of the strategy we have produced a follow-on document - the *Implementation Plan* – describing the real changes that will be seen as a result of *Transformational Government* to July 2007, including changes already underway. In this article I will be describing in summary what *Transformational Government* is all about. If you want to read the documents themselves or some of the work and responses that contributed to them, you can find them at http://www.cio.gov.uk/transformational_government/index.asp.

Transformational Government described a picture of government enabled by technology – inspiring policy, delivering business change, providing customer and corporate services and backing up the work that frontline staff do day in, day out. Technology alone doesn't change government, but government can't meet modern citizens' expectations without it. The strategy's vision is about delivering better public services through greater choice and personalisation; supporting effective policy outcomes; reducing burdens on front-line staff; streamlining and delivering efficiencies through the smarter use of tools, technology and information. Everyone benefits from this vision. Citizens and business have greater choice, reduced paperwork and lower costs in their interactions with government. Public servants have better tools to help them to undertake their jobs, enabling them to provide better service. Policy makers will be better able to achieve outcomes sought. Resources are freed from the back office to the front-line and efficiency gains are made.

Gartner, a consultancy, have described the world of technology as entering a 'perfect digital storm' where speed, capacity and connectivity combine to create an environment characterised by extremely rapid change. The strategy envisages government being able to create and retain the capacity to innovate and transform itself as technology continues to develop – even if we enter

this digital storm - ensuring that public services can keep up with a continually changing, globalised society.

Transformational Government is part of a wider programme of work to transform public services using technology, and should be read in that context. Other aspects of this work programme are set out in *Connecting the UK: the Digital Strategy* (March 2005) which set an agenda for dealing with the so-called digital divide – the variation witnessed in access by different socio-economic groups to services provided electronically - by providing stronger incentives for people to get online. Other key documents include *Harnessing Technology*, the e-learning strategy (March 2005) which described the use of technology to achieve a more personalised approach within education and children's services; and *Inclusion through Innovation* (November 2005) which set out how government can use technology to reach out to disadvantaged groups.

Transformational Government set out three areas of focus:

- Delivering better public services through increased Customer Focus
- Moving to a shared services culture – releasing efficiencies through standardisation, simplification and sharing
- Professionalising the planning and delivery of technology-enabled business change

Delivering better public services through customer focus

The strategy takes the approach that services should be designed and delivered around the customer, whether citizen or business. To deliver this approach government must understand and engage with the customer to understand their needs and requirements. Using this information, principles of design, including the most appropriate channels through which to deliver services, can be drawn. For some, though not necessarily all, customer groups this process of redesigning services around the customer will be led by specific individuals. These 'customer group directors' will be responsible for sponsoring customer insight and research into the needs of that customer group; leading the design of services including overall channel planning; tracking and communicating performance against customer-related targets; and representing the interests of their customers. Directors have already been appointed for one citizen group and one business group – older people and farmers. Other candidates include Directors for parents and for small businesses. People rarely fall into neat categories, so services need to be responsive enough to deal with people associating themselves with different groups at different times. The approach is likely to be most effective by identifying the challenges which certain groups typically find particularly difficult and then tackling these from the customer perspective.

Moving to a shared services culture

Transformational Government outlined the benefits in terms of improved working, better outcomes and increased efficiency through a shared approach in government. Initially significant effort is going into shared 'back office' services – the development of a shared approach to Human Resources, Finance and other corporate services. But other opportunities exist in sharing customer service centres; shared infrastructure; and crucially better use of government-held information.

Transformational Government outlined how government would enable the joining-up of services and information by continuing to develop and use consistent standards and architecture for technology use. Other enabling work includes the continued development of the information assurance programme to ensure that IT systems are secure and trusted by those using them; development of an identity management strategy and a new focus on finding a balance between

maintaining the privacy of the individual and sharing information to deliver better, more efficient services.

Professionalising delivery of technology-enabled business change

In order to deliver the vision described by *Transformational Government*, a step-change will be required in the professionalism with which it is delivered. There must be broadening and deepening of government's professionalism in terms of the planning, delivery, management, skills and governance of IT enabled change. This will result in more successful outcomes; fewer costly delivery failures; and increased confidence by citizens and politicians in the delivery of change by the public services. As well as a new approach to the Government IT Profession, as part of the *Professional Skills for Government* programme, this will encompass a further programme of work on the management and control of technology-enabled business change to support both successful delivery of major projects and the reliability of successful delivery. Technology-enabled programmes will be managed at portfolio as well as programme level, enabling government to match supply with demand, identify duplication and set priorities. A further shift in supplier management will accompany this, ensuring capacity and capability are addressed; sharing supplier intelligence and increased standardisation of contracts, services and service boundaries.

Timeline

Transformational Government outlines a large scale programme of work, looking beyond 2011, within which we identified three discrete phases of work. The first, ending in July 2007, is mainly concerned with continuing to deliver on the big departmental programmes and big IT projects, for example *Connecting for Health* or *Criminal Justice IT*. This period will also see the activity outlined in *Connecting the UK, the Digital Strategy* completed. In addition, work to address some of the specific barriers identified will begin, as outlined in the *Implementation Plan*. Some aspects of this first phase will appear in the Annual Report, due to be published in November 2006, as described in the strategy.

The priority for the second phase of work, August 2007 to 2011, will be transforming delivery into public services centred round citizens and businesses, and transforming support into a shared services framework. During this period it will also be important to realise the financial and service benefits of current and planned investments. The goal should be to have made the key changes, to have embedded the new cultures, and to have made the process irreversible, by 2011. The third period is deliberately left flexible at present. The pace of technology change is such that it is only sensible at this stage to recognise that this will be a period of further radical change. Our goal for the preceding years must be to ensure that a strong foundation is laid to enable this.

Automated Systems in Administrative Decision Making

A Statement and a Request for Assistance from The Australian Government Information Management Office

The Australian Government Information Management Office (AGIMO) recently established the Automated Assistance in Administrative Decision Making (AAADM) Working Group (the Working Group) to provide advice to government on the operation of automated systems in administrative decision making. The Working Group is currently developing Best Practice Guidelines for use by Australian Government agencies that reflect key principles from the Administrative Review Council (ARC) Report No 46: *Automated Assistance in Administrative Decision Making* (the Report). The ARC is responsible for overseeing and monitoring the Australian Government system of administrative review and provides advice to the Australian Government Attorney-General on strategic and operational matters relating to that system.

The Report contains 27 best practice principles for ensuring that decision making undertaken with the assistance of automated systems is consistent with the administrative law values of lawfulness, fairness, rationality, openness and efficiency.

A key principle being progressed by the Working Group focuses on training users of automated systems to ensure they understand the relevant legislation and are able to explain a decision to the affected person (Principle 16). The Working Group is in the process of seeking advice from government agencies so that it may draw on their experiences regarding training users of automated systems. Gaining additional insights into approaches, potential pitfalls and experiences will assist with the development of robust generic advice that will inform Best Practice Guidelines for use by Australian Government agencies.

If you feel you may be able to offer some experiences or views regarding the training of users of automated systems, please contact Mr Bernard McMinn of the Australian Government Department of Veterans' Affairs: bernard.mcminn@dva.gov.au or the AAADM Working Group Secretariat: aaadm@finance.gov.au at your earliest convenience.

A copy of the Report can be downloaded at:
www.ag.gov.au/agd/WWW/arcHome.nsf/Page/Publications_Reports_Downloads_Automated_Assistance_in_Administrative_Decision-making.

Further information regarding the Working Group is available at www.imsc.gov.au

Government Search Engine Services Deliver Value— Without the Commercials

FirstGov: The Web Portal of The US Government

Background

WWW.FirstGov.gov is frequently referred to as “The U.S. Government’s Official Web Portal.” It’s an apt description: FirstGov.gov links to the web pages of every federal agency, as well as those of many state, local, tribal, and territorial governments. FirstGov is the most comprehensive site in and about the U.S. government, providing ready access to information on a vast spectrum of government programs.

FirstGov facilitates the public’s ability to interact with government by quickly directing citizens to the services or information they are seeking. Since the FirstGov website was established in September 2000, it has grown to average more than 500,000 page views per day and more than 85 million visitors per year. It links citizens, businesses, federal employees, and other governments and institutions seeking information and services to some 24 million pages of web content provided by more than 22,000 government websites.

When FirstGov was launched, it required browsing functionality with a search engine for government information. This was provided initially through a gift of a fully operational Search Engine index from the Search Foundation and Inktomi. This index supported FirstGov’s visitors and was also shared with other federal agencies. After Inktomi withdrew, the service was outsourced to a hosting provider and supported by an Enterprise Search Engine company.

FirstGov Search Engine Problems Emerged

However, it soon became apparent that the FirstGov operation lacked the human and technical resources needed to grow, scale, and deliver relevant information as effectively as the commercial search engine companies. These companies were expanding dramatically. They had the ability to generate huge amounts of advertising revenue, which they then invested in advanced technologies.

At the same time, the amount of information available to search engines through the Internet grew at an unchecked pace, making it more and more difficult for FirstGov and its partner agencies to crawl and index the appropriate documents. FirstGov’s inability to scale as well as commercial providers created several key problems:

1. Crawling and indexing operations were not completed properly. This led to:
 - a. a frequently outdated index,
 - b. an inability to capture new documents
 - c. an inability to delete old or substituted documents in an appropriate timeframe.
 - d. a huge buildup of duplicate pages that clogged the index storage mechanisms and compounded the delay in crawling updated information.
2. Older equipment used by the government could not be upgraded or replaced, began to fail, and further compounded FirstGov’s resource constraints. FirstGov had to deal with a number of problems:
 - a. The limited infrastructure could index only a very small fraction of federal documents (8 million documents over 4,000 domains) and had no capacity to include state, local, tribal, and territorial documents. At the same time, commercial search engines such

as Google, Yahoo, and MSN were including documents from all levels of government and providing indexes five times larger than FirstGov.

- b. Site visitors received poor search results for their inquiries and said so in written complaints to the FirstGov staff.
- c. Complaints from partner agencies using FirstGov's index grew exponentially. They expected FirstGov search to function as well as Google and other commercial search engines, and it did not.
- d. Agencies that had partnered with FirstGov in their use of the FirstGov index realized that:
 - They really needed an Enterprise Search Engine service, and
 - Prices for Enterprise Search of any variety (internally run, outsourced) had fallen dramatically due to intense competition.

Partner agencies began to move away from FirstGov.

FirstGov search was unable to provide service comparable to the major commercial search engines. At the same time, however, the cost to FirstGov for its search function had risen to over \$3.2 million per year. All of these costs went into running just the technical operations, with limited resources left to improve citizen services overall.

The FirstGov Solution Unfolded Over Time

In 2003, GSA management engaged consultants with deep search expertise to assess the FirstGov situation and recommend a plan to improve the FirstGov search. The outcome was expansion of the FirstGov staff to include individuals skilled at search engine strategies and operations. Initial work focused on cleaning up the existing index. While search results improved somewhat, continuing resource constraints still left FirstGov far behind in meeting citizen search expectations in comparison to commercial services.

Conquering this challenge required an innovative solution that had never been tried before in addressing a government-wide program—using the web as a platform for providing citizen services. This approach for providing FirstGov search meant leveraging the features, functionality, and infrastructure of an existing commercial search engine. Major commercial search engines were already crawling and indexing federal, state, local, tribal, and territorial governments. These companies were already leaders and innovators in developing citizen-centric search technologies. Directly leveraging their technologies would allow FirstGov to continuously offer state of the art services to citizens.

FirstGov's next step was to begin a competition to obtain expert search engine services from an outside, commercial party actively involved in crawling the Internet and providing search services on a wide scale. FirstGov required that the provider:

- Be actively engaged in providing Internet search services,
- Have an established minimum index size,
- Be willing to work with FirstGov to build value-added services and deliver FirstGov search results pages from its search engine infrastructure.

All requirements were established to create a first-class, up-to-date service for FirstGov visitors that would also mitigate FirstGov's problem of resource constraints.

The New Search Solution Was Launched

In January 2006, FirstGov launched a new government-wide search solution based on this innovative web-based paradigm. As of this date, the new search solution has successfully overcome all previous challenges. Instead of running its own operations, FirstGov utilizes the content, features, and functionality of major commercial web search engines. In concert with private sector partners Vivisimo, Inc. and Microsoft Corp., the government's most powerful search engine has the following benefits:

- Vastly expands search to include a comprehensive database of federal, state, local, tribal, and territorial documents.
- Increases the universe of government documents from eight million to over 50 million.
- Searches more effectively by leveraging MSN Search, which returns relevant results using state-of-the-art algorithms.
- Leverages Vivisimo's meta-searching technology, which is unique to the government, and provides citizens access to information that they cannot find on commercial search engines.
- Uses clustering technology to organize thousands of search results into categories to help citizens zero in on topics of interest.
- Gives citizens search results they can trust by providing only official government information.
- Costs taxpayers \$1.8 million annually, about half the cost of previous search services, generating savings that can be reinvested into further enhancements.
- Has a preview function that allows users to determine the relevancy of an individual result before leaving the search page.
- Provides enhanced search on Kids.gov, Consumer.gov, and Espanol.gov and over 150 federal agency websites.
- Creates a more citizen-centric government by facilitating citizen access to government information—one of the President's E-Government pledges.

Summary

The new generation of search services at FirstGov:

- Leverages the features, functionality, and infrastructure of two major commercial search engines: Vivisimo's award-winning Clusty.com meta-search engine and Microsoft's MSN Search.
- Provides comprehensive access to all official federal, state, local, tribal, and territorial websites. A search service that focuses on accessing official government web resources is unprecedented in the public and private sectors.
- Saves the taxpayer nearly \$1.4 million per year, while providing substantially more features and functions, including new government-wide News and Images search services—to be launched in summer 2006. The savings will be reinvested in new and unique government-wide search services covering different content types (e.g. video, auctions/shopping, FAQs).
- Is having a broad, positive impact on all levels of government. Not only is FirstGov making content published on federal, state, local, tribal, and territorial websites more accessible, it is also making new types of content available that were previously difficult to access from a single source. Citizens can find official news from the government (press releases, podcasts, feature stories, etc.) without wading through an ocean of partisan third-party sources. Secondly, citizens soon will be able to access image libraries and archives of government institutions responsible for recording the nation's cultural history and scientific discoveries.

The most important benefits to citizens are.

1. FirstGov search provides citizens access to information that has been previously difficult or impossible to find. Vivisimo's clustering technology provides multiple paths that accommodate the different ways citizens look for information.
2. Using a major search company's platform for service guarantees that FirstGov search will always provide citizens with the latest features, functions, and technology. FirstGov search's contract vehicle ensures rapid acquisition and deployment so the service is always in step with the web search and portal industry.
3. The FirstGov search solution costs taxpayers less money than alternatives, while providing substantially more features and services to help citizens easily find information, programs, and services important to their daily lives.

The Future

FirstGov search will continue to keep pace with the latest technology and functionality. Search engine operational savings mean FirstGov has the resources to continuously offer more and better features. That means more visitors can count on finding the information or support they need from their government online easily and successfully—making FirstGov a cornerstone of a citizen-centric government.