A Review of E-government Services

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Abstract
The recent developments of Information and Communication Technologies mainly the internet has made citizens accustomed to the convenience of online services such as e-banking and shopping online. Governments are aware of the benefits and needs of citizens thus leading to the development of e-government. The aim of this paper is to review the current state of e-government in Australia with the use of empirical studies. The review of e-government shows that the general use of e-government services has been increasing over the years and the internet has become the preferred method of contacting the government.

Keywords: internet, government, Technology

INTRODUCTION

Prior to the introduction of the internet, any forms of contacting the government require citizens to leave home to travel to the government agency, get behind a long waiting line and go through cumbersome procedures. This led to reluctance of citizens' interaction with the government as it is seen as a chore. Therefore, with the advancement of Information and communication technologies (ICT), governments all over the world are looking to take advantage of it to change citizens' mindset and create better interaction.

In the 21st century, 98 per cent of all countries have an existing e-government. However, according to the United Nations E-Government Survey 2010, 9 out of 192 member states are tied at 184th placing as they do not possess sufficient data to be ranked. Moreover, the world average for E-government development index is 0.4406, a decrease when compared to that of 2008 at 0.4514. This not only shows a decrease in development over the years, but an average less than 0.5 meant that most of the world do not have a well-developed e-government [1].

The objective of this paper is to carry out a review on Australia's use of e-government and its effectiveness. Through literature review, the benefits of e-government and the challenges in the way of an effective e-government will be looked at. Through the five case studies, the use of e-government services, ICT system, privacy policies, security measures and accessibility guidelines are studied and discussed. This paper will be presented as a discussion paper which could be used to improve the future of e-government.

The term e-government came about in the late 1990s when governments decided to use advanced information and communication technology for government activities [2]. The 'e' in e-government refers to electronic which means the use of ICT tools particularly the internet to deliver information by local, state and federal government agencies to citizens, businesses and

other government agencies. It also involves the government's use of ICT as a tool to support government operations and to provide government services [3]. There are many benefits when e-government is used effectively. However, achieving an effective and efficient e-government is not an easy feat with the number of challenges in the way.

Information and Communication Technology (ICT) refers to technologies which provide access to information through communication technologies such as the internet, wireless networks and mobile phones. The use of ICT especially the internet has changed the way how business is carried out all across the world. Leading governments have noticed the benefits of ICT and have followed suit in the adoption and use of the internet to develop e-government.

There are 3 main delivery models which the government uses to deliver and receive information and provide services :
1. Government-to-citizen (G2C)and Citizen-to-Government(C2G)
2. Government–to-business (G2B) and Business-to-Government (B2G)
3. Government-to-Government (G2G)

The G2C delivery model allows government to provide citizens with online, one-stop access to services and information. The C2G delivery model allows citizens to better interact with the government by providing feedback on services which can be used to improve on overall customer satisfaction. Citizens can be treated like customers as they are the main body the government will be dealing with.

G2B delivery model provides the government and businesses an online platform to exchange information and do business more efficiently. The G2B system may also allow e-procurement services and make the bidding process more transparent for big government projects. B2G os the [provision of information from businesses to government such as filing of business registration information, regulatory framework and taxes.

Government agencies make use of the G2G delivery model to conduct intra and intergovernmental exchange of data, standards, expertise and policies. More government agencies are collaborating to streamline the delivery of e-government services thus having a G2G delivery model improves the efficiency and effectiveness of e-government services by allowing better communication and smoother information flow.

In Australia, the government launched JobSearch, the largest free online jobs website. The Australian

government funded and operated website attracts around one million visits each month. This initiative helps to reduce the unemployment rate while providing a one-stop portal for matching job seekers to potential employers [4].

In the US, the U.S. Department of Education released which stores state-level education data. The website allows parents to access their kid's results and check how the results fare compared across the state [5].

In Austria, there is a website that provides information about government policies for women and equality. The website has initiatives such as 'Equal pay and revenue transparency for women' which ensures women has equal work and pay rights as men. Another initiative is the

'Gender Now' which ensures women has equal work ad pay rights as men. Another initiative is the "Gender Now" which promotes the equality of girls and boys within schools [6].

Globally, e-government strategies are being developed. Strategies are essential to the development of e-government as they provide a framework and objectives for federal, state and local agencies to follow.

BENEFITS OF E-GOVERNMENT

The introduction of e-government has proved convenient for citizens and businesses when contacting the government for information and services. When government services are provided online, it eliminates the hassle to travel down to government agencies and in turn saves time and money. To most people, the time factor is a very important concern as most online services are self-serve. Since not much customer satisfaction would be expected from self-serve, citizens are concerned about 'how long' rather than 'how satisfied'. With the use of e-government, major advantages to the time factor is achieved as services are provided 24 hours a day, 7 days a week through agencies websites. Self-serve services allows faster and easier access to information at any place and any time, this allows people in rural areas to access important information as they are situated far away from the nearest government agency. E-government provides easy access to routine transactions and allows the citizens more control as well as a better understanding of government services. Moving from a heavily paper based system to providing services online, government agencies will be able to reduce the number of letters and brochures normally sent out to citizens. Prior to the introduction, any information and services available were those only within travelling distance, now the internet allows access to wide range of information and services from anywhere in the world. Most importantly, e-government allows the government to reach out and provide access to job opportunities, education and health systems.

METHODOLOGY

Literature review was carried out to identify the general benefits of e-government and the challenges faced by e-governments. An overall review of Australia's e-government was done to show the current usage of e-government services and the existence of digital divide.

The main method of study is the use of empirical study on five government agency. The selection is based on case studies which have been providing e-government services. The main emphasis of this study is to review if the use of ICT has increased the usage of e-government services. The secondary focus is to find out if users are able to utilize e-government more efficiently, more quickly and at a lower cost. Four federal government agencies and one state government agency were chosen as the case study of this paper. Local government agencies were not chosen as most studies focused on federal and state agencies due to the lack of accessibility of information.

OVERVIEW OF E-GOVERNMENT IN AUSTRALIA

Background of Australia

Australia, the 6th largest nation in the world with a land area of 7.7 million square kilometres has a population of approximately 22,328,847 as at 2010. Majority of the population live around major cities and near the coast. 90 per cent of the Australian population live in urban areas [7] and the uneven distribution of population is due to the 70 per cent of arid or semi-arid land which is unsuitable for settlement.

Australia is governed by a 'federation' system where the responsibility of governing Australia is split between the Central government and the six state governments. The state government further delegates power to local governing councils to take responsibility for each Local Area[8].

E-government administration levels

E-government is delivered at three administrative levels, federal, state and local.. E-government on the federal level delivers its information and services to the whole of Australia whereas e-government on the state level delivers to the respective state and e-government on the local level delivers to the respective local government area.

CASE STUDY 1 – CENTRELINK [9]

Background

Centrelink is a federal Australian government benefit agency formally set up in 1997 by then Prime Minister of Australia, John Howard. It plays a huge role in delivering a range of Commonwealth services to the Australian community and serving Australians by assisting its people to become self-sufficient and supporting those in need. Centrelink delivers a huge range of government payments and services to cater to a broad range of customers such as retirees, parents, carers, people with disability, indigenous people and more.

Centrelink delivers services on behalf of nine major departments.

Centrelink online services

Centrelink provides a one-stop portal for customers to access a variety of online services, view and update data and use the available online calculators and estimators without the help of a customer service officer.

The implementation of online claims and services made Centrelink one of the finalists in Excellence in e-Government Awards 2006 [10].

Centrelink website

Centrelink continuously provides its customers with information about its payment method and services through a range of accessible channels such as media, print products and the internet. The Centrelink website is the most effective channel to provide information and services to the Australian community. According to Experian Hitwise, the Centrelink website is the second most visited Australian government website in 2009 [11], with more than 110 million pages viewed by 85 million visitors in 2009-10. The website is constantly improving to cater to different body of customers and to allow new and emerging technologies to be applied.

Family assistance online

Prior to the launch of the Family Assistance Online, customers wanting to submit a claim are required to call Centrelink and provide additional details to support the claim. These calls could last for an average duration of 30 mins. Therefore, the launch of Family Assistance Online service enhanced the online claiming process, improved customer satisfaction and shortened the processing time.

Since the launch of Family Assistance Online service in July 2009, more than 80% of first-time mothers have used the service and claimed online. Paper claims are available for customers without internet access, the claims are converted to digital images to ensure processing of claims takes the same time as online claims.

Online estimators- childcare estimator online

Centrelink provides online estimators which allow customers to estimate payments they are able to receive with current circumstances. One example would be the Child Care Estimator Online which was launched in January 2010 and is available both on Centrelink and Family Assistance Office websites. The online tool helped families find out the most accurate Child Care Benefit and Child Care Rebate entitlements based on income, child care fees and hours of child care they require. Upon launch of the Child Care Estimator, 270,000 people out of 370,000 (73%) who looked at it have calculated their child care entitlements.

Centrepay

Centrepay is a free payment service offered by Centrelink to help financially unstable customers pay bills directly from their Centrelink payments. Large monthly or quarterly bills may be too hefty for customers to pay up-front, thus the large bills are broken down into smaller, manageable amounts and are paid by a regular amount from the customer's Centrelink payments. Centrepay allows the customer to specify the monthly amount which helps them manage their budget better.

Confirmation eServices

Centrelink Confirmation eServices (CCeS) are confirmation services done via the internet to help contracted organisations confirm entitlement status of Centrelink customers. Prior to having CCeS, customers have to request information from Centrelink and send it to the organisation personally. Now with CCeS, organisations approach Centrelink to obtain evidence of a customer seeking concession or service.

ICT in Centrelink

ICT infrastructure

The Department of Human Services has implemented an ICT infrastructure integration across the department which will integrate services and allow information to be shared between Centrelink and Medicare.

Centrelink upgraded its core ICT infrastructure to improve on the efficiency of the ICT department. In 2009, Microsoft Office 2007 was installed into all Centrelink staff desktops to keep align with government standards and to support the integration of the Department of Human Services program.

ICT workforce capability

To maintain the huge online services and continuously develop new online services, Centrelink requires highly capable and motivated ICT workforce. In 2009-10, Centrelink improved on its ICT workforce which is part of a three-year Strategic IT Human Capital Plan by assigning IT personnel to specific IT roles which best suits the employee.

Centrelink introduced skill tagging for staffs which assists in assisting with workload, skills development and providing transparency in project costing. Aiming to improve staff retention and development, Centrelink has also provided employees access to Career Navigator tool which helps employees with career development.

Data centre consolidation

Centrelink is migrating its main systems from six data centres into highly efficient environmentally sustainable data centres over the next three to four years. Centrelink established the Hume Data Centre in Canberra in 2009-10 as the first step of migrating

systems.Centrelink Data Centres are at the core of the Australian Government service delivery program and enable payments of $84.2 billion to 7.02 million customers each year.

Digitization program
Centrelink introduced the digitisation program which allows scanned documents to be sent as digital images to employees anywhere in Australia, the digital images can be used to process a particular claim via a national queue without the need for customers to travel down to Centrelink Offices to hand in the hard copy document. The ability to digitize documents has greatly reduced the amount of papers used by Centrelink.

CENTRELINK MEASURES TO BRIDGE THE DIGITAL DIVIDE
Workplace diversity
Centrelink is focused on having workplace diversity to ensure effective customer service is provided to its wide range of customers such as indigenous Australians, refugees, Australians with disability and their caretakers.

In 2009-10, Centrelink's employment of indigenous Australians was 3.8 percent of its total employment which was higher than the Australian Public Service average of 2.1 percent.

Providing multilingual services
Centrelink is continually looking to deliver services to its multicultural and diverse customers to help them participate and settle fully in Australia's community life. According to the Centrelink 2010 Annual Report, around 20 percent of Centrelink's customers come from diverse cultural background and ten percent of all customers require interpreter assistance when they first access Centrelink services. Main countries of customers born outside Australia are United Kingdom, Italy, China, Vietnam, Greece, India, Germany, Lebanon and New Zealand. The main preferred spoken language other than English is Vietnamese, Greek, Italian, Cantonese, Mandarin, Spanish, Turkish, Arabic and Serbian.

Support for migrants and refugees
Centrelink together with Refugee servicing units, Multicultural service officers and external providers helps ensure newly-arrived refuges are able to receive timely payments, support and important information during the initial settlement period. Centrelink released translated factsheets which are available from Centrelink website and audio CD format for customers who have poor English proficiency.

Centrelink provides translated factsheets on its website for 75 different languages. After accessing several languages, it was found that the main preferred spoken languages have a large number of translated factsheets whereas those language not commonly used have lesser translated factsheets.

Language services
Centrelink provides free translation and interpreting services to assist customers with any services they require from Centrelink. These translation and interpreting services are offered in 226 languages by 2933 contracted interpreters who are proficient and have professional accredication from the National Accreditation Authority for Translators and Interpreters Ltd (NAATI).

Remote servicing model for remote indigenous communities

Centrelink has developed a hub-based model which is able to deliver Centrelink services to remote indigenous communities through engagement with the local community. The model consists of CSCs, Remote Area Service Centres (RASC), self-service facilities, Mobile Remote Serving Teams, local agents, remote area pilots and is supported by Indigenous Call centres. These specialised teams provide Centrelink services to the local community and transfer information through remote servers which are connected to the local Centrelink server.

Providing mobility to the rural community

Centrelink is committed to providing services to the community in rural Australia as many rural residents may need to travel great distances to reach vital services. Therefore, together with the Department of Human Services, Centrelink introduced 2 Australian Government Mobile Offices which were former Centrelink Drought buses. The Mobile Office consists of rural service officers, customer service advisers, rural psychologists and Medicare employees providing assistance to the rural community. Customers are also able to access the self-service facilities on board the Mobile Offices.

The Mobile Offices travel around rural Australia on a schedule to provide services and information to farmers, their families and the rural communities. Customers are able to check the schedule of the Mobile office via Centrelink's website.

Usability and accessibility of Centrelink website

Centrelink is committed to providing a website for Australians regardless of their disabilities or limitations therefore many methods were implemented to improve the usability and accessibility of its website. Pages with the Centrelink website are designed to work well across all popular browsers such as Internet Explorer, Mozilla Firefox and Google Chrome. The website has many features which improve the overall usage of Australians accessing the website.

Features such as ReadSpeaker (Text-to-Speech) allow customers with visual deficiency to click on the icon and listen to the text, however the ReadSpeaker feature has not been introduced to all webpages within Centrelink.

Centrelink's website accessibility webpage provides different features which will aid people with different disability with formats which suit their particular need, features such as font colour, font size and font style. Publications are also available in alternative formats for customers with special needs, upon request Centrelink can provide formats like audio cassette/CD, large prints, braille and e-text.

Measures to maintain security and privacy
Fraud prevention

Centrelink's collaboration with the Australian Crime Commission has allowed Centrelink to receive first-hand intelligence reports of identified people or groups suspected of payment frauds. To further improve on fraud prevention, Centrelink held data-matching activities with several other agencies using its advanced data-matching systems. Centrelink matches millions of customer records each year to find out if any customer has been using false identity to carry out welfare frauds. Data matching is also able to find out if any customers have been underpaid for any benefits which they rightfully deserve.

Privacy protection for customers

Centrelink being a government agency which delivers benefits and payments on behalf of several other government agencies collect huge amount of personal information from its customers and the relevant agencies. To protect this information and instill confidence to its customers, Centrelink ensures it maintains a very strong privacy culture. The base of its culture derives from the legal obligation to comply with the Privacy Act 1988 which protects the privacy of individuals for related purposes [13]. To further reinforce on this culture, Centrelink provides privacy education and awareness programs to its employees.

CASE STUDY 2 - AUSTRALIAN TAXATION OFFICE [12]

Background

The Australian Taxation Office (ATO) is an Australian federal revenue collection agency responsible for the general administration of a wide range of taxation and superannuation legislation, its main role is to manage and shape tax, excise and superannuation systems that fund services to Australians (Australian Taxation Office). Up till the late 1970s, tax returns have to be manually keyed and processed by a large number of income tax assessors and typists. ATO was one of the first Australian organisations to experience the benefits of modern technology by launching the Central Taxpayer System on 1 July 1975 in South Australia. The implementation reduced processing costs and number of employees required. In 1999, ATO introduced an electronic tax preparation and lodgement software package named 'e-tax'.

ICT operations

ATO has one of the largest ICT operations in the Australian Public Service, with a workforce of 1893 and an annual ICT operating budget of approximately $628 million. ATO partners with external service providers to deliver and support 752 systems, most of which are available 24 hours a day, 7 days a week, across 61 sites nationwide.

Modern tax and superannuation administration is fundamentally dependent on technology, with much of our work done electronically. The scale and complexity of our operations are significant.

Online portals

ATO website

In 2009-10, the ATO website was upgraded after a two-year design program which included taxpayers' involvement in design, testing and development. 471 tax-time products were part of the 13 600 changes made to the website content which reduces the focus on paper products. To enhance taxpayers' online experience, new online tools and calculator such as education tax refund calculator, GST food classification decision tool and superannuation guarantee employee calculator were introduced to the current wide range of tools and calculators. ATO website received 37.6 million visits for a span of a year.

Tax agent portal

The Tax Agent Portal is an online portal for tax agents to conduct secured transactions with ATO. In 2009-10, total number of tax agent who used the Tax Agent Portal in increased from 29 988 554 in 2008-09 to 31 484 766 (five per cent). The total number of transactions on the Tax Agent Portal experienced an increase of 17.2 per cent from 12,407,741 to 14,544,288.

Business portal

The Business Portal is an online portal for businesses to conduct secured transactions with ATO. Users are required to obtain an ATO digital certificate or AUSkey to access the Business

Portal. In 2009-10, the total number of users increased from 195 375 to 300 320 (53 per cent), however the total number of users still remains low when compared,potential number of 6.1 million business users. The total number of business logins experienced an increase of 17.2 percent from 2,560,165 in 2008-09 to 3,001,473 in 2009-10.

Tax entry issues system
ATO collaborated with Treasury to provide online access to Tax Issues Entry system at www.ties.gov.au which allows the community to bring up Australia's tax and superannuation systems issues. It allows issues to be submitted and since November 2008, 93 issues have been submitted and 18 have been accepted. 8 issues have already been resolved by parliament passing legislative amendments and additional 12 issues are being considered currently while one issue has been resolved administratively. In 2009-10, 25 issues were submitted.

Online services
Electronic payments
In 2009–10 electronic payments totalled 89% of all payments made by taxpayers, up from 87% in 2008–09. While the overall number of payments decreased by 204,901 in 2009–10, the number of electronic payments increased by 154,826. Payments made through BPAY and direct credit, including credit cards, increased by 10% and 8% respectively.

e-tax
E-tax is a free and secured software provided by ATO which allows individuals to prepare and lodge tax return online. Each year, ATO releases an edition which only allows preparation and lodging of tax return for that year, any tax return for previous years must be done with the appropriate year's e-tax edition. E-tax requires users' computers to meet the minimum requirement before being able to use it. It takes approximately 25 mins to download e-tax using dial-up and 4mins for broadband users (Australian Taxation Office). According to the ATO website, vision impaired users are still able to install and use e-tax 2010 as it is made compatible with readily available screen-reader software.

Ways to bridge the digital divide
Providing language support
In August 2009, ATO released a new audiovisual product, Tax in Australia which is a DVD which presents tax information in series of real-life scenarios. The DVD is mainly targeted at taxpayers who are new to the Australian tax system and non-fluent in English. Initially the release only included ten languages but after positive feedbacks and demands from other communities, ATO added six languages including Auslan which is the language of the deaf community in Australia.

Providing equal accessibility
ATO ensured the website and portal complied with the World Wide Web Consortium's (W3C) accessibility standard so as to ensure accessible information to taxpayers regardless of their disabilities. ATO produced a range of information format to ensure publicly available information is accessible by anyone regardless of their disabilities. The products released include TaxPack in DAISY which is a worldwide standard designed for use by people with print disabilities, audio CD and e-text formats. Online guides and fact sheets are presented in large-print and screen-reader friendly.

Privacy and security measures
Privacy on personal information
ATO being a federal government agency has to comply with the Privacy Act 1988[13] , this is part of its PC07 policy: Limit placed on the use of personal information which is required for ATO accreditation process to become fully Gatekeeper accredited . Having a privacy policy is important for ATO as it is a revenue collection government agency which receives personal information from taxpayers, agents and business.

Online security
Online security is essential to prevent identity fraud and this is done by the use of security credentials. Taxpayers and tax agents conducting an online transaction with ATO will require an ATO digital certificate or AUSkey. In May 2010, ATO stopped issuing digital certificates and adopted a new security credential AUSKey. Previous owners of digital certificates can still conduct transaction with ATO but have the option to apply for an AUSkey. The number of downloaded ATO digital certificates grew to over 430 000 in 2010, a five per cent increase as compare to 2008-09 while the active users of AUSkey have grew to more than 52 700 in 2010.

CASE STUDY 3 – MEDICARE AUSTRALIA [14]
Background
Medicare Australia is an Australian federal government agency previously known as the Health Insurance Commission in 1974. It was renamed Medicare Australia after ministry changes were announced in 2005 which made Medicare Australia one of five human services agencies under the Department of Human Services.

Medicare Australia utilizes ICT to provide low-cost medical, optometric and health care to all Australian residents. It also provides information regarding all of its services and key programs. It is a one-stop portal that connects almost all Australian residents, doctors, pharmacists, aged care providers and members of the health sector. It provides citizens access to free or low-cost medical, optometric and health care. It is also a one-stop portal for businesses to register as one of Medicare Australia's recognised practice. Medicare Australia's role is to deliver a wide range of payments and information for health-related programs. Medicare Australia administers Medicare enrolments and benefit payments through its network of Medicare offices and electronic claiming services.

Medicare Australia currently provides services and payment claims through its 242 Medicare offices and its electronic claiming channels. Even though 191 offices have extended their opening hours, using the electronic claiming channels save time and can be done 24/7 at any location. Therefore, Medicare Australia has been finding ways to promote its electronic medical claiming.

ICT Capability
Medicare Australia's ICT capability is made possible by its highly available system and infrastructure to provide 24 hours a day, 7 days a week processing for several government agencies. The systems allows Australian citizens, health professionals and Medicare Australia service officers to access information online and conduct secured transactions using Public Key Infrastructure (PKI).

ICT infrastructure integration
The Department of Human Services has implemented an ICT infrastructure integration program which will merge the department's ICT infrastructure. This will allow the delivery of

customer service integration across the department especially between Centrelink and Medicare Australia. The integration will boost the Australian health sector's ability to provide information and payment services to the general public.

New intranet
In 2009-10, Medicare Australia launched a new intranet which allows intuitive resource of tools and information. Throughout the design, staff and stakeholders were consulted and the feedback was used to improve on the design and content. The launch of the intranet has reduced the costs for Medicare Australia by having less maintenance for its content while providing better user experience and improved information quality.

Medicare Australia key programs
The key programs that Medicare Australia delivers include:
1. Medicare program
2. Australian organ donor register
3. Pharmaceutical Benefits Scheme
4. Proceedinga od claims on behalf of the Department of Health and Aging and Department of Veteran Affairs
5. Australian Childhood Immunisation Register

Electronic claiming
Medicare Australia has introduced three electronic claiming channels to allow a fast and secured method for the public to claim without the need to travel to a Medicare office. Having 3 different claiming channels allows practices to choose a channel they deem best for their patients to lodge Medicare claims at their practice.

Medicare offers 3 electronic claiming channels:
1. Medicare online
2. Medicare easyclaim
3. ECLIPSE

The key benefits of using the electronic claiming channels are:
1. Less paperwork
2. Lesser administrative charge

Online services and websites
Medicare online services provide a one-stop portal for the Medicare customers to view, update and request information held by Medicare Australia. Currently, there are more than 1.5 million Australians registered with Medicare Australia online services with an average of 1000 new registrations each day.

Medicare website
The Medicare website is a one-stop portal for information and services for customers, and health professionals. In 2009-10, the website experienced more than 7.7 million visits, with a daily average of 3971 and 9749 made to the online services index page and Medicare Australia homepage respectively.

Healthcare Profesional Online Services
Health Professional Online Services (HPOS) is a one-stop portal for health professionals to access Medicare Australia's online services. Since its launch in March 2009, the HPOS portal has had more than 600 000 logons and 870 000 logons to its services. 67 percent of the logons were contributed by the patient verification which is the most popular service.

Aged care online claiming

Medicare Australia offers full online claiming for the aged care sector on behalf of the Department of Health and Aging. The ability to lodge, view and finalise claims online make providing business practices to aged care sector more efficient and produce better outcomes. Medicare Australia understands the diversity of the aged care sector with its different business models, IT capability and needs. Therefore, further strategies were introduced to encourage uptake of online claiming.

Ways to bridge the digital divide
Translation services

Medicare Australia provides an information kit for customers who are less fluent in English, the kit consists of translated information in 19 different languages for main health programs and the Pharmaceutical Benefits Scheme (PBS). Free Translating and Interpreting services (TIS) are also provided when contacting the agency for direct information.

Accessibility

Medicare Australia complies with the Web Content Accessibility Guidelines version 2.0 by the World Wide Web Consortium (W3C). By following the Web Content Accessibility Guidelines version 2.0, contents were made more accessible and usable to people regardless with disabilities [15]. The Medicare Australia website was designed to be used in several browsers and operating system.

Privacy and Security

Medicare Australia ensures the privacy of personal information by complying to the federal government Privacy Act 1988 [13]. Medicare staffs are bound by secrecy provision in accordance to the Health Insurance Act 1973 and National Health Act 1953 which protects the personal health information of customers. Disclosure of personal information obtained by Medicare Australia without proper procedure is an offence.

All Medicare Australia staffs are sent to training and various privacy forums to raise awareness of privacy issues. Random audits were also carried out to identify any unauthorized access by Medicare Australia staffs. Any identification of privacy issues raised by customers and staffs are immediately investigated to address any ongoing risks. All online health transactions are done through a secured connection using the Public Key Infrastructure (PKI) which is an information technology infrastructure that ensures privacy protection while exchanging data.

CASE STUDY 4 - DEPARTMENT OF IMMIGRATION AND CITIZENSHIP [16]
Background

The Department of Immigration and Citizenship (DIAC) is a federal government agency which delivers policies, programs and services for immigration arrangements, border control and citizenship. The key objectives of DIAC are to manage the lawful entry and stay of people in Australia while ensuring effective border security. DIAC is responsible for issuing Visa for prospective travellers, students, workers and migrants.

ICT initiatives

The ICT department developed a green ICT strategy reduce its overall energy consumption after analyzing its energy usage. For a start, the department reviewed its desktop hardware and realized there were more than 2000 excessive hardwares (monitors, PCs and stand-alone printers) which had to be removed. To reduce energy consumption, a new policy has been implemented to shut down PCs after hours to save cost.

Online services and portals
Student eVisa program
The student eVisa program allows genuine international students who wish to pursue an education in Australia, applications can be lodged online or by engaging the help of an educator or migration agent with access to the eVisa program. The student eVisa program consists of five Assessment levels determined by risks and past rate of fraud and non-Assessment level one countries are countries with the lowest immigration risk while Assessment level five countries pose the highest risk. Students from level one countries would require fewer documents as compared to a level five student.

eHealth
eHealth is DIAC's online health system which records, processes and stores health examination results for customers applying for an Australian visa. Clinics are able to submit digital x-rays, specialist reports, biometric photograph and examination results online which are received instantly by the department. This removes the need for processing paper based reports and reduces delay of sending results to Australia while reducing the overall processing costs. eHealth is available in 21 countries with recent availability in Brazil, Canada, Bangladesh, Nepal and Saudi Arabia.

Visa and citizenship wizard [8]
Both the Visa and Citizenship Wizard are designed by the DIAC to provide future travellers and migrants access to information regarding their visa and citizenship application. Clients and staffs are able to access both services from anywhere in the world 24 hours a day, seven days a week through the DIAC website. The development of the Visa and Citizenship Wizard won the Excellence in e-Government Award 2009 [8].

eVisitor [8]
The eVisitor was an initiative developed by DIAC through the Systems for People program specifically for prospective European Union (EU) nationals travelling to Australia. eVisitor is a free-to-use service accessible 24 hours a day, seven days a week for EU nationals to lodge their applications via the internet from anywhere in the world. The eVisitor is an electronically stored authority to travel into Australia without visiting a departmental office with just an email of confirmation sent for records. The launch of eVisitor was listed as one of the finalist in the Excellence in e-Government Award 2009.

Overall satisfaction
A survey done to enquire about customers" overall satisfaction with DIAC service delivery channel showed that clients were generally satisfied with the delivery channels. 84 per cent of clients were satisfied with the most recently used service delivery channel while 89 per cent were satisfied with the department"s online application system. Figure 25 below the preferred choice of lodging a visa application and 95 per cent of customers reflected that they would use the department's online application system for future applications.

Accessibility and usability
DIAC ensures that the website and web applications comply with the Web Content Accessibility Guidelines 2.0 which ensures information provided is accessible to all regardless of the disability (World Wide Web Consortium, 2009). DIAC ensures different assistive technologies such as text magnification, read aloud, screen reading and speech recognition software can be used to access website information

Security measures using ICT
DIAC understands the need of fraud detection to improve the integrity of visa applicants, therefore using information technology to create risk mitigation solutions such as biometrics and risk tiering.

CASE STUDY 5: ROAD AND TRAFFIC AUTHORITY [17]
Background
The Road and Traffic Authority (RTA) is a government agency of New South Wales (NSW) which was established in 1989 under the Transport Administration Act 1988 through the merger of the former Department of Main Roads, Department of Motor Transport and the Traffic Authority. The RTA‟s main responsibilities are to manage the road network to ensure smooth and safe travel for all users, provide road capacity and dispatch licenses to drivers and registrations for cars.

The RTA provides services through its network of 128 motor registries, Contact Centre, six Government Access Centres, 34 agencies and 37 itinerant sites for its regional and rural customers.

Use of information and communication technology in RTA
Information and communication technology strategy
In 2010, the RTA implemented a revised ICT strategy to improve the overall performance of the department‟s ICT to meet the goals and improve the e-government performance for customers and staffs. In 2009-10, the RTA introduced over 100 major projects with costs from $100 000 to $4 million. These projects included upgrade to core infrastructure to support RTA‟s road safety program, telecommunications capabilities to support 3G connectivity across all motor registries in NSW and releases for the

ICT projects
In November 2009, the RTA implemented the Readsoft Webcycle project which provides cost savings and efficiencies for end-to-end accounts. The software improved the flow of account processes through automatic matching for its certification and approval process. The software allows future improvement and will lead to further cost savings and efficiency.

Improving ICT workforce capability
In August 2009, RTA established Learning@RTA which is an online learning centre for its staffs to access learning and development opportunities at a one-stop location. The system replaced the paper-based process of providing training programs for electronic application and approval. Since the launch of Learning@RTA, 70 per cent of all training requests were received via the learning centre while the remaining 30 per cent were staffs without access to a computer. The online learning centre enables RTA to identify and build the right skills to improve its ICT workforce to support its growing e-government services.

Improving customer service
In October 2009, the RTA established the Customer Insights Panel to obtain feedback and opinions from customers on its range of RTA products, services and policies. Throughout the year, RTA randomly recruited a sample size of 1500 RTA customers through its website and motor registries to complete monthly surveys. The results were used to refine RTA's customer satisfaction and interaction approach.

Online services and websites
With the implementation of RTA's ICT strategy and projects, it has caused the RTA's range of online services to grow and improve in 2009-2010. The range of RTA's services and

RTA website
The RTA website recorded more than 27.5 million visits in 2009–10, a 31 percent increase as compared to 2008–09. The site continued to maintain its unrivalled position as the most visited NSW Government website and the number one State Government website in 2009–10 [11].

Myrego
The myRego system is a system within myRTA.com which allows customers to renew their registration online via the internet or telephone upon receiving their Certificate of Registration. Prior to renewing their rego, customers have to acquire a green slip quotation online using the green slip calculator and get an e-safety check from an authorized check station.

Vehicle history check
The RTA provides a Vehicle History online Check service for customers to find out about a second hand vehicle currently registered in NSW before buying. Through the online check service, customers are able to check the condition of the car, number of previous owners, vehicle registration and whether the vehicle has been stolen or written off.

RTA commitment to privacy
RTA privacy management plan
The RTA realizes that trust is an important aspect of relationship with the public as private information is stored when they apply for a license or register a car. Therefore to instill confidence to the public, RTA published an updated Privacy Management Plan in 2007 which was first published in 2000. The Privacy Management Plan was published to describe how the RTA intends to comply with the Privacy and Personal Information Protection Act 1998 (PPIPA or Privacy Act) and the Health Privacy Principles (Health Privacy Act). All NSW public sector agencies have to comply with the Privacy Act which deals with how NSW agencies handle personal information after obtaining from customers. The Health Privacy Act governs the handling of customers" health information in both public and private sectors in NSW [13].

Website security - secure socket layer encryption
RTA uses an industry standard Secure Sockets Layer (SSL) to protect the transmission of data. The secure transaction facilities encrypt the information as it travels between the computer.and RTA's servers.

Facial recognition technology
In December 2009, the RTA introduced the Facial Recognition System (FRS) to improve identification of licence and photo card holders in NSW using biometric technology. The main aim of the FRS is to combat identity fraud which costs Australia at least $3.5 billion annually. When a customer takes a digital photograph for application of a license or photo card, the FRS compares the digital photograph to existing images stored in the RTA"s database and check if the person already exists in the system [17]

National exchange of vehicle and driver information system

The National Exchange of Vehicle and Driver Information System (NEVDIS) is a system which provides national registration and licensing information to all Australian road agencies. The introduction of NEVDIS solves driver-vehicle management issues faced by vehicle manufacturers, importers and the police when dealing with registration and licensing jurisdictions. Most importantly, NEVDIS reduces licence fraud and vehicle fraud.

IT security accreditation

The RTA enhanced security of customer information by implementing audit of two key IT areas The Transport Management Centre and Information Management and Information Technology Branch by a third party certification body. The two Key IT areas managed to retain their accreditation to ISO 27001 which was the international standard for "Information Security Management System to protect information assets.

CASE STUDIES DISCUSSION

Online services

The four federal government agencies and one state government agency have existing e-government services and the review showed that more e-government services and portals were implemented during 2009-10. The case studies show the considerable progress made towards effective e-government. The case studies all showed a general increase in the use of its website, services and portals.

ICT system

In 2009-10, all agencies have implemented ICT strategies and policies to improve the overall capability and delivery of its e-government services. Centrelink, ATO and RTA have implemented strategies to maintain a highly capable ICT workforce to support its daily ICT system.

Digital divide

All agencies except RTA provides language and translation service for customers who are non-fluent in English. Centrelink was the only agency which provides measures of reaching out to possible digitally excluded customers. The introduction of its Mobile Offices, RASCs and Centrelink Access Points ensure rural communities have adequate ICT facilities to access Centrelink online services.

Privacy

The increase of e-government services means that citizens have to provide more personal information online. This might lead to citizens feeling insecure and refrain from using e-government services. The Australian government is aware of this possible issue which is why all five government agencies have to comply with a privacy policy depending on the administrative level.

All five government agencies have a privacy policy to protect personal information of customers. All of the federal agencies complied with the Privacy Act 1988, only RTA which is an NSW state agency complies with the Privacy Act of NSW. Both acts protect the unauthorized release customers' personal information. Medicare withholds health information and thus has to comply with Health insurance Act 1973 and National Health Act 1953. The existence of privacy policies instills confidence in customers to continue accessing e-government services.

Security

All five case studies have security measures for its e-government services. However, due to the different nature of each agency, the security measures used were different. The security measures implemented were rather effective in maintaining the security of the website, transactions and border control.

Cost/benefit analysis

Throughout the review, no recent information regarding cost/benefit analysis of any agencies could be found. This makes it tough for government agencies to calculate the overall savings due to the implementations of new services.

CONCLUSIONS

The review of Australia e-government shows that the general use of e-government services has been increasing over the years and the internet has become the preferred method of contacting the government. However, e-government in Australia is mainly available to citizens who have the ability to be digitally connected. The benefits which these citizens receive through the use of e-government might further widen the existing digital divide. Australia may not be affected by global digital divide as a developed country but there is existence of social digital divide. There is an existence of social digital divides faced by social groups such as elderly people, rural communities, low income families, unemployed and less educated citizens. These social groups who require the most assistance from the government are the ones who contact the government the least.

The review of the five case studies have shown that Australian government agencies have well established ICT systems and e-government services in place. The five agencies have been constantly providing new e-government services and portals and results show that they are all well-received by citizens. Existing e-government services in all five agencies experienced increase in usage. Several initiatives highlighted such as Pre-filling data for E-Tax, the Citizenship and Visa Wizard showed the effectiveness of the e-government services. The five government agencies are required to comply with privacy policies which protect the personal information of citizens. The existing e-government services employ ICT security measures to maintain the security of websites, transaction and border security.

Regarding the bridging of digital divide, RTA is the only government agency which does not provide translation services for its citizens. The broadband services provided in rural areas are more costly, slower and unreliable when compared to metropolitan areas. Centrelink is aware of this issue thus providing self-service facilities and mobile offices to rural communities to reduce the number of digitally excluded citizens.

Overall, the e-government in Australia is well established. The main focus of the Australian government should be bridging the digital divide and getting unconnected citizens digitally connected. This will definitely ensure a surge in the use of e-government services.

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