

e-Government: The Singapore

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Introduction

The term "e-Government" is used in this paper to denote the concept of using Information Communication Technology (ICT) as a means to organise and manage the administrative processes of the Government, especially the interactive processes between the Government and the public.

Though ICT has been available widely for more than four decades and many governments around the world have indeed used ICT in certain aspects of government, the concept of e-Government is relatively new in the sense mentioned above. Only a handful of governments have progressed to a high degree in harnessing the immense power of ICT in re-organising their government infrastructure and in serving their citizenry, and have done so in an efficient and effective manner.

e-Government is not mere "technologising" of government. It is not just a matter of automating some manual processes nor is it a simple introduction of technology where none existed. e-Government requires a fundamental re-thinking of governance itself and, as some have suggested, a re-inventing of government. If bureaucracy is the invention of the 19th century, we might say e-Government is the invention of the 21st century. e-Government re-examines the organising principles of bureaucracy and governance, re-defines the objectives and deliverables of government and re-deploys the resources available. In this process of re-invention, the basic intent is both refinement of the old and introduction of the new. e-Government is NOT throwing the baby with the bathwater.

Advent of e-Government in Singapore

In the case of Singapore, the advent of e-Government has its origins in the Government's decision to computerise the civil service in 1981. However, had it been an isolated development focused just on the civil service, e-Government in Singapore today would not have reached the level it has. The e-Government movement in Singapore has become an integral part of a much larger national strategy to transform the island city-state into an "intelligent island" where the e-Economy will be a centrepiece of the economic development plans and where the e-Society will be an inclusive community of citizens and residents, enjoying a high quality of life. Thus, e-Government in Singapore is perceived as a strategic and integrated developmental force in the service of the nation.

Pioneering Efforts in Public Service

The Civil Service Computerisation Programme (CSCP) launched in 1981 marks the first wave of e-Government in Singapore. It aimed at manpower savings, operational efficiency improvement, better information support for decision-making and certain pioneer services for the public. It, naturally, focused on automating many traditional work functions and on reducing paperwork.

One of the early strategies CSCP adopted was called SS-SF -- Start Small, Scale Fast. Since ICT was unfamiliar to both the Government and the public at the initial stages, it was felt that the prudent approach would be to start each major initiative on a small scale as a proto type, and once tested and accepted by public, to ramp up rapidly to deploy the system on a mass scale.

It is important to note that simple technical knowledge of ICT alone would be woefully insufficient to initiate e-Government. ICT applications in real life are often met with the natural resistance to things new, the ignorance and apprehension on the part of the public, and the teething troubles within the service-providing agency. Thus, there is a need for gradual capacity building, familiarisation by service providers and users, and general acceptance before an e-Government initiative could become commonplace.

Over a 20-year period the Singapore Government had introduced many e-Government services that range from simple information provision to the conduct of complex business transactions. The Government's initiatives have also encouraged professions such as law and medicine to help develop their own networks for the provision of information and services.

e-Government Strategic Framework

As technologies improve and public needs increase, there are compelling reasons for the Government to introduce new processes or re-engineer its past strategies and service frameworks. What follows is a summary of the Singapore Government's latest strategic approaches to e-Government.

The people sector, the private sector and the public sector are generally considered to be the three most important constituencies that act and interact in myriad ways to build and sustain a nation. Singapore's e-Government strategic framework is centred on three critical relationships – Government to Citizens (G2C), Government to Businesses (G2B) and Government to Employees (G2E). Based on that framework, an e-Government Action Plan was launched in June 2000, with five key thrusts:

- i. **Reinventing government** through continuous rethinking of all aspects of governance to explore the nature and quality of government interactions with its citizens, businesses and employees.
- ii. **Delivering integrated electronic** services centred on customers' needs.
- iii. **Being proactive and responsive** by adopting a 'sense and respond' approach.
- iv. **Using ICT to build new capabilities and capacities** for achieving quantum leaps in service delivery.
- v. **Innovating with ICT** by embracing enterprise and experimentation.

Tactical Programmes

The above strategic thrusts have propelled the Government to initiate six tactical programmes that will transform public service and meet the changing needs of the three critical sectors mentioned above.

- i. **Knowledge-Based Workplace** will empower active and collaborative learning and knowledge sharing as part of a culture of continuous learning in the public service.
- ii. **Electronic Services Delivery** through the integration of government service providers will create a one-stop contact point for the public to access government services.
- iii. **Technology Experimentation** will pioneer initiatives to better understand new capabilities and how they can benefit the Government and its customers.
- iv. **Operational Efficiency Improvement** will be achieved through regular and fundamental questioning of the relevance and usefulness of functions and processes.
- v. **Adaptive and Robust Infocomm Infrastructure** will enable the advent of a knowledge-based workplace, delivery of integrated electronic services and improved operational efficiency.
- vi. **Infocomm Education** will extend beyond traditional ICT literacy and skills to developing the capacity to take fuller advantage of the growth in ICT capability.

The e-Government Action Plan, as can be seen from the above brief descriptions, is not the end-point of a journey but an enabling process to take Singapore through the long road to e-Government.

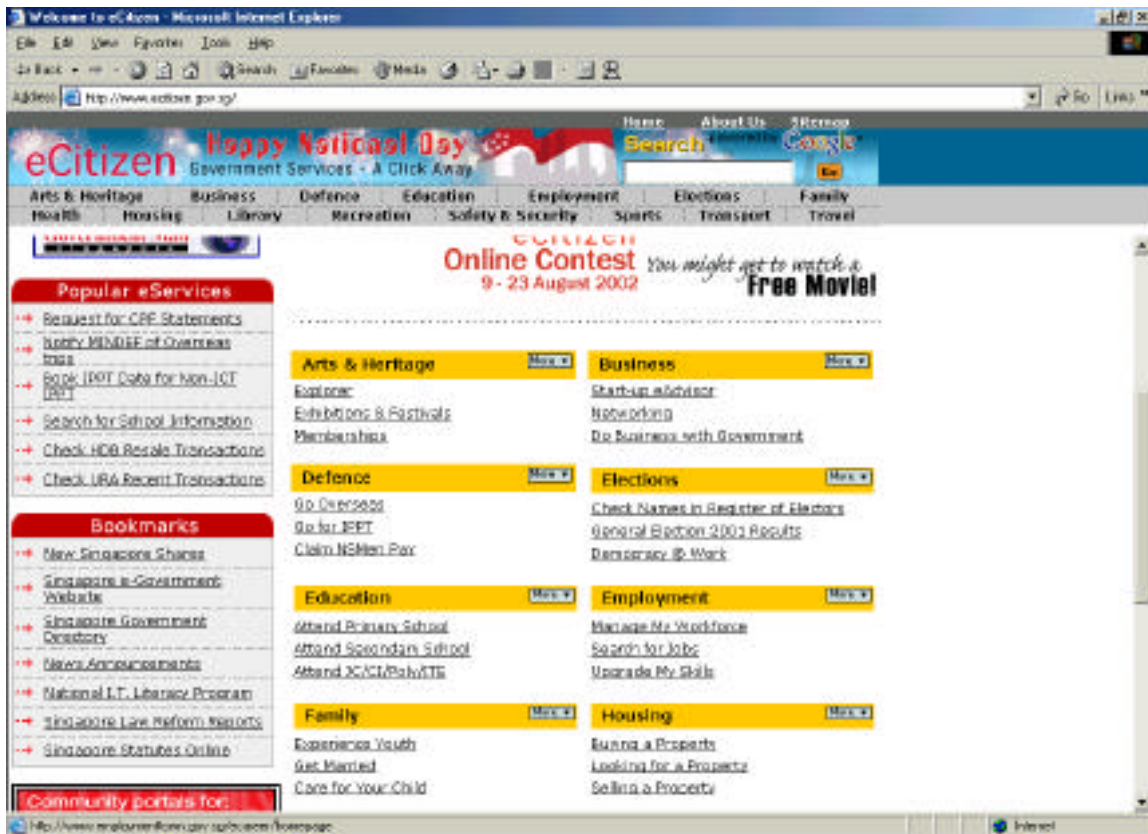
e-Government for Citizens

One basic tenet of "G2C" e-Government is customer-centricity. It is ironic that politicians who are elected and bureaucrats who are paid to "serve" the people often end up as civil masters instead of being civil servants. They place their own administrative convenience above citizens' needs. But the concept of citizens as paying customers, much as in the business world, is trying to blance this relationship in favour of the ordinary citizen.

Another key tenet is integration of services. With the integrated e-services packages, citizens can carry out 'complete' transactions with the Government instead of dealing with several agencies individually.

e-Citizen Centre

In its attempt to cater to the wide-ranging needs of the citizen, the Singapore Government has taken the approach of delineating key domains of the ordinary citizens' life and building information and service clusters for them. The eCitizen Centre portal (see <http://www.ecitizen.gov.sg/>) provides one-stop online information and services that are intuitively grouped along those domains, as can be seen below.



[eCITIZEN](#)

- [Arts and Heritage Town](#)
- [Business Town](#)
- [Education Town](#)
- [Elections Town](#)
- [Health Town](#)
- [Library Town](#)
- [Safety and Security Town](#)
- [Transport Town](#)
- [Defence Town](#)
- [Employment Town](#)
- [Family Town](#)
- [Housing Town](#)
- [Recreation Town](#)
- [Sports Town](#)
- [Travel Town](#)

The eCitizen Centre is currently home to more than 1,700 services of the 2,600 services that can be delivered electronically.

Universal Connectivity

In order for the concept of e-Government to work effectively, one of the prerequisites is e-connectivity for everyone in Singapore. Unless most individuals are able to afford such connectivity, e-services will become another divisive factor in the digital divide that already exists in society. Singapore is trying hard to be an inclusive society where ICT deployment is concerned.

"Singapore One" is a broadband infrastructure, made available nation-wide. It covers 99 percent of the island, bringing the capabilities of broadband technology to offices, businesses, schools, homes, libraries and community centres, with 7,000 public access points currently available around Singapore, which has an area of about 700 square kilometres.

All the universities and polytechnics in Singapore are already equipped with wired or wireless campus-wide networks. Singapore is also on target to provide every two students in primary and secondary schools with one personal computer (PC) by end of 2002.

Mobile phone penetration has reached nearly 75 per cent of the population while internet penetration has reached almost 50 per cent. In terms of Internet host density, Singapore is placed second among Asian countries at 353 Internet hosts per 10,000 inhabitants.

Compared to other countries, Singapore has one of the highest ownership of PCs with a penetration of 61 per cent in 2000.



Creating e-Inclusive Society

In an e-inclusive society, technology must be accessible and affordable to all, regardless of age, language, physical ability or socio-economic background. Singapore has committed S\$25 million towards the e-inclusion movement over a period of three years. This movement will concentrate its efforts on bridging the digital fault-lines of income, language and mindsets, especially with four key population segments – senior citizens, homemakers, workers and the disabled. Programmes have already been mounted to improve the affordability and accessibility of ICT to 30,000 low-income households. No one in Singapore would be hard put to have access to government e-services. To ensure ubiquitous and unfettered access, e-Citizen Help Centres will be located throughout the island, staffed with facilitators who can speak the four official languages of the country and with training in people skills.

Introducing e-Lifestyle

The success of e-Government depends to a large extent on the public's adoption and acceptance of a new way of doing things -- an e-lifestyle, as the Government calls it. To heighten public awareness of the e-lifestyle, a month-long campaign was held annually in 2000 and 2001. This year, the campaign has been planned to last throughout the year with monthly programmes centred on specific themes. These campaigns emphasise 4Es – e-Learning, e-Entertainment, e-Communications and e-Transactions – to provide the public four compelling reasons why they have got to be connected to ICT.

To move citizens from awareness to adoption of an e-lifestyle, a series of thematic online fairs are also planned to boost consumer confidence in online services such as shopping for groceries, purchasing travel packages and banking online.

There is also a nation-wide effort to increase the ICT or "Infocomm" literacy level of the population. The target is to equip hundreds of thousands of Singaporeans with basic

computer and internet skills, each year. The training will be quick, easily available and affordable. Another initiative to help Singaporeans live an e-lifestyle is the e-Ambassador programme. It was conceived to help bridge the digital divide between the IT-savvy and those who have yet to experience the benefits of internet, by asking the former to help the latter. Based on a volunteering model, the programme reaches out to the community and enables ordinary citizens to play their part by helping those around them take one step closer to adopting an e-Lifestyle.

e-Government for Businesses

The focus of G2B is to take electronic interactions between the Government and Business to a high level of efficiency, convenience and cost effectiveness.



The Business Town (<http://www.gov.sg/singov/biz.htm>) on the e-Citizen Centre has taken an important step towards a customer-centric approach to providing e-services. Local and international businesses can now access and utilise a full suite of aggregated and integrated G2B information and services through an intuitive interface. For easy navigation, Business Town e-services are presented in terms of a business life cycle commencing from business planning, market research, intellectual property management, right through to exit strategies.

A 10-step guide walks a budding entrepreneur through the necessary steps and issues to grow a successful enterprise. Guides on assistance schemes and programmes are also readily at hand to encourage entrepreneurs to jumpstart their e-commerce business as well as to modernise, upgrade and expand their old business.

Business Town will continuously improve service delivery through more one-stops for content and services. For example, the first rollout of a one-stop business registration and license application system was launched in July 2001. Through ICT, the Government will not only provide more proactive e-services in the future but also play a bigger role in enterprise development in Singapore.

Service-Wide Online Procurement

Online procurement enables enterprises to lower operational costs and gain wide access to a global supplier base. The public service intends to be a flag bearer for e-procurement to catalyse the penetration of e-commerce in the private sector. An integrated end-to-end government e-procurement system was launched in December 2000.

The Government Electronic Business Centre (GeBiz) provides local and international suppliers easy access to procurement opportunities in the Singapore public sector, allowing them to trade with the Government electronically. GeBiz also enables public officers to perform a full spectrum of procurement activities online. When fully deployed, GeBiz will serve to bring buyers, suppliers, tenderers and bidders into a common, secured, round-the-clock forum for procurement and tender activities. It will also provide better information management of statistics and purchasing patterns as well as fund management through seamless interfacing with financial systems.

Business Registration Simplified

In the dynamic business climate of a digital economy, the easiest part of starting a business should be to register it with the Government. New local companies can now be incorporated electronically with the Registry of Companies and Businesses (RCB). Companies and businesses can also make statutory disclosure requirements online. BizFile enables filing to be done electronically, without the need to come in person to RCB. The public will also be able to obtain up-to-date and accurate information pertaining to companies and businesses through eBizCore, round the clock.

In addition to registering their businesses, entrepreneurs will soon be able to apply for licenses/permits and other approvals required through OASIS (Online Application System for Integrated Services). This seamless online system will allow applications to be done all at one go, anywhere with an Internet connection. No longer will there be a need to perform repeated filing of applications or make multiple physical visits to be able to start a business.

An important footnote to this section of the paper is that G2B is part of a larger mission to make Singapore a globally competitive marketplace and that requires an enduring and mutually beneficial partnership between the Government and the private sector.

e-Government for Employees

Civil Servants are vital to the success of policy implementation and service execution in the e-Government. The focus of G2E is to empower public officers using ICT with new skills, to enrich their careers and to keep them relevant in the e-economy.

e-Government needs to be a service-wide initiative, appreciated and embraced by all public officers. The Infocomm Education (IE) programme aims to equip all officers with the necessary skills to see the possibilities and capitalise on the opportunities for the creation of an e-Government. IE also aims to ensure that all officers are fully equipped to work expertly within an e-Government.

The Distinguished CIO Speaker Series targeted at public sector Chief Information Officers was launched in February 2001 to facilitate experience sharing between agencies. Leaders and senior officers in the public service are also benefiting from the Infocomm modules and case studies that have been introduced into their milestone courses. These initiatives contribute to the core set of ICT curriculum currently being developed for all public sector levels - leaders, senior and middle management and executives.

Leveraging on Knowledge in Public Service

Knowledge Management as a management tool presents a powerful opportunity to improve the way an entity uses its intellectual resources. Developing and applying its concepts to achieve a quantum improvement in how we manage formal and tacit knowledge requires a radical rethinking of an organisation's internal processes. To encourage and nurture good KM ideas in Singapore's public service, a Knowledge Management Experimentation Programme (KM-EP) was launched in July 2001 to blaze the trail for a knowledge-based workplace in the public service. Forums such as the Knowledge Management Interest Group have also taken form to flatten the learning curve through effective sharing of best practices and experiences across agencies.

Adaptive and Robust Infocomm Infrastructure

Good decision-making hinges on having the right information at the right place at the right time. Because of the increasing mobility of public officers, it has become critical to enable their access to government resources anytime, anywhere, using any medium. The Government Access Infrastructure (GATE) provides a secure access to the Government network via a wide range of channels such as a dedicated dial-up, ADSL, cable modem and other subscription services provided by Internet Service Providers (ISPs). To take advantage of this information interactivity, the Broadband Infrastructure for Government (BIG) gives public sector agencies flexibility in the choice of broadband and roaming medium by leveraging on public telecommunication networks for access to government resources.

A new Government Data Centre has commenced business in May 2001. DC@Gov is a robust, secure and comprehensive infrastructure facility for server hosting by government agencies. Critical features are built with redundancies to ensure non-stop systems operations. These include precision air-conditioning systems, uninterrupted power supplies, biometric security access and network connectivity. The Data Centre also provides a host of managed services from facility management, security, system monitoring, purchasing of hardware and software, central storage, backup to recovery.

Building Firm Foundation of Fundamentals

At the core of the Government IT infrastructure is a suite of productivity tools such as the Public Sector Smart Card, Government Email System and the Government Intranet. This

infrastructure facilitates communication within the public service as well as with the public by linking up public sector agencies into a 'Connected Government.' For example, the Government Email System, which has a base of more than 30,000 users, is now handling 12 million mails per month within the Government and five million email exchanges between the Government and the public annually.

Portal technology has made it possible for employers to move beyond email and even Intranet, as a means of interacting with their employees. In the future, a G2E Portal will succeed the Government Intranet as the venue to share a range of government resources and provide convenient access to relevant services within the public service. Public officers will be empowered to personalise their workspace to better manage information and collaborate more effectively across agencies.

Operational Efficiency Improvement

A People Matter Management System (PM2S) will soon facilitate service-wide implementation of central human resource (HR) policies quickly and effectively. On an organisational scale, PM2S will also be able to support the specific HR management needs of individual ministries and statutory boards. The system aims to achieve economies of scale, provide significant improvement to service-wide operational efficiency as well as enable ministries to manage their resources with greater productivity.

Guiding Principles

The Singapore Government's development of e-Government is an ongoing process with no solid-state in sight. It is perhaps a never-ending journey where destinations are only transient stopovers. However, there are certain guiding principles that serve the process well:

- * Every service that can be delivered electronically shall be.
- * The customer shall supply or update personal information only once.
- * Those without home access shall have access to public delivery network.
- * Staff must assist those who need special help like the elderly.
- * All services shall be "customer-centric" and not "agency-centric."
- * Physical visits shall be kept as low as possible.

Evaluation of Effectiveness of e-Government

It is inevitable that questions will arise as to the effectiveness of Singapore's e-Government initiatives. While qualitative judgments are hard to come by there is some statistical evidence to suggest that these efforts have been fruitful:

- * The e-Government portal receives 1.2 million hits a month
- * A survey result released in July 2002 indicated that among the 57 per cent of people aged 15 and over who dealt with the Government last year, 2 out of 3 used e-services.
- * Of these, 1 in 3 said internet was their preferred mode of interaction.
- * On a 5-point satisfaction scale, 63 per cent gave a rating of 4, and 34 per cent gave a neutral rating of 3.
- * 9 out of 10 people surveyed said they felt that the Government's e-services were comparable to, if not better than, private sector e-services.

Some foreign accolades for the efforts have also placed Singapore at the forefront of e-Governments of the world. At the E-Gov 2002 conference held in Washington, Singapore was presented the Explorer Award for its successful, innovative and user-friendly initiatives in e-Government. This is only the second time that a foreign country has won the award. Reports by Accenture Ltd ranked Singapore as having the second most mature e-Government in both its 2001 and 2002 surveys, coming after Canada in both years.

The Singapore Government is known to be aggressive and relentless in its efforts to improve its public service. This "obsessiveness" stems partly from a belief that a clean and efficient civil service will be a critical factor in Singapore's future success as in the past. There is also the issue of accountability of a government that has been in power for 43 years without interruption and winning vast majority support much of the time, from the electorate. The symbiotic relationship between the Government and the public demands continuous performance improvement for continuous support.

On the other hand, there is also the danger of a technology movement taking on a life of its own, whereby the tail wags the dog instead of the other way round -- people serving technology, instead of technology serving people. There is a clear need for vigilance in this regard. Experiences with indiscriminate emailing and automated telephone answering service are two examples of technology usage going berserk in our daily life. When governments start to impose electronic bureaucracy on hapless citizenry, it may be even worse than the 19th century version

There are also the digital divides that prevent certain segments of the population from climbing on to the technology bandwagon. In its euphoric celebration of its e-Government achievements, the Singapore Government needs to keep an eye on those who may not be celebrating together with it. In a tiny island state, the digital haves and have-nots do not have that much space to hide from each other.

Talking of space and size, it would be useful to note that some of Singapore's achievements are clearly attributable to its compactness, which makes things more possible and more manageable than in big countries. The scope, size and complexity of Singapore Government are decidedly smaller and simpler than many countries in the world and, therefore, the lessons of the Singapore experience may not necessarily fit in well with other environments. However, there are certain conceptual and implementation frameworks developed and applied in Singapore that could serve well in other countries. Singapore has often been referred to as an ICT test bed or as a human laboratory, because of the Government's willingness and ability to try innovative, even if controversial, processes in public administration. Whether those references are made with appreciation or admonition, to the extent its pioneering efforts hold the light for others to follow, the Singapore case study might be worth considering.