Cost-Benefit Analysis of E-Government: Australia

Joseph Yoon* YongEun Moon**

Contents

* Australian Government
** Silla University

Ⅰ. Introduction

The *Better Services, Better Government* strategy (NOIE 2002) outlined the broad directions and priorities for the future of e-government in Australia, and sought to maintain the momentum of agencies' actions under *Government Online* (NOIE 2001). One of its key objectives was for agencies to achieve greater efficiency in providing services and a return on their investments in Internet-based service delivery. It also stated that investing in e-government should deliver tangible returns, whether they take the form of cost reductions, increased efficiency and productivity, or improved services to business and the broader community.

Implementation of the Government policy has led to considerable agency investment in Internet-based service delivery. However, government policy also requires managers to ensure that program and service delivery is efficient and effective. Efficient and effective use of the Internet has the potential to improve service delivery and to make financial savings.

This paper outlines how people are using the channels to contact the government in Australia. It also examines the level of satisfaction they have with those services and their preferences and expectations. In addition, this paper aims at identifying the methods used by Australian Government to measure the efficiency and effectiveness of their delivery of services, and at assessing the adequacy of these methods.

Ⅱ. Australian E-Government Policies and Strategies

Overview

E-government is defined as the process of transforming government so that the use of the Internet and electronic processes are central to the way government operates (AGIMO 2003). E-government is about managing the issues around access to services by individual citizens and businesses.

The Australian Government recognised the potential of online technology to improve service delivery in its 1997 *Investing for Growth* statement, which announced an Information Industries Action Agenda to foster development of information technology industries. This included a plan to establish the Commonwealth as a leading-edge user of technology by committing to deliver all appropriate services online by the end of 2001.

Government Online-The Commonwealth Government's Strategy was launched in April 2000 (DCITA), in pursuit of this

commitment. The strategy highlighted some of the benefits to be gained by greater use of the Internet, such as enabling improved service delivery options to rural and regional communities. Under this strategy, all agencies were required to prepare an Online Action Plan by September 2000 (NOIE), stating what would be delivered online, and to set a timetable for delivery.

Government Online made clear that government online services were to provide information about agencies and their programs, and to permit transactions between Government agencies and members of the public or businesses. Internet services were to complement—not replace—existing written, telephone, fax and over-the-counter services, as well as to improve the quality, availability, responsiveness and consistency of those services.

At the same time, the Government assigned the key role of promoting and supporting government, business and community use of the online environment to National Office of Information Economy (NOIE). By December 2000, over 90 per cent of Australian Government departments had established an Internet presence. In his opening address to the World Congress on Information Technology in February 2002, the Prime Minister confirmed that the 2001 target had been met. The Government' s initiatives resulted in the recognition in 2002 that Australia was one of the four leading nations in the western world in its use of e-business to provide Government services (World Market Research Centre 2001).

In its 2002 report on Australian Government use of information and technology, the Management Advisory Committee found that there was a growing demand for government to provide more integrated and interactive information and services. In October 2002, in response to the Management Advisory Committee' s recommendations, the Government established the Information Management Strategy Committee to provide shared leadership of cross-agency technology issues. The Government launched a new framework for e-government, *Better Services, Better Government*, in November 2002.

The *Better Services, Better Government* strategy (NOIE 2002) outlined the broad directions and priorities for the future of e-government in Australia, and sought to maintain the momentum of the achievements under *Government Online*. One of its key objectives was to achieve greater efficiency and a return on investment. It also stated that investing in e-government should deliver tangible returns, whether they take the form of cost reductions, of increased efficiency and productivity, or of improved services to business and the broader community.

These objectives signalled an emphasis on the benefits of government Internet services for the public and users, rather than earlier concerns with the provision of the

technologies and services. They also flagged a more strategic approach to the business cases for developing services. With this shift came a greater responsibility for agencies and for program managers to clarify the purposes of programs and to think more strategically about the use of online services as part of program delivery.

In this regard, *Better Services, Better Government* stated that it was important for agencies to establish business cases for investments in changes to their operational and business processes enabled by the online environment, and to assess how they are progressing in terms of meeting the broad e-government agenda. This required regular reviews of progress against key performance indicators.

The Australian Public Service Commissioner stated in 2003 that improvements in public sector service delivery over the past decade have been driven by a better informed, better educated and more demanding public, and improvements in technology, which increased the capacity of Commonwealth agencies to provide more immediate and responsive services. He stated further that the current environment is characterised by continued pressure for greater efficiency and effectiveness, rising community expectations for more convenient and sophisticated services, and issues that increasingly transcend agency boundaries (AGIMO 2003).

Most recently, in July 2004, the Government released *Australia's Strategic Framework for the Information Economy*. This new strategic framework is designed to build e-government, ensuring the electronic delivery of public sector services and information across all tiers of government (AGIMO 2004).

In the next phase of e-government's maturation, performance of systems, channels and strategies will increasingly focus on indicators external to government. In essence, the one that will really matter is what the user thinks.

As a first step in this process, governments need to develop a more granular understanding of who is using e-government services and why, to what extent the services are delivering on the promise of 'simplified' interaction with government, what users feel about the services offered, what they are looking for in future and what they see as the 'appropriate' role of government.

E-government maturity

Both government and users acknowledge the desirability of a seamless, responsive and citizen-centric government that delivers efficient services' (Rimmer 12 June 2002). Achieving this level of maturity will require a steady progression of collective learning and experience. Evolution of e-government capability can be represented in four distinct but complementary stages, known as an e-

government maturity model (see Figure 1). The basis for the maturity model are key concepts relating to:

- transaction processing;
- extending the degree of fulfilment that can take place online;
- integration and collaborative processing;
- citizen-centricity; and
- whole-of-government delivery architecture developed with the user in mind and driving integration, as seen by citizens rather than from the traditional view of the agency.

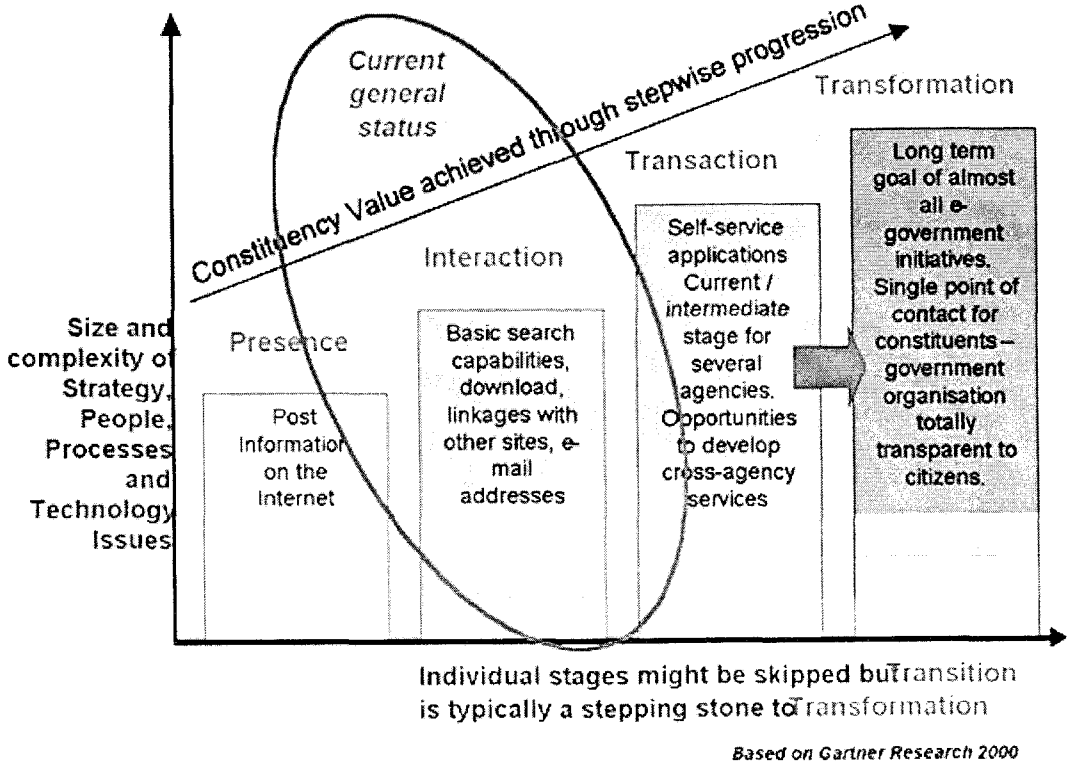

Figure 1: E-government maturity model (AGIMO 2003)

The stages of e-government maturity reflect the increasing capability of e-government solutions. Progression through the stages will deliver more value to users but also comes with increased complexity and development costs. As well, at each stage of the e-government maturity model, user reaction, comfort and inhibitors will differ, resulting in different adoption rates and demand curves.

Progression through the stages represents increasing maturity in a number of dimensions:

- static content to dynamic content;
- publishing to interaction;
- generic dialogue to individualised

dialogue;

- simple transactions to complex transactions;
- inclusion of authenticated transactions;
- partly automated processes to fully automated online processes;
- agency-aligned delivery to citizen-centric delivery; and
- agency-aligned services to cross-agency services.

Ⅲ. Cost-Benefit Analysis of e-government

Benefit

Agencies saw the potential benefits of their websites as reduced costs, particularly in having a lower cost means of communication, and the more efficient and cost-effective delivery of timely and relevant information and services to clients and stakeholders. Benefits to agencies' staff included many of the same benefits as external users, particularly the wider availability of government information. One agency indicated that having a website enabled agency managers to take advantage of the latest and best communications technology and electronic facilities, which enabled them to improve services.

The expected benefits of online services also included savings in administrative time and costs. These included: reductions in raising invoices and remedying inefficiencies that caused incorrect payments; time spent on the phone to change customer details; time taken to assess claims likely to be ineligible or rejected (which led to cost savings in application preparation time, checking or appraising); and error rates in applications. They also included anticipated lower costs of transactions and reduced demand on call centres.

Generally, agencies defined the potential value to government of online service delivery as being able to assist more clients within the current budget; provide improved services to a wider audience; and reduce the cost of service provision.

The main benefits to the clients who used agencies' websites were that it gave them increased, easier and more efficient access to large volumes of government information, including information about the agency and its services. The website was available to clients 24 hours a day, 7 days a week and it could provide reductions in the time and costs involved in communicating with agencies.

Websites and online services also enabled access to information and services that would not previously have been available, or would not have been cost effective or efficient to provide through any means other than the Internet. One example was the WW2 Nominal Roll. The major benefit of this

service was that it made information about each individual who served in WW2 accessible to all family members and to the population as a whole, for a range of different needs.

Some agencies also stated that there would be intangible benefits of providing online services. Such benefits included increased client satisfaction with the agency, and decreased indirect costs to clients who used the online service. However, they also stated users' cost savings were difficult to determine.

A number of agencies researched and surveyed their clients and stakeholders, to ascertain how they would benefit from the website and online services. Clients generally saw the main benefits to themselves as having more choice, and greater control over, how and when they communicated with the agency, and access to a much greater range of information than was previously readily available.

Costs

The agencies estimated the cost of their most recent website redevelopment or redesign, mainly to obtain their executive' s approval and funding for the project. Most also tracked and reported the costs throughout the term of the project.

These costs varied greatly across agencies. The variations were due to the projects being at different times over the past four years, the quite different magnitudes of the design changes involved, and the inclusion of a range of different items by agencies. These meant that the costs were not comparable, and data were insufficient to assess whether cost differences were related to website maturity and/or agency size.

For example, one small agency' s redesign and rebuilding of its website, which included a new front page and templates, cost $16 000 in 2000. In comparison, a much larger agency' s website redevelopment had a project budget of $1.1 million in 2000?01. However, this project provided a new format for delivering content and navigating the website, and supporting structures and processes to meet *Government Online* requirements and to enable secure identification and authentication of users.

In another large agency, the more recent redesign of the website proceeded in two stages. The first stage was completed by June 2004 at a cost of $35 000. This involved a redesign of the website' s appearance, including common branding. The second stage, which commenced in July 2004, entailed a review of the content and structure, and was estimated to cost $186 000.

The agencies estimated development costs in business cases or Budget proposals for online service projects. Some recognised the difficulty of obtaining accurate cost estimates, and whether additional funds would be available if required. Some also

indicated that they incurred unforeseen costs, which were identified during implementation of the projects.

The amounts and types of development costs included by agencies in their business cases varied, as expected, according to the types and sizes of projects. Most original budgets included estimated costs for:

- data collection and research to inform the development;
- purchase of infrastructure (hardware and software);
- design and development of the online service;
- IT consultants used in the design and development, and
- salaries of the agency development team staff (drawn from the website team, business area and IT area) and administration.

Cost-benefit analysis

Cost-benefit analysis is used to measure the relative costs and benefits of many programs and applications (Yoon 2003; 2004), including those delivered through the Internet. The methodology involves estimating the costs for each individual application, then estimating who benefits from the application and how much that benefit is worth. While this methodology will only measure one aspect—the relative comparison of cost to benefits, or cost effectiveness—it is useful and should be a priority for agencies developing proposals to deliver services online.

In the early years of online service development, there were both methodological and practical difficulties for agencies in estimating and achieving positive returns on investments in the Internet. Initially, agencies had high capital, software and application development costs. One difficulty was that many agencies did not keep records on the costs of each service but, instead, had these costs aggregated across services.

The use of cost-benefit analysis raises the issue of the discount rate and the time necessary for a return on investments. For cost-benefit analysis, agencies need information on the total costs, not only the transaction costs. In addition, the cost per transaction for an online service is dependent on the adoption rate, which is the number of individuals within a target population who use the service. In the early years of online services, adoption rates were typically low but they have increased since then. This leads to the expectation that costs will outweigh benefits in the beginning but, as the numbers of Internet users increase, benefits will begin to outweigh costs.

A broad estimate of the expected costs and benefits was generally sufficient to gain program approval for the services selected. The more costly the service, as in the case of both the WW2 Nominal Roll and Health*Insite*, the greater the rigour that

agencies applied to estimating costs. However, in these cases, a cost-benefit analysis was not completed.

This raises the question of the timing of a cost-benefit analysis. Such analyses for websites are difficult as many of the benefits of providing a website are intangible and hard to measure. In addition, such websites are often developed as a result of government decisions to provide particular services to citizens on the basis of being a public good rather than as cost savings measures.

For example, Health and Ageing indicated that the main benefit of Health*Insite* was providing the public with a single Internet entry point to reliable and accurate health information. This reduced the likelihood of people using the Internet and finding information of questionable quality that may cause them harm. Such benefits are difficult to assess.

A cost-benefit analysis is more important when the website is one of a number of methods of delivery of the particular service, and where the service is designed to provide quantifiable benefits, such as reductions in administrative costs to the agency, and/or reduced costs to clients.

The Internet is now a mainstream channel of choice for contacting government. Investments in Internet service delivery are justified to ensure citizens' expectations, about what should be available to them via the Internet, are met.

The criteria applied to channel selection vary widely from person to person. The Internet has inherent advantages of time and cost savings. However, citizens find contacts with a high degree of complexity and/or ambiguity difficult to complete over the Internet. This also includes contacts requiring escalation, involving credit cards and requiring anonymity. Citizens indicated that no single avenue to search for information or services would satisfy the broad community.

A potential source of new e-government demand can be tapped by getting existing users to do more, and more sophisticated, transactions with government over the Internet. Only 3% of all people surveyed said all their dealings with government had been via the Internet, and a further 11% perceived that most of their dealings had been with government. In contrast, 24% said that either 'some', 'a few' or 'just one contact' with government had been via the Internet. This group of users is likely to represent a significant source of additional Internet service volume.

Given that the barriers facing non-Internet users are significant, including issues of infrastructure and skill, there is a significant opportunity to encourage existing e-government users to use the Internet more often, and for more sophisticated contacts. Targeting repeat and related transactions may prove more convenient to users by pointing them to faster, easier channels for

subsequent contacts, and enables governments to cost-effectively reach people that will fuel future demand for e-government services.

Attempts to migrate all users to the Internet for all government services are too simplistic, and have the potential to reduce uptake over the longer term. Sustainable use recognises that people will use the Internet only when it makes sense to them. Successful long-term efforts will need to focus on providing online services that offer the biggest potential for return on investment to citizens.

Ⅳ. Conclusion

Australia' s move towards providing effective, integrated services has placed it as a leading e-government nation. Increasingly, governments around the world are moving away from a supply-side focus for government electronic service delivery towards greater attention to user-centred (citizen-centric) design. The Australian government - like other governments in the industrialised world - is increasingly using electronic channels to deliver services.

The *Government Online Strategy* has proved its effectiveness and delivered on its intent - Australia has a strong international e-government position. A World Market Research Centre analysis (2001) of government web site content positioned Australia third behind the United States and Taiwan. In November 2002, Booz Allen Hamilton, benchmarking the United Kingdom against leading nations, assessed Australia as a leading e-government nation. Australia typically rated second or third across a range of measures of e-government maturity, readiness, take-up and impact (Meller 2002).

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