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World Class E-Commerce Strategies

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Visiting Korean Scholar

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World Class E-Commerce Strategies

I. INTRODUCTION AND OVERVIEW

This report examines government strategies and investments that promote and support e-commerce (Internet-based commerce) and e-government (Internet-based government operations). The author, a Visiting Overseas Scholar at the California State Library, is a Korean Government Official.¹ This report emphasizes innovative Korean e-commerce and e-government initiatives. This part of the paper (Section I) provides some background information and a brief look at selected states, and it summarizes Section II and Section III of the paper.

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BACKGROUND

A “profound transition” is underway to an information technology (IT) economy, a change perhaps more significant than that of the “Second Industrial Revolution” in the mid-1800s.² Governments around the world are evaluating how the Internet is transforming relationships between businesses, governments, and citizens, and are planning how to respond. Some are inventing innovative new service delivery models. Many are investing in infrastructure, evaluating the complex legal and technical frameworks required for e-commerce, and encouraging citizen and business access to computer technology and the Internet.

The “New Economy” is being driven by a convergence of information and communication technologies that enable organizations to transform the way they conduct business.³ E-commerce relies on the Internet and Intranets,* which enable traditional companies to fundamentally change their businesses or reengineer their operations. For example, U.S. small businesses (under 100 employees) are a major force in Internet buying and selling. Last year, 2.8 million small businesses spent \$25 billion for goods and services over the Internet. Business-to-business (B2B) spending, which tops online consumer spending, is driven by two main opportunities: cost savings through more efficient internal operations and trading exchanges (buying and selling goods).⁴

The U.S. is enjoying prosperity accompanied by low inflation, a low unemployment rate, and improved productivity and income. California industries and workers are at the forefront, creating and benefiting from a rapidly evolving IT-based economy. Many jobs created in or by high technology industries pay above-average salaries. This means they generate, among other benefits, higher-than-average income and sales tax revenues. Conversely, state and local governments are concerned about potential revenue losses and

* The Internet is a global network of computer networks that allows a user of a computer on a network to send e-mail to, or access information on, a computer connected to another network anywhere in the world. An Intranet is an internal computer network that allows sharing of data within that closed network.

about inequities between “bricks and boards” businesses and e-commerce companies, such as in the application of sales and use taxes.⁵

INTERNET STRATEGIES IN SELECTED AMERICAN STATES

Most states in the U.S., as in many other countries, are preparing strategies to succeed in this new technological world. Key issues include leadership, governance, education, infrastructure investment, organizational competency, technology, and access. For example:

- **The State of Washington** is nationally recognized for its e-government solutions, K-12 educational network, and information-based economic development strategy. This year, for the third year in a row, the state was named the most ‘technically advanced’ in the Digital State survey.⁶ Among the state’s key achievements was the creation of a short-range, e-government planning process designed to keep pace with quick-changing Web technology.

“We have committed ourselves to producing a plan which can be accepted or adopted by the state every six months,” said Steve Kolodney, director of Washington’s Department of Information Services. “We published a plan in January, and we completed it in June. We will have another six-month plan in September.”

- **The State of Virginia** has required all Commonwealth agencies to develop Internet strategies and provide state government forms over the Web* by the end of 2000. Virginia’s “Internet Policy Framework” is a series of “Internet Economy enabling” laws specifying guidelines for privacy, defining Internet crimes and providing for freedom of information, among other topics. The state’s IT governance model is unique, with the first cabinet-level Chief Information Officer (CIO) in the U.S. responsible for internal IT operations and external economic development.
- **The State of Utah**’s “Digital State” legislation mandates that most government services are made available over the Internet by July 1, 2002. Utah was one of the first states to enact a digital signature law and is currently considering legislation to make the Department of Motor Vehicles responsible for authenticating individual digital signatures.
- **The State of North Carolina** has invested heavily to consolidate its data centers and to develop technology infrastructure-related projects such as the North Carolina Information Highway. The State convened a senior level working group to research e-commerce requirements and strategies. This group produced an e-government

* The World Wide Web (WWW) enables information to be presented and shared on the Internet, including sound, video and graphics. It is called the Web because its many sites are linked together.

strategy, an e-commerce technical architecture, and a number of important pilot projects. North Carolina has consolidated state IT investment and accountability in its CIO.

The State of California is developing a comprehensive e-commerce and e-government strategy. As part of this analytical process, it would be useful to benchmark and analyze the strategies of other states and countries. This report provides some of that comparative information, examining e-commerce strategies developed by Canada, the United Kingdom, Korea, Singapore, Japan, and other Asian countries.

OVERVIEW OF SELECTED NATIONAL STRATEGIES

This is a summary of the paper's discussion of selected nations' e-commerce strategies. See Section II for more detail.

Korea, one of California's largest trade partners (see Table 1) is moving aggressively into the New Economy. The Korean government's investments in IT and related areas are significant, premised on the belief that IT will be the engine of the country's future competitiveness in a knowledge-based global economy.

According to an investment analyst quoted in an ABC news analysis, Korea is "a hidden gem," the "only country in Asia that has enough critical mass, acceptance, volume and scale to create significant revenues, where the Internet is being adopted very aggressively."⁷ Korea's aggressive government support for e-business, relatively cheap Internet access, and modern communications infrastructure have poised it to move quickly in e-commerce development. The Korean government plans to spend around \$30 billion between 2000 and 2003 to upgrade Korea's information-telecommunications infrastructure. As discussed later in the report, the Korean government is heavily involved in promoting the Internet and e-commerce.

There are a number of similarities between IT strategies in key Asian countries. The most obvious is the governments' efforts to build legal and regulatory structures, provide IT training, and deploy IT in the public sector. Asian governments view e-government as important for enhancing efficiency and providing a progressive and leading model for the private sector. Countries have enacted laws on electronic signatures, protection of software programs, computer privacy and other fundamental legal safeguards necessary for the spread of e-commerce. They emphasize information technology education beginning in elementary school. Korea and **Taiwan** also stress IT education for the general population, while **Singapore** and **Hong Kong** emphasize the need to recruit foreign talent. **Japan**, with its emphasis on manufacturing industries and traditional culture, believes its delay in adopting an IT-based economy has contributed to its long-term recession, and is now promoting investment and construction of an IT infrastructure.

The **British government** is taking an aggressive role in developing an e-commerce strategy for the United Kingdom. It is considering appointing an e-Minister on Information Age issues to coordinate e-commerce and e-government activities. The

government's e-commerce strategy stresses the primary role of private enterprise:

Government and industry both have their part to play, but a market-led approach to e-commerce is essential if innovation, creativity and entrepreneurship are not to be stifled. The role of Government should therefore be restricted to:

1. providing a light-touch regulatory and tax framework within which electronic markets can operate;
2. acting as a catalyst for change, by tackling market inefficiencies, but also by working pro-actively to raise awareness of e-commerce threats and opportunities and to ensure a supply of skilled people;
3. ensuring that e-commerce developments contribute to the creation of a strong and fair society, by acting to address the equity and social inclusion issues raised by e-commerce, irrespective of the efficiency or otherwise of market processes; and
4. acting as an exemplar in its own use of e-commerce technologies in service delivery and procurement – both to increase Government's own efficiency and effectiveness and to raise skills and expectations among consumers and businesses.⁸

The **Canadian government** has developed an *Electronic Commerce Strategy* designed to establish Canada as a world leader in the adoption and use of e-commerce. Working in close collaboration with the private sector, the national government has concentrated on creating a favorable environment in areas that are critical to the rapid development of e-commerce. These include security, privacy, consumer protection, a regulatory and tax framework, and a strong telecommunications infrastructure.⁹

A LOOK AHEAD AT POLICY OPTIONS

This is a summary of policy options that are discussed in more detail in Section III of this paper.

- California could gain experience and learn from the states and countries discussed in this report as it evolves a state government strategy for the Information Age. To that end, California could charge its Trade and Commerce Agency with monitoring the e-commerce and e-government strategies and projects of other states and countries, analyzing outcomes, and making appropriate recommendations for state action.
- To support the best digital economy in the world, California could promote, engage, and build on California's ethnic diversity. This approach could be of value as newly emerging e-commerce markets in Asia and South America grow in importance to California. For example, California could provide useful information through its web site for foreign businesspeople in a variety of languages. Individuals from diverse ethnic groups within the state could serve as regional specialists or web-translators to promote mutual trade and investment.

- California could promote e-commerce to its thriving small and medium-sized businesses by providing investment incentives and technical assistance to develop e-commerce business strategies and practices. To this end, the Trade and Commerce Agency could lead in the creation of trade portals, virtual trade shows, and cyber trade web sites on the Internet. To assure that benefits reach all citizens, the State could promote infrastructure investment in rural areas to ensure high speed Internet access for rural communities, schools, libraries, and homes.
- California's foreign trade offices could provide useful marketing information over the Internet, as does Korea's overseas trade agency.
- The California Department of Justice could undertake a review of existing state statutes to determine which ones might need amending to support e-commerce. This review could include a comparative review of developing global standards and new laws in other states and countries. Such a review can respond to e-commerce's need for a legal framework that ensures privacy, secure transactions, valid digital signatures and contracts, and discourages crime.

In summary, ensuring that all Californians have access to, and are served by, the Internet is fundamental to any successful e-commerce and e-government strategy.

II. E-COMMERCE STRATEGIES IN SELECTED COUNTRIES

Many countries are developing e-commerce strategies and plans, and analyzing and benchmarking those of other countries, in order to promote success in this new competitive economic environment.

KOREA

This discussion summarizes some characteristics of Korea's Internet economy and presents major strategies for Korean e-commerce. Traditionally, the Korean government has been heavily involved in planning and operating the country's economy, a role quite different than that of state government in California. Nonetheless, Korea's innovative e-commerce strategies are intriguing.

Korea and California have many important business and cultural relationships. Korea is an important trading partner (Table 1), and many Koreans live in the state.

TABLE 1
LEADING CALIFORNIA EXPORT MARKETS
(Values given in millions of U.S. dollars)

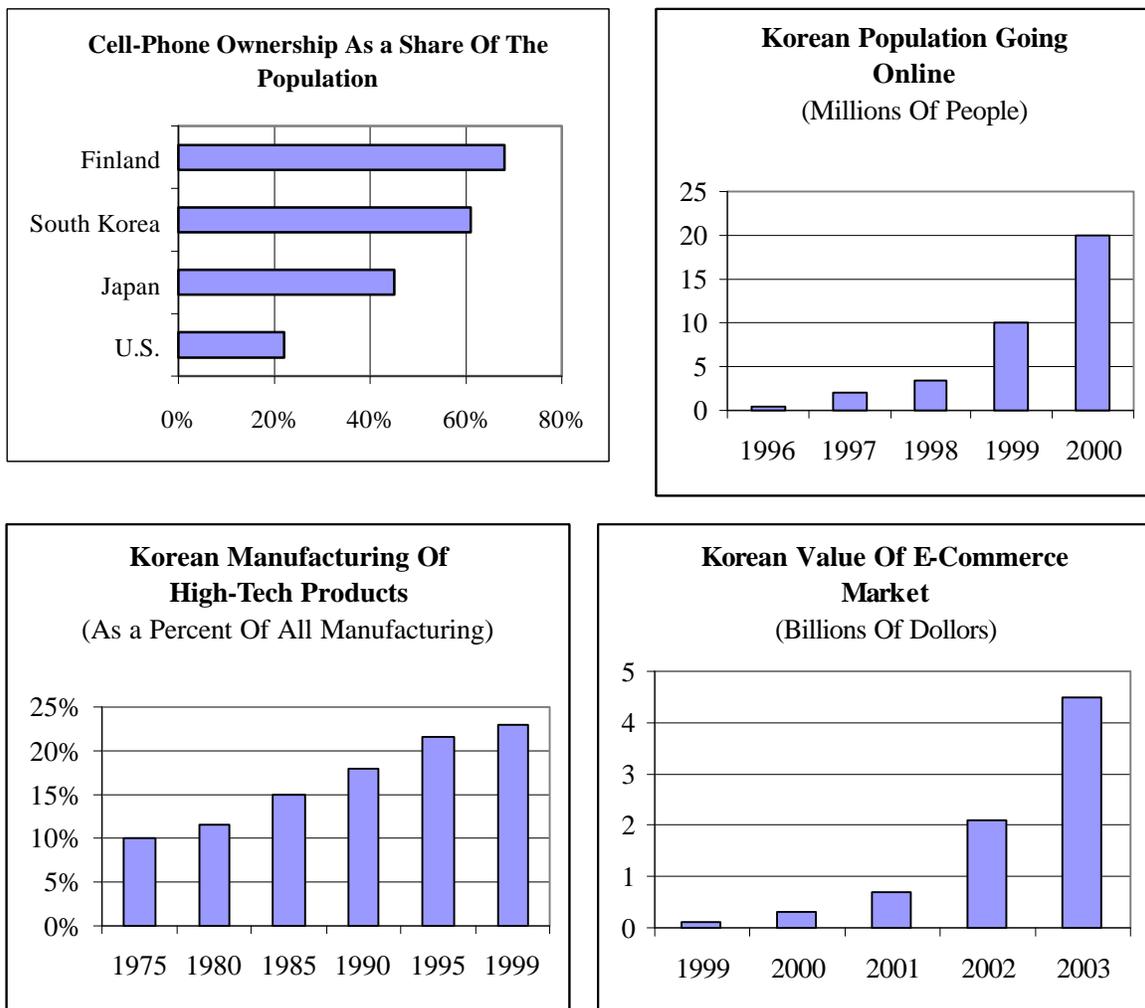
Country	1997	1998	1999	% Change 1997-98	% Change 1998-99	Rank
Mexico	12,082	13,344	14,916	10.4	11.8	1
Japan	17,460	14,602	13,753	-16.4	-5.8	2
Canada	11,426	12,673	13,236	10.9	4.5	3
South Korea	7,046	4,413	6,676	-37.4	51.3	4
Taiwan	6,991	5,926	6,469	-15.2	9.2	5
UK	5,414	5,756	5,461	6.3	-5.1	6
Singapore	5,674	4,723	4,875	-16.8	3.2	7
Germany	4,108	4,700	4,596	14.4	-2.2	8
Netherlands	3,411	3,893	4,212	14.1	8.2	9
Hong Kong	4,153	3,620	3,950	-12.8	9.1	10

Korea's first experience with the Internet began in 1982 with the System Development Network (SDN), a joint project of the precursor to the state-run Electronics Telecommunications Research Institute and Seoul National University. A year later, SDN was hooked-up to the Internet network of the United States, a connection called HANAnet. After a period of slow growth, in 1988 a number of colleges and private research centers founded the Academic Network Committee, laying the groundwork for Internet operation and management. In 1994, Korea Telecom, the state-run telecom

company, launched KORNET, a commercial online service. KORNET's debut stimulated the growth of the Internet in Korea, with an increasing number of Internet service providers (ISPs) offering connection services. As its Internet user base grew, Korea reorganized its domain name registration system, joining together policy development and registration.* Internationally, ICANN (Internet Corporation for Assigned Names & Numbers) takes care of domain name management.

The number of Internet users and IT companies is rapidly increasing in Korea (see Chart 1). There are over 230,000 domain names in Korea.

**Chart 1
DIGITAL KOREA**

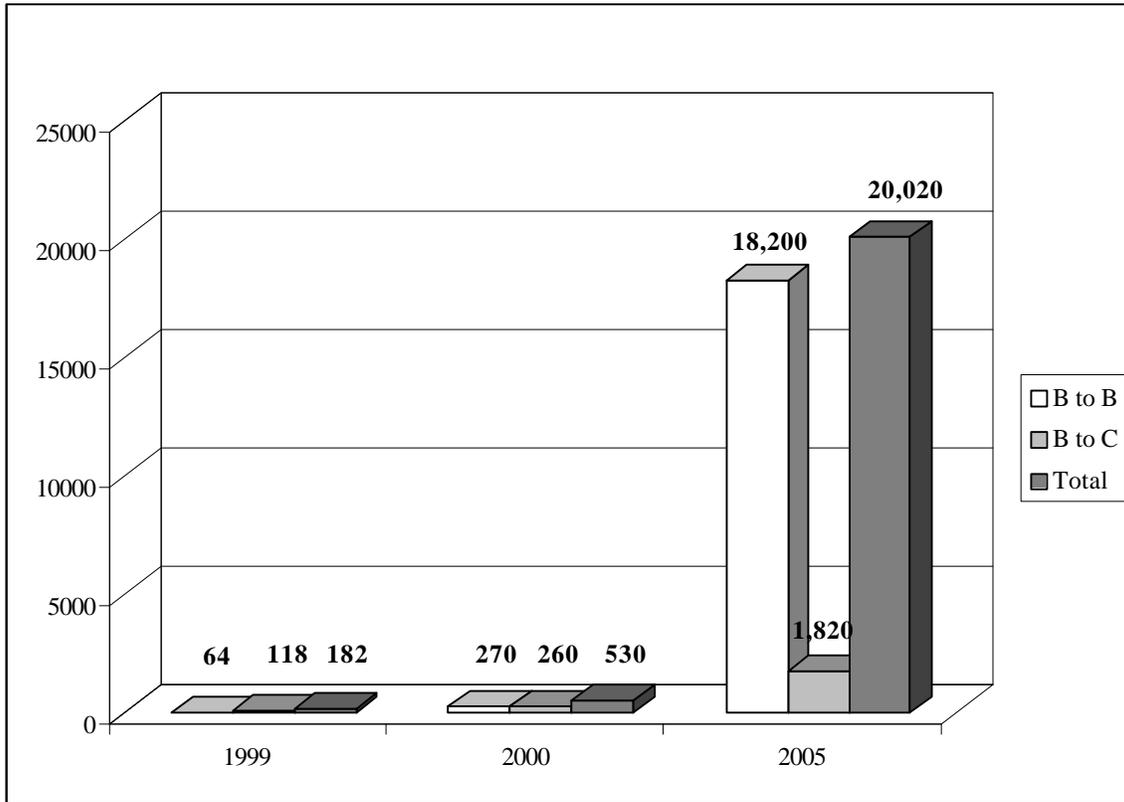


(source: <http://www.businessweek.com>)

* A domain is the name and type of site on the Internet that is part of every Internet address, such as library.ca.gov for the California State Library.

Business to business (B2B) e-commerce is increasing more rapidly than business-to-consumer transactions in Korea (see Chart 2). This trend is also evident in the U.S.

Chart 2
E-commerce Market Outlook for Korea 2005
 (unit: million dollars)



Source: Electronic Commerce Research & Development Association (The figure for 2002 is forecast by Korean Ministry of Commerce, Industry and Energy)

According to NetValue, 42 percent of the population (20 million) access the Internet and the heaviest home users in Korea have been connected to the Internet for less than six months (41%).¹⁰

E-commerce appeals to Korean Internet users. About 12 percent have made online purchases, with the 30's age group accounting for the largest share. As of August 1999, 27 percent of Korean companies and 17 percent of Koreans operated their own corporate and personal homepages. Homepage building has become a fad among users, and Korean editing programs and web-based homepage builders are gaining in popularity.

According to a recent survey, 57 percent of Korean households currently own home personal computers (PC); 62 percent bought their first PC within the last three years. There is a sharp contrast in PC ownership by income level. Only 31 percent of lower

income households own a PC, compared to 61 percent of middle class and 81 percent of higher-income households. The survey found that 36 percent of the people use PCs mainly for the Internet, 32 percent for games and 23 percent for job-related activities. Most people go online at the workplace, followed by at home. PC bangs (Internet Café), small businesses where general users can surf the Web for a nominal fee, are gaining in popularity and market share.

PC Bangs (Internet Café) and Cyber Apartment ‘Techno Villages’

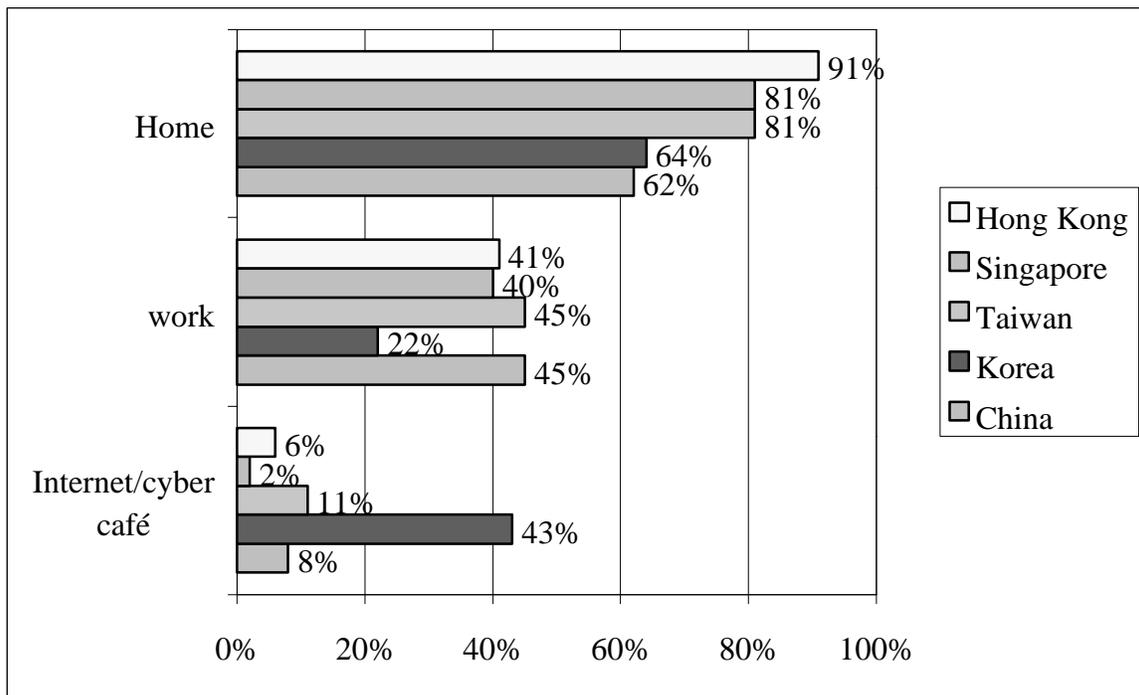


Major Korean home-building companies and venture firms are joining forces to construct apartments fully equipped with high-speed Internet access. This Internet-apartment business is called “Techno Village.” The apartments will be provided with top quality, free Internet service. Construction companies plan to build from 90,000-100,000 apartments yearly. Residents will be able to enjoy Internet home shopping, cyber banking, auctions, stock market, videoconferences, and neighborhood meetings and lots more.



Internet Café (in Korean, *PC Bangs*) are businesses where anybody can access high-speed Internet for less than one dollar. They are very popular in Korea. *PC Bangs* have contributed to the rapid increase in the number of Internet-users in Korea. Other nations, including Taiwan, Japan, and China, are considering introducing this innovation.

Chart 3
Internet Access location



(source: Netvalue)

Korean Government Strategies to Promote E-Commerce

Provide high speed Internet access and encourage business e-commerce

Korea plans to complete the establishment of the next-generation Internet network by 2005, and to increase the portion of Internet users to 60 percent of the population by 2001, thus laying the groundwork for the digital economy. More than 80 percent of the phone users in Korea will have access to high-speed Internet by the year's end.

The Korean government plans to invest \$64.5 million over the next two years to build an e-commerce backbone linking Korea's major manufacturing industries with buyers. To encourage businesses to spend more on cyber trading and purchases through the Internet,

the Finance Ministry plans to provide corporate tax breaks for investments to construct e-commerce networks.

Increase Internet education and access to decrease the “digital divide”

The Ministry of Defense has begun requiring all of the approximately 270,000 Korean soldiers* to take a Web search specialist certification exam before being discharged from the service. All soldiers will receive annual training in web-based technologies. The goal is to relieve some of the skilled labor shortage currently experienced by the information and technology (IT) sector. The Korean government also plans to create a “Cyber Defense Corps,” comprising volunteers who will be chosen next year through competitive hacking contests, to respond to the spread of computer viruses and cyber terrorism. It is not clear yet how this will work, although funds are budgeted for next year.

Expanding IT opportunity is a major policy goal. Computer education will be mandatory at all primary schools starting next year. A program that would give free PCs and five years of free Internet access to about 50,000 low-income children is being studied. According to the Ministry of Information and Communication, free public access to PCs will become more readily available as public libraries, post offices and social welfare centers are equipped with PCs connected to the Internet. The government is opening basic computer and Internet training classes for senior citizens at 50 universities across the nation, with the goal of training about 100,000 seniors by the end of next year.

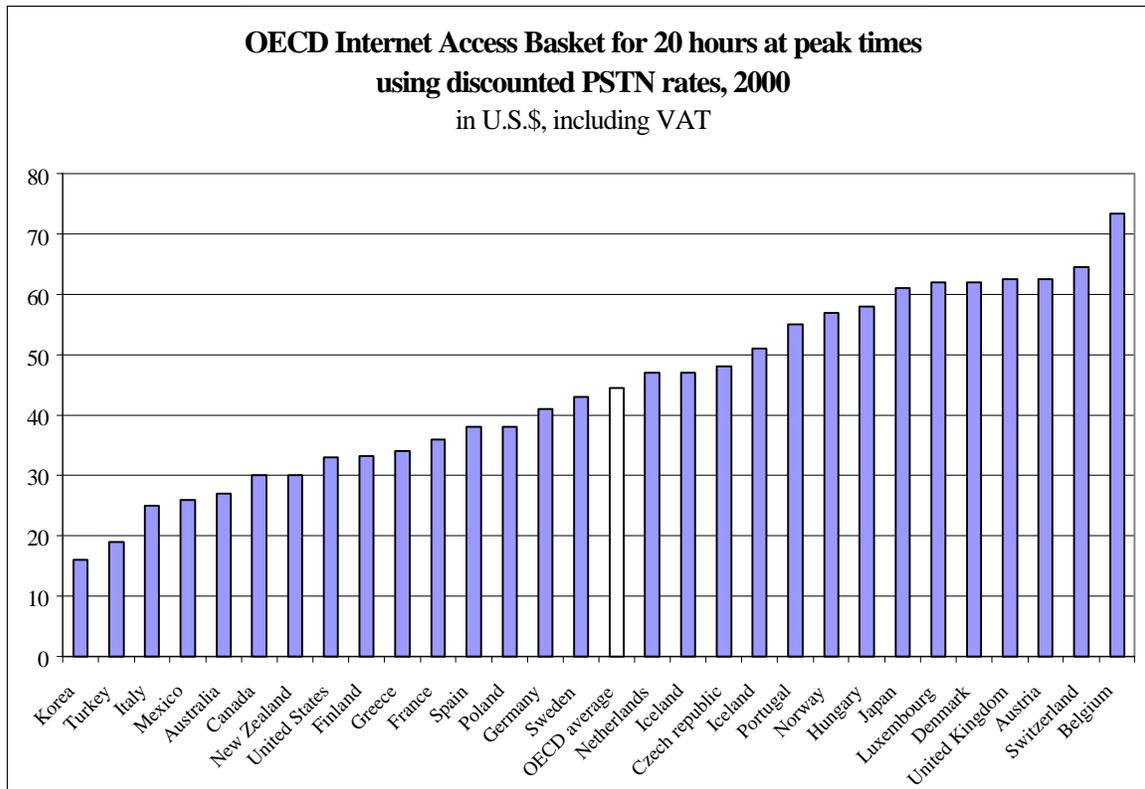
Korean mothers are famous for their devotion to educating their children, and Koreans who succeed have generally one thing in common: an eager and devoted mom. Mothers have therefore become the target of a government program dubbed "Cyber Korea 21." On March 2, the government launched a nationwide campaign to teach Internet use to one million housewives over the next 18 months. The program provides 20 hours of Internet courses per month for \$20 (much lower than the standard private rate of \$100). Over 70,000 women registered within the first ten days of the campaign, and as a result, nearly 70 percent of the computer schools in Seoul and nearby cities were booked through July.

Lower Internet access fees

Korea has the least expensive Internet access charges of all the 29 member nations of the Organization for Economic Cooperation and Development (OECD). Access costs include fees for installing telephones, telephone bills, and Internet service. Korea charges \$16.66 to login to the Internet for 20 hours during peak hours, compared to \$33.07 in the U.S. and \$73.98 in Belgium (see Chart 4).

* There is universal male conscription for a two-year tenure of service in Korea.

Chart 4



(Source: OECD, <http://www.oecd.org/dsti/sti/it/cm>)

Promote government purchasing on the Internet

The Korean government purchases about \$13 billion of supplies a year. It is heavily involved in the ownership and management of key industrial sectors, and there are many state-run companies. The Korean Planning and Budget Ministry has selected the state-run companies Korea Electric and Power Corp., Pohang Iron and Steel Co., and Korea Telecom Co. to build a model e-commerce purchasing and bidding system by the end of the year. The goal for state-run companies is to purchase up to 50 percent of materials through e-commerce networks by next year. The degree of e-commerce applications in business operations will play a crucial role in the evaluation of management at state-run companies. Government-generated e-commerce through the Electronic Data Interchange System will expand to include all supplies, contracts, deliveries, installation work, and materials storage.

Create business parks

The Commerce, Industry, and Energy Ministry is undertaking a large mapping project of Korea's electronics industries. The map will include vital statistics on electronics companies, the size and location of their production facilities, and the distribution networks for their products. The Ministry will use the map, as a blueprint to allocate funding and space for industrial complexes that will house electronics manufacturers, parts suppliers and research institutes. California analogies, although privately planned,

include the Stanford and UC Irvine Research Parks.

Promote the digital contents industry

The digital contents industry is a rapidly expanding business sector, both over the Internet and in traditional industries. Digital contents include music, entertainment, film, animation, advertising, creative writing, and other activities.

The Korean government plans to invest \$50 million this year to promote Korean digital content businesses and to support overseas exports of locally developed products. A Company, *Koreabase*, has been formed by the Korea Information & Contents Business Association and the Korean government to translate information about Korean businesses into foreign languages in a manner that is clear and comfortable to native readers. The company’s mission is to assist in the globalization of Korea’s domestic contents industry. Translation services will be provided in eight languages, including Korean, Chinese, English, French, German, Japanese, Russian, and Spanish.

The Transformation of Korea’s 101 Trade Offices

Trade is very important to Korea. The U.S. is Korea’s largest trading partner.

Chart 5



The Korean Ministry of Commerce, Industry, and Energy, and the Korea Trade-Investment Promotion Agency (KOTRA), recently invested \$8.7 million to open an Internet trade portal web site, *Silkroad 21* (http://www.silkroad21.com/index_en.sr.)



Silkroad 21 links to a variety of information on trade and provides access to domestic trade organizations and government branches. Its unified retrieval engine links to the Internet trade sites of the Korea International Trade Association, EC Plaza, the Korean Marketplace of the Small and Medium Industry Promotion Corporation, and other sites concerned with trade in and with Korea. To stimulate commerce between Korea's 30,000 small and medium-sized enterprises and foreign buyers, *Silkroad 21* offers the latest trade information and real-time overseas buyer information collected by Korea's 101 foreign trade offices.

A two-day event, hosted by KOTRA and promoted by the Ministry of Commerce, Industry, and Energy, was held to commemorate the opening of *Silkroad 21*. A cyber trademart, open for 24 hours on the *Silkroad 21* web site, was the first large-scale cyber trademart in Korea. It included "cyber-briefings" on overseas markets by KOTRA's 101 foreign trade branches, a cyber-recruiting fair, and a cyber-trade seminar of online business talks between Korean exporters and Japanese, Chinese, and Australian buyers. This cyber-trademart will be held annually until 2004.

The Korean Ministry of Commerce, Industry and Energy holds "E-Commerce Week" events periodically to stimulate private enterprises to join in a network and prepare for e-commerce. Nineteen institutions participate including the Small and Medium Business Administration, the Korea Chamber of Commerce and Industry, the Federation of Korean Industries and the Korea Institute for Electronic Commerce. Internet business seminars are held across the country, including an international seminar on B2B e-commerce.

SINGAPORE

Singapore began to formulate IT strategies in the 1980s, focusing on widespread computerization, expanding networks, and setting up databases. A more comprehensive nationwide approach began in 1992, as a result of the government's recognition that national competitiveness is ultimately dependent on the ability to create, possess, and apply information and knowledge. Singapore's government-driven national information technology project, *IT 2000*, was designed to make Singapore an island of information and knowledge. It has largely been implemented. The government is now creating the *ICT21 Masterplan* with the goal of transforming Singapore into a "vibrant and dynamic global ICT (information communications technology) capital with a thriving and prosperous net economy by the year 2010."¹¹

The *Singapore One* project, which proceeded from *IT 2000*, has built a broadband infrastructure of high-capacity networks and switches throughout the island. It connects the government, businesses, private households and schools to an information super highway; 98 percent of the island's households are linked to Singapore One.

The U.S. General Services Administration found that, "Singapore's eCitizen centre is the most developed example of integrated services delivery in the world."¹² It is a single, comprehensive government web portal that brings together government services online, offering easy access to the general public. All agencies have adopted a common infrastructure and modules for form filing, payment, and security. The underlying metaphor is that of a citizen journeying through life who can stop at various "towns." Nine towns cover business, defense, education, employment, family, health, housing, law and order, and transport, and link functions of different agencies. Interestingly, the government also views eCitizen as an important public education project, because as people use and become familiar with IT their skill levels increase.

GEBIZ is a new government initiative going online this year. Its goal is to create a one-stop, 24-hour a day center for government business. It links the government's financial systems and procurement applications. Cost benefits are expected from more competitive bidding, quicker turn around on orders, smaller inventories and automated data collection.

The Singaporean government promotes IT initiatives in businesses. For example, businesses participating in the Local Enterprise Computerization Program are given free consultations. The government also seeks to link local enterprises to multinational corporations in order to access their knowledge and technology.

THE UNITED KINGDOM

The United Kingdom's goal is to lead as "the best place in the world for e-commerce."¹³ A key objective is to make government a global exemplar in its use of information and communication technologies through innovative practices and consistent benchmarking and analysis.

- The British government is preparing to launch an extensive *UK Online* portal (a “one-stop shop” Web Homepage) that will integrate the complete range of government services and provide a path to them that is based on need and function, not on department or agency. In its *Modernizing Government White Paper*,¹⁴ the government has set challenging targets for the electronic delivery of government services: 25 percent by 2001, 50 percent by 2005 and 100 percent by 2008.

For example, by 2002, the British Government intends that citizens will be able electronically to:

- schedule driving and theory tests
- look for work and be matched to jobs
- submit self-assessment tax returns
- get information and advice about benefits
- get on-line health information and advice
- use the National Grid for Learning
- apply for training loans and student support

Business will be able electronically to:

- complete VAT tax registration and make VAT returns
- apply for regional support grants
- receive payments from government for the supply of goods and services

- Britain’s 65 million National Insurance Accounts went online last year under the Private Finance Initiative, which shifts funding and risk to the private sector. Andersen Consulting, which designed and built the system, will be paid on a per-usage basis for those services.¹⁵
- The Office of Government Commerce is responsible for conducting 90 percent of low-value government procurement electronically by April 2001. Security will be provided by a public infrastructure project (Cloud Cover), which is run by the Communications-Electronics Security Group.
- An Electronic Communications bill has been introduced to ensure that government departments give equivalence to written and digital documents. A new Center for Management and Policy Studies in the Cabinet will manage a program to transfer the experience of business process change from the private to the public sector.

Another government objective is to support modern markets by developing a national and global legal, regulatory and fiscal environment that facilitates e-commerce. Such an environment would contain the following elements:

- Encourage enterprise and innovation
- Remove legal and regulatory barriers to e-commerce
- Increase competition in the UK telecommunications market

- Converge regulation in the telecommunication and broadcasting sectors
- Build consumer trust in Information Security
- Empower individual e-commerce consumers
- Reach international agreement on a framework for cross border e-commerce

A third set of objectives considers how to connect individuals and businesses so that they can take full advantage of the opportunities opened up by information and communication technologies, and ensure that those opportunities are available to all. Key strategic elements include:

- Promoting IT skills for children and teachers
- Enabling lifelong learning
- Ensuring universal access to tools and technology

Several government initiatives target businesses. The *Information Society Initiative* is a national network of 100 Local Support Centres that provide businesses with expert and impartial advice. It has produced and distributed a series of award winning "how to" guides on the benefits of using technology, and has compiled a series of case studies of small companies that have successfully incorporated technology into their businesses. *Trade UK* provides access to a range of Department of Trade and Industry services designed to help UK firms improve their export and trade practices. *SMART Scheme* gives grants to small and medium-sized businesses for feasibility studies and the development of innovative technology. The government has also established a working group to coordinate agencies' drives to promote e-commerce.

CANADA

In September 1998, the Prime Minister of Canada announced an *Electronic Commerce Strategy* outlining initiatives designed to establish Canada as a world leader in the adoption and use of e-commerce, and highlighting its importance:

Electronic commerce promises to be a major generator of jobs and growth in the next century, through improvements in the productivity of business, growth in consumer transactions, and development of the supporting information technology infrastructure. Experience has shown that early leaders quickly establish market dominance. Those who enter first are able to help shape evolving rules as well as business and consumer behavior.¹⁶

Canada's ambitious goals are to become the most connected nation in the world, a world leader in the development and use of e-commerce, and to ensure that the Information Highway infrastructure and society is accessible to all Canadians. The Canadian e-commerce strategy, like that of the United Kingdom, is based on private and public sector partnerships. The private sector has the lead role in the development and use of e-commerce, while the role of government is to support the private sector in three broad ways:

- Provide a supportive and responsive domestic policy environment.
- Work with other governments and international organizations to establish a global regime that provides consistent and predictable global rules and ensures the inter-connection and interoperability of the information infrastructure.
- Show leadership by acting as a model user of new technologies, demonstrating the advantages of electronic commerce and building trust among businesses and consumers.

A key government objective is to build trust in electronic markets by increasing consumer and business confidence. This requires effectively addressing security, privacy and consumer protection concerns.

- *Cryptography*: Cryptographic technologies provide ways to establish the identity and privileges of the transacting parties and to prove the origin, receipt and integrity of the information, often through the use of trusted agents such as certification authorities. The Canadian government's policy on the use of cryptography in the conduct of e-commerce is to balance the security of commercial transactions with the needs of law enforcement and national security.
- *Privacy*: Parliament has enacted legislation to create a legal framework for the protection of personal information based on a voluntary code developed by the Canadian Standards Association (CSA).
- *Consumer Protection*: Industry and consumer representatives have jointly developed a set of principles and guidelines for the protection of consumers conducting online transactions.

The Canadian government is clarifying rules for the digital marketplace. The objective is to remove barriers to the use of e-commerce and update the rules governing how the market functions. These include legal and commercial frameworks, financial issues and taxation, and intellectual property protection.

- *Digital Signatures*: Provide for the formal recognition in law of digital signatures and electronic documents, through the amendment of more than 300 federal statutes relating to governmental transactions and information requirements.
- *Regulatory Framework*: Exempt Internet-based services from licensing and regulation, thereby permitting e-commerce to develop on a market-driven basis.
- *Taxation*: Canada is committed to a "technology-neutral" approach to e-commerce taxation, which avoids Internet-specific taxes.

The Canadian government is working to strengthen the Information Infrastructure by ensuring that communication networks can support the growth of e-commerce and allow

interoperability.

- *Internet Governance*: A private organization, the Canadian Internet Registration Authority, manages “.ca” as Canada’s domain name registry. Canada also plays a prominent role in ICANN, the international private sector organization responsible for registration and governance of top-level domain names.
- *Standards*: In March 1999, the Telecommunications Standards Advisory Council approved a *Standards Framework for Electronic Commerce*, covering the infrastructure, applications and business process components of e-commerce.

JAPAN

The Japanese government believes that insufficient investment in IT is an important reason for the slow pace in the country’s economic recovery in the 1990s.¹⁷ According to this analysis, increased investment in U.S. information technology, even in periods of economic recession, bolstered the growth of the U.S. economy. In contrast, after Japan’s “economic bubble” burst in 1990, investment in IT fell greatly and, as a result; the Japanese economy has lagged.

Japan’s Ministry of International Trade and Industry (MITI) is well known for its involvement in the Japanese economy. In 1997, MITI established some general principles by which the government could promote the digital economy. These principles stressed the need for flexibility and promoted resolving problems through technology and competition in the marketplace, not regulation.

A key government objective is to promote security and public trust in e-commerce. If the electronic data exchanged during e-commerce are exposed to theft, falsification, or unauthorized access, the public’s trust may be lost, weakening the foundations of the digital economy. As computer networks develop, the threats to which e-commerce is exposed, such as by unauthorized computer access and computer viruses, are increasing. In order to ensure that business contracts, property transfers and services are accomplished safely, it is essential to maintain the integrity of electronic data. From this point of view, encryption and authentication technology are now the parts of the infrastructure of the economy.

Ensuring privacy is an important component of promoting public trust in e-commerce. There is increasing uneasiness among consumers that others can use data that concern them without their knowledge. The rapid development of technology, and increasing number of users of open networks such as the Internet, have made it possible for enterprises to swiftly process large quantities of personal data. Instances of commercial sale, exploitation and alteration of personal data have already occurred. In March 1997, MITI revised its *Guidelines for the Protection of Personal Data* to promote voluntary private sector measures for the protection of personal data. The government urged enterprises to provide consumers with accurate information about privacy and data protection standards. The government publicizes cases of incidents of privacy

infringement and is improving advisory services for consumers.

A major objective of the Japanese government is to ensure widespread access to IT and the digital economy to benefit individuals, businesses, and society as a whole. People who do not have ready access to information, such as the elderly, need the opportunity to diversify their everyday lives. Business opportunities for small-and-medium sized enterprises could increase dramatically, expanding the economy. In order to develop the digital economy, users need to know how to use information technology. Businesses require skilled human capital, particularly IT workers, to operate e-commerce.

Japan currently lacks sufficient investment in IT education and training. The government is actively promoting new educational and training activities. These include creating and improving training facilities, investing in on-site improvements in school computer-network environments, improving educational software, and revising standard educational curricula and examination systems. The government is also promoting practical research and cooperative arrangements between academia and industry. Finally, the government plans to offer incentives and recognition to the producers of superior multi-media contents.

Legal systems and commercial practices need to change as economic activities are increasingly conducted over electronic networks. The Japanese government views its role as creating an environment in which voluntary rule making in the private sector can progress smoothly. Then, if necessary, the government should examine amending legal systems. The goal is to swiftly conform legal rules with economic activities so that all transaction rules, ranging from legal systems to commercial practices, are adjusted in pace with growth of e-commerce.

Digital contents, computer programs, trademarks and famous brands that are distributed commercially in the networked market can be easily exploited. In order to prevent such "free rides," the government needs to ensure development of appropriate intellectual and commercial property rights and related laws. These include laws establishing rules for competition and contracts, and civil remedies for the unlawful use of software and web site contents.

Given the global characteristics of a network-based digital economy, the Japanese government's policy is to promote the rigorous exchange of information and coordination among different nations. Creating an international framework will facilitate the world economy's growth. This requires harmonizing different rules for transactions, developing common standards to address harmful contents, and providing uniform personal data protection and encryption.

The Japanese government seeks to limit access to illegal and harmful contents. With large amounts of information circulating freely, it has become possible for people to easily obtain information from all over the world without leaving their homes. Harmful and ethically problematic contents, including illegal information on drugs as well as obscene materials, are also circulated. They can result in a loss of social trust in networks

and have a bad influence on the education of juveniles. For such reasons, the Japanese government is hesitant to allow children to have direct access to the Internet at school. The government is promoting the development of mechanisms by which users can filter information. MITI is developing a Platform for Internet Content Selection (PICS), which allows information to be filtered according to the level, set by users. By encouraging network providers to draw up voluntary guidelines, MITI hopes to avoid new regulations. The Japanese government has also recently become concerned about threats against basic social systems —“cyberterrorism.”

CHINA AND HONG KONG

“Three years ago, the Asian Tigers were written off for dead. Now three of them – South Korea, Taiwan, and Hong Kong – have embraced the Internet and are on a tear. Could this be the key to Asia's recovery?”¹⁸

China is rapidly expanding its use of the Internet and e-commerce. The market is young and payment and delivery systems are not well organized yet. Total sales conducted through e-commerce reached \$40 million in 1999. According to a recent report, the Chinese Internet market will reach maturity in three years. In 1997, 620,000 Chinese used the Internet; this number skyrocketed to 8.9 million in 1999. Chinese Internet users are based mainly in the economically developed areas of Beijing, Shanghai, and Guangdong. These areas, Shenzhen, Shenyang, and inland Xien, Chengju, and Kunming have rapidly growing software business sectors.

Hong Kong's policy, described in *Digital 21*, is to keep government intervention in the economy to a minimum and strengthen the IT infrastructure by relying on competition between private companies.¹⁹ Hong Kong is already well endowed with telecommunications infrastructure and is connected to the world's major regions through fiber optic cables and satellites. The government provides IT seminars and training, and supports research and development for technology.

TAIWAN

The Taiwanese government is relying on a private company, Chung Hwa Telecom, to build the nation's information technology infrastructure. By the end of 1999, the first stage of the high-speed optical fiber backbone was completed. The government is also emphasizing IT education for the general population and installing computer rooms in all schools.

Taiwan's economic development strategy is largely centered in industrial parks planned by the government. The Hsinchu Science-based Industrial Park (HSIP) and the Nankang Software Industrial Park are examples. The former plays a central role in the development of high-tech industries in Taiwan and the latter was recently established to facilitate the development of an information and telecommunications industry. The government facilitates collaboration between industry and academia by constructing industrial parks close to universities. For example, the HSIP has science and technology

universities as well as research institutes in its vicinity, and this enables the effective commercialization of new ideas. There are private sector analogies in California: the privately planned co-location and growth of the University of California, Irvine, and its adjacent private research park, Stanford's famed research park, and the new Mission Bay medical campus development at the University of California, San Francisco.

III. LEGISLATIVE AND ADMINISTRATIVE OPTIONS

While not necessarily recommendations of the author or the California Research Bureau, the following discussion highlights potential options for action.

CREATE A STATE TASK FORCE TO MONITOR, COMPARE AND ANALYZE E-COMMERCE STRATEGIES

When analyzed as a separate country, California has the seventh largest economy in the world, a \$1 trillion market in 2000. The state's "leadership" economy is based in information technology, advanced communications, use of the Internet and entertainment and multi-media.²⁰ Thus, even as the U.S. federal government develops long-term and systematic e-commerce strategies, California has significant reasons to follow the emerging e-commerce world and develop its own state strategies. The information presented in this report provides examples of how other governments plan, monitor, and analyze their e-commerce policies and strategies.

In order to ensure an ongoing, formal review and analysis, the Governor could establish a public-private e-commerce task force. An analogy would be the State's Y2K high level task force. This group would promote and co-ordinate the state's drive towards becoming a national e-commerce model. It would develop new initiatives, encourage innovation in state government, review state statutes, and keep up with trends in the digital world. The United Kingdom and Korea have similar working groups.

CREATE AN E-COMMERCE PORTAL ON THE CALIFORNIA STATE HOMEPAGE

The state could construct an e-commerce portal on its homepage (www.ca.gov), either as a top-level category or as a "hot link" to a broad data base. The portal would link to information about state strategies and trends, provide useful comparisons to other governments, detail incentives for California businesses, and link to IT education programs for targeted groups such as seniors or foreign language speakers. The goal would be to help all individuals and businesses take full advantage of the opportunities created by new information and communication technologies.

BUILD ON CALIFORNIA'S ETHNIC AND CULTURAL DIVERSITY

California is the home of people from many nations. The state's ethnic diversity is a competitive advantage in a global, e-commerce economy. Newly emerging e-commerce markets like China and Korea are important trading partners for California, but most buyers or investors in those markets find it difficult to connect with California businesses due to the language barrier. Foreign trade businesses particularly are handicapped by an inability to communicate in English. This is a great obstacle, as English is the principal language for more than 60 percent of Internet users worldwide. More than 90 percent of

all Internet contents are in English.

California could provide useful bilingual information through its web site for foreign businesses, relying on in-state ethnic networks to serve as translators, intermediaries, and information sources. Promoting trade and investment would benefit California and its trading partners.

For example, the *Invest in Britain Bureau*, a state-run foreign investment promoter of the United Kingdom, has a new Korean-language service on its web site. Available at www.ibbasia.org, the service will offer information on investment opportunities and key



industries in Britain for potential Korean investors. The new Korean language service will help boost trade links between the two nations.

NURTURE THE STATE'S DIGITAL CONTENTS BUSINESSES

The “digital contents” industry is one of the most important and fast-growing Internet-related business sectors. The industry includes businesses that create and market a wide variety of information and entertainment including games, music, films, cartoons, advertisements, books and multimedia. The Korean government expects that the global market for digital contents will jump from \$40 billion in 1998 to over \$165 billion in 2003, an annual growth rate of 33 percent.

This industry needs workers who have a variety of artistic skills, including computer design, animation, music, language arts, creative writing, and filmmaking. Many California schools have weak curriculum, insufficient materials, and too few teachers trained in these areas.

California could build on community efforts to offer improved art and music instruction

in the schools by targeting funds for teachers and materials.

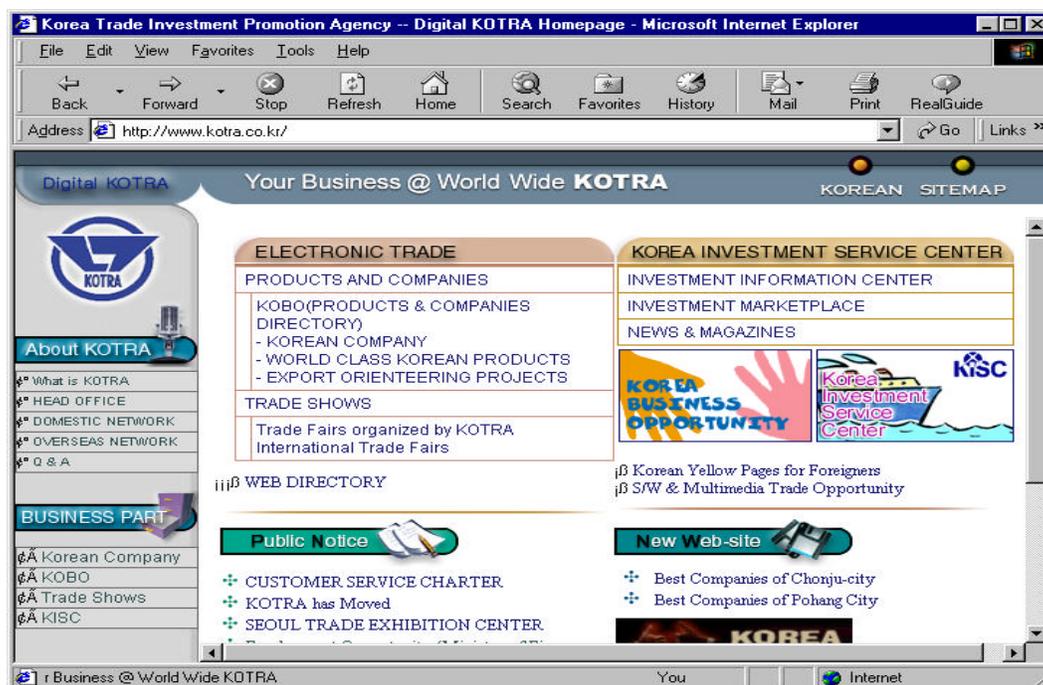
Working with local community boards and the Employment Training Panel, California could direct job-training funds for adults towards subsidized education and training in these diverse skill areas.

PROMOTE E-COMMERCE FOR SMALL AND MEDIUM-SIZED CALIFORNIA BUSINESSES

In the third quarter of 1999, California had 921,061 firms with fewer than 20 employees. These small firms make up 88 percent of all of the firms in the state, accounting for 3.2 million workers or 22 percent of the workforce. Several options could benefit these firms:

- The Trade and Commerce Agency could identify businesses involved in promoting trade and contract with them to help small firms become trade ready. Alternatively, the Agency could assemble and distribute to small firms a list of trade consulting services, both public and private. A State loan program, perhaps requiring a low level of matching funds, could be created to facilitate the ability of small and medium-sized businesses to engage trade services.
- The Trade and Commerce Agency could match California's small manufacturers and service providers with larger companies engaged in international trade. These alliances would give local businesses an opportunity to grasp international trends in an industry and to benefit from the latest technology and capital possessed by large trading firms.

KOTRA's Internet Trade Portal



- Promoting California businesses through the Virtual Trade Mart, where a large number of sellers and buyers can "meet" in cyber space and engage in negotiations and share information, could be very helpful to California's small and medium-sized businesses. The Trade and Commerce Agency could set up a working group to develop those concepts. (KOTRA's trade portal is shown above.)

USE FOREIGN TRADE OFFICES

California could direct its foreign trade offices to facilitate e-commerce for small and medium-sized businesses by providing them with useful marketing information. Japan and Korea have foreign trade offices all over the world that gather and analyze useful information about specific markets for their businesses.

The Trade and Commerce Agency might benefit from mutual relations and agreements with other trade agencies such as Korea's KOTRA or Japan's JETRO. These could include exchange of personnel and business information, translation services, joint trade and promotions and enhanced digital links. For example, KOTRA focuses significant resources on California and California has a trade office in Seoul, Korea.

KOTRA, San Francisco office



NOTES

¹ Charlene Wear Simmons, Ph.D., of the California Research Bureau, California State Library, provided editorial advice and some additional material for this paper.

² Peter F. Drucker, *Management Challenges for the 21st Century* (New York: HarperBusiness, 1999), p. ix.

³ *Best practices in E-government and E-business*, presentation by Michele Grisham of Cisco Systems, February 1999.

⁴ Peter Sinton, "Small Firms Taking Off as Big Spenders on The Net," *San Francisco Chronicle*, May 17, 2000, p. 61, Survey by Access Markets International Partners, Inc.

⁵ Mark A. Ibele and Jon David Vasche, "California Tax Policy and the Internet," *State Tax Notes*, Feb. 28, 2000.

⁶ "Washington Makes a Digital Statement", *Government Technology Magazine*, October 2000, <http://www.govtech.net/publications/gt/2000/oct/Washington3/index.shtm>.

⁷ Matei Mihalca of Merrill Lynch Asia-Pacific, located in Hong Kong , as quoted by ABC News, *The 'Hidden Gem'*, April 20, 2000.

⁸ UK government, <http://www.e-envoy.gov.uk>.

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¹⁰ "Netvalue Releases First Figures on Asian Market", Netvalue, September 4, 2000. http://www.netvalue.com/corp/presse/index_frame.htm?fichier=cp0013.htm

¹¹ *The Economist* (U.S. edition), "Survey of Government and the Internet," June 24, 2000, page 17.

¹² *Ibid.*

¹³ <http://www.e-envoy.gov.uk>.

¹⁴ <http://www.citu.gov.uk/moderngov/whitepaper/4310.htm>.

¹⁵ *The Economist* (U.S. edition), "Survey of Government and the Internet," June 24, 2000, page 14.

¹⁶ Government of Canada, *Preparing Canada for a Digital World* , <http://strategis.ic.gc.ca/SSG/ih01650e.html>.

¹⁷ Japan, Ministry of International Trade and Industry, *Towards the Age of the Digital Economy*, May 1997.

¹⁸ Jim Rohwer, Neel Chowdhury, and Louise Kraar, "The New Net Tigers," *Fortune*, May 15, 2000, page 310.

¹⁹ See http://english.peopledaily.com.cn/199910/24/enc_19991024001042_TopNews.html and <http://www.sinchungkai.org.hk/newweb/lib/letter1vii.html>. The official Digital 21 strategy site is http://www.info.gov.hk/digital21/eng/strategy/strategy_main.html.

²⁰ Center for Continuing Study of the California Economy, *California County Projections*, 2000 Edition, pp. 1-6.