The Status of Information and Communication Technologies (ICT) in Governments – 2008

An Analysis of ICA Country Reports for the 42nd Annual ICA Conference

Executive Summary

In the beginning stages of e-Government, governments placed services online, but did little to hide the underlying complexity of the systems and organizations supporting them. Endeavors to simplify services – such as single sign-on using electronic identification, integrated portals to all services, and architectures that reduce redundancy and maximize use of IT assets – transfer the responsibility of understanding this complexity from the citizen to government. Understanding this complexity is no easy task for either party. As governments are asked to simplify and streamline citizen services and back-office systems, technology and society continue to evolve, adding even greater complexity. Governments change as new officials are elected. Technologies change, offering new opportunities and challenges. Citizen preferences and demographics change, requiring services to evolve with them. The constant state of change, combined with the inherent complexity of government, underpins the many challenges governments face.

Last year's ICA country reports and conference focused on transforming government as a means to improving citizen services and increasing public trust. During the conference in Ireland, we identified several key challenges to transformation. These challenges included maintaining ICT skills, coordinating across organizations, citizen uptake of services and keeping pace with technology. ICA members also developed a vision of transformed government and acknowledged progress made in overcoming the challenges. This year's ICA country reports show members developing the governance models and infrastructures necessary to manage the transformation to governments that use ICT to enhance public value and improve service.

Governance Overview – Managing Complexity

The task of ICT governance is to create the structures and processes needed to manage the aforementioned complexity and transform government. Strategies have evolved to include goals of increasing public value and streamlining services and systems. Governments are reshuffling the organizations that manage ICT in a networked environment across agencies, sectors and levels of government. ICA members continue to strengthen programs to improve ICT skills at the technical, middle manager and leadership levels. Oversight, performance measurement and occasionally funding are used as levers of control to bring about the coordination needed to transform government. But these levers come with their own challenges. Governments must reach goals in a networked environment that spans government, private and non-profit sectors.   The benefits from ICT investments are often difficult to quantify with rigor. Despite the emphasis placed on ICT skills, the labor market, reductions in the size of government and the eminent retirement of large portions of the workforce make things difficult. New employees that replace retirees will have grown up in the Internet era and have different ways of working and interacting. Because ICT is seen as a means to achieving larger social goals, it has become politicized and susceptible to changes in government.

Systems Overview - Streamlining, Modernizing and Securing the Back Office
ICA members are trying to streamline their systems, utilize resources more
efficiently and share data. The goals are to deploy IT resources across the enterprise
as effectively as possible and to employ current technology to provide services and
solve problems. Shared systems and electronic identification approaches are the
foundations for integrated services and information sharing. The complexity built
into government systems after years of independent and uncoordinated investments
in ICT; the difficulty deploying integrated identity management across government;
and the rapid pace of change in technology, create many challenges for streamlining
systems. Security threats continue to evolve; forcing governments to balance the
need to embrace new technology with the motto "do no harm." Because of the trust
placed in government, many are understandably cautious in implementing new
technology; though there are some early adopters of open source and collaborative
technologies.

Stakeholder Services Overview - Creating Public Value
Governments are continuing to make citizens' needs the primary concern in selecting
ICT investments. Officials hope ICT can help meet social needs such as quality
healthcare, a clean environment and public safety. ICT aside, meeting these needs
is difficult. The overarching goal for online services is simplicity, and reports show
that governments are further integrating services. Meanwhile, a somewhat
contradictory goal of personalization through web 2.0 technologies is a priority for
many governments. Interactive technologies are being embraced to a grater degree,
though their use remains somewhat limited for citizen participation. The
demography of the citizens being served is also changing. In many countries, the
number of people receiving services and the volume of services governments provide
are increasing, while the number of government employees is decreasing. The
perennial adage "do more with less" is a reality for many governments. Lack of
uptake and awareness remains an obstacle. Another challenge is the lack of Internet
access for some groups within society. Finally, dealing with the inherent complexity
of government is always a roadblock when integrating services for citizens.

This year's ICA Conference in Korea, "Anticipating the Challenges of Our Next
Generations," addresses the challenges governments face when simplifying services
and systems in a complex environment. The challenges to transformation have been
consistent in reports over the past several years, and strategies to overcome them
continue to be refined. Anticipating new challenges can help frame future
investments in ICT and programs. How do we bring ICT to bear on large social
problems? How do we balance the need for security with the need to meet citizen
expectations? How should governments leverage new interactive technologies for
collaboration and citizen participation in policy making? Are governments
operationally prepared to provide new services to more people with fewer resources?
How do we ensure that ICT programs do not shift with the political winds? How
should the transformation effort be led?

The following report is based on the observations, strategies and initiatives featured
in 18 ICA Country Reports submitted for the 42nd ICA Conference: Sweden, Cyprus,
Canada, United Kingdom, Switzerland, Belgium, Singapore, Finland, New Zealand,
Estonia, Slovenia, Australia, Japan, United States, Hungary, Israel, the Netherlands
and Malta. Selected initiatives and strategies from these reports will be highlighted
throughout this document. Inclusion of a country initiative in the summary is not
meant as a qualitative preference over country initiatives not included. Rather,

initiatives are included as representative examples of the trend identified. The ICA thanks the authors of the reports for their valuable contributions.

The Status of ICT in Governments: Control vs. Innovation

This is the fourth annual summary report.   The first report in 2005 documented an inward focus by ICA members to address back-office obstacles to transformation. Over the past few years, governments have reorganized, created new entities responsible for different aspects of e-Government, centralized functions and created enterprise architectures. ICA members also improved services, but not to the extent they hoped for at the beginning of the e-Government era. The last two years we have seen a renewed effort to place the citizen at the center of ICT strategy. The embrace of Web 2.0 technology for greater public interaction, use of ICT to achieve social goals, integration and expansion of channels for service, and focus on increasing citizen usage of services, reflect this priority.

Governments have come to understand the constraints and challenges to transforming government. New technologies offer some opportunities to overcome these challenges, and present some challenges of their own. As governments deploy new technologies, they deal with some underlying tensions, perhaps better termed as competing priorities.

Personalized vs. Integrated Services – Portals and integrated service delivery have served as the foundation of many e-Government strategies. There have also been many common-look, common feel standards. On the other hand, new interactive Web 2.0 technologies make personalized service possible. Web services can be designed to be deployed anywhere based on the preference of the user. Though many governments have tools to tailor central portals, the potential for personalization could actually make portal strategies less important. Should governments continue their pursuit of the simplified integrated front-end, or focus on offering mechanisms to make services available through a variety of channels? Should governments integrate services, or make them "integratable" by citizens into the channels of their choice, including private networks and sites?

Security vs. Innovation and Transparency – Other than the fundamental requirement of electronic identification for online transactions, government security standards and technologies often act as constraints to embracing new technology. New applications and technologies can pose unknown security risks. Many governments are forgoing the use of some Web 2.0 applications for just that reason. Because of the trust placed in governments, they are reluctant to take the risk. That said; the broader Internet and market are quick to embrace new technologies, security warts and all. Citizens see the applications and use them. Similarly, transparency is often in conflict with security and privacy. Can government ever meet expectations created by a more flexible private/social sphere that doesn't have to meet a trust threshold required of government?

Flexibility vs. Coordination – Governments operate in a networked environment where their actions impact other agencies, levels of government and sectors of society. Coordination across these bodies is easier when control of ICT assets, strategy and funding is more centralized. Though centralizing ICT functions lends itself to better coordination, it also can impose a one-size fits all approach that can stifle flexibility and innovation. Decentralized approaches allow for flexibility within individual agencies to try different things and experiment, but create difficult conditions for sustained collaboration across entities.

While one priority is not always followed at the expense of the other, the emphasis a government places on one or the other does matter and trade-offs will occur. There is one commonality between the three tensions – the level of government-wide control exercised in ICT. A control-centric government will lean toward security, coordination and integration. An innovation-centric government will prefer personalization, emerging technologies, and flexibility.

Status – ICT Governance: Managing Complexity
In order to transform, governments will need to work with other agencies, jurisdictions, countries, vendors and sectors of society. Managing in such an environment is no easy task and requires new ICT and managerial skills. Centralization remains a key component (or necessary evil) for managing in a complex environment. Funding models are often the last thing to centralize, compared with frequent changes in organizational structure. Government accountability comes with only limited control of the purse-strings. Elections and changes in government further muddy the water as ICT becomes more politicized. Acquiring and maintaining ICT skills remain critical challenges. Governments are recognizing the importance of strong CIO leadership to managing ICT. Performance measurement and oversight of ICT investments are also imperative for good ICT governance, but are often imprecise and difficult to conduct.

Centralized Agencies and Leadership
Many governments are still centralizing their control of ICT. In most cases, centralized ICT management and provision of common IT infrastructure are overlaid atop an environment where the responsibilities for and funding of services remain decentralized. Governments are reshuffling the entities responsible for ICT management and increasing their responsibilities. With two sessions devoted to the Chief Information Officer role, this year's conference agenda focuses on 'who" manages ICT as much as "how" it is managed. The CIO function is the focal point for transforming government through ICT. In this year's country reports, countries added CIO functions and augmented the responsibilities of the position.

Many countries reported efforts to centralize and reorganize their structure. Sweden still has a decentralized model, but their new coordinating agency, VERVA, is taking on a greater government-wide role with operational responsibilities. In Finland, a reorganization of government ministries at the beginning of this year combined IT functions in the national and local levels into one department, the Public Management Department within the Ministry of Finance. Hungary has set up a new central office for e-Government services – the Public Administration and Central Electronic Public Services Offices.

Australia notes decentralized and devolved responsibilities across agencies and levels of government are challenges for the government-wide CIO. The decentralized structure highlights the need for collaborative bodies to coordinate government-wide efforts, such as Australia's Online and Communications Council, Cross Jurisdictional CIO Committee and Business Process Transformation Committee. The organization responsible for ICT use in government, the Australian Government Information Management Office, has moved from a non-Cabinet ministerial position to a cabinet level at the Ministry for Finance and Deregulation.

Many governments are refining the CIO's role. Cyprus established an Information Society Commissioner who will be tasked with creating a national strategy. Also, in

December of 2007, Cyprus required each Ministry to establish its own IT unit. Belgium has strengthened its Minister in charge of ICT with responsibility for telecommunications, administrative simplification and economic development. New Zealand has reestablished its CIO. The new position within the State Services Commission's (SSC) will provide strategic leadership on government-wide ICT efforts, input to agency investment decisions and incentives for innovation and collaboration in "all of government" operations.

As part of the new national strategy, Malta set up a new agency responsible for IT across the country in July of this year. The Malta Information Technology Agency (MITA) will combine a number of existing organizations within government responsible for ICT. The organization will be operational at the beginning of 2009. The same act establishing MITA also established a central security agency, the National Information Security Agency.

Changes in Administration and Structure
Over the past several years, ICT has become politicized through politically appointed ICT leaders and executive and legislative decrees. This politicization has created the political will to transform, but also has subjected ICT plans, which are relatively non-partisan, to political winds. Many countries highlighted the uncertainty surrounding changes in government and upcoming elections.

The United States (US) notes that the upcoming presidential election will have an impact on future investments in ICT. It was the top issue facing the government in the coming year according to their country report. With the politicization of many CIO positions and long lifespan of the current structure, it is possible that many officials and organizations could change.

In Australia, a new government with Kevin Rudd as Prime Minister was elected in November 2007. The beginning of this year saw several efforts to review and reform government efforts, including IT.

Regional governments in Finland will likely be reorganized over the next few years. A report in March 2008 anticipated that regional state authorities would be reduced to two. These authorities are planned to be operational in 2010, and will be supported by the soon to be launched State IT Service Center.

In Belgium, instability of the government constrains ICT efforts along with the rest of government. The potential split of Flanders and Wallonia has had an impact on all Belgian governments, which will certainly be intensified if a split actually occurs.

New Strategies
Governments continue to update plans and strategies to transform government through ICT. Some strategies are living documents, with plans being revisited on an ongoing basis. Areas of emphasis in new plans include simplification of services, citizen uptake, customer feedback and solving social problems like the environment.

The goal of Sweden's new e-Government Action Plan is to become the most simplistic public administration in the world. This goal is reflected in Sweden's Interagency Service Centers, which are highlighted later in this document. Also, targets have been set to diminish the administrative costs of government 25% by the year 2010.

Cyprus recommended an update of its Government IS Strategy. The new strategy will match ICT efforts with government goals for 2015 and EU i2010 Strategies.

The United Kingdom (UK) has released the Service Transformation Agreement, which makes the citizen the ultimate arbiter of service success. Citizens provide customer insight and are the primary considerations in service design and information sharing.

New Zealand has released its Digital Strategy 2.0. The strategy sets out to achieve broad goals of 1) a healthy environment 2) a high value economy and 3) vibrant communities and culture. These will be achieved in part through broadband connectivity, ICT skills and capabilities, trusted networks to establish confidence of citizens and enriched content.

Slovenia over the past few years has adopted Information Society and e-Government strategies through 2010. The strategies guide their efforts to increase user satisfaction, streamline administration and modernize services. Joint projects implementing the eGovernment Strategy for Local Self Governments are being folded into the strategy as well.

Since 2000, Japan has implemented a number of e-Government policies. Policies since 2007 have squarely focused on promoting the use of eGovernment to citizens. In August, Japan launched the New Action Plan for Promoting Online Use.

Hungary published its E-Public Administration 2010 strategy in July of this year. The strategy focuses efforts on the modernization of public services, integrated services within government for greater efficiency and transparency, and "e-government adaptability" for disadvantaged users without IT access.

Malta released its National ICT Strategy at the end of last year. The strategy focuses on broad areas that ICT has the potential to support. The strategy sets ambitious goals for 2010; including ubiquitous availability of applications and information, use of ICT as a "social equalizer" and efforts to make the ICT industry a "pillar" of the economy.

On December 20, 2007, the Netherlands published 'The Hour of Truth,' which proposed a National Urgency Program. The program intends to address both the technical architecture and infrastructure of government as well as identify key initiatives that will utilize the infrastructure.   The flagship projects are linked to policy objectives.

ICT Skills
At last year's ICA Conference, Frank McDonough discussed the new type of leadership needed to manage an increasingly complex environment. Governments have unanimously recognized acquiring and maintaining ICT skills as important issues. A variety of methods are being used by governments to attract, develop and keep people with the skills necessary to transform government. Governments have developed training offerings, certification programs and standard competencies for personnel. To recruit, governments are figuring out how to support a new generation of Internet savvy employees. Flexible workplaces and collaboration tools are being employed as ways to maximize the use of knowledge that resides within government.

Canada identifies the aging workforce as a key challenge for the government. Almost half of the public sector managers and a quarter of the population at large will be eligible to retire by 2012. This results in an unfortunate coincidence of losing skills while serving increasing numbers of people. One strategy for Canada is building communities of interest to support transformation within government. Human resource planning is linked with this effort to build capacity. Also, a series of tools called IT Community Generics were developed to help agencies acquire and maintain the skills necessary for transformed government.

The UK emphasized ICT skills as a key issue early. Among the areas of importance is the awareness of available private sector capacity to help government deliver services. A workshop "Delivery Through Suppliers" was conducted in 2007 to bring together government suppliers and public sector managers. ICT skills are a key part of the aforementioned Services Transformation Agreement. Strategies for building capacity include competency and skills frameworks, community building for resource and best practice sharing, and the Government IT Academy. The national government is also working with the Local Government Steering Groups to bring together local officials responsible for service delivery to improve professionalism.

Australia focuses heavily on recruitment. They recently released the ICT Professional and Skills Development Taskforce report. The second Australian Public Service (APS) apprenticeship program for ICT certification began in February of this year. A new ICT Cadet program will start in 2009 and support students in ICT related fields and place them in the APS once finished.   They also offer mentoring programs to small agencies. Other efforts include cross agency recruitment panels for ICT positions, training and accreditation for project managers.

In the U.S., the CIO Council is primarily focused on improving the IT workforce. An IT Workforce Committee in the Council is pursuing several initiatives to recruit and retain skilled employees, which is important because much of the federal workforce will retire in the next several years. One example is the nGenera "Government 2.0" project, which will use Internet-based collaborative technologies to support new hires. Other programs like telework, flexible schedules and personal development are also available to recruit and accommodate new hires.

Cross Sector & Intergovernmental Collaboration
Governments operate in a networked environment with other agencies, levels of government, vendors and non-profits. The governance of collaboration across these entities is important to integrating services and coordinating efforts. Many entities responsible for aspects of e-government have private, intergovernmental and non-profit participation. However, there are limits to collaboration, as funding is often the last thing to be shared across government boundaries.

Canada uses a networked collaborative model to develop service strategies. Canada has two interjurisdictional bodies, the Public Sector CIO Council and the Public Sector Service Delivery Council. These two organizations have created the Institute for Citizen Centered Service, which performs joint research, measurement, benchmarking and knowledge sharing. The group just completed a study of telephone service delivery "Answering the Call," and is about the release its fifth installment of "Citizens First," a national survey to determine the service needs of citizens.

The UK's Service Design Group provides a collaborative approach to designing services with membership including private sector and all levels of government. The potential for a ground-up approach to designing services intergovernmentally is seen as the "foundation of personalized public services."

Estonia uses the Estonian Informatics Council to manage ICT, which includes government, private, academic and non-profit members. This oversight council works in conjunction with councils at each of the ministries. Corresponding councils have been established at regional levels as well.

Performance Measurement, Funding and Oversight
The goal of ICT governance is to ensure that ICT initiatives are managed well, see a return on the investment and are funded appropriately. Governments are refining their measurement of the benefits from ICT, focusing explicitly on the quality of citizen interactions as well as the quantity. Anecdotal success stories also help governments to convey the benefits. In addition to measuring performance, oversight agencies are ensuring that standards are met for business cases, collaboration and project management. Governments are also independently measuring and benchmarking government performance through studies performed by entities like the Capgemeni in the EU, OECD and external auditors.

The UK has over 240 call centers that are measured, in part, on their ability to resolve issues quickly by minimizing "unavoidable" calls. Agencies have been instructed to reduce avoidable contacts by 50%. These are calls that would not need to be made if the appropriate information or resource was provided to the citizen through earlier interactions. They also established the Customer Service Excellence standard to align measurement with better customer service. Portfolio-wide performance is tracked through the Major Programme and Project (MPP), which is a streamlined dashboard view of key indicators of project health for major IT efforts.

Many governments referred to Capgemini benchmarking studies performed for the EU. Belgium uses this study as well as an assortment of scorecards and project management tools for performance measurement. They are also conducting a 2 year survey, "Fed-e-View," to analyze citizen satisfaction.

New Zealand documented its progress toward transformation in the report, "New Zealand E-government 2007: Progress Towards Transformation." The report features assessments from citizens and service providers within government.

In addition to online surveys to measure citizen satisfaction, the U.S. also uses "touchpoints" as a measure of e-Governments service penetration. Touchpoints include, website visits, assisted telephone contacts, e-mails processed, telephone and e-mail activity through the USA Contact contract for response/contact management.

Canada's has made improving the oversight of IT projects a strategic priority. The need for stronger business cases, independent reviews, better communication of progress to executive staff, and improved project management are critical areas. The role of independent audit is particularly emphasized as a means of ensuring successful projects.

Last year, Ireland discussed its OECD review that was to be conducted. Some ICA members have also followed suit with similar independent reviews. In Australia on

April 11, 2008, the Minister for Finance and Deregulation announced an independent review of ICT that will focus on improvement and benefits realized through ICT, the adequacy of existing governance and how to better deploy IT assets and reduce redundancy. The review comes with a mandate to develop new funding and operating models. Belgium commissioned a peer review by the OECD last year and received favorable marks for its e-Government progress. One weakness identified was capacity at the local levels to deliver services.

Compared to organizational models, funding models have seen little change. Often, funding discretion remains the purview of legislators.   Centralized control of ICT funding usually focuses on budget approval rather than requirements gathering. An example is Australia's Two Pass budget review process. Centralized measures of ICT investment are rare. The UK measured its annual IT expenditure in 2007 to be 13.234 billion pounds, an increase of 6.6% over 2006, the first year that expenditure was formally measured. The UK also published a Comprehensive Spending Review in October 2007,

The Netherlands uses funding to steer agencies to common services. The present government has set aside €50 million for investment in general e-Government facilities and €54 million for investment in social domains related to the government-wide ICT agenda. Of the €50 million, €34 million was used in 2007 to develop a Common Authorization and Representation Facility (CARF), the National Commercial Register (NCR) and the Register of Non-Residents (RNR) and to strengthen the data exchange infrastructure.

Procurement
Despite the emphasis on networked government, perhaps the single most important way in which government works with the private sector is as a purchaser of services and products. Many country reports highlighted procurement initiatives. The main goals of ICT procurement efforts have been to aggregate government purchasing power and realize efficiencies by avoiding duplicative purchasing processes. Some governments have mandated procurement approaches through centralized means, while others are taking a more collaborative approach by making contracting vehicles available government-wide on a non-mandatory basis. Governments are also reassessing how much they want to outsource. Some functions and expertise are being brought back in-house.

Procurement has been the focus of many government strategies and initiatives. Australia announced a "coordinated procurement contract framework that strives to aggregate government purchasing power and reduce costs and redundancy of efforts." UK has made understanding private capacity an important goal.
Sweden was scheduled to launch e-Invoicing for all billing by July 1, 2008.

The U.S. launched USASpending.gov to provide access and greater transparency to federal contracts and financial aid information. The system includes information about contract and grant amounts, contractors and recipients. The SmartBuy program aggregates government-wide purchases of off the shelf software from government-wide contracts.   The Alliant contract offers a government-wide contract for IT services and products. The procurement has run into difficulties and challenges from losing vendors, which underscores the divergent incentives between contractors and governments wishing to centralize procurement.

Contrary to continued reliance on private sector products and services, some governments are reversing the outsourcing trend to bring more functions in-house. Belgium has taken control of its data centers after outsourcing to external companies in the past.

Status – ICT Systems: Streamlining, Modernizing and Securing the Back Office

To fully transform, governments must secure systems, protect citizens when they interact with government, coordinate their management of systems and information, and modernize using current technology to serve the public as efficiently as possible. Shared service adoption is now commonplace, but difficult to implement. Governments vary in how they develop and adopt shared services. Some develop government-wide systems while others integrate existing infrastructure. Data and information are the most important government assets and their use is an important aspect of many architecture efforts in government. Interoperability is useless without an understanding of the data and information to be shared. Keeping pace with technology remains essential and governments are adopting IPv6, open source and collaboration technologies with varying degrees of success. Some are even devoting resources to research and development of new e-Government applications. Security remains the paramount issue for many governments. Integrated electronic identity management has proven to be a complex effort. Security threats are constantly changing and their intent is becoming more malicious.

Shared Services
Government adoption of shared services continues to increase, with many different approaches being used. One approach is to design government-wide systems for use by all agencies. Israel's MERKAVA system highlighted in prior reports could be considered an example of such an approach. Another approach is to encourage reuse by scaling a successful system already in use by one agency or government. Finally, an integration approach is taken by some, whereby an infrastructure is put in place to allow existing and future systems to talk to one another. Estonia's X-Road for data integration and system interoperability is a good example. Approximately, 400 institutions use the infrastructure. At last year's ICA conference, the shared services focus group noted that the likelihood of success was greater when shared services were built on existing services and reuse was enabled. Though reuse and sharing is preferred to wholesale replacement and decommissioning of systems, there are exceptions, and much depends on the level of control that a shared service provider has over other agencies' use of the system.

Japan is continuing its back office optimization plans to realize a government-wide enterprise architecture. They continue to work on integration of 20 common business processes across all agencies. There are 84 total business processes, including the 20 common processes, and implementing each optimization plan could result in an estimated 121 billion yen ($1.2 billion US) reduction in costs per year.

System reuse is also a priority. For example, Australia is developing an e-Conveyance system to electronically transact property exchanges across government. The system will be used by all jurisdictions. Initial plans are evaluating the current Victorian Government system for potential reuse.

Canada is initiating the Service Oriented Architecture project to develop reusable tools and models to "bridge" existing systems supporting administrative functions across agencies, such as HR, payroll, and finance.

UK continues to pursue shared services that focus on common "corporate services" to reduce unnecessary duplication of financial, payroll and other administrative systems. Over half of the government's employees utilize shared services in the UK.

Finland will open the "State IT Service Centre (VIP)" within the State IT Management Unit on January 2nd 2009. This unit will operationally support common shared services across government developed as part of the State IT Strategy.

Hungary is completing its National Interoperability Framework this year. The effort will develop standards, policies and procedures to support electronic public administration.

Information and Data Management
As John Riddle of Canada noted at last year's conference, technology alone will accomplish little without a coordinated strategy for the management and reuse of information across government. Governments are implementing e-records strategies to manage and archive electronic documents and data.   Data sharing and reuse strategies are now integral parts of many e-government strategies. Data registries, warehouses and repositories are centralizing the data used by governments. Data standards are also being put in place.

Prior summary reports highlighted the Netherlands' use of data registries and unique identifiers to manage data across government. This year's report discusses information exchanges between the Government Service Bus (GSB), Feedback Facility (FF) and Common Access to Key Registers (CAKR) so that data quality is maintained across systems as data are reused. Similarly, Cyprus is developing a "Central Government Data Warehouse." The project is scheduled to begin by in mid-2009 and last approximately 30 months. The goal is to centralize the data needed for government decision making and statistics.

Many governments are improving the ability to search for government information. Singapore is leveraging Google for a whole of government search engine based on the Singapore Government Metadata standard. The U.S. has created a Search Affiliate program to offer free search service to all government websites.   Israel has launched a government-wide search engine, search.gov, that will replace all other search engines in government by the end of 2008. The search will utilize clustering technology from Vivisimo and smart search capabilities to search on word variations and natural language queries.

A top priority for Canada is the implementation of an information management (IM) strategy. The government has established a vision that information should be "safeguarded as a public trust and managed as a strategic asset." They established an IM framework in June of this year to align IM activities, reduce redundancies, share best practices and improve collaboration. The framework consists of Policies and Governance, People and Capacity, Enterprise Information Architecture, IM Tools and Applications, and Information Handling. This combined with IM strategy and policy forms the backbone of the government's IM efforts.

Electronic records management is an area of emphasis for many governments. Finland's VALDA project is developing a common document management and archival solution for government with IBM as the lead contractor. On the same lines, permission and rights management to information is being developed as a common service through the VIRTU project.

New Zealand is encouraging reuse of data within the government. The Government CIO is creating an Information Reuse Work Team to map all information across government, as lack of awareness is a key barrier to information reuse.

New Technologies (IPv6, Open Source, Web 2.0)
Governments are often slow to deploy new technologies. ICA members have taken a cautious approach to converting to IPv6 and open source applications.   However, there are exceptions in the areas of open source, open standards and collaborative technologies   Some governments actively invest in research and development for e-Government, taking responsibility for improvements rather than waiting for vendors to develop them. Many reports highlighted initiatives using Web 2.0 technologies to encourage internal and external collaboration using tools such as wikis. Embedded AJAX applications and customizable sites are enabling greater personalization of services by users. Web 2.0 related initiatives will be highlighted later in this document in the "Citizen Interaction" section.

Australia issued a strategy for their transition to IPv6 in October 2007. In the U.S. agencies were supposed to have meet the June 30, 2008 deadline to be IPv6 ready. However, a survey in April showed that only 6% of agencies were prepared fro IPv6.

Sweden is an advocate of open source. There is no national plan for its use, but many in government and parliament are interested. An objective identified in their action plan is to "use open standards as far as possible" and "not be locked into specific platforms and technological solutions."   Sweden considers itself a "development oriented public administration," which could position them well for open source use.

Malta identifies the adoption of open standards and open source as important topics for the next year. Open standards are seen as way to avoid over-reliance on vendor proprietary methods. Pilot open source projects are being rolled out, particularly for collaboration tools. However, Malta recognizes the human resource and promotional requirements to get open applications off the ground.

Ever since the Internet evolved, in part, from a government funded project, governments have played a role in IT development. However, governments have rarely viewed themselves as a service organization that should invest in research and development to deliver better services. Instead, they have waited for commercially available software to deliver value. This year's reports show several governments investing in the improvement of their services   Singapore has taken a research and development approach to online services with the Government Technology Experiments and Trails Programme. Twenty-six experiments have been performed in the program.

In the Netherlands, the legislature enacted an action plan entitled "The Netherlands in Open Connection" in December 2007. The plan covers local, regional and national levels. The plan led to an initial list of open standards in March of this year. Instructions for government departments on the use of open standards were

developed the same month. Open Document Formats (ODF) are now required in the Netherlands, with four agencies already prepared to use the standard.

Security, Privacy and Electronic Identification (eID)
Protecting sensitive data against security threats is critical to establishing trust in online interactions with government. This year's reports show a continued expansion of electronic identity (eID) related initiatives. Uptake of eID's and coordinated authentication across organizations remain challenges. Hackers continue to improve their methods of attack. Cyber warfare is becoming a real part of the geopolitical landscape, with countries reporting more attacks that are potentially motivated by politics. Governments are improving their monitoring of and resiliency against these attacks, in some cases mitigating risk by reducing their connections to external networks. There is an inherent difficulty in protecting information in a more networked environment, when the points of weakness are spread across many governments. In addition to risks posed by those with ill intent, there are risks inherent in managing data in an increasingly mobile and networked environment. Governments are grappling with competing demands for mobility and prevention of data loss. One tool being used by a few governments is a personalized secure channel or mailbox for government interaction using strong authentication.

This year's country reports show an increased concern about cyber warfare. Estonia described recent cyber attacks in its report, which led to a greater emphasis on Internet security in government. Estonia created the Computer Protection 2009 initiatives to protect users from cyber attacks. The US also reported that attacks on government websites increased by 60% in 2007. Switzerland described the risk posed by rogue networks, particularly the "Russian Business Network," which is used for many illicit activities on the internet, including phishing attacks and malware.

Cyprus is developing a Government Secure Gateway using open standards for online transactions and integration of back office systems. Procurement will begin in fall of 2008. The project will begin in 2009 and last approximately a year.

Canada is expected to issue three new directives on government security policy by the end of this year – Security and Identity Management and Governance, Departmental Security Management, and Identity.

Switzerland submitted its annual report on Information Assurance for review. Human/computer interfaces, data theft, botnets and malware are areas of emphasis for security efforts. Of particular concern is the evolving nature of threats on mobile devices. When governments expand service delivery via mobile channels, new unexplored opportunities for attacks become possible. This combined with inherent vulnerabilities in many mobile devices makes mobile computing a real risk for governments to manage.

Belgium has implemented MAGMA as an electronic delegation of authority tool. The tool ties role management to electronic signatures. In other efforts related to identity management, Belgium is participating in STORK, an EU pilot for eID interoperability. Belgium and the UK chair the group that will develop eID interoperability across EU countries.

Estonia's efforts to increase eID uptake have made progress since last year's meeting. Transfers of more than 5000 Kroons require the use of an ID cards and mobile ID's are increasingly used. In January 2008 alone, over 100,000 people

logged into Internet banks using mobile ID's. SIM cards in mobile phones are used as identity documents. The goal is to have 200,000 people using these identity documents as signatures by the end of 2009.

As evidence of the complexity involved in eID, Slovenia has suspended and will retool its eID initiative that began in 2003. The program will relaunch by the end of the year.

New Zealand has had an authentication program underway for several years to create a trusted environment for sensitive transactions with citizens. The program took a large step with the launch of a trusted site for secure online services – www.i.govt.nz. The program is implementing authentication standards, conducting design of an Identity Verification Service, and promoting "igovt" as a brand for services available through strong authentication.

A key initiative in the U.S. is the reduction in Trusted Internet Connections. The logic is obvious: the fewer access points to the Internet and threats that reside there, the fewer points to secure and control. The plan is to reduce the number of connections from 4,300 to 100. The U.S. also completed its 5th Federal Information Security Management Act report in March of 2008. Agencies are approaching their goals of securing 100% of their operational systems, which includes security accreditation, privacy impact statements, contingency plans, and regular security testing.

Israel has several important security related initiatives underway. Their country report details their journey to implement eID, digital signatures and smart cards. A new initiative called the Cybersafe Project is creating a personalized government mailbox that serves as a secure channel for government and citizen communication. The initiative is similar to Japan's ePO Box highlighted at last year's conference; another innovative approach to manage eID's and share secure data.

Similar to Israel and Japan, Finland has developed a citizen personal account to view all government transactions and to serve as an electronic channel for exchange of information and documents. It will also be a mechanism for push notification to citizens for services they may need through e-mail or SMS message.

Status – Citizens Interaction: Creating Public Value
To serve citizens, government must be inclusive, available anywhere, ethical and focused on public value. The services they deliver should utilize available technology and be integrated from the user standpoint. There are many challenges facing governments in realizing this vision. There are still underserved constituencies that governments need to reach. Citizen usage of online services remains lower than initially hoped. Demographic shifts within government and among citizens makes for greater complexity. Governments must be operationally ready to handle the additional workload of serving more citizens with scarce resources. Meanwhile, governments are trying to simultaneously streamline and personalize services. Some are improving and relaunching portals to integrate services. Others are abandoning portals in favor of flexibility and personalization. The slowness of uptake of services is mirrored in government deployment of e-democracy. Government use of Web 2.0 is increasing, but the landscape of democratic participation has altered little. Last year, Larry Caffrey of ICA rightly pointed out that governments' use of ICT should be focused on the same things governments focus on generally – the health, wealth and happiness of citizens. Over the past few years governments have

rededicated themselves to solving large social problems like environmental degradation, crime, and health issues.

Citizen Uptake
To state the obvious, services can only be good if the public uses them. A common theme throughout this year's (and every year's) country reports is the effort to increase uptake by citizens. Governments are trying a variety of innovative methods to encourage usage on online services. The most common is traditional marketing to make citizens more aware of online services available. Conversely, online marketing is used to raise awareness of traditional services. Some ICA members are utilizing social networking sites to reach citizens and constituencies. Among the more innovative approaches is to provide incentives for using online services, such as reduced fees or expedited processing. The simplest way to ensure use of a service is to require it. For example, Hungary is requiring businesses to register online. Push notifications of suggested services is also a part of the equation. Engaging in outright marketing does pose some ethical dilemmas for governments.

The UK has established a "Customer Insight Forum" to gather public insight about services. Information gathered through the forums will influence Public Service Agreements. A tool used is Customer Journey Mapping, which shows overlap and gaps in customer services as a citizen navigates through the bureaucracy to use services.

As mentioned earlier, Japan is focused on accelerating the usage of online applications. One innovative way of doing so is to offer reduced fees for online transactions and to reduce the number of attachments to submit. Japan is also developing government-wide targets for online usage to replace the former ministry-specific goals. Online usage is considered the major issue for the next few years in Japan.

Digital Divide
Inclusion, increasing access to the Internet and online services, has been a goal for some time. As the availability and use of online applications become more common, the discrepancy between the haves and have nots becomes more pronounced. This year's reports show a broadening of the inclusion goal beyond expanding access to improving the quality of information available to all constituencies regardless of their means.

Cyprus reports lack of access as a continued obstacle to e-Government use. Though the availability of online services continues to improve and the government portal is recognized as one of the best in Europe, household connectivity is at only 20% and only 18.4% of citizens are using online services. Cyprus has established a mobile citizen center to provide services to remote areas difficult to reach. The initiative was approved in July of this year. Five citizen service centers are already in operation.

Hungary's Parliament held a meeting in January 2008 to discuss e-Inclusion and came to a consensus on the need to raise the living standard through digital opportunity. The body agreed that the government and non-governmental organizations (NGO's) have roles to play. An eInclusion Action Plan was developed as well. Additionally, the Minister for the Economy and Transport has identified the need for "knowledge development" through community access points as part of the eHungary 2.0 program.

Israel has made reducing the digital divide a centerpiece of its efforts. The newly established National Committee for an Information Society, a leading advisory body dedicated to using ICT for social benefit, has created two subcommittees (out of six) focused on digital divide issues. The Digital Cooperation group focuses on reaching underserved populations with Internet and computer access. The Smart City Subcommittee sets up kiosks with online services and trains citizens to use technology.

Service Integration and Personalization
Governments continue to integrate services. Most are still taking a one-stop-shop approach, creating and maintaining common standards and portals. A few exceptions are eschewing portals altogether, an example being Sweden, which shut its portal down. While some personalization is offered through the ability to "tailor" portals, new web 2.0 technologies create the potential for services to be deployed via any channel of the citizen's choosing. Integration is focused on both citizen and business users.

Many of the shared service and transformation goals in the UK are focused on citizen personalization of services. Joining up services and reducing avoidable contacts are all seen as prerequisites for the type of coordination necessary to offer citizens tailored service based on personal needs.

Hungary requires companies to register online through a new e-Form. The forms include and "e-acknowledgements" for confirming "the authenticity of correspondence between the courts and registrants." The form reduces the registration time for a new company to one hour. For citizens, Hungary is also using e-mail alerts to notify citizens of pending deadlines for renewals of official documents.

Israel is creating a common website infrastructure for all government sites called GovX. Integration is occurring at both the functional level, by creating common-look standards and maintaining a citizen-centric focus, and the technical hosting and maintenance level. The project was launched in March of 2008 The shared infrastructure will enable agencies to more quickly build and deploy websites and online information, while standardizing the design for users so that sites better meet their needs.

Integration is moving beyond the online channel to the "in person" delivery of services across agencies. Sweden is creating Interagency Service Centers as part of a broader centralization effort. The centers are viewed as "one-stop-shops" for services from three major Swedish Government agencies: the Swedish Social Insurance Agency, the National Tax Board and the Swedish Public Employment Service. Over 80 facilities will be established by the end of 2010. Australia has conducted an integrated services pilot called Flexible Service delivery. Building on their Centrelink service sites, the Department of Human Services will provide seniors and career programs while Centrelink will provide Medicare services at their offices.

Belgium has launched 3 government portals for citizens, employees and those working with Fedict, the agency responsible for ICT at the federal level. The government portal takes a life-cycle approach to services and contains an e-payment feature.

New Zealand revamped its online portal to make it more searchable, current and usable. The site included many interactive web 2.0 features. The search function is supported by Vivisimo and takes clustering approach to displaying returns.

Slovenia's central portal e-Uprava has been recognized as a model for personalized services. The portal provides a centrally-managed, fully electronic form service. Slovenia also maintains the eVEM portal for business services.

The Netherlands is launching MijnOverheid.nl, a personalized site that can access interactive services using a Digital ID. The site was launched in a pilot mode in April 2008 and is being tested by select users. Several key data systems such as the Municipal Personal Records Database (MPRD), the Land Registry, the Centre for Vehicle Technology and Information (RDW) and the work and income system will be added. At the end of 2008, the Netherlands will decide if and how they should launch the portal government-wide.

Mobile and Multi-Channel Services
Governments are becoming ubiquitous, making services and information available through a variety of channels. Wireless services continue to be a priority for governments as mobile devices proliferate and expand in functionality. Traditional multi-channel approaches – Internet, phone, in person – remain in place as well. Different preferences are forming among different groups. In Singapore, online is the preferred channel to receive government services. In Australia, Internet is also the preferred channel and uptake is continuing to rise. In the UK, the phone appears to be the preferred channel. Last year's conference also highlighted the use of digital TV as a channel for service delivery.

Singapore is developing the Next Generation National Infocomm Infrastructure as part of its iN2015 ICT Masterplan. The high speed networks will complement the high penetration of Internet and mobile devices (130.6%) in Singapore. Wireless access is a particular area of emphasis. The government plans to offer over 300 mobile services by the end of the year. Singapore is taking a "push" strategy to drive service providers to mobile services with Web-on-the-Go. This project will focus on making current e-services mobile.

The UK just completed a study of telephone service delivery, "Answering the Call". UK citizens appear to prefer phone contact. The government has over 240 call center that are measured, in part, of their ability to resolve issues quickly by minimizing "unavoidable" calls. Hungary's Electronic Government Centre conducted an online survey of Internet users regarding potential new services to determine future directions for e-Government in Hungary.

eDemocracy and Collaboration
This year's country reports and conference agenda reflect the increased attention given to Web 2.0 technologies, particularly in facilitating greater interaction with citizens. E-Democracy is expanding beyond Internet Voting (which is still relatively limited in its use by governments) to encompass other forms of participation and input in the policy making process. Online interaction can create an expectation for results that may never come about. It remains to be seen how well citizens react to their input being rejected in an online participatory environment. Internally, governments are deploying Web 2.0 applications to encourage collaboration.

Many governments are using wikis internally. Australia is supporting 150 projects including international collaborations with its Govdex interagency collaboration tool. New Zealand has also employed many web 2.0 technologies. An online participation wiki was launched in the last year. The wiki is being used to draft a Guide to Online Participation for agencies wishing to reach out to their constituencies. Members of the group supporting the wiki and overall Online Participation Initiative include academia, government, business and civil society.

Several governments reported efforts to encourage online participation by citizens. Israel noted a number of initiatives in the eDemocracy realm. Many agencies are beginning to think how thy can use the Internet to solicit participation and involve citizens in decision making processes in areas like education policy, urban planning, and environmental policy. For example, Israel's Parliament solicited public comments on the issue of privatization online as it debated the issue. Singapore has created the REACH portal for citizens and public officials to discuss government policies and services. The site includes blogs, a discussion forum and an e-Townhall. Australia conducted Internet voting for military personnel overseas in the 2007 elections.

Focused on Public Value
Government use of ICT should serve the same purpose as governments in general, improving social welfare. Governments continue to focus their efforts on positive social outcomes. Many ICA members are improving the environment by using ICT to facilitate cleanup efforts or reducing the environmental impact of their use of technology. Health is perhaps the most important social need of all, and many governments have eHealth efforts underway. ICT is also being used in education, public safety and transportation efforts.

Malta's new strategy focuses squarely on larger economic and social goals.   Setting up a National Heath Information Infrastructure is highlighted in Malta's new strategy. In 2007, a state of the art hospital was opened, Meter Dei, which included implementation of the Integrated Healthcare Information System. Phase 1 implementation of the system was completed in February 2008.   Another social need, education, is leveraging ICT as part of Malta's eLearning Strategy, which is combining teaching methods with ICT to enhance learning.

Green ICT is very important to Australia. For example, Hydroshare is a tool that tracks business water consumption using mobile devices and data transmitters. Australia also released a Better Practice Checklist to assist agencies in understanding their environmental footprint and potential improvements, and a Framework for Sustainable Procurement with New Zealand.

Estonia used mobile technology and GIS software to enable a citizen initiative to clean up illegally dumped waste. The project used Google-Earth based positioning software and GPS enabled mobile phones to map and locate dumping sites to be cleaned up.

In Transportation, Cyprus is a leader in providing e-Services for online Registration and payment. By the end of this year, the system will also allow online auctions for vehicle registration numbers. It will also schedule and accept payment for driving examinations online.

Cyprus is approximately two-thirds of the way through implementation of its Integrated Healthcare System, scheduled to complete at the beginning of 2009. The system has been operational since May 2008.

Slovenia has an eHealth 2010 strategic plan. The three facets of this plan are national electronic health records, a national health portal and an e-business solution for healthcare providers and partners. Thus far, a major accomplishment has been the creation of the National Insurance Card System for insurers and providers.

In Public Safety, many governments are leveraging the Internet and communications technologies to improve crisis management and law enforcement. An example in Law Enforcement is the National Police Reference System, an e-Award winner in Australia. This system shares information about persons of interest across police jurisdictions using a federated model to share data.

Conclusions
This year's ICA Conference will highlight the many challenges governments face and the varied approaches to dealing with them. Most of the challenges are familiar to followers of national e-government policies. As in years prior, this year's reports contain many initiatives focused on security, electronic ID's, ICT skills, citizen uptake and shared services. That said; we see some new perspectives on the issues. As always, a capable workforce is an area of emphasis, but we see particular importance attached to the CIO positions. What the position is empowered to do and who does it matters greatly to the success of e-Government. Refocusing ICT from enabling existing services to solving social problems is also a different perspective. There is also a growing interest in government outreach and civic participation using web 2.0 technologies.

Governments have a solid grasp of the challenges they face in utilizing ICT to meet citizen needs. Initiatives to prepare governments for these challenges are underway. Governance structures are being refined to mange the complexity of government. Systems are being modernized, streamlined and secured. Governments' use of ICT is focused on enhancing public value – solving social problems like the environment and healthcare, access to technology, democratic participation, and simplifying services. The underlying complexity of government and the shifting landscape of citizens and technology will challenge governments in the years ahead. How governments balance the competing needs of: security and innovation in the systems; flexibility and coordination in their governance structures; and personalization and simplification in their services, will determine their priorities. There is no right or wrong way.