Information Society and E-Governance: The Case Study of a Knowledge-based Economy—Singapore

By
Milagros Rivera-Sanchez, Ph. D.
Associate Professor,
Information and Communication Management Program
National University of Singapore
Singapore

&
Krishnamurthy Sriramesh, Ph. D.
Associate Professor
School of Communication and Information
Nanyang Technological University
Singapore

Manuscript to be presented at the World FIS in Geneva, Switzerland
December 2003
Information Society and E-Governance: The Case Study of a Knowledge-based Economy—Singapore

I. INTRODUCTION

Although technically labeled a parliamentary democracy, Singapore has been criticized by political observers such as Chua,¹ Yuen,² and Ho³ as not being pluralistic. However, Singapore has also been praised as a great economic success story. Yuen described the mixed feelings that Singapore conjures up in the minds of observers thus:

Singapore is a place that arouses deeply divided feelings among observers. It is also one of the great economic success stories of this century, but it is also widely seen as an authoritarian state that limits freedom of speech and political rights.⁴

Singapore has witnessed a paradigmatic shift with government leaders emphasizing the need to make Singapore a knowledge-based economy (KBE) because of a variety of social factors such as the emergence of an affluent middle-class population and a better educated (almost exclusively in universities in Australia, the United States, and Great Britain) and well-traveled citizenry.

As part of its efforts to position Singapore as a knowledge-based economy, the government created the Singapore 21 initiative in 1999 that promoted several core values to maintain this city-state’s prosperity and competitiveness (to be discussed later in this paper). In February 2002, the government also introduced the Reinventing Singapore program that, among other things, seeks to promote a more active citizenry. While to outsiders this shift may seem like a mirage, former Singapore Development Authority Deputy Director Goh Seow Hiong stated that the government must recognize that other countries and potential investors may measure Singapore “not by our own standards, nor by the standards of our neighboring countries in Asia, but by the standard of developed countries that are our major trading partners.”⁵

It is in light of this changed mindset that e-governance can be viewed as another key initiative that the government has envisaged in helping develop a communitarian democracy in Singapore. As will be discussed later in this paper, elements of communitarianism are very evident in the Singapore 21 and Reinventing Singapore programs. A communitarian democracy requires the establishment of formal institutions such as a free press, the right of citizens to be consulted, and an emphasis on consensus.

Singapore seems to have recognized that among other things, e-governance helps governments improve decision making and implementation by inviting active citizen participation. In addition, e-governance seeks to create new methods for delivering information to, and sharing knowledge with, the populace helping create a more holistic and productive society. But in adopting these new initiatives, Singapore has also not lost sight of its corporatist form of government. Later in this paper, we shall review literature on corporatism to assert that Singapore is not only communitarian but also corporatist in its governance.

Singapore has almost two decades of experience in creating an innovative e-government framework. However, through the creation of its e-citizen portal—a one-stop service site—the government of Singapore has decisively moved to cement the citi-state’s approach to e-government as a business model. This approach of adopting a business model, we believe, is in keeping with the corporatist leanings of the country. Lee Kwok Cheong, the architect of e-governance in Singapore and the CEO of National Computer Systems, Pte. Ltd., said in a recent interview: “The citizens are the customers of the government…[so] you have to do everything to service your customers.” This is further evidence that Singapore continues to thrive as a corporatist government.

II. INTRODUCTION TO THE COUNTRY

Singapore is a cosmopolitan multiethnic society that is located just 137km north of the Equator. Its population of 4.16 million comprises 77% Chinese, 14% Malays, 8% Indians, and 1% belonging to many nationalities including Caucasians, thus accounting for wide variety in culture, language, cuisine, etc. English is the lingua franca with Malay, Chinese, and Tamil as the other three official languages. The major religions are Buddhism, Taoism, Catholicism, Christianity, Islam and Hinduism (Singapore Department of Statistics, 2000).

Since 1965, when Singapore became an independent republic, only the People’s Action Party (PAP) has held the reigns of power. During its 38 years of independence, this city-state has witnessed high economic growth, development of a robust infrastructure, low corruption in governance, and strong foreign investments, all of which have propelled Singapore from a Third World nation in the 1970s to a developed nation today. Singapore is currently the 12th largest trading partner of the United States and the second largest Asian investor in the U.S. and ranks amongst the most competitive economies in the world. The republic recently signed a Free Trade Agreement with the United States, set to become operational in January 2004, that not only heralds increased economic opportunities between the two countries but also signals long-term U.S. economic commitment towards Singapore. As a result, a new wave of multinational corporations is expected to enter the local market just as Singaporean companies begin their foray into the US market in increasing numbers (U.S. Chamber of Commerce, 2003). It is in this context that we have conducted the following analysis of the e-governance initiatives in Singapore, which has set as one of its developmental goals, making the city-state a Knowledge-based economy (KBE).
1. Singapore as a Corporatist Country

We believe that some of the concepts of corporatism apply very well to Singapore. As a political theory, corporatism has a long history originating in the medieval tradition of divine authority and later being associated with Catholic political and social theory. While highlighting the malleability, and therefore the lack of a universally accepted definition, for the term scholars such as Therborn have tried to define it with references to God stating “Corporatism has become a bit like God… Nobody really knows what it looks like, so disagreement persists… about what it is and what it does. Such references are not surprising given the alignment of this term to Catholicism. Teulings and Hartog traced the origins of corporatist ideology to “nineteenth-century Roman Catholic thought as a type of social organization that is intermediary between capitalism and socialism.”

The underlying philosophy of corporatism is to give groups representing specific industries access to legislative decision making. Teulings and Hartog summed up the “key elements” of the diverse definitions of corporatism as involving “large, almost monopolistic organized interest groups; overt explicit interaction with the government; [and] coordination of actions within the organized interest groups across large segments of the economy.” Pekkarinen, Pohjola and Rowthorn identified two dimensions to what they called social corporatism: centralized wage bargaining (involving the government, labor unions, and employers), and a level of egalitarianism where economic assets and liabilities are shared equally based on a philosophy of solidarity.

Alegret identified four “historical dimensions of corporativism”: the ancient guilds’ corporatism, traditional or anti-revolutionary corporatism, state-controlled fascist-oriented corporatism, and technocratic or neo-corporatism. Because of their relevance to this paper, we shall only describe the final two dimensions. Alegret described state-controlled fascist-oriented corporatism thus:

Corporations are institutional instruments, which, under the state’s protection, have as their principal mission to exercise complete, and unitary discipline over the productive forces. Thus, with the advent of fascism the corporations became institutions subordinate to, and organically linked to, the State.

---

8 Ibid. p. 27
11 Alegret, Ibid. p. 6.
The author described neo or technocratic corporatism as:

The kind of corporativism best adapted to the development of modern societies, through which the right of decision-making is reserved for elites of technicians [technocrats] or of high-ranking civil servants… [with the objective] to eliminate, if not to avoid, open and violent conflict between the different groups of interests… while the State reserves for itself the roles not only of judge, but also that of interested party.\(^{12}\)

Singapore has often been referred to as Singapore Inc. by observers and with good reason. Institutional Investor reported that six of Singapore’s top ten listed companies are wholly or largely owned by the government. As a result, government enterprises account for 12.9 per cent of Singapore’s GDP.\(^{13}\)

The government has even given “shares” to citizens that they can exchange whenever they want for cash like other publicly traded stocks. This is why the neo-corporatism concept is so apt for Singapore. However, some would argue that the state-controlled model would apply very well also to the city-state. For example, while reporting on an interview conducted with Mr. Lee Kwan Yew, widely recognized as the architect of Singapore, Hamlin\(^{14}\) referred to Mr. Lee as “the micromanager of one of the most successful (and controversial) socioeconomic experiments of the latter half of the 20\(^{th}\) century.”

### III. RESEARCH QUESTIONS

Our analysis is based primarily on a review of relevant literature on the key variables pertinent to this paper, which will be presented below. In addition, we interviewed a senior consultant of the e-government planning and management division of the Infocomm Development Authority of Singapore.

The following research questions guided our literature review and analysis:

1. How compatible is e-governance with the political and societal culture of Singapore?

2. What role does education play in Singapore’s transition to a knowledge-based economy?

3. What basic infrastructures must be in place for the successful implementation of e-governance?

---

\(^{12}\) Alegret, op. cit. p. 6.


\(^{14}\) Hamlin, K., Institutional Investor, ibid., p. 2.
4. What impact has e-governance had on such things as accountability, transparency, and public participation in government decision making in Singapore?

5. What tangible benefits has e-governance brought to Singaporean society?

6. What challenges has the government of Singapore faced in establishing e-governance? And

7. What lessons does Singapore’s case study offer to countries, especially in Asia, who may be seeking to implement e-government initiatives?

IV. WHAT IS E-GOVERNMENT?

Governments have not been immune to the impact information and communication technologies (ICT) have had in our society. The concept of e-government involves using ICT—such as the Internet—to deliver public services. But e-government is not limited to using computers to deliver services to citizens. Governments that define e-government as simply moving services online, said Caldow, “miss larger opportunities which will determine competitive advantage in the long run.”

Thus, e-government involves a complete change in the way services are delivered to citizens—faster, more convenient, cheaper and at any time of the day or night. In short, e-government is “government” as most people have never experienced it before. According to Milner, “public services by their very nature have not been predisposed to speed of delivery; rather, they have typically been viewed as being inward facing, overly bureaucratic and focused rather more on procedure than on delivery.” Moreover, continues Milner, “flexibility also is not a noted public service trait, with complex roles of governance producing over time deeply entrenched views of service domains with overly territorial characteristics predominating.”

But with the advent of e-commerce and the ease of obtaining information online, people’s expectations of “good service” have moved beyond the private sector. As Holmes said, as a result of the information revolution, citizens “will become less tolerant of poor, impersonal service in the public sector.” The changes brought about by e-government affect not only citizens—now called “customers”—but also the way public bodies interact with citizens, businesses, and even other public agencies. According to Holmes, the e-government movement is driven by the need of government to cut costs and improve efficiency, meet citizens’ expectations and improve relationships with citizens and facilitate economic development.

---


17 Milner, p. 1.

18 Holmes, p. 3.


20 Holmes, p. 2.
This new way of delivering public services involves some truly revolutionary changes such as integrating all government services into one platform. No longer will citizens have to know which agency is supposed to perform a particular function. Instead, the trend is to provide “seamless government,” which according to Dionysius, has become “a strategic theme in twenty-first century governance aimed at achieving integrated customer service outcomes through horizontal (across local authorities) and vertical (between levels of government) alignment of public sector administrators. The model delivers services from the point of view of the customer who prefers to have an event or situation taken care of by one, or at most a few, service provider(s).”

According to Caldow, there are seven leadership milestones integral to both becoming an e-government and running an e-government. Achieving these milestones, she argued, can create competitive advantages for governments. The milestones Caldow listed are: (1) integration, (2) economic development, (3) e-democracy, (4) e-communities, (5) intergovernmental, (6) policy environment and (7) next generation internet. These milestones are not expected to be either sequential or discrete. Instead, all seven are required if governments wish to be successful in implementing e-government strategies. First, integration means that citizens expect to find services online instead of having to search for the appropriate agency. This translates into the need for governments to create web sites that offer an array of services independently of organizational structures and agency domains. According to Caldow, a truly efficient e-government must integrate its networks to create a “total customer experience.” One of the best examples involves the integration of revenue collection functions—such as taxation, licensing, royalties, etc.—into a single platform. Ultimately, said Caldow, “integration requires both process integration and technical integration. A business perceives the task of ‘open a business’ as a single objective with government, whereas government perceives it as multiple steps with multiple transactions.”

Second, integration can not only facilitate interactions between businesses (or citizens) and the government, but it can also lead to economic development. Can governments efficiently and expeditiously handle permits and other transactions with businesses? Those who are able to do so will have a competitive advantage over those who do not. Third, improved levels of efficiency and economic development are not the only advantages of an e-government strategy. E-government can also transform the democratic process. E-democracy can improve the communication between elected representatives

---

22 Caldow, p. 17.
23 Caldow, p. 17.
24 Caldow, p. 18.
26 Caldow, p. 20.
27 Caldow, pp. 22-25.
and their constituents. It can also encourage greater citizen participation.\(^{28}\) For governments that wish to be more representative, e-democracy can help citizens learn about potential policy changes before they take place, providing them with the opportunity of giving input.\(^{29}\) *The World Economic Forum Report on Network Readiness for 2002-2003* reinforces this point by stating that offering government services online with some degree of interactivity helps involve citizens in the activities and reforms of the public sector and helps strengthen the democratic process.\(^{30}\)

Fourth, since government serves different segments of the society, e-government can facilitate addressing the needs of each one of those communities without having to invest too much. According to Caldow, once the basic e-government infrastructure is in place, facilitating and encouraging the development of *e-communities* will not require a big investment. The result is that the government can become more inclusive and provide opportunities for all citizens, regardless of their location.\(^{31}\) Fifth, just as governments can integrate all constituents into one e-government platform, they should also work toward integrating *intergovernmental* services. Those governments that effectively reduce the time and financial burdens of complying with multiple regulations and requirements will have a competitive advantage.\(^{32}\)

While many legislators feel overwhelmed by the number of complex legal issues surrounding the digital economy, it is imperative that governments address issues that will enhance the integrity of online transactions and promote access to ICT. According to Caldow, “taxation, digital signatures, authentication, privacy, the digital divide, consumer protection, intellectual property rights, and telecommunications deregulation have appeared on the legislative agenda of virtually every country, state/province and local governing body.” Thus, a *policy environment* that is flexible, efficient and effective will benefit governments, businesses and citizens.\(^{33}\) Finally, Caldow asserted that as e-services become easier to use and security standards improve, citizens will move into the *next generation internet* e-services—faster, always on, mobile and more user friendly and intelligent.\(^{34}\)

Overall, governments in the information society are becoming ICT facilitators and leaders. According to Lanvin, “the emergence of a digital economy has affected both the function and the roles of governments. On one hand, ICT have been instrumental in changing the ways in which governments and administrators operate; through

\(^{28}\) Caldow, p. 25.

\(^{29}\) Caldow, p. 25.


\(^{31}\) Caldow, p. 30.

\(^{32}\) Caldow, p. 31.

\(^{33}\) Caldow, p. 32.

\(^{34}\) Caldow, pp. 33-37.
informatization and decentralization…. On the other hand, the information revolution has played a central role in encouraging and enabling governments to accept new roles."\(^{38}\)

There are three major levels at which governments’ functions can significantly be affected—and generally improved—by ICT:

1. **E-Government.** This applies to inter-organizational relationships and includes policy coordination, policy implementation and public service delivery.

2. **E-Administration.** This applies to inter-organizational relationships and includes policy development, organizational activities and knowledge management.

3. **E-Governance.** This applies to interactions between citizens, government organizations, and public and elected officials, and includes democratic processes, open government and transparent decision-making.\(^{36}\)

Singapore has an impressive record in terms of the first two factors. For example, Singapore has been consistently ranked among the world leaders in terms of effective regulation, network readiness, and other measures of ICT development.\(^{37}\) The *World Economic Forum Report on Network Readiness for 2002-2003* stated that Singapore is “the shining star of government leadership” due to the willingness of the government to promote regulations and policies that facilitate ICT adoption.\(^{38}\) However, the report also suggests that in order to assume *leadership* roles, governments should involve civil society as much as possible in the policy decision-making process. Thus, in terms of e-governance achievements, Singapore’s efforts are still a work in progress.

---


\(^{37}\) See, for example, the World Economic Forum’s *Global Information Technology Report 2002-2003*.

IV. E-GOVERNMENT IN SINGAPORE

Although many government agencies around the world have web sites, e-government is more than that, as articulated very well by Holmes: “Rarely can a person log on to a government website and submit a form, make an appointment, inquire about a job, apply for social benefits, purchase a license or permit, pay a tax bill or a parking fine.”39 The ideal model of e-government, according to some non-government organizations such as the Center for Democracy and Technology, involves not only an online presence—or publishing—but also interactivity and the ability to conduct transactions online.40

1. Singapore’s approach to e-governance

Singapore is a veteran in adopting e-government initiatives. The first e-government plan was set in motion in 1980, when the government launched its Civil Service Computerization Program, which was part of the National Computerization Plan. Since then, the government has consistently adopted new technologies to change the way it delivers services to the public.41

In the year 2000, the government launched an e-government action plan geared toward making most of its services available online. After meeting that objective, the second part of the action plan, which began in 2003, focuses on better identifying customers’ needs, transcending organizational boundaries—in other words, integrating interagency services—and increasing the number of citizens that use the services. The government also plans to use the Web to explain the rationale for its public policies. In addition, the new e-government action plan will attempt to encourage citizens to provide feedback and contribute to the policy review process through electronic consultations.

2. The Structure of the e-government framework in Singapore

The E-government Policy Committee coordinates e-government services in Singapore. The head of the civil service chairs it while the secretaries of the various ministries comprise the rest of the committee. In addition, there is an e-government advisory panel, which is also chaired by the head of the civil service and is made of representatives from private and public sectors. The e-government initiative is under the Ministry of Finance (MOF), while the Infocomm Development Authority (IDA)—the country’s ICT regulator—provides technical advice, defines and recommends ICT policies and standard procedures to the MOF. In addition, IDA performs service-wide ICT master planning, manages the central ICT infrastructure and manages central ICT initiatives. In addition, secretaries of ministries, heads of organs of state and CEOs of the statutory boards are responsible for agency-specific ICT infrastructure and services within their own organizations. With the help of IDA, these public officials, among other things, align ICT policies, standards, projects, systems and infrastructure with the vision, business needs

and business priorities of the central authority. These officials also ensure that appropriate management attention as well as human and financial resources are allocated to ICT initiatives.  

2.1 Government to Citizen Portal

Singapore has been hailed as having one of the most advanced systems of e-government where citizens can log on to a government portal and access information about varied government agencies and also apply for services and submit information.  

The e-citizen website is a comprehensive one-stop portal for public information and services for citizens and businesses. The portal is organized in terms of live issues and events, such as education, health, etc. The portal is used widely, with 8.7 million hits in May 2003 alone. To access the portal, citizens and employment pass holders can sign up for a personal access password—the “Sing-Pass”—that authenticates their identity and allows them to access e-government services regardless of which agency customers are dealing with.  

There is evidence that e-government is widely used in Singapore. Seventy-five percent of those who transacted with the government in 2002 did so online at least once. In addition, according to the government, four in five e-government customers expressed satisfaction with the quality of service.  

2.2 Government to Business Portal

Businesses also have access to online information and services and can complete many transactions online. For instance, a new company can be incorporated online in two hours at a flat fee of SGD$300. When it was done manually, it took two days and it cost between SGD$1,200 and $3,500, depending on the size of the company. Businesses can also submit building plans online. When done manually, businesses had to bring documents to 12 different agencies. Now they can submit the plans online with a savings of SGD$450.  

3. Challenges faced by Singapore in implementing e-governance

In order to get the perspective of the planners and managers of the e-government program in Singapore, we sought responses from the Infocomm Development Authority (IDA) of Singapore via an e-mail interview. When we asked what challenges Singapore has faced

---

43 Holmes, p. 7. Also, Singapore’s e-government plans have been viewed favorably by numerous organizations, including Accenture’s annual global e-government reports and the World Economic Forum Network Readiness Index.  
47 The e-business website is part of the e-citizen website.  
in instituting the e-government scheme, Thomas Tan, a senior consultant at IDA identified two key challenges. The first is to find collaboration across different agencies in an effort to deliver integrated services. Tan stated:

Moving into the next phase of e-Government, the challenge is to deliver cross-agency integrated e-Services that will really bring greater value and benefits to the customer (citizens & businesses). Agencies need to look beyond their existing organisational boundaries and identify collaborative opportunities for Government as a whole to deliver quality and value-added services.

The second challenge may be an effect of Singapore’s own success as one of the fore-runners of e-government initiatives! Tan responded that striving for “e-government maturity” when there are so few examples to learn from is the next challenge for IDA. He stated that “customers” (citizens and businesses) not only expect but also “demand” something better all the time. So, according to Tan e-government leaders such as the US, Canada, and Singapore are looking not only at the “internal agency savings, nor how many service[s] we put on-line” but also at the “benefit of use for the e-services delivered.” In other words, utility of e-government initiatives is now a key factor in assessing success.

3.1 Role of education in acceptance of e-governance by citizens

We asked IDA the role that education has played (or is playing) in encouraging citizen and business "customers" to use e-government services. We also wanted to know which media outlets or marketing/promotion mechanisms the government has been using to build awareness among customers. Tan listed several programs that look at “IT manpower education and development.” He stated that the Infocomm Training Framework provides a “focus for the public, private, and people sector on the infocomm training needs of the different segments” of Singaporeans. It consists of five levels (L1-L5) of programs to enhance the infocomm skills among the population in such areas as basic computer literacy, workforce training, and infocomm manpower capability development, all aimed at enhancing the quality of life as well as employability of Singaporeans. In particular, Tan pointed to the National IT Literacy Program (NITLP) as an example. Tan stated that “NITLP is one of the key initiatives developed to address the training needs of the non-infocomm literate with the end goal of driving Singapore forward in building an infocomm-savvy society… [and] help trainees on how to use some of the e-government services.”

A second IDA-initiated national e-lifestyle campaign is e-Celebrations whose aim is to communicate the benefits of e-initiatives to businesses and busy working executives. The campaign focuses on four specific topics to be highlighted in four “thematic months:” Security and Trust, Telecommuting, Q-busting, and Digital Fun. Under the

---

49 E-mail interview with Thomas Tan, Senior Consultant, Infocomm Development Authority of Singapore, 10 September 2003.
auspices of the campaign, activities and events have been organized in each month to give hands-on-experience on these topics to the populace. The IDA has used myriad channels such as mass media, marketing/promotional campaigns, etc. to educate the masses about e-government initiatives.

4. Privacy and e-government initiatives

We asked IDA to provide us with the government’s privacy policies and whether it thought the average user knew about the government’s privacy policies especially since the 2003-2006 E-Government Initiative II expressly stated: “A government-wide policy on data protection ensures the privacy rights of users.” To this, Tan replied that the Government has a set of internal guidelines protection of data based on the Model Data Protection Code developed for the Singapore private sector in December 2002. He added that all government websites list the Government’s Privacy Statement and that:

The guidelines apply to managing personal data in the public sector, with specific carve-outs for data required by law, security and national interests. These carve-outs are common in jurisdictions worldwide and Singapore's are consistent with international practice. They ensure that public sector agencies are able to carry out all their statutory and regulatory duties.  

V. SINGAPORE AS A KNOWLEDGE-BASED ECONOMY

We believe that having an educated populace is a key prerequisite for the citizens to learn about, and adopt, e-government initiatives. Having described the status of e-governance in Singapore, this section describes the development of Singapore as a Knowledge-based Economy (KBE) by first defining KBE. Although there is no universally accepted definition, it is widely believed that KBE involves the harnessing of knowledge for

---

52 "GOVERNMENT OF SINGAPORE PRIVACY STATEMENT"

1. This is a Government of Singapore website. Thank you for examining our privacy statement.
2. If you are only browsing this website, we do not capture data that allows us to identify you individually.
3. If you choose to make an application or send us an e-mail for which you provide us with personality identifiable data, we may share necessary data with other Government agencies, so as to serve you in a most efficient and effective way, unless such sharing is prohibited by legislation. We will NOT share your personal data with non-Government entities, except where such entities have been authorised to carry out specific Government services.
4. For your convenience, we may also display to you data you had previously supplied us or other Government agencies. This will speed up the transaction and save the trouble of repeating previous submissions. Should the data be out-of-date, please supply us the latest data. We will retain your personal data only as necessary for the effective delivery of public services to you.
5. To safeguard your personal data, all electronic storage and transmission of personal data are secured with appropriate security technologies.
6. This site may contain links to non-Government sites whose data protection and privacy practices may differ from ours. We are not responsible for the content and privacy practices of these other websites and encourage you to consult the privacy notices of those sites."
national development. The Economic Committee of APEC described KBE as “an economy in which the production, distribution, and use of knowledge is the main driver of growth, wealth creation and employment across all industries.”

Singapore began its developmental activities immediately after it became a republic in 1965 primarily by attracting multinational corporations and foreign talent—importing knowledge for national development. However, it was not until the early 1990s that the country turned its focus toward the actual creation of knowledge. As early as 1995, Singapore identified becoming a Knowledge-Based Economy (KBE) as its goal and sought to connect the island to the world through the Internet. The success of the country in achieving this goal has allowed it to position itself as the “Silicon Valley of Asia,” attracting a steady stream of foreign investments. But how does one evaluate whether a country has reached the state of becoming a Knowledge-based Economy?

The World Bank has identified several criteria for mapping the development of KBE: knowledge creation, knowledge acquisition, knowledge dissemination, and knowledge application. Using these benchmarks, the following sections highlight some of the key findings of the report by the Economic Survey of Singapore on the country’s progress toward becoming a full-fledged KBE.

1. Knowledge Creation

The first indicator of a knowledge based economy is whether a nation is engaged in the creation of knowledge. Two factors were used to assess Singapore’s capabilities in creating knowledge. First, the expenditure of the nation-state on Research and Development as a percentage of GDP, which has risen steadily from 0.9 per cent in 1990 to 1.9 per cent in 2000. This is a significant growth pointing to the development of the republic as a KBE. However, it is important to note that despite this spurt in growth, Singapore is over one per cent behind Japan, and close to one per cent behind the US and South Korea on this indicator. This signals that the country has much more ground to cover to be on par with some of the Asian leaders in KBE and the US.

The second indicator that signals a country’s growth toward knowledge creation is the number of researchers per thousand population, because researchers are engaged in creating new information – whether it is basic or applied research. In the year 2000, Singapore had 4.8 researchers per thousand residents. Significantly, Singapore was on par with Taiwan, Canada, and the US on this benchmark although it lagged behind Japan.

---

55 Toh, et. al. ibid (p. 58).
There has been a significant increase in the number of patents registered annually, which has risen steadily from 25 in 1990 to 304 in 2001.

2. Knowledge Acquisition

This second indicator of a KBE refers to the extent to which a country strives to acquire new knowledge in addition to help create it, as described above. Singapore has enhanced its capability in the area of knowledge acquisition by such measures as following a policy of aggressively attracting multinational corporations (MNCs) to Singapore and establishing a state-of-the-art ICT infrastructure to help attract cutting edge industries. Three factors were used to assess Singapore’s progress vis-a-vis this variable. First, technology balance of payments (BOP) imports as a percentage of total imports, which indicate that the nation is driving toward improving technology infrastructure. The BOP rose from 1.8 % of total imports in 1995 to 3.3 % in 2000, which is a significant increase. By comparison, OECD countries had an average of only 1.2 per cent in 2000.

Second, the number of head/regional offices of multinational companies is another factor that contributes to the growth of a country as an international hub for manufacturing activity. By bringing in expert staff and best practices, these firms help the country’s quest for knowledge. On this factor, Singapore showed an increase from 19 offices in 1990 to 274 in 2000, which is quite a significant jump. Finally, the number of Value added Knowledge Intensive Business Services (KIBS) also grew remarkably from S$ 1.1 billion in 1990 to S$ 4.7 billion in 2000. This signals that in addition to a growth in MNCs, local enterprises have also increased their KIBS leading to greater diffusion of global innovative practices within the country. This bodes well for the self-reliance of the country on these aspects in the future.

3. Knowledge Dissemination

The Economic Survey of Singapore (ESS) noted that although Singapore has made good progress in enhancing its knowledge dissemination capability by emphasizing development of ICT infrastructure and education, it lags behind world standards because upgrading the country’s education profile is a slow and long-term process that has to take place with demographic changes. Further, the continued high cost of telecom prices in the nation-state, despite a steep drop following the liberalization of the telecom sector in April 2000, has impeded knowledge dissemination. Three indicators were used by the ESS to chart Singapore’s growth on this variable. First, Singapore’s ICT expenditure was 8.4 per cent of GDP in 2000 and 8.8 in 1999. Based on 1999 figures, Singapore ranked ahead of Canada, Japan, the US, Finland, and South Korea indicating that Singapore has one of the best ICT infrastructures in the world. These figures also earned it top rankings in the World Competitiveness Yearbook and Global Competitiveness Report. Second, it is obvious that knowledge dissemination is dependent on the infrastructure available in a country. One of the primary indicators of infrastructure for knowledge dissemination is the cost of Internet access because of the Internet has become so ubiquitous in developing countries. Singapore comes up short not on the infrastructure itself, but on the cost to use

---

57 Toh, p. 62.
it because Internet costs as a percentage of GDP were about 30 per cent higher in Singapore than in the U.S. The Infocomm Development Authority (IDA) also found in its survey in 1999 that cost was the biggest deterrent to computerization in the workplace in Singapore.38 Third, the level of education the workforce is another clear indicator of knowledge acquisition. The proportion of Singapore’s workforce who had at least secondary education grew from 51 per cent in 1990 to 63 per cent in 1999 and 66 per cent in 2001. This was not very far from the OECD average of 70 per cent, which puts Singapore among the economic leaders of the world on this factor.

4. Knowledge Application

How members of a society apply the knowledge they have acquired says a lot about the nature of KBE of the country. The level of entrepreneurship in a society is one of the indicators of knowledge application and Singapore lags behind other advanced KBE societies on this variable. SM Lee Kwan Yew stated that “an East Asian reverence for scholarship” is at the heart of the lack of entrepreneurship in the city-state.39 The World Competitiveness Yearbook, Global Competitiveness Report, and Global entrepreneurship monitor 2000 all pointed to the dearth of entrepreneurship in Singapore as lags behind the US, Canada, Taiwan, and South Korea in this indicator. It is only ahead of Japan. As a result, the government is now asking Singaporeans to take risks as part of its “remaking Singapore campaign,” which we shall describe later in this paper.

Development of tertiary education is the second indicator of knowledge application and Singapore’s workforce with university education has grown steadily from 6.2 per cent in 1990 to 17 per cent in 2001. But the country lags behind the US (30 per cent) and Japan (20 per cent) and South Korea (19 per cent) on this factor. The number of knowledge workers as a percentage of workforce, a third indicator, showed that knowledge workers constitute 36 per cent of the labor force compared with 47 per cent in the US, 36 in Japan and 18 in Korea.

VI. INITIATIVES TO PROMOTE ACTIVE CITIZENRY

Now that we have described e-governance in Singapore and the development of Singapore as a KBE, we next focus on two government initiatives that have tried to promote a more active citizenry: Singapore 21 and Reinventing Singapore.

1. The Singapore 21 Initiative

In the professed effort to increase the cohesiveness of the society while increasing public participation in policy making, Prime Minister Goh Chok Tong set up a committee in August 1997 to “strengthen the intangibles of society like social cohesion, political

---

38 Infocomm Development Authority of Singapore (1999). Key findings of ICT usage survey 1999 on the ICT Adoption by businesses in Singapore.
stability and the collective will, values and attitudes of Singaporeans.”⁶⁰ After conducting 80 public forums, numerous surveys, and setting up a web site, the Singapore 21 Committee received feedback from over 6,000 members of the society identifying five ideas as the heart of the Singapore 21 vision. A program addressing these ideas was launched in 1999.

1.1 Every Singaporean Matters

This program exhorts Singaporeans not to value only academic or material wealth (something that even Singaporeans admit they do) but to value every citizen for possessing other equally (or more) important qualities such as character, courage, commitment, compassion and creativity.

1.2 Opportunities for All

The program encourages Singaporeans to reach their full potential not just economically but also in other areas such as the arts, sports, and entertainment. To foster an environment where this can happen, the nation welcomes foreign talent at high costs and tries to make education available to all regardless of class or race.

1.3 Strong Families

In line with the cultures of Asia, the government recognizes that the family is the basic foundation from which life grows. It is the government’s view that because the young reach higher levels through the nurturing of the family and elders pass on values to the younger ones through the family, Singapore must encourage citizens to continue to look toward the family as a strong foundation on which everything else rests. The government recognizes that families will turn nuclear as time passes and both parents will work in demanding jobs, which is why it exhorts family bonding so as to avoid bad influences from the media and other sources on young minds.

1.4 The Singapore Heartbeat

The government recognizes that in a globalizing world young Singaporeans will want to explore the world and may even want to study, live, and work outside of Singapore. Therefore, it does not want globalization and the resulting influences of other cultures to weaken the “bond” that Singaporeans feel toward the nation. As a result, under this initiative, the government exhorts every Singaporean to “develop a stronger sense of belonging to this country and embrace a common vision of the country as a home worth returning to and if need be, fighting and dying for” reminding Singaporeans that they should try to return home.

1.5 Active Citizens

This initiative exhorts Singaporeans not to let governance solely in the hands of the government but “become participants, not mere observers, in building the Singapore … [of] the future.” 61 This, we believe, is an invitation by the government for citizens to participate in public policy making. We find this to be a key initiative (and even a shift in the government’s stance) because although technically labeled a parliamentary democracy, Singapore has been criticized by political observers such as Chua, 62 Ho, 63 and Yuen 64 for a lack of pluralism despite its economic success. There does appear to be room for criticizing the government as evidenced in an exchange in 2000 between a newspaper columnist and a minister on the issue of high ministerial salaries. The reporter, commenting on a further increase in ministerial salaries, wrote:

Never has an issue been more caught in a tangle of complicated logic and fractious emotion, or resulted in a wider gap between government thinking and people feeling… In essence, the Government's stand is that of hard pragmatism and the people's that of moral idealism. 65

The last sentence was an allusion to the government’s assertion that it wants to hire non corrupt public servants by paying them well whereas the masses would prefer ministers who prefer servitude to monetary returns. Lim argued that the government typically calls for robust public debate on issues but then ignores public sentiment when it comes to making policy decisions on the issue. The author stated, “the [mass] media duly wrap up the debate, and the people withdraw and return once more to the concerns of their busy lives.” The author concluded “with all earnestness, sincerity and humility, … this stance of the Government will no longer work in the new age of a globally exposed, younger, more articulate, impatient and restless generation of Singaporeans.”

Minister of State for Defense and Information and the Arts David Lim responded to the commentary by C. Lim by stating that “The Government is open and transparent about its policy on ministers' pay. This is in the spirit of Singapore 21… There is no contradiction between receiving a fair wage and being committed to serve the public and work for the well-being of the country.” 66 That was the end of the debate on this issue.

2. The Remaking Singapore Initiative

The government launched the “Remaking Singapore” initiative in February 2002 in an effort to evaluate the challenges that the country faces in a global and more competitive environment. The consultation process, which was the underpinning to this process, took 12 months as the Remaking Singapore Committee (RSC) engaged in 65 consultation.

---

63 Ho , 2000, op. cit.
64 Yuen, 1999, op. cit.
65 Catherine Lim, The Straits Times, 26 August 2000.
66 The Straits Times, 31 August 2000.
sessions with more than 10,000 people—including local residents, students, religious and ethnic groups, grassroots organizations, young professionals, members of the business community, arts groups, youth groups and Singaporeans living overseas.  

In the report that resulted from the inquiry, the RSC recognized that a more educated and more mobile population expects more involvement in the country’s affairs. As a result, the report indicated that the government will introduce legislation to allow overseas Singaporeans an opportunity to vote. The report also acknowledged that the government has to adopt “a less prescriptive role, and play a more facilitatory role.”

For the purpose of this study, the most relevant recommendations of the report are those involving citizen participation, freedom of expression and transparency in governmental decision-making. Those recommendations, many expected, would lead to a more participatory society. But to the dismay of some and the surprise of few the recommendations were fairly conservative. The report stated that “Singapore suffers from a perception of being tightly regulated.” But these regulations on free speech “are necessary in Singapore’s multi-racial and multi-religious society to limit the risk to public and social order.” The report added that the government would try to find “a new balance that maintains law and order and yet does not stifle the creativity of our people.” However, any relaxation of the rules must be accompanied by “corresponding increases in accountability” on the people wishing to express themselves.

The report then went on to discuss potential ways to promote “artistic” (as opposed to political) expression. Since anyone wishing to engage in a public discussion (artistic or political) must obtain an entertainment license, the report suggested streamlining the registration process and providing clearer explanations of what kind of content would be considered unacceptable (i.e. content that could cause “racial/religious enmity”). The report also mentioned the fact that Singapore already has “designated spaces” where people can engage in expressive activities—the so-called “speaker’s corner” at a local park.

To promote a more active citizenry, the report recommended that the government should institutionalize a process by which “government agencies clearly indicate, as part of any announcement on policy changes, which groups have been consulted, what views were expressed, which suggestions have been adopted and the reasons why some suggestions

---

69 RSC Report, p. 20.
70 RSC Report, pp. 42-51.
71 RSC Report, p. 42 (emphasis added).
72 RSC Report, p. 42.
73 RSC Report, p. 42.
74 RSC Report, p. 43.
75 RSC Report, p. 45.
have not been adopted.”76 In addition, the report recommended that the government should draft a code of consultation “providing guidelines and minimum standards on when and how the public should be consulted.”77

Some critics feel the report fell short. For example, among the recommendations that did not achieve a majority of votes within the committee were those involving a change in the country’s defamation laws,78 which government critics claim are used to bankrupt anyone who dares criticize incumbent government officials.79 Another rejected proposal involved enacting a Freedom of Information Act to enable journalists to request and receive information from ministries and government agencies.80 Finally, recommendations to liberalize the local media, which is party-owned by the government, were also rejected.81

The Think Centre, a local political non-government organization,82 criticized the report as a ploy:

The PAP [the People Action Party, the party in power] is pouring old wine into new bottles to market themselves as a party that listens to feedback and a party that can be radical. This is not true. The PAP does not listen to feedback and nearing its fiftieth anniversary the party has successfully transformed itself as the bastion of Confucianist Conservatism…. These recommendations serve only two purposes. One, to provide some boost in self-image for PAP activists and the believers that they serve a party that has some compassion for the common man. Two, to provide the necessary mirage to gain the apathetic Singaporean vote on the pretext that they care and listen and act upon feedback.83

Some critics—mostly Singaporeans living overseas—have decried the lack of civil participation and interest in free speech among Singaporeans.84 While many citizens freely comment on issues related to public transportation fare hikes, education reform and its impact on children and families, social courtesy and traffic woes in The Straits Times

76 RSC Report, p. 48.
77 RSC Report, p. 50.
78 RSC Report, p. 84.
80 RSC Report, p. 86.
81 RSC Report, pp. 85-86.
82 The Think Centre an “independent, multi-partisan political non-governmental organisation (NGO) in Singapore. The Centre aims to critically examine issues related to political development, democracy, rule of law, human rights and civil society. Think Centre's activities include research, publishing, organizing events and networking.” See, http://www.thinkcentre.org/aboutus/index.cfm (last accessed on 5 September 2003).
letters to the editors, harsh criticism of specific policy initiatives or the actions of government officials seldom appear on the newspaper.

In 2000 the government allowed the creation of a “speakers’ corner” at a local park, based on London’s famous Hyde Park forum. However, participation in that public forum has been limited, mostly because individuals wishing to speak had to register with the police and their speeches had to avoid any issues that incite racial or religious hostilities or compromise sovereignty or national security—the so-called “OB (out of bounds) markers.” In addition, speakers were subject to Singapore’s strict defamation laws, which according to some media reports, “have bankrupted opposition politicians and other government critics.”

**VII. CASE STUDY ONE: THE IMPACT ON E-GOVERNMENT IN PROMOTING ACTIVE CITIZENRY**

The Singapore government has begun to use the e-government platform to promote greater civic participation. For example, in addition to the general e-citizen portal, there are two additional sites asking for suggestions on how to cut waste of resources and how to cut red tape. Citizens and government employees—and in the case of the “how to cut red tape” site, businesses—are encouraged to provide constructive feedback with the promise that their suggestions will be kept confidential and will be referred to the appropriate ministry should they be considered worthy of implementation. Citizens have the choice of writing directly to a ministry or to simply provide feedback to the general site, which in turn forwards the comments or recommendations to the appropriate governmental entity. Finally, there is a feedback portal where citizens can ask questions about issues of concern. The site features both the questions (without disclosing the identity of the citizen) and the responses from the appropriate agency.

To encourage feedback from citizens, the government instituted “feedback units” where groups of ordinary citizens interested in a particular issue could come together and discuss the issue and provide feedback to the government. Further, it is mandated that members of parliament set aside a time slot each week to meet with members of their constituencies.

The government has also instituted a series of awards to encourage civil servants, public agencies and citizens to provide feedback on how to make government operations more efficient. For example, public officers can make suggestions on how to improve services and could receive the Power Suggestion Award. Agencies that are successfully nurturing

---

85 OB markers means over the bound markers, or topics that drift into a danger zone, prescribed by the government because of the potential for causing racial/religious disharmony or threatening national security and stability.


and implementing an attitude of public service excellence in terms of “high standards of quality, courtesy and responsiveness” can receive a Public Service Award. Finally, the government has created awards for citizens who make useful suggestions—the Excellence in Public Suggestions Awards.

But exhorting citizens to provide feedback on the policies of the government is not going to be achieved simply by creating an efficient, integrated, interactive and transactional e-government infrastructure. For example, while the government created a website where citizens can suggest ways of cutting wasteful government spending, it is not clear whether or not the site has received a great deal of feedback. A story in *The Straits Times* indicated that the newspaper had received almost 100 calls and e-mail messages with suggestions from readers on how the civil service could cut costs. However, the newspaper indicated that the “cut waste” website had received only a dozen or so suggestions. It is not clear why the newspaper received so many suggestions while the government site received only a handful.

**VIII. CASE STUDY TWO: TOWARD MORE TRANSPARENT POLICY-MAKING**

In comparison to some of its Asian neighbors, Singapore is making progress toward a more transparent policy-making process. In a case study on effective telecommunication regulatory practices, the International Telecommunication Union (ITU) discussed Singapore’s efforts to become more transparent in its policy-making in the telecommunications sector. The ITU has consistently heralded the importance of transparency because it leads to more fairness in the regulatory process. While the context/focus of the ITU case study was the telecommunications sector, the following statement rings true across all aspects of a country’s decision and policy-making:

> Transparency not only helps the public and the regulated industry, it can help regulators as well. Transparency allows regulators to gain information and consult all stakeholders, thus building some political consensus for their decision. It also allows regulators to justify their actions by citing the facts provided to them and by making cogent arguments that those actions will serve the public interest.

Transparency also lends legitimacy to governmental actions. At a time when some governments are going through challenging economic times and have to make difficult—and often unpopular—decisions, allowing the decision-making process to be

---

91 Helmi Yusof, “Bricks are red, so why paint HDB blocks red?” *The Straits Times*, 5 September 2003, p. 3.
92 The ITU is an organization that coordinates the actions of member states with the private sector in terms of telecommunication networks and services. See, (last accessed on 5 September 2003).
95 Ibid, p. 97.
more open and transparent can lead to a public that is better informed about the rationale for those tough government actions. In addition, transparency also promotes confidence among foreign investors.  

The ITU concluded that transparency is growing in Singapore. The organization found that in the telecommunications sector the country’s regulator—the Infocomm Development Authority (IDA)—has begun to recognize the value of transparency, especially in regards to public consultation. The agency requested comments from interested parties when it was developing a code that would guide competition in the provision of telecommunication services. After receiving comments, IDA revised its code by incorporating relevant comments and suggestions that were submitted by interested parties. Likewise, when the regulator drafted a Reference Interconnection Offer that forced the dominant operator SingTel to allow interconnection with competing operators, the agency also followed a public consultation process. These two cases are cited by the ITU study as examples of how IDA is moving toward a more open regulatory process. However, the organization also acknowledged that there was room for improvement. For example, IDA’s board meetings are closed and telecom operators interviewed by the ITU staff said that they did not know how the agency reached its decisions. In addition, the regulator does not publish its opinions nor has clear procedures for public participation.

Other government bodies request public comments and provide some opportunity for public consultation, such as the Ministry of Finance which had a public consultation link in its website on income tax reform. But, the problem is that the number of citizens aware of these public consultations may be small. For example, on the consultation related to the tax reform, there were only 28 comments—15 from individuals, five from professional or business associations, four from accounting firms, and four from companies.

Since there is no formal public consultation process requirement, it is pretty much up to individual government entities to decide whether to seek public comments and there are no guidelines to promote awareness that such consultations are taking place.

IX. ANALYSIS AND RECOMMENDATIONS

While freedom of speech in Singapore is rather restricted and self-censorship abounds, there is no doubt that Singapore has embarked on a self-examination process that is likely to continue. Setting up an efficient e-government infrastructure that seeks to promote a more involved citizenry was an important step. But the government needs to do more.

If citizens are encouraged (and indeed expected) to participate more actively in policy-making, they need to be aware of what the government plans to do. It is not enough to promote public consultations on the websites of ministries. The government should use

---


97 Effective Regulation Case Study: Singapore, p. 47.

traditional mass media—along with the Web—to promote on a regular basis the various public consultation initiatives. For example, the government could publish every week in the local newspapers, a list of all the open public consultations with Web site addresses where citizens can seek more information. Over time, citizens will come to expect such regular columns.

In addition, the government should set up a formal process that requires all ministries and other government bodies to follow set procedures on public consultation. If there are concerns about efficiency, the time period for submitting comments need not be overly lengthy. What is important is that citizens have adequate opportunities to participate. For those opportunities to exist there needs to be a mechanism that promotes public consultation initiatives and reduce the perception that “big brother” is watching.

In terms of transparency, the SARS epidemic was an example of how transparency worked to the benefit of the country. As China’s lack of transparency and candor was debated and criticized, Singapore opted to follow the route of openness. Thus, on that score there is evidence that the country is moving ahead. As Goh Seow Hiong, attorney and former Deputy Director of the Infocomm Development Authority’s Policy Division, has said:

> Singapore has demonstrated that it can make tough decisions when the situation warrants it. Even “sacred cows” can be reviewed when it is necessary… We need to be aware of the level of transparency of governments in developed countries, and how their actions and decisions are open for scrutiny by the public and the media. Singapore’s current standard of transparency and openness, albeit high compared to many countries in Asia, is still some distance from the developed countries standard… Our fundamental challenge is in finding and articulating a new balance between Singapore’s economic aspirations versus our philosophy and values as a society. The globalised nature of the economy and external forces that are upon Singapore suggest that inevitably, the current point of balance needs to move towards an even more open and liberal mindset.  

We believe that certain elements of communitarianism also seem to fit the Singaporean model of governance in general that flows over to e-governance in particular. Communitarianism originated in the Anglo-American response by critics of Rawl’s liberal assertion that the primary task of governments is to provide for a fair distribution of the liberties and economic resources that citizens need to lead life the way they choose to live. According to Garfinickle, “[c]ommunitarians recognize that a healthy society must have a correct balance between individual autonomy and social cohesion” Along the same lines, the responsive communitarian platform stated:

> The best place to start is where each new generation acquires its moral anchoring: at home, in the family. We must insist once again that bringing children into the

---

101 See, [http://www.gwu.edu/~icps/about.html](http://www.gwu.edu/~icps/about.html) (last accessed on 3 September 2003).
world entails a moral responsibility to provide, not only material necessities, but also moral education and character formation.\textsuperscript{102}

We believe that this is very much consonant with the “strong families” value of the Singapore 21 initiative and is summed up aptly by the Institute for Communitarian Policy Studies based in George Washington University:

Communitarianism is essentially an optimistic approach to issues of public policy. While mindful of human tendencies to act in self-interested ways, Communitarians believe that it is possible to build a good society based on the desire of human beings to cooperate to achieve community goals that are based on positive values.\textsuperscript{103}

Singapore has been trying for decades to stress community goals over individual ones. However, the government’s campaign to build a strong and cohesive community probably went too far and as a result of that personal entrepreneurship suffered. Now, Singapore has been trying to stress individual risk-taking and entrepreneurship as a good value for citizens to imbibe, as alluded to earlier in the paper. Whether, and to what extent, Singaporeans will adopt this is yet to be determined.

\textsuperscript{102} See, \url{http://www.gwu.edu/~ccps/platformtext.html} (last accessed on 3 September 2003).

\textsuperscript{103} See, \url{http://www.gwu.edu/~icps/vision.html} (last accessed on 3 September 2003).