Developing a Successful e-Government

Dr. Rabee M. Reffat

Key Centre of Design Computing and Cognition
School of Architecture, Design Science and Planning
Faculty of Architecture (G04), University of Sydney
NSW 2006, Australia
e-mail: rabee@arch.usyd.edu.au
Phone: + 61 2 9351 3030, Fax: + 61 2 9351 3031

Abstract:

e-Government presents a new and innovative approach to addressing traditional problems of government services utilising the Internet and World-Wide-Web. This paper presents three perspectives of citizens, businesses and government to advance enabling the transformation to e-Government. The required skills for a successful e-Government are introduced. The paper addresses the challenges that need to be taken into account to facilitate the complex relationships between government and its constituencies to enable interaction, transaction and delivery of government services. An integrated approach to developing a successful One-Stop portal e-government is introduced including knowledge management and efficient personalised services. The Australian example of an integrated e-Government is presented. The practical challenges facing the implementation of e-Government and recommendations to overcome them to achieve a successful e-Government are introduced.

1. Introduction

Government services are provided through a variety of channels including retailers, banks and post offices. It is critical that the technology solutions which sit on top of an e-Government infrastructure are within the reach of all citizens. Successful e-Government should be able to: attract citizens who are already connected online; move people online who are not already there; and enable the transformation to e-Government at three levels: government-to-government, government-to-business, and government-to-citizen.

e-Government should deliver public services ways that citizens and businesses want them, using the internet and other technologies as enablers. e-Government is much more than building a web site. E-Government is the infrastructure that governments today are building to transform the way they complete their missions. Direct effects of e-Government include cost effectiveness in government and public operations, significant savings in areas such as public procurement, tax collection and customs operations, with better and continuous contacts with citizens, especially those living in remote or less densely populated areas. Enabling the transformation to e-Government requires a broad vision of realising and incorporating the perspectives of various parties involved in the process and expected to benefit from such transformation. There are mainly three groups (citizens, businesses and government) involved in enabling the transformation to e-government and their perspectives should be taken into account.

1.1 What is e-Government?

For one to understand e-Government, one must understand government in general. Government is actually a dynamic mixture of goals, structures and functions (Pardo, 2000). e-Government initiatives are complex change efforts intended to use new and emerging technologies to support a transformation in the operation and effectiveness of government.

1

One of the challenges to these efforts is maintaining a primary focus on the business of government and not on the technologies.

e-Government is not about putting in computers or building a Web site for information access; it is about transforming the fundamental relationship between government and the public. It is about transforming government service delivery through the use of the technology. Government agencies must keep asking themselves three questions: What government business functions are we responsible for? How can we responsibly transform our current business models while incorporating new and emerging technologies? Are these new business models reflective of the collective concerns and priorities of the public?

1.2 Why e-Government?

In the industrial age, the innovation of railways and airlines completely changed society and business by opening up distant markets in a previously inconceivable way, allowing companies to reach new customers and suppliers. Just as railways were the new public utility of industrial age, the Internet is the backbone infrastructure for the emerging information age. The impact of the Web is today being felt throughout the new and old economies, helping manufacturing and service industries drive down costs across their supply chains, redefine business relationships, enter new markets and create additional revenue streams.

Images of the brave new world made possible through digital government are everywhere. Many of us have already experienced the potential of the Web to change our relationships with other individuals, with the business community, and more recently with government. Getting citizens "out of line" and "getting them online" are phrases that are being used to create visions of the new relationship between citizen and government. These images allow citizens and as business and government employees to think about access to information (24 hours a day, 7 days a week), about filing taxes electronically, and about registering cars and paying fees from their location of choice.

The momentum for new service delivery models is building throughout government. No government wants to be left behind in the movement to improve government through electronic delivery of information and services to citizens. The vision of digital government created by these images is powerful and compelling. The focus should be kept on the vision, but also pay attention to the complex realities of implementing that vision. Digital government initiatives, of whatever type, are complex mixtures of technological, managerial and policy related challenges. The risk of not understanding and addressing these complexities is costly failure (Pardo, 2000).

Developing a successful e-government provides the following benefits (Reynolds and Regio, 2001):
- **Deliver electronic and integrated public services**. More than just offering services online instead of in-line, organisations can provide value-added and integrated services. Rather than visiting several different offices, or several different Web sites, to obtain a government permit, citizens and businesses can complete all transactions from a single point of access (One Stop portal), available 24 hours a day, 7 days a week.
- **Bridge the digital divide**. Governments can help make access to new technology available to the less fortunate in society as well as provide computer literacy education, especially to the young and elderly people.
- **Achieve lifelong learning**. The concept that education does not end when a person finishes school can be realised through the widespread of e-learning. An ensuing society of knowledge workers will continue to access sophisticated and personalised education tools online.

2

- **Rebuild government-customer relationship**. Rather than providing services in a uniform way to all citizens, governments can use new technology to treat citizens as individuals and provide personalised services. Citizens become more in charge of their relationship with government and re-gain their trust and confidence in the public sector.
- **Foster economic development**. Governments can help businesses to move online and assist them to use online tools. By being online, businesses can leverage the advantages of being local, such as being close to customers, while they grow and expand their markets worldwide. It also helps to develop local skills and increase employment prospects.
- **Create a more participative form of government**. Ultimately, e-government can lead to direct democracy. For instance, at the local level, municipalities can support online debates, discussion forums and Internet voting to inform the decision-making processes.

1.3 The e-Government global index and its implications

The e-Government Index presents a more inclusive and less subjective measure of a country's e-Government environment. It incorporates a country's official online presence, evaluates its telecommunications infrastructure and assesses its human development capacity. The e-Government Index identifies, underscores and weighs the importance of the requisite conditions which enable a country to sustain an e-Government environment. This ensures that every segment of its population has unconstrained access to timely, useful and relevant information and services. Not surprisingly, the results of the e-Government Index tend to reflect a country's economic, social and democratic level of development. Industrialised nations, whose citizens enjoy the benefits of abundant resources, superior access to information and a more participatory relationship with their governments, rank well above the mean E-Gov Global Index of 1.62. Based on the data provided in the United Nations' report (Ronaghan, 2002), a comparison is drawn to reflect the status of e-Government in the Arab countries in relation to the top 10 e-Government countries and shown in Figure 1.
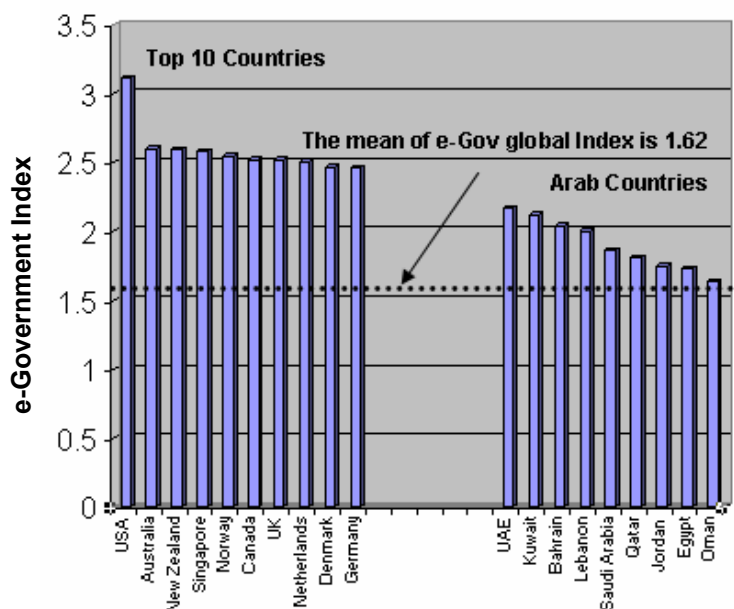
Figure 1. A comparison of the e-Government Index between the Arab countries and the top 10 countries of e-Government.

Four Arab countries including United Arab Emirates, Kuwait Bahrain and Lebanon are considered within the category of high e-Government capacity; i.e. e-Government Index above 2. Furthermore, not from a great distant of those four countries, there are other five

3

Arab countries including Saudi Arabia, Qatar, Jordan, Egypt and Oman that are considered within the category of medium e-Government capacity; i.e. e-Government Index above 1.6. Based on the performance of these nine Arab countries in relation to the top ten e-Government countries, there is a great potential of further improvement to boost up their e-Government Index performance. This paper focuses on strategies and techniques adopted by the leading countries of e-Government to develop a successful e-Government.

2. Three Perspectives of a successful e-Government

There are primarily three perspectives including citizens, businesses and government that need to be considered to develop a successful e-Government (Reynolds and Regio, 2001).

2. 1 Citizen Perspective

Citizens increasingly expect governments to perform more like commercial entities. They want convenient, instant access to public services 24 hours a day, 7 days a week. They want the ability to access services from home, work or any other geographic location. Citizens do not want any limitation on how they can access services; e.g. PC, Web TV, mobile phone or wireless device. Citizens also are not interested in which layer of bureaucracy or which public official is responsible for a specific government program or public service. To provide citizens with personalised services, governments must make all information and services available from a single integrated source. Through a single access point (One-Stop portal), citizens can better articulate their expectations and needs from government. It reinforces their participation in local community life and the democratic process since they can interact with government and access public information, official documents and administrative proceedings. For those who do not have time to go to city hall or committee hearings to participate in public debates, they can instead send an email or contribute to an online discussion forum.

2.2 Business Perspective

Companies everywhere are conducting business-to-business e-commerce in order to lower their costs and improve inventory control. The opportunity to conduct online transactions with government reduces red tape and simplifies regulatory processes, further helping business to become more competitive. Rather than drive to a government office to fill in paper forms, a contractor will find it easier to apply for building permits and schedule inspections over the Internet. Governments can further create a healthy business environment by ensuring the right infrastructure is in place to make it easy for companies to go online. With the right level of consulting and financial support, local companies can conduct online transactions, leveraging their high-speed connections to create new business opportunities. The delivery of integrated single-source public services creates opportunities for business and government to partner together. For instance, the accounting industry and tax office could build on their existing relationship and work together to provide added value services for citizens and businesses filing online tax returns.

2.3 Government Perspective

Governments will able to change citizens' perceptions of poor quality of public service and regain public trust and confidence by putting the citizen at the centre of any service improvement initiative. Rebuilding the customer relationship requires the provision of services in an altogether different way, without long waits and cumbersome procedures. Customer-centric organisations achieve greater success both within the government and in serving the public. They are able to provide easier public access to services, increase service volume and reduce employee time spent on non-customer activities. Recognising that a single person rarely performs an entire public service process, citizen-focused organisations

combine customer relationship management, workflow and Internet technologies to empower government employees as knowledge workers. Employees must acquire certain knowledge and skills to be equipped to support the development and implementation of a successful e-Government.

3. Skills required for a successful e-Government

Every e-Government project needs to put five kinds of skills to achieve a successful e-Government (LaVigne, 2001). They are hard to separate in practice, but they do represent distinct abilities that are worth understanding: analytical skills, information management skills, technical skills, communication and presentation skills and project management skills as shown in Figure 2.
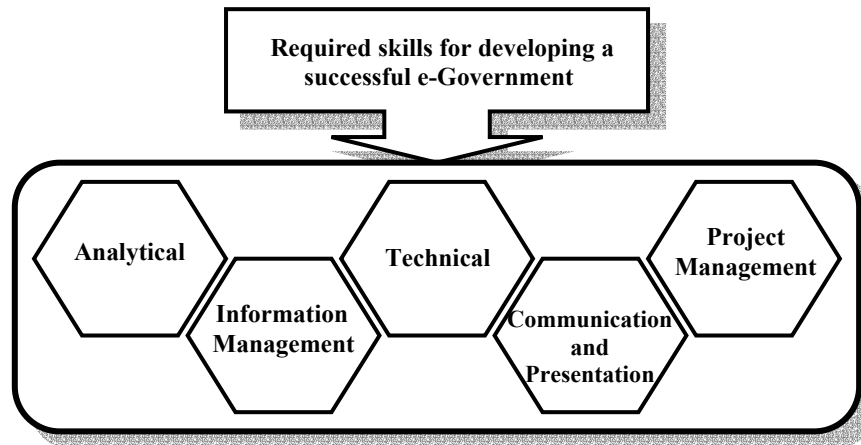
Figure 2. Five kinds of skills required for developing a successful e-Government.

3.1 Analytical skills

Analysis and interpretation skills are necessary at every stage of an e-Government project or any project, for that matter. They start with problem definition, the process by which an organisation describes current symptoms and uncovers the processes, policies and practices that are contributing factors. At this stage, process analysis, system audits, stakeholder analysis, customer satisfaction surveys, performance reviews, statistical trending and similar activities are needed. In later stages, analysis of user needs, business process alternatives, work flow, and information flow become more important. Research into what other people and organisations are doing to solve similar problems is also critical. These analyses help to design and build the system or solution. When a new system is prototyped, tested, and implemented, the analytical skills of system users' increase in importance.

3.2 Information management skills

Skills in information management include treating information as a valuable organisational resource. Skilled staffs know that the information content, quality, format, storage, transmission, accessibility, usability, security and preservation contribute to its value. With so many factors to consider, information management skills show up in many job types.

- Program managers and staff are likely to have the skills and knowledge that ensure valid content, clear data definitions, solid meta data and many kinds of data quality.
- Information Technology (IT) professionals have to be counted on to create the formats, files and databases that we use to represent and organise information. They also handle the interfaces and security features that assure both usability and integrity.
- Archivists and librarians are skilled information managers, especially when it comes to classification, searching and preservation.

- Researchers often work with program specialists to construct data definitions, design data collection processes and institute quality control measures. These activities ensure that data are suitable for the analyses they have in mind.

3.3 Technical skills

- Depending on the type of e-government challenge an organisation is facing, higher order technical skills will probably be required to implement the chosen solution. These skills are prerequisites to understanding and using e-Government.

3.4 Communication and presentation skills

There is a need throughout a project to communicate its goals, progress, issues and results. Presentations about a project are an ongoing requirement. Meeting might be required with legislative or executive leaders to obtain initial and continuing funding and support. Meetings with stakeholders can explain how they will be affected and encourage their buy-in and participation. Newsletters, e-mail lists, and formal reports are all ways to communicate about a project. Presentation skills extend to more than preparing and delivering a talk, with or without visuals. They also comprise the ability to take complex data and distil it into information that is useful for a particular audience. Information needs to be categorised, summarised, and turned into briefings that convey the important facts without oversimplifying or drawing conclusions that were beyond the underlying supporting data.

3.5 Project management skills

Project management skills include the ability to plan, organise, estimate and allocate resources, negotiate, track progress, measure results, troubleshoot and most importantly to communicate. Project management includes handling scope, time, cost, quality and risk. No matter the size of the project, these skills will be needed to guide the work to a successful outcome of an e-Government.

4. Developing a Successful e-Government

Successful e-Government projects not only attract those citizens who are already connected to the Internet, but they must also be able to move people online who are not already there. To achieve this, the ability to provide value added services to citizens and businesses, hosted on the e-Government infrastructure, is the key. An integrated government service network needs to be developed to reach the citizen in the physical world is also the best way to reach the citizen in the virtual world. Somebody who banks over the Internet should be able to pay their bills and taxes through their online financial institution. Somebody who buys their fishing gear from an e-Commerce site should be able to buy their fishing license from the same Web merchant.

4.1. An integrated approach to developing a successful One Stop e-Government

A model proposed by Layne and Lee (2001) is adopted to illustrate a possible integrated approach for a One Stop e-Government. The proposed model comprises of four stages of growth: cataloguing, transaction, vertical integration, and horizontal integration as shown in Figure 3. The model is developed by an increasing level of complexity and integration from (a) to (d). (a) **Cataloguing** includes establishing a presence on-line through posted information and downloadable forms where citizens and businesses have come to expect it. The functionality of cataloguing stage encompasses providing least but efficient amount of information to users, and the cataloguing should be organised at first on basis of departments and then by service, actions, or events. (b) **Transaction** includes allowing for dealing with the government directly through on-line interfaces with live databases. It provides the beginning of e-Government as an entity changing the way people interact with their

government. The functionality of transaction stage encompasses government moving from providing only facts to becoming an active respondent, i.e. two-way communication, forms are filled out and government responds with confirmation and receipts, citizens move from passive to active role and can participate in online forums, and the One Stop portal provides service needs rather than citizen traversing numerous sites to find the correct information. (c) **Vertical integration** includes local, state, and federal government to be connected for different functions and services of government which will have permanent changes in government processes and concepts of government. The functionality of vertical integration encompasses local, state, and federal counterpart systems to communicate with each other, a central database or connected web of databases and seamlessly integrate the three levels of government for cross referencing and checking. (d) **Horizontal integration** includes integration across different functions and services within the same level of government and providing One Stop service centres. The functionality of horizontal integration encompasses databases across functional areas to communicate and share information, information obtained by one agency will propagate through out all government functions.
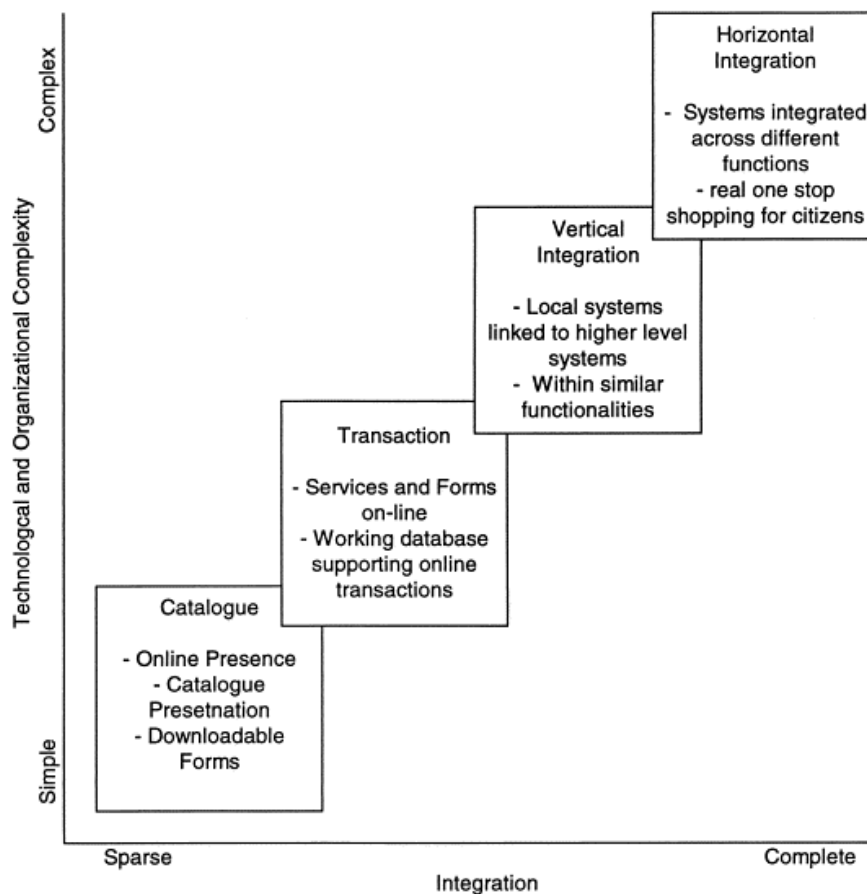
Figure 3. An integrated model of dimensions and stages of e-Government development
(Layne and Lee, 2001)

The benefits of the proposed model includes the following: (a) benefits of cataloguing involve increased convenience to citizens and businesses, reduced workload of government and established departmental presence of government functions and learning tool for citizens for processes and procedures; (b) benefits of transaction involve empowering citizens through availability, paper work, travel, improving efficiency and increased savings; (c) benefits of vertical integration involve allowing citizens to access a state or federal service from a local level portal, emerging into a government-to-government interaction for consistency and

accuracy of data, availability of knowledge to all levels of government and continued improved efficiencies; and (d) benefits of horizontal integration include citizens have on-line access to ubiquitous government services with levels of government and the functional walls inside government transparent to them, recognises the full potential of information technology from citizen's perspective, citizens can conduct business across a wide variety of requirements and eliminates redundancies and inconsistencies in government information bases for citizens

4.2 Knowledge management in e-Government

For the adopted integrated model of developing a successful e-Government to appropriately function, there is a need to establish a knowledge management approach to e-Government. Knowledge in this context comprises factual, structural, procedural components as well as knowledge in the computer science sense of data modelling and artificial intelligence, i.e. rules, objects, frames and relationships. Recent web-based systems have shown the clear need for an integration of different systems and components.

Good management of available knowledge has always paid off for public administration. Knowledge, after all, is the only basis for an administration to derive its decisions and actions from. The strongest public administrations have always been those that have well documented processes and structures. If, in addition, the information that needs to be provided by a citizen is clearly specified, an administrative process can be automated to a high degree, limiting human interaction to the actual decisions and consultations of citizens.

It is essential that administrative processes and structures are very well documented. This knowledge forms the basis for a decision that might lead to three different results: the introduction of technology with or without a change; an adaptation of processes to assure the efficient use of technology; the decision that technology does not solve the problem.

Administrative knowledge, which is of a highly complex nature, needs to be looked at from multiple viewpoints including processes, data structures (relationships between the object or entity types of concern), ontologies (values of data and their structure and inter-relationships) and rules (prescribed, allowable and prohibited states and behaviours). These viewpoints are not distinct. For example, from the execution of processes, essential structural knowledge and relationships can be derived. Rules may form part of process definitions. However it is not possible to express all the knowledge through any single view.

Not all administrative knowledge is of equal formality. Informal knowledge channels, which exist in public administration just as they do in the business world, are the most difficult ones to support, mainly because they are not easily visible. Some of the more advanced integrated systems have found ways of getting round the problem by introducing several informal channels, such as discussion newsgroups, discussion forums, and unstructured or semi-structured workspaces.

It is worth observing that not all government activity is strictly administrative. Other, more physical activities include on-site inspection and monitoring, face-to-face human service provision (teaching, health care, advice, etc.) and collecting money (licences, fees, duty, etc.). However advocates of a certain type of political correctness would probably want to contract these out to private enterprises (Quirchmayr and Tagg, 2002).

4.3 Efficient personalised services in a successful e-Government.

When sending applications online (filling in forms and sending them directly), personalisation can help in automatically filling in parts of forms and collecting additional certifications which are required and available online somewhere. Also merging multiple

forms into a single one could be done. For efficient personalised services aspects of security and transactional processing require more attention. Details on payment or secure identification can be stored in the same way as data for personalisation where both need to be protected.

4.3.1 Personalisation of e-Government portals

Several key issues must be taken into account when implementing personalisation for an e-Government portal. Users possess an extremely broad range of level of knowledge on computers, ranging from absolute novices to experienced professionals. Also, classifying them according to this can be very difficult. Personalisation must be very reliable. There might be liabilities if wrong advice or hints are given, especially since it is an "official" site. Otherwise, users will be extremely unwilling to provide information not already available to public administration. Data can be partitioned and its use can be restricted to certain authorities.

4.3.2 Integrating data from different sources

One of the advantages of e-Government portals is that a huge amount of information is potentially available to be integrated into personalisation. However, both legal and technical hurdles must be overcome in advance. First, selection of the content must take place, e.g. which parts are unsuitable for personalisation, or are undesirable. Second, information must be classified according to its potential use. The parts that must not be used include: legal reasons (privacy), those requiring special permission (sensitive data and requiring explicit permission), ordinary data but permission is needed and free data (only indirectly related to persons or anonymous, e.g. aggregate data, or explicitly permitted or required by law). Only the last class may be used immediately. All other types either require explicit legal permission, must conform to exceptions in privacy laws, or citizens must give consent. Observing the behaviour of users is useful for regular visitors. An example of useful personalisation is a Hot List containing those pages used regularly. Also, changes in the behaviour can be taken as hints that some data is no longer valid and need to be updated, removed or marked as "suspect", fulfilling the obligation to assure the correctness of information used (Sonntag et al, 2002).

4.4 An Integrated e-Government: The Australian example

The Australian government was an early visionary of One-Stop "portal" e-Government and established a strategic approach to e-Government that recognised the importance of an integrated approach to electronic service delivery that sometimes referred to as a single window as shown in Figure 4. It offers multiple services and therefore provides more convenient dealing with government for the community including business sector. The portal offers citizens more than 80 interactive services ranging from ordering birth certificate to registering on the electoral roll. It gives a choice of three ways to access services and information: by services type (paying bill, applying for a grant, etc.); by life event (moving house, having a baby, etc.); or by location (government agency or department) (Holmes, 2001).

5. Challenges and opportunities for developing a successful e-Government

In order to implement a successful e-Government program, policymakers need to develop specific and reasonably attainable goals and understand what resources are available to achieve those goals. Only then will they be able to formulate a plan that can be implemented in full, rather than being cut short before any gains are realised due to lack of resources. Once governments commit to strategies transforming their governance processes, significant challenges and opportunities will arise during their implementation. The most pertinent

challenges that are expected to be encountered during the implementation of an e-Government have been extracted from the e-Government handbook of developing countries (InfoDev, 2002), refined and presented in Table 1. A set of recommendations has been provided to assist in overcoming the challenges and pave the road for developing a successful e-Government. It is essential that these recommendations to be perceived with the overall integrated view outlined in the earlier Section of this paper.

Figure 4. One-Stop portal of the Australian e-Government (www.gov.au)

Table 1. The most pertinent challenges for developing a successful e-Government and recommendations to overcome them.

	Challenges	Recommendations
1.	**Infrastructure Development** All countries implementing e-Government have struggled to develop a basic infrastructure to take advantage of new technologies and communications tools. Many developing countries, even if possessing the will, do not have the infrastructure necessary to immediately deploy e-Government services throughout their territory.	• Develop projects that are compatible with the nation's telecommunication infrastructure. • Introduce telecom competition and lift regulations on wireless and other digital technologies to accelerate their deployment. • Build on the micro-enterprise model to bring connectivity to underserved areas and ensure sustainability. • Consider the government's current use of technology and learn from past successes and failures. • Establish an action framework at the beginning of the process to allow for a rational and coordinated investment effort down the road.
2.	**Law and Public Policy** The application of Information Technology and communication (ICT) to government may encounter legal or policy barriers. Policymakers implementing e-Government must consider the impact of law and public policy.	• Consult with stakeholders to assess how existing laws may impede the desired results. • Give legal status to online publication of government information. • Clarify laws and regulations to allow electronic filings with government agencies. • Reform processes by simplifying regulations and procedures.
3.	**Digital Divide** The digital divide is the gap between people who have access to the Internet and those who do not. Those without access cannot learn essential computer skills, cannot access information that can provide economic opportunities, and	• Provide communal access through village computer centres or kiosks. • Combine access with training. • Provide incentives to the private sector to donate equipment and training. • Emphasise local language and content.

	cannot share in the benefits of e-Government.	• Use for-profit entrepreneurs to build and sustain access points in small communities.
4.	**e-Literacy** e-Literacy refers to those who are unable to make use of information and communication technologies because they are not computer literate. With the digital revolution there is a very real danger that the world will be divided into the "information rich" and the "information poor." e-Government has the potential of either equalising access to government and its services or increasing the barriers to participation.	• Ensure that content is in local languages and that interfaces are easy to use. • Develop applications that use speech or pictures in addition to, or instead of, written text. • Include an educational component in e-Government projects. • Provide aides at access points who can train citizens in basic computer skills. • Create programs that include traditional media, like radio programs or newspaper columns, where citizens can learn about e-Government. • Establish as a legal requirement that the government must adopt technology to assist the disabled. • Set performance criteria and measure progress.
5.	**Privacy** Governments collect vast quantities of data on their citizens through everyday transactions. Protecting the privacy of citizens' personal information stored on these databases while making effective use of the information contained in them is a vitally important issue.	• Educate and train government officials on the importance of privacy. • Design applications that integrate privacy protections. • Follow "fair information practices." Minimise the collection and retention of personal information. • Limit access to personally identifiable information; do not automatically allow employees to tap into databases of personally identifiable information.
6.	**Security** Security is costly, but must be addressed in the design phase, as security breaches can shatter public trust in e-Government. Trust is a vitally important component of e-Government projects. Without trust, citizens who may already be leery of using technology may avoid and even shun the use of online services that ask for detailed personal information.	• Designate a senior official responsible for computer security. • Continually assess systems to make sure that security precautions are being implemented. • Backup information regularly and store backups in a separate location. • When it comes to personal information, keep information collection to a minimum and do not disclose personal information without express prior consent. • Provide ongoing training to employees on computer security. • Evaluate performance of system managers in adhering to sound security practices.
7.	**Transparency** Citizens too rarely understand how government decisions are made. This lack of transparency prevents the public from actively participating in government and from raising questions or protesting unfair or ill-advised decisions. A lack of transparency can conceal official graft or favouritism.	• Post online rules, regulations and requirements for government services (such as requirements for obtaining a license) to minimise subjective actions by officials. • Highly-placed public officials can expedite transparency and accountability efforts by making their offices positive examples of openness. • When putting services online, give citizens the ability to track the status of their applications. • Train civil servants and provide incentives to reform. • Integrate transparency and process reform to simplify regulations and procedures.
8.	**Interoperability** Putting incompatible record formats online neither simplifies nor reduces the workload imposed on people and government officials. Reliable e-Government requires a comprehensive overhaul of legacy systems.	• Map and assess existing record systems. • Identify and reform regulatory schemes that make interaction with the government onerous. • Use common standards throughout the government to shorten development time and ensure compatibility. • Adopt a common IT infrastructure for the government.
9.	**Records Management** Better information management can help	• Encourage data sharing and cooperation between government departments.

	officials identify barriers to more efficient government. An information management framework is necessary to make sense of available data. Without this framework, policy makers could not derive useful analysis quickly enough to react to social and economic developments.	• Streamline offline record keeping processes to make the transformation to online publication easier. • Creation and standardisation of meta-data is critical for conducting successful data searches across institutions and networks.
10.	**Education and Marketing** e-Government services are only useful if people know about them. Education and outreach programs will be needed.	• Develop publicity and training campaigns that will engage the public about e-Government initiatives. • Conduct research to ensure that online services respond to actual needs and that the implementation suits the target audience.

6. Conclusion

The benefits that could be gained from developing a successful e-Government have been outlined and various perspectives of e-Government including citizens, businesses and government have been addressed. The required skills for developing successful e-Governments have been identified. An integrated approach for developing a successful e-Government including integrated knowledge management and efficient personalised services has been introduced. The Australian example that recognised the importance of integrated e-Government has been presented. The most pertinent challenges that might be encountered in the process of implementing an e-Government have been addressed and efficient approaches to overcome these challenges have been recommended.

In conclusion e-Government is about transforming the way government interacts with the governed. The process is neither quick nor simple. It requires a coherent strategy, beginning with an examination of the nation's political will, resources, regulatory environment, and ability of the population to make use of planned technologies. The success of e-Government requires fundamentally changing how government works and how people view the ways in which government helps them.

Critical to the success of e-Government transformation is the understanding that e-Government is about the creation of new processes and new relationships between governed and governor. e-Government requires strong political leadership in order to succeed. Strong leadership can ensure the long-term commitment of resources and expertise and the cooperation of disparate factions. Governments will need to prioritise some programs over others to maximise available funds in view of tightly limited resources. This will necessitate clear objectives for programs and a clear route to those objectives. Governments will have to explore new relationships among government agencies as well as partnerships with the private sector to ensure quality and accessibility of e-Government. The success of e-Government initiatives depends on an engaged citizenry and, to that end, efforts to foster civic engagement are critical. In order to develop this citizen focused vision, policymakers must keep the ordinary citizen in mind when designing systems.

Finally, the growing political interest in e-Government arouses great hopes. If the promise of e-Government as the key principal to modernising government services to be kept, this concept requires including the full potential of flexibility offered by IT as well as the complex reality of government and public governance. The encouraging political supporting the need for e-Government should be accompanied with an integrated approach to overcome the implementation problems in order to develop a successful e-Government.

References

Holmes, D., eGov: eBusiness Strategies for Government, *Nicholas Brealey Publishing*, London, 2001.

InfoDev, The e-Government Handbook for Developing Countries, *Center of Democracy and Technology*, http://www.cdt.org/egov/handbook/, 2002.

LaVigne, M., Five Kinds of Know-How Make E-Government Work contact: Center for Technology in Government, *E-Government 2001*, www.netcaucus.org/books/egov2001/, 2001.

Layne, K. and Lee, J., Developing Fully Functional e- Government: A Four Stage Model, Government Information Quarterly 18, 2001, pp. 122-136.

Pardo, T., Realizing the Promise of Digital Government: It's More than building a Web Site, *Center of Technology in Government*, University of Albany, 2000.

Quirchmayr, G. and Tagg, R., An Architectural Concept for Knowledge Integration in Inter- Administration Computing, *in* Wimmer, M. (ed.), *Knowledge Management in e- Government*, International Federation for Information Processing (IFIP), Laxenburg, Austria, 2002, pp. 67-77.

Reynolds, M. and Regio, M, E-Government as a Catalyst in the Information Age, Microsoft E-Government Initiatives, *E-Government 2001*, www.netcaucus.org/books/egov2001/.

Ronaghan, S., Benchmarking e-Government: A Global Perspective, Assessing the Progress of UN Member States, *Division for public Economics and Public Administration*, United Nations, 2002.

Sonntag, M., Mühlbacher, J. and Reisinger, S., Personalization of Web-based Interfaces for Humans and Agents Applied to E-Government Portals, *in* Wimmer, M. (ed.), *Knowledge Management in e-Government*, International Federation for Information Processing (IFIP), Laxenburg, Austria, 2002, pp. 210-222.