
Information Policy Country Report: **Singapore**

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Table of Contents

Executive Summary.....	4
Introduction.....	5
Telecommunication Policy.....	5
Programs.....	5
Regulation.....	6
Telecommunication Service.....	8
Privatization.....	8
Competition.....	9
Competition Law and Policy.....	9
Industrial Policy.....	11
Investment Policy.....	13
Intellectual Property Policy.....	16
Copyright.....	16
Trademarks.....	17
Patents.....	17
IPOS Online System.....	18
Privacy.....	18
Security.....	19
Freedom of Information.....	21
Digital Governance Policy.....	22
Background.....	22
E-Government: Citizens' Perspectives....	24
Conclusion and Recommendations.....	25
Appendix.....	27
Sources Cited.....	28

Executive Summary:

Singapore represents a fascinating case study for information policy. The city-state is unique due to its geographic location, its diverse multicultural population, and its neo-corporatist system of governance. With its population of almost five million people, Singapore has become world renowned for its economic success, an incredible turnaround from its position as a former British-colony, mired with race riots in the 1960s. However, the governmental means used to achieve this economic success are not necessarily applicable to the new information economy. For example, using state-owned companies and subsidies does not always bode well with partners in free trade agreements and the Internet presents new problems regarding data security. In response to these challenges, the Singapore government has launched a broad range of policies and initiatives to cope with the information age.

The Singapore government has developed a comprehensive telecommunication policy meant to foster an intelligent nation. The country has extraordinarily high levels of penetration of broadband usage and mobile phone service. The government has created schemes meant to encourage facility-based competition rather than service-based competition.

Singapore's government has launched a number of initiatives to encourage private competition and innovation. This was seen with the privatization of several large IT companies and the introduction of an oversight committee to ensure fair competition. Although the government maintains mechanisms to ensure the best interests of Singapore, the policy changes do encourage private competition.

Likewise, the government has also attempted to greatly change the way it functions with with intellectual property. Once seen as a haven for the piracy of IP, Singapore has drafted comprehensive IP laws and launched public awareness programs. In addition, the government has understood the importance of patents, seeking to establish a system that both leads Southeast Asia and functions co-operatively with the international community.

Singapore has adopted APEC's Privacy Framework, which consists of two parts: 1) nine privacy principles and 2) facilitation of cross-border data transfers for business transactions. Singapore uses a combination of infrastructure plans and legislation to protect its information security: the Infocomm Masterplan 2 insulates against cyber attacks and the Computer Misuse Act is an example of a security-related information law. Singapore regulates media content through the Media Development Authority and takes active measures against pornography, issues of libel, and racially motivated hate speech on the Internet.

Singapore is a world leader in e-government enabling access to an E-Citizen Portal that centralizes and streamlines communication flows between government agencies and between the government and its citizens. While Singapore has undoubtedly implemented these e-government initiatives successfully, the government still faces many broader challenges addressing the nature of democracy. The new digital environment has strained the relationship between individuals, society at large, and the governing body who at best attempt to stimulate citizen participation and at worst control information and limit the growth of democracy.

Introduction:

Singapore is a small city-state characterized by its rapid economic development and rise as a world power in the past few decades. According to the CIA's The World Fact Book, Singapore had the eighth highest GDP in the world in 2008. The Singapore government has played a leading role in promoting this development as the central provider for infrastructure, social services, and the main proponent for competition and partnership for private enterprise at the local and international level. With the onset of the Information Age, Singapore has adapted to and constructed new roles for the government. While Singapore has no doubt achieved high levels of economic success, it has experienced various degrees of success with IT development. This paper investigates five of the following IT realms: telecommunications policy, privacy, competition law and policy, intellectual property rights, and digital government.

Telecommunication Policies:

Programs

The Singapore government has launched many projects to develop information and telecommunications industry. The national information technology plan in 1986 promoted continually upgrading the telecommunications infrastructure and in 1989 Singapore became the first country to have a national Integrated Service Digital Network capable of carrying voice, video, and data communication (Wu & Leung, 2009). In the 1990's, the National Information Infrastructure project focused on the integration of IT in telecommunications, broadcast, and computerization. Singapore ONE aimed to develop a high speed and high capacity nationwide infrastructure (Wu & Leung, 2009). Infocomm 21 aimed to make Singapore a global infocomm capital, by instituting policies to lower access cost, developing new broadband multimedia and services, and promoting broadband usage (Wu & Leung, 2009).

Singapore also developed master plans for 2000 and 2015. The goal of IT2000 was to turn Singapore into an “intelligent nation” with nationwide telecommunications connections in businesses and homes and information education of citizens (Wu & Leung, 2009). The current plan, iN2015, focuses on developing the national infocomm structure to provide wired and wireless broadband throughout Singapore. Plans under the iN2015 include the Next Generation National Broadband Network project to provide broadband speed of at least 1 GBs to homes and schools and the Wireless @SG Programme to provide free wireless access in outdoor public areas (Information-communications Development Authority of Singapore, 2009). Specific goals are 90% broadband usage in homes, computers in all homes with school going children, and developing infocomm as the main industry of Singapore (Information-communications Development Authority of Singapore, 2009).

Regulation

After the Asian Financial Crisis in 1997 and 1998, Singapore relaxed media and information control and completely liberalized the telecommunications sector in 2000 (Wu & Leung, 2009). Referred to as the “Big Bang,” Singapore removed restrictions on foreign ownership in telecommunications and agreed to compensate the two fixed-line licensees (Wu & Leung, 2009). Singapore also merged the telecommunications and information technology industries into the Infocomm Development Authority of Singapore (Wu & Leung, 2009).

The Infocomm Development Authority of Singapore (IDA) is the key regulatory body for telecommunications policy. It licenses spectrum for broadcast and telecommunications providers,

develops industry standards and codes of practice and advisory guidelines, and promotes a competitive and innovative infocomm environment (Information-communications Development Authority of Singapore -About Us, 2009). The IDA is also the chief information officer for the Singapore government responsible for the infocomm security of the government (Information-communications Development Authority of Singapore -About Us, 2009).

The IDA emphasizes facilities-based competition over services-based competition, and private negotiation between companies with minimal government interference. The IDA observes market forces, provides essential facilities for competition and imposes restrictions on dominant licensees, which are licensees with difficult-to-replicate-facilities or with the ability to restrict output or raise prices above competitive levels (Wu & Leung, 2009). Currently dominant licensees are required to provide service at just and reasonable prices on a nondiscriminatory basis, to provide unbundled telecommunications services, to provide service on reasonable request, and to allow resale of telecommunications to and by other licensees (Information-communications Development Authority of Singapore - Telecommunications Act, 2005).

The IDA established a telecommunications competition code that emphasizes removing or minimizing impediments to market entry, eliminating anti-competitive behavior, regulating market powers that restrict competition, promoting interoperability, and transparency (Information-communications Development Authority of Singapore - Telecommunications Act, 2005). The code is currently undergoing a triennial review by the IDA over issues including modifying restrictions for dominant licensees, amending the code to cover new technologies

such as the Next Generation National Broadband Network, and aligning the code with the national competition act (Information-communications Development Authority of Singapore - Second Public Consultation, 2009).

Telecommunications Service

The Singapore government has emphasized educating citizens and providing access to broadband with the aim to become an “intelligent nation”. Recent statistics for penetration, defined by the number of subscriptions in relation to the number of households, were 117.7% broadband, 1.8% dial-up, 130.6% mobile (2G and 3G), and 96% fixed-line (Information-communications Development Authority of Singapore. Statistics on Telecom Services for 2009).

The IDA's universal service policy currently requires dominant licensees to provide service upon reasonable request (Information-communications Development Authority of Singapore - Second Public Consultation, 2009). In early 2009, the IDA selected StarHub, the second largest telecommunications service provider, as the operator for the Next Gen Broadband Network (Information-communications Development Authority of Singapore - Annual Survey for 2008, 2009). Next Gen Broadband Network will provide universal service on all reasonable requests starting in 2013. Even though 80% of homes in Singapore have internet access, the main reasons for not having internet access are lack of interest, need, knowledge, or the ability to access the internet elsewhere (Information-communications Development Authority of Singapore - Annual Survey for 2008, 2009).

Privatization

Service providers in Singapore offer telephone, broadband, and cable services. The major service

provider is Singapore Telecoms (SingTel) a publicly traded company, which is majority owned by Temasek, an investment company owned by the government of Singapore (Singtel - Group Structure, 2009). SingTel was previously the only telecommunications provider in Singapore and was government owned and operated company. In the 1990s, SingTel began gradual privatization as the government attempted to reduce state involvement in business and to stimulate the Singapore stock market (Heracleous, 2001). SingTel was completely privatized in 2000.

Competition

SingTel is categorized as a dominant licensee and must follow special provisions to promote competition with non-dominant licensees. SingTel has not faced any anti-competition suits in Singapore, but has raised anti-competition issues in neighboring countries where it provides service or owns subsidiary providers. The Business Competition Supervisory Commission of Indonesia ordered SingTel to sell some of its shares in mobile operators or pay a fine for anti-competition (Court Throws Out SingTel Appeal, 2008). SingTel also raised anti-competition concerns in Australia, resulting in the Australian government denying the acquisition of Foxtel by SingTel subsidiary Optus (Foxtel-Optus Deal Blocked by ACCC, 2002).

Competition Law and Policy

Singapore had a relative lack of government regulation in the realm of competition law and policy until 2004, when it adopted a general Competition Act (Cheng, 2007). From the United States-Singapore Free Trade Agreement the Singapore government was obligated to enact the Competition Act.

There are three main antitrust prohibitions under the Competition Act. Section 34 of the

Competition Act prevents agreements that will restrict or prevent competition, including price-fixing or colluding on division of markets (Singapore Academy Of Law [SAL], 2007). Under Section 47, businesses are prohibited from abusing their market dominance (SAL, 2007). Furthermore, Section 54 blocks mergers and acquisitions that will substantially reduce competition in Singapore (SAL, 2007). The prohibitions against multi-party and unilateral anticompetitive conducts came into effect on January 1st 2006, whereas the merger control provisions came into effect on July 1st 2007 (Ong, 2007).

The Competition Act applies to all commercial and economic organizations regardless of whether they are foreign-owned, local-owned, or owned by the Singapore government (Ong, 2007). On January 1st 2005, the Singapore's Ministry of Trade and Industry incorporated the Competition Commission of Singapore (CCS) as a statutory body to carry out the enforcement of the Competition Act (Ong, 2007). The CCS is empowered to a range of investigative powers, such as the authority to enter business premises to require the production of relevant documents or information without a warrant under section 64 of the Competition Act (SAL, 2007). Furthermore, the CCS has the authority to impose a financial penalty and requires the infringing party to carry out structural or behavioral remedies to stop the anticompetitive practices in question (SAL, 2007).

The CCS is constantly aware of the regulatory and business compliance cost while enforcing the Competition Act. Thus, the CCS employs an economics-based approach towards interpretation of the statutory prohibitions in the Competition Act and focuses on activities that have a

conspicuous adverse effect on creating a competitive market-based economy (Ong, 2007). While assessing whether an anticompetitive agreement violates the Competition Act, the CCS will consider if the agreement promotes innovation or long-term economic efficiency (Ong, 2007). If the CCS finds economic benefits to Singapore that outweighs the projected anticompetitive harm, the CCS will assess that the agreement does not violate the Competition Act (Ong, 2007).

Industrial Policy

Since 1965, Singapore's industrial structure has progressed from labor-intensive export manufacturing to capital- and technology-intensive manufacturing and high value added services (Chia, 2005). **Table 2** shows the change of Singapore's economic structure between 1965 and 2004 (Chia, 2005). Among the factors that confer Singapore its competitive edges, only one is a natural inherited factor: its strategic geographical location at the crossroads of international shipping and in the time zone between Europe and the Pacific region (Chia, 2005). Due to the lack of natural resources, the government has played a prominent role in promoting the city-states industrial development and heavily invested in its human resources.

In order to provide a competent labor force, the government revised its education system in the 1960s and established specialized industrial training institutes that are now known as polytechnics (Chia, 2005). The government then set up the Skills Development Funds in the 1970s to provide incentives for employers to upgrade the skills of the employees (Chia, 2005). The government subsequently expanded its tertiary education since the 1980s to focus heavily on the science, engineering, business and technology fields so that there will be a large pool of trained professionals and managers (Chia, 2005). Despite the diverse ethnic groups in

Singapore's population, English remains the primary language of instruction in schools, government, and business, thus linking the city-state effectively with the global economy (Chia, 2005).

Following the 1997-98 Asian financial crisis, the Economic Development Board (EDB) implemented Industry 21 (I21), a ten-year plan that aimed to develop the city-state into a knowledge-based economy and a global hub in manufacturing and traded services with an emphasis on technology and innovation (Chia, 2005). I21 adopted five general industrial strategies: diversifying Singapore's industry clusters in electronics, engineering, life sciences and healthcare to create a robust mix of industries and markets, building up a global profile, promoting creativity and innovation, developing local talents while attracting foreign expertise, and creating a business friendly environment and state-of-art infrastructure (Tan, 1999). The Trade Development Board (TDB), established to help local enterprises to develop export markets, actively promotes Singapore's total trade capabilities via its trade regulation and facilitation (Chia, 2005).

By 1988, the Singapore government realized that local enterprises were vital for sustainable development and economic resilience (Chia, 2005). It envisioned small and medium enterprises (SMEs), which form 90% of the national business establishment, as a major source of entrepreneurship and innovation in the knowledge-based economy that was envisioned (Chia, 2005). In 2000, the government and its industry associations jointly launched the SME 21, a ten-year plan with specific goals to nurture innovative SMEs with the capacity to compete globally

and achieve world-class status (IntraSphere, 2009).

Due to the limited pool of human talent, Singapore had to augment its workforce with foreign talents, thus resulting in a heavy dependence on foreign firms to introduce advanced technologies (Chia, 2005). As such, the government decided to develop its own science and technology capabilities under the 1991 National Technology Plan, which includes strategies to develop technology infrastructure, encourage private sector research and development (R&D) activities and human resource to complement the city-state's innovation (Chia, 2005). The Innovation Program was subsequently launched in 1995 to raise innovation awareness by introducing new systems and practices in companies, and expanding infrastructures (Chia, 2005). The IDA devised the ICT 21 Master Plan to develop Singapore's information and communication technologies (ICT) as a major growth factor to boost Singapore's economic competitiveness, which subsequently resulted in the liberalization of its telecommunication sector (International Law Office, 2009).

Investment Policy

After Singapore's independence in 1965, attracting foreign direct investment (FDI) became a priority to drive its economy (Chia, 2005). The government promoted its geographical location to establish petroleum refineries, and offered multinational corporations (MNCs) a large pool of low-wage labor force for the labor-intensive manufacturing sector (Chia, 2005). The government actively expanded its regional and global transportation networks (Chia, 2005). It established regional and bilateral agreements by participating in several international organizations, most notably the Commonwealth of Nations, the General Agreement on Tariffs and Trade (GATT) and

the Association of Southeast Asian Nations (ASEAN). The government efforts lured foreign investors despite Singapore's small domestic market (Ministry of Foreign Affairs, 2009).

Singapore's FDI policy regime heavily features generous tax incentives and a relative lack of restrictions (Chia, 2005). The Singapore government offers tax incentive extensively to compensate for high cost of land and labor, and for its small domestic market. The tax incentives cover the use of foreign technology, skills development, innovation and R&D, as well as industrial expansion (Chia, 2005). The government also grants investment allowances to encourage capital investment and co-investments by the EDB and other government agencies for targeted capital-intensive investments, including the Approved Foreign Loan and the Investment Allowance (IA) (Singapore Economic Development Board [SEDB], 2009). In addition to the tax incentives, foreign investors are given the right of establishment and are represented on several national advisory and policymaking bodies, including the EDB, the National Wages Council, and the local universities (Chia, 2005). The EDB regularly consults its International Advisory Council (IAC), which consists of executives from leading MNCs such as 3M and Royal Dutch Shell PLC, on its international and regional strategies (SEDB, 2009). This collaboration allows EDB to integrate its economic plans with the MNCs' investment plans so that Singapore can remain in touch with the international business community (SEDB, 2009).

Singapore has utilized its geographic location to attract foreign investors due to its underlying political and social stability (Tan, 1999; Chia, 2005). The government and its bureaucracy placed integrity and competence as their highest priority in their leadership to ensure its investors of

political stability (Tan, 1999; Chia, 2005). By assuring stability, the government helped protect the asset values of the investors and contributed to cost predictability (Chia, 2005).

Singapore is now host to more than 5000 foreign companies, and it achieved an inward FDI stock of US\$339 billion in 2007 (Statistics Singapore [SS], 2009). On top of its broad association with overseas firms, the EDB offers investors land and factory sites in industrial estates and parks, tax holiday incentives, and training subsidies (Chia, 2005). The EDB also facilitates association between the MNCs and local suppliers via the Local Industry Upgrading Programme (Chia, 2005). Even after they relocate their labor-intensive operations abroad the EDB encourages the MNCs to retain some of their advance operations in the city-state (Chia, 2005). Constant access to Singapore's state-of-art infrastructure, as well as access to factors of production at competitive rates within the region helps maintain MNC operations (Chia, 2005).

The government actively facilitates outward investments in the region by providing basic infrastructures and assisting companies to venture abroad with various regionalization financial schemes such as the Double Tax Deduction scheme and the Enterprise fund (Deal Flow Connection [DFC], 2009). Singapore's outward investment drive began in 1993, largely due to increasing land and labor constraint in the country (Chia, 2005). Outward investments allowed Singapore's growing capital resources to earn higher rates of return, consolidate Singapore's headquarter functions, to develop domestic technology and to tap foreign expertise (Chia, 2005).

The EDB facilitates the efforts of Singaporean companies in their business ventures via tax

incentives and grants, risk-sharing partnerships, and other support mechanism such as the INTECH scheme, which trains Singapore managers for overseas postings (Chia, 2005). The International Enterprise (IE) Singapore also actively assists Singapore-based enterprises to find overseas partner and to venture into new markets abroad (International Enterprise Singapore, 2009). Due to the available assistance from government-associated agencies, Singapore's enterprises are able to participate in international trade and expand their businesses regionally. Temasek Holdings has been aggressively investing abroad and now manages an investment portfolio of US\$119 billion (Temasek Holdings, 2009). In fact, by the end of 2007, Singapore had achieved an outward direct investment stock of US\$220.8 billion (SS, 2009).

Intellectual Property Policy:

Copyright

The Intellectual Property Office of Singapore (IPOS) administers copyright protection. The office was commission in 2001 and is a subsidiary of the Ministry of Law. It observes major copyright treaties, including the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) and WIPO (Intellectual Property Office of Singapore - Copyright, 2009).

One of the main challenges that has been facing Singapore is the relatively high occurrence of software and intellectual piracy, estimated at certain times to be close to a forty percent of the population (Gan and Kog, 2006). Some academics have claimed that this is due to certain cultural values that do not promote the sanctity of intellectual property (Gan and Kog, 2006). In response, the government attempted to persuade the populace to adhere to copyright law by developing additional IP laws in iterative fashion for the past decade (Mores and Dhaliwal, 2004)

(Seng, Daniel, 2005), launching appropriate offices for enforcement with IPOS in 2001 (Mores and Dhaliwal, 2004), and creating initiatives to encourage adherence (Goldstein and Roth, 2001). A major criticism against Singapore's copyright enforcement is that it has, at times, left the majority of enforcement to the IP rights' holders instead of leading enforcement themselves (Mores and Dhaliwal, 2004).

Trademarks

IPOS manages the trademark system within Singapore. Under the auspices of the Trademark Act of 1998, IPOS is a signee to TRIPS, the Madrid Protocol, and the Paris Convention. As such, the country allows up to ten years of continuous use without reapplication and supports intention to publicly use trademarks and international trademarks can be upheld. Violations of the Trademark Act can be remedied via civil means and criminal courts (Intellectual Property Office of Singapore - eTrademarks, 2009).

Patents

One of the challenges facing Singapore is that its small population and geographic size often means that research and development occurs across international borders. Consequently, Singapore has an incredibly large number of multi-national corporations producing many of the country's patents (Hu, 2004). This means that Singapore has a distinct need for patent systems that encourage local innovation and allow for international transitivity (Hu, 2004).

The Singapore government has launched several initiatives to make the IPOS a patent center for Southeast Asia by encouraging collaboration between other major patent granting countries. For example, in the summer of 2009 the IPOS launched a project with Japan's intellectual property

office (Intellectual Property Office of Singapore - PPH, 2009). The project, called the Patent Prosecution Highway (PPH), allows for the sharing of information between the offices, and allows patent seekers to file jointly for patents in both countries in a faster time frame (Intellectual Property Office of Singapore - PPH, 2009).

IPOS Online System

The IPOS has a comprehensive online system for registering trademarks, patents, and design. As long as the company or representative has an appropriate Singapore address, one can register and apply for direct services from the IPOS (Intellectual Property Office of Singapore - eFiling, 2009). IPOS can be a target office for receiving a patent filed through the Patent Co-operation Treaty, allowing for international patents (Intellectual Property Office of Singapore - ePatents, 2009).

In addition to allowing online registration, the IPOS allows those seeking to register a patent, trademark, or design to access SurfIP, an online porthole. The stated goal of the system is to reduce the cost of searching for information and to allow businesses and innovators greater freedom and efficiency in applying for and getting IP protection (SurfIP, 2009).

Privacy:

As of 2009, Singapore has yet to develop a general data protection law. Data protection legislation has officially been under review for over a decade but the process is open-ended with no specified timeframe for drafting any law (Kennedy, D., Goyle, S., Lui, B., & Contributors, 2009). An Inter-Ministry Committee was established in 2007 to review Singapore's data protection policy, but again, no specific timeframe has been given. In January 2008, the Minister

of State for Finance assured parliamentary members that the government had a robust public sector data protection policy adapted from the National Internet Advisory Committee's private sector Model Data Protection Code (MDPC) (Kennedy, D., et al, 2009). The MDPC, as developed between the National Internet Advisory Committee and the e-commerce industry in 2003, covers data protection standards for businesses in Singapore, but its adoption is entirely voluntary and not punishable by law (Kennedy, D., et al, 2009). The MDPC is a set of standards that determine the collection and use of consumer data by National Trust Council certified merchants (Privacy and Human Rights, 2006).

Although Singapore has not drafted specific legislation, the country is a member of APEC and has, hence, adopted APEC's Privacy Framework. APEC's Privacy Framework contains nine privacy principles that are largely consistent with the 1980 OECD Guidelines on the Protection of Privacy, as well as encouraging cross-border data transfers through business transactions (Kennedy, D., et al., 2009, p. 60). APEC's framework, however, relies on voluntary member compliance and allows each member country to implement the principles according to their governmental goals.

Security

The Infocomm Development Authority (IDA) of Singapore has drafted a national program to insulate and protect the nation's computer infrastructure from cyber attacks and other forms of security breaches. The Infocomm Security Masterplan 2 was launched in 2008 as a five-year plan that builds on the original Infocomm Security Masterplan, which was implemented in 2005. The MP2 includes four main goals: strengthening national information communication infrastructures

and services, enhancing information communication security competencies, cultivating a vibrant information communication security ecosystem, and increasing international collaboration (Infocomm Development Authority, 2009).

The original Infocomm Security Masterplan had six strategies for fortifying the infocomm environment: securing the people, securing the private, securing the public, developing national capacity, cultivating technology and R&D, and securing a national infrastructure.

In addition to Singapore's MP2, the government protects its citizens through its various online security features. Several of the acts drafted by the Singaporean government include the Computer Misuse Act (CMA), the Electronic Transactions Act (ETA), and the Spam Control Act (SCA). The CMA was originally enacted in 1993 to "provide more security for computers and computer-borne information from tampering or unauthorized access" (Blythe, 2007). The CMA criminalized a number of offenses related to tampering with computer information, unauthorized access, the intent to commit a crime, and disseminating computer passwords. Furthermore, the CMA included "long-arm" jurisdiction that allows Singapore to prosecute offenders residing outside the country, as long as the victimized computer is located in Singapore (Blythe, 2007).

In contrast, the ETA's main contribution has been the promotion of e-commerce through its technologically neutral nature (Blythe, 2007). Originally created in 1998, the ETA set out to improve the security of online transactions by increasing the use of digital signatures, reducing fraud, maximizing authenticity through the adoption of uniform standards, and improving public

confidence in digital authentications (Blythe, 2007). The ETA describes secure e-records and e-signatures as being “commercially reasonable”, such that e-records are confirmed as unaltered and e-signatures are unique to its identifiable user and affixed to an appropriate e-record (Blythe, 2007). The TrustSg seal is another means of certifying secure merchants and engendering trust between Singapore consumers and websites; the TrustSg seal was created by the National Trust Council and the IDA.

Singapore’s SCA was implemented in 2007 as a further measure to promote security. The SCA targets unsolicited email and mobile messages by mass senders. The SCA is technologically neutral in protecting both email and mobile users, as long as the message is sent from an electronic address. Spam is a threat to cyber infrastructure due to the volume of messages sent by spammers impeding ISP mail server efficiency (Leng, 2006), using dictionary attacks to gain access to email addresses, and using spam as a means to gain unauthorized access to computers through worms and viruses (Leng, 2006).

Freedom of Information

Without laws similar to the United States of America’s Freedom of Information Act, the Singaporean government restricts access to certain types of information, most evidently, in the realm of media content and freedom of speech. The Media Development Authority (MDA), for example, was created by the Singapore government in 2002 and is tasked with regulating the country’s media content. The MDA requires all Internet Service Providers (ISPs) and Internet Content Providers (ICPs) to prohibit broadcasts of certain materials, including pornography and content that promotes homosexuality (Privacy and Human Rights, 2006). Furthermore,

Singapore reserves the right to sue oppositional politicians, newspapers, and other public forms of speech that question the integrity of governmental officials in the name of maintaining the public trust and the reputation of “honourable men” (Li-Ann, 2008); the government’s regulatory framework does not distinguish between the Internet and other traditional forms of media (Li-Ann, 2008). In addition to protecting the reputation of governmental figures, Singaporean laws aim to maintain the racial harmony amongst its diverse population by treating public discussion forums and blogs as public spheres subject to the same limitations as other expressions of speech (Li-Ann, 2008). Consequently, Singapore imposes digital speech restrictions in order to uphold its cultural values, the reputation of its politicians, and overall social harmony.

Digital Governance in Singapore:

Background

In the last few decades, Singapore has actively pursued policies to increase access to and enhance the quality of digital governance for citizens and businesses. Singapore launched its first Civil Service Computerization Program from 1981 to 1985, as part of a broader initiative called the National Computerization Plan followed by the National IT Plan from 1986-1991. The plans primary objectives were to turn the Singaporean government into a “world-class exploiter of IT” and to “develop an integrated and coherent approach to computerizing the government.” (Ke, Wei, 2004) As a result of these two plans, government services were available online by the mid-1990s, but they were owned and operated by individual agencies. To address the issue of localization and fragmentation of online services caused by individual agency ownership, the Public Services Infrastructure developed a centralized portal known as the E-Citizen Portal, in 1997 (Ke, Wei, 2004).

The E-Citizen Portal linked various government agencies by providing a single entry point for citizen access. During its early stage, the Portal mainly offered information dissemination and a select number of online transactions. Currently, the Portal offers 98% of government services online that citizens can readily access by a national ID and PIN (Sriramesh, 2006) (Lazar, 2007); “many agencies – one government” is the guiding philosophy underscoring the plan to provide all government services through one central portal (Chong Yoke Sin, 2004). Businesses and citizens successfully interact online with the government to achieve multiple goals, primarily financial transactions, filing of taxes, and starting a business.

In 2000, the Singaporean government initiated a policy, Infocomm21, to provide better online services and furthered this policy in 2003 by engaging in more comprehensive research on customers’ needs, promoting inter agency communication, and providing services to a wider base. The main goals of the Plan were to deliver integrated online services and be more proactive and responsive to the concerns of its citizens (Ke, Wei, 2004). The government allocated \$932 million between 2000 and 2003 to implement the Plan. The E-government Policy Committee was formed to oversee digital government in Singapore and fell within the Ministry of Finance. The government aggressively developed telecommunications infrastructure and took serious measures to promote and raise public awareness of these digital government initiatives through multi-sector campaigns and online fairs (Ke, Wei, 2004). Encouraging and increasing citizen participation and enthusiasm remains a central theme in many of Singapore’s digital government initiatives. However, the tight regulation of media, speech, and online activities may counteract the goals of democratic participation.

E-Government: Citizens' Perspectives

The quality of digital governance is commonly based on two important characteristics: the quality of such resources in providing information, service delivery, and perhaps more importantly, citizen's use of online services to voice their opinions on government policies and initiatives (West, 2007). With regards to the former, Singapore is often heralded as the leader in e-government initiatives in the world. With regards to the latter, however, Singapore still faces many challenges.

The high technological and economic standards with which Singapore operates lead directly to its success in the digital government sphere, which at times conflicts with cultural-specific norms and notions of free speech. The Singaporean government often plays a paternalistic role with regards to its citizens. Singaporeans are encouraged to engage in physical and digital civic participation, insofar as they do not tarnish reputations of government officials, offend certain ethnic groups, and appeal to emotions rather than employing rational argumentation, due to the nature of its 'communitarian' democracy (Li-Ann, 2008, 26). The government often has the final say on what constitutes beneficial or detrimental speech.

Defining democracy in this new digital environment is challenging, especially with regards to balancing the interests of the individual with those of the state. This fundamental challenge was highlighted in the debate in 2003 regarding important policy initiatives pursued by the government to promote a more active citizenry. The government initiated a 'Remaking Singapore' project in 2002 and consulted more than 10,000 citizens of diverse backgrounds. The

report asserted Singapore's government is not overly regulated, that this perception, although held by the populace, is not based in reality. The report then stated that the amount of regulation that is currently in place is vital in order to "limit the risk to public and social order" (Sriramesh, 720). In addition, the report rejected several recommendations to change defamation laws, to enact a Freedom of Information Act, and to liberalize the local media.

The Singapore Government launched the igov2010 plan in 2006 that focused on "customer-centricity", emphasizing the need to provide better public services and civic engagement, judging success based on customer satisfaction (iGov.sg, 2009). The main challenge Singapore will face is promoting online democracy and active citizen participation.

Conclusion and Recommendations:

This paper has discussed these realms of telecommunications policy, privacy, competition law and policy, intellectual property rights, and digital government in detail and has outlined problematic features and opportunities for each. The Singapore government must face these challenges in the near future, primarily in the areas of intellectual property policy, privacy, and digital governance. We offer three recommendations for consideration:

1: Singapore has a robust intellectual property policy and a system which promotes itself as a center for intellectual property rights in Southeast Asia. In order to maximize this potential, Singapore should actively seek to encourage and engage in creating international trademark and patent consortia, by implementing more patent highways. The goal should be to make registering IP in Singapore as valuable as registering in any other place in the world.

2: The decade-long data protection review and 2007's Inter-Ministry Committee are steps the country has taken in securing public and government data; however, without establishing a timeline or committing to future legislation, Singapore's privacy policy remains weak. As a developed country with otherwise sophisticated information security measures, committing to a general data protection policy is in Singapore's best interests.

3: The Singapore government has recently received a lot of criticisms with regards to its control of the Internet and digital media. The justifications conventionally employed for doing so revolve around maintaining a 'communitarian' society in which individuals' and government officials' reputations are protected and respected. Singapore should refrain from suing citizens and opposition parties because it promotes self-censorship and discourages open interaction and discourse.

Appendix:

Table 2: Singapore - Economic Structure

Year	Percent distribution of gross value added								Percent distribution of working persons			
	Goods producing industries			Service producing industries					Professional technical & managerial occupations	Clerical, sales & service occupations	Manufacturing sector	Financial & business services sector
	Total	Manufacturing	Construction	Total	Wholesale & retail trade	Financial services	Business services	Transport & communications				
1965	26.2	14.4	6.2	70.8	23.7	4.4	9.4	11.5	na	na	na	na
1970	30.9	18.6	6.9	66.1	24.5	4.9	9.3	10.9	10.3	42.8	22.0	3.5
1975	34.2	22.3	7.9	63.0	21.6	6.9	8.8	11.0	13.5	42.6	26.2	6.1
1980	37.3	27.3	6.3	60.4	17.2	8.2	8.7	13.6	18.0	28.1	30.1	8.0
1985	34.0	20.9	10.2	62.1	12.8	11.0	11.0	12.8	21.7	30.1	25.5	8.9
1990	33.0	25.5	5.3	62.9	13.7	10.7	12.0	12.9	24.2	25.7	28.9	11.3
1995	33.9	25.0	7.1	62.6	13.5	11.1	13.4	12.1	35.9	24.1	23.7	15.4
2000	34.6	26.6	6.3	62.0	12.7	11.3	13.7	11.7	35.8	21.2	20.8	15.4
2003	32.2	25.5	4.9	64.2	13.9	11.7	13.6	10.9	42.2	24.0	17.9	17.1
2004	33.8	27.7	4.3	63.0	14.3	11.3	12.7	11.0	42.6	24.2	17.3	17.5

Source: Sources: Singapore 2005 Statistical Highlights; Singapore Yearbook of Statistics, various years; Economic Survey of Singapore various years.

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