Since 1998, the Hong Kong (HK) Special Administrative Region (SAR) government has implemented territory-wide e-government initiatives, which are pursuant to the Digital 21 Information Technology Strategy (info.gov.hk/digital21). Subsequently, the years 1998 to 2007 marked the initial stages of e-government development in HKSAR as information and services were made available online (refer to stages 1 to 4 of e-government in Exhibit W5.2.1, p. 5–4). As a result, an infrastructure where citizens, business organizations, and the government can perform electronic transactions was established by February 2007. Moreover, the city of Hong Kong is now regarded as a “mature city” in terms of e-government development (Accenture 2003). The following are some of the key e-government projects in HKSAR that were developed from 1998 to 2009.

**Electronic Service Delivery (ESD) Scheme**

Since 2001, the Electronic Service Delivery Scheme (ESD) has provided a central electronic platform through which the Hong Kong public can transact business with the government. ESDlife (esdlife.com), a Web portal launched under the ESD scheme, hosts over 200 e-government applications for more than 50 bureaus, departments, and agencies. Moreover, the average monthly number of visits to all government websites is 280 million, and over 90 percent of HKSAR government services are provided to the public with an e-option. Some examples of the ESD services include the following:

- Booking for leisure and sports facilities
- Performing civic duties, such as filing tax returns, paying tax bills, and purchasing tax reserve certificates
- Applying and registering for public examinations
- Searching for job vacancies
- Renewing driver’s and vehicle licenses
- Selling statistical data and government publications
- Booking appointments for registration of identity card
- Booking appointments for giving marriage notice
- Registering to vote
- Applying for a senior citizen card
- Paying government bills
- Serving as a one-stop venue for changing one’s address with multiple government departments

ESD employs a variety of CRM characteristics. For example, the 200 interactive and transactional services made available to the public are organized around their daily needs under the categories of “Health,” “Personal Growth,” “Leisure,” “Household,” and the like. A life-event service index is also made available to facilitate the search for services under categories such as “Building a Career,” “Establishing a Family,” “Having a Baby,” “Retiring,” and so on. Some public services, such as weather reports, an air pollution index, and a government telephone directory, also are available through the mobile network.

**The GovHK Web Portal**

Between 2001 to late 2006, the HKSAR government provided online government information and services through two Web portals—ESDlife (esdlife.com) and the Government Information Centre (GIC) (info.gov.hk). The former Web portal is controlled and operated by a private company and hosts all e-government applications. As a separate function, the GIC operated by the HKSAR government provides easy access to some 200 departmental/thematic websites administered through different bureaus/departments (B/Ds). A new government Web portal GovHK (gov.hk) was launched in early 2007 to replace the government-centric GIC, and this new one-stop portal serves as the one-stop shop for online government information and services. For instance, related information and services provided by different B/Ds are brought together in service clusters on GovHK, the purpose of which is to serve one or more target customer groups with needs and interests within a particular subject (e.g., environment, employment, education, and transportation) or in a particular age range or role (e.g., business and trade, visitors, and residents). Since its inception, the GovHK portal was developed to provide a citizen-centric way of e-government services delivery.

**Smart Identity Card**

The HKSAR government started issuing smart identity cards to its citizens in June 2003. By March 2007, Hong Kong’s 7 million residents acquired the new generation of smart ID cards. This project has effectively made Hong Kong one of the largest populations in the world to use smart ID cards. The smart ID facilitated the formation of a community-wide information infrastructure for the government and the private sectors to introduce value-added e-applications.

The following are some applications provided on smart ID cards:

- **E-certificates.** The embedding of a free e-Cert in the smart ID card presents Hong Kong citizens with an option to possess an “electronic ID” that can be used for identity authentication and for ensuring confidentiality, integrity, and nonrepudiation of data transmitted in electronic transactions.

- **E-channels.** The Immigration Department of HKSAR introduced an automated passenger clearance system (e-channels) in December 2004. The e-channel system performs mutual authentication with the smart identity card key and then deploys fingerprint verification technology for the authentication of a person’s identity. This way, HKSAR residents can use their smart identity cards to perform self-service immigration clearance.

- **E-library card.** Cardholders have the option to use their smart ID card as a library card.

- **E-driving licenses.** Smart ID cardholders have the option not to carry their driver’s licenses when driving.

*(continued)*
### Customer Relationship Management
To allow customers to gain the full benefits from the deployment of IT, the HK Government has injected the concept of customer relationship management (CRM) into e-government. This allows government to better serve the needs of citizens and businesses efficiently and effectively.

### M-Government
With one of the world’s highest mobile phone penetration rates, Hong Kong benefits from the rapid development of wireless technology and services. The portal and other initiatives are accessed by mobile devices.

### Joined-up Government Projects
Joined-up government is a priority of the Office of the Government Chief Information Officer. In joined-up projects, the government consolidates the efforts of multiple government agencies and reengineers their business processes. As a result, the Hong Kong Government can gain greater efficiency in government operations and more readily identify consumer needs to provide one-stop and tailor-made services to citizens and businesses.

### Hong Kong Education City
Set up in 2000, the Hong Kong Education City (HKedCity) provides an interactive electronic platform with rich e-learning resources for students, teachers, and parents. Users can exchange experiences and promote effective practices through the portal. As of February 2007, over 1.4 million registered users were on the platform.

### Electronic Tendering System (ETS) and e-Logistics
The Electronic Tendering System (ETS) enables international suppliers to do business with the HKSAR government online. Approximately 4,000 suppliers from over 30 countries are registered to use ETS. The ETS is part of the e-procurement efforts. By 2009 over 90 percent of all tendering is done electronically.

### Government Electronic Trading Service
The Government Electronic Trading Service (GETS) enables the trading community to submit official trade-related documents to the government through electronic means. Commercial service providers enable value-added services creating opportunities for the further enhancement of the local e-commerce service industry. Between 1998 and 2009, HKSAR moved to the established stages of e-government, placing emphasis on the clustering of common services and full-enterprise reform and collaboration (refer to stages 5 and 6 of Exhibit W5.2.1, p. 5–4).

The Hong Kong Government is committed to leading by example in adopting IT, not only externally to serve the citizens and businesses, but also internally in the communication and transactions among bureaus and departments, G2G and G2E—between the government (as an employer) and civil servants (as its employees). All initiatives are in Chinese and English.

### Questions
1. Identify each initiative as G2C, G2B, C2G, or G2E.
2. Visit info.gov.hk/digital21 and identify the goals of the five e-government initiatives.
3. Section 5.1 and Exhibit W5.2.1 discuss the stages of e-government development. Specifically, the HKSAR government is at what stage of transformation?
4. How will the role of the HK government change when the initiatives mature and are fully utilized?
5. Compare the services offered by Hong Kong with those offered in other Asian cities/countries, such as Taiwan (gov.tw) and Singapore (ecitizen.gov.sg). What are the major differences among these e-governments?

### REFERENCES FOR ONLINE FILE W5.1
Chapter Five: Innovative EC Systems

The following seven stages show the growth of e-government. Exhibit W5.2.1 illustrates the stages.

- **Stage 1: Information publishing/dissemination.** Individual government departments set up their own websites. These provide the public with information about the specific department, the range of services it offers, and contacts for further assistance. The online presence helps reduce paperwork and the number of help-line employees needed.

- **Stage 2: “Official” two-way transactions with one department at a time.** With the help of secure websites, customers are able to submit personal information to and conduct monetary transactions with single government departments. In many countries, payments to citizens and from citizens to various government agencies can be performed online. Also, tax returns are filed online.

- **Stage 3: Multipurpose portals.** Based on the fact that customer needs can cut across department boundaries, a portal enables customers to use a single point of entry to send and receive information and to process monetary transactions across multiple departments. For example, the government of South Australia’s portal (sa.gov.au) features a “business channel” and a link for citizens to pay bills, manage bank accounts, and conduct personal stock trading. Singapore’s ecitizen.gov.sg and gov.sg are also examples of such portals.

- **Stage 4: Portal personalization.** In stage 4, government puts more power into the customers’ hands by allowing them to customize portals with their desired features. The added benefit of portal personalization is that governments get a more (continued)
accurate read on customer preferences for electronic versus nonelectronic service options. State and county governments and several countries have now implemented such portals.

- **Stage 5: Clustering of common services.** As customers now view once-disparate services as a unified package through the portal, their perception of departments as distinct entities will begin to blur. Once a business restructuring needs to take place, they will recognize groups of transactions rather than groups of agencies.

- **Stage 6: Full integration and enterprise transformation.** Stage 6 offers a full-service center, personalized to each customer’s needs and preferences. At this stage, old walls defining silos of government services have been torn down, and technology is integrated across the new structure to bridge the shortened gap between the front and back offices. Full electronic collaboration among government agencies and between governments, citizens, and other partners will occur during this phase, which is in its planning stage.

- **Stage 7: Transition to social computing.** The use of Web 2.0 tools, richer media, and social networking activities becomes routine in what is known as social e-government. Also, there is a movement to the use of mobile government (m-government). At the same time the government is attempting to increase the efficiency of its operations by mandating e-invoicing and e-purchasing, for example.

**Implementation Issues of E-Government**

The following implementation issues depend on which of the seven stages of development a government is in and on its plan for moving to higher stages.

- **Transformation speed.** The speed at which a government moves from stage 1 to stage 7 varies, but usually the transformation is very slow. Some of the determining factors are the degree of resistance to change by government employees, the rate at which citizens adopt the new applications (see the following section), the available budget, and the legal environment.

- **G2B implementation.** G2B is easier to implement than G2C. In some countries, such as Hong Kong, G2B implementation is outsourced to a private company that pays all of the start-up expenses for new businesses in exchange for a share of future transaction fees. As G2B services have the potential for rapid cost savings, they can be a good way to begin an e-government initiative.
Online File W5.2  (continued)

- **Security and privacy issues.** Governments are concerned about maintaining the security and privacy of citizens’ data. An area of particular concern is health care. From a medical point of view, it is necessary to have quick access to people’s data, and the Internet and smart cards provide such capabilities; however, the protection of such data is very expensive. Deciding on how much security to provide is an important managerial issue. In the United States, the 2002 E-Government Act requires all federal agencies to conduct privacy assessments of all government information systems.

- **Business aspects.** Andersen (2006) points to the strategic management value of such initiatives. The author claims that the transformation of government to act “like business” requires internal analysis from a business point of view.

  See Welch and Pandey (2006) for additional implementation issues.

**Citizen Adoption of E-Government**

One of the most important issues in implementing e-government is its adoption and usage by citizens. One of the major variables is “trust in e-government.” Other variables, such as perceived ease of use and perceived usefulness, are generic to EC adoption. Moderating variables, such as culture, also are important.

---

**REFERENCES FOR ONLINE FILE W5.2**


ONLINE FILE W5.3

Application Case

E-LEARNING AT CISCO SYSTEMS

The Problem
Cisco Systems (cisco.com) is one of the fastest-growing high-tech companies in the world, selling devices that connect computers to the Internet and to other networks. Cisco’s products are being upgraded or replaced continuously, so extensive training of employees and customers is needed. Cisco recognizes that its employees, business partners, and independent students seeking professional certification all require training on a continuous basis. Traditional classroom training was flawed by its inability to scale rapidly enough. Cisco offered in-house classes 6 to 10 times a year, at many locations, but the rapid growth in the number of students, coupled with the fast pace of technological change, made the training both expensive and ineffective.

The Solution
Cisco believes that e-learning is a revolutionary way to empower its workforce and its partners with the skills and knowledge needed to turn technological change into an advantage. Therefore, Cisco implemented e-learning programs that enable students to learn new software, hardware, and procedures. Cisco believes that once people experience e-learning, they will recognize that it is the fastest, easiest way to get the information they need to be successful.

To implement e-learning, Cisco created the Delta Force, which was made up of CEO John Chambers, the IT unit, and the Internet Learning Solution Group. The group’s first project was to build two learning portals, one for 40 partner companies that sell Cisco products and one for 4,000 systems engineers who deploy and service the products after the sale.

Established in 2008, the Cisco program is referred to as the ”Cisco Learning Network,” or Cisco Learning Connection. (Watch the guided tour of the Cisco Learning Network at cisco.com/web/learning/le31/le46/cn/video/guided-tours/full_tour.htm.) It is a social learning community that uses social software extensively in training. The mission is to provide learning tools, training resources, and industry guidance to anyone interested in Cisco certification.

Cisco also wants to serve as a model of e-learning for its partners and customers, hoping to convince them to use its e-learning programs. To encourage its employees to use e-learning, Cisco:

- Makes e-learning a mandatory part of employees’ jobs.
- Offers easy access to e-learning tools via the Web.
- Makes e-learning nonthreatening through the use of an anonymous testing and scoring process that focuses on helping people improve rather than on penalizing those who fail.
- Gives those who fail tests precision learning targets (remedial work, modules, exercises, or written materials) to help them pass and remove the fear associated with testing.
- Enables managers to track, manage, and ensure employee development, competency change, and, ultimately, performance change.
- Provide live chat with experts, so employees can ask questions.

- Offers additional incentives and rewards such as stock grants, promotions, and bonuses to employees who pursue specialization and certification through e-learning.
- Adds e-learning as a strategic top-down metric for Cisco executives, who are measured on their deployment of IT in their departments.

For its employees, partners, and customers, Cisco operates E-Learning Centers for Excellence. These centers offer training at Cisco’s office sites as well as at customers’ sites via intranets and the Internet. Cisco offers a variety of training programs supported by e-learning. For example, Cisco converted a popular four-and-a-half-day, instructor-led training (ILT) course on Cisco’s signature IOS (internetwork operating system) technologies into an e-learning program that blends both live and self-paced components. The goal was to teach seasoned systems engineers (SEs) how to sell, install, configure, and maintain those key IOS technologies and to do so in a way that would train more people than the 25 employees the on-site ILT course could hold.

The Results
With the IOS course alone, Cisco calculated its ROI as follows:

- It cost $12,400 to develop the blended course.
- The course saved each SE one productivity day and 20 percent of the travel and lodging cost of a one-week training course in San Jose. Estimating $750 for travel and lodging and $450 for the productivity day, the savings totaled $1,200 per SE.
- Seventeen SEs attended the course the first time it was offered, for a total savings of $20,400. Therefore, in the first offering of the course, Cisco recovered the development costs and saved $8,000 over and above those costs.
- Since March 2001, the IOS Learning Services team has presented two classes of 40 SEs per month. At that rate, Cisco saves $1,152,000 net for just this one course every 12 months.

In 2004, over 12,000 corporate salespeople, 150,000 employees of business partners, and 200,000 independent students were taking courses at Cisco learning centers, many using the e-learning courses. By 2004, Cisco had developed over 100 e-learning courses and was planning to develop many more. According to Galagan (2002), e-learning is a major underpinning of Cisco’s economic health.

Questions
1. Use examples from the Cisco case to discuss the differences between e-learning and e-training.
2. What measures has Cisco adopted to encourage its employees to use e-learning?
3. Comment on the effectiveness of Cisco’s e-learning programs.
4. Why did Cisco organize the learning community?
Many of those who have tried e-learning have been pleased with it. In many cases, self-selection ensures that those who are likely to benefit from e-learning choose e-learning opportunities. For example, students who live at a great distance from school or who have family responsibilities during traditional school hours will be motivated to put in the time to make e-learning work. Similarly, employees for whom a training course at a distant site is a problem, either because of budget or personal constraints, are likely to be enthusiastic about e-learning programs. E-learning does not work for everyone, though. It is believed that e-learning failures are due to the following issues (Impact Information 2006):

- **Believing that e-learning is always a cheaper learning or training alternative.** E-learning can be less expensive than traditional instruction, depending on the number of students. However, if only a few students are to be served, e-learning can be very expensive because of the high fixed costs.
- **Overestimating what e-learning can accomplish.** People sometimes do not understand the limitations of e-learning and, therefore, may expect too much.
- **Overlooking the shortcomings of self-study.** Some people cannot do self-study or do not want to. Others may study incorrectly.
- **Failing to look beyond the course paradigms.** The instructor needs to adapt course content for the e-learning environment with regard to pedagogy.
- **Viewing content as a commodity.** This results in a lack of attention to quality and delivery to individuals.
- **Ignoring technology tools for e-learning or fixating too much on technology as a solution.** A balanced approach is needed.
- **Assuming that learned knowledge will be applied.** This is difficult to accomplish successfully.
- **Believing that because e-learning has been implemented, employees and students will use it.** This is not always the case.

To prevent failure, companies and schools need to address these issues carefully and systematically.

---

**REFERENCE FOR ONLINE FILE W5.4**

Some examples of Second Life (SL) educational activities include:

- The New Media Consortium has created an experimental learning space called NMC Campus where members can explore learning and collaboration.
- Info Island is an online space where users can explore innovative exhibits of information and participate in live in-world meetings with real-life authors. It also provides space for educators and nonprofit organizations.
- The International Spaceflight Museum is a great example of using SL to create something that would be almost impossible to build in real life.
- Aura Lily is a place where people with a passion for ancient Egypt can recreate artifacts and architecture of ancient Egypt using maps drawn by Napoleon’s engineers.
- The Angel Learning Isle is a place for educators to meet, discuss, and create new courses (see the Gazebo of Knowledge there).
- Architecture professors bring their students to SL to build things that would either be too expensive or even physically impossible to create in the real world. The students can see each other while they are building and work collaboratively on projects.
- Psychologists and sociologists study what people choose to do in SL and why they are doing it.
- Ohio University Without Boundaries offers an SL virtual campus featuring multiple learning and collaboration opportunities for students on the Ohio campus and all over the world.
- Ball State and other schools have bought “land” on SL to build a campus. Ball State’s Middletown Island has a tiki bar and lounge for dancing, a coffee shop, and dorms where students can “live” in SL without having to buy their own land. The students decorate their dorms with furnishings they buy in SL and then write about the experience for a composition class. And since anyone’s avatar can look female or male (or not human at all), some students are writing about what it’s like to be taken for the opposite gender.
- In a class taught at San Francisco State University, IT professor Sam Gill employs a virtual world to introduce students to business process management. Normally, students go to a McDonald’s to see how it sells a burger. In SL, the students study a fictional business created by IBM.

The SL experience is particularly enhanced for distance learning. Of special interest is Harvard University Extension School.

Example: Harvard’s Berkman Island
As of October 2008, several hundred universities have set up shops inside SL. In the fall semester of 2008, one Harvard University class held class meetings on Berkman Island within SL. Avatars representing the students and teachers gathered in an “outdoor” amphitheater, entered a virtual replica of Harvard Law School’s Austin Hall, and traveled all over the digital world to complete assignments. Some 90 Harvard Law and Extension School students took the course, called “CyberOne: Law in the Court of Public Opinion,” for real college credit. However, anyone with a computer connection could take the course for free. Students from as far away as South Korea and China participated. The students, who communicated via text messaging, were even able to have private one-to-one chats, just as they might in the real world.

Real-Life Education in Second Life
Second Life (SL) Educators (SLED) (see lists.secondlife.com/cgi-bin/mailman/listinfo/educators and Rymaszewski, et al. 2007) was created to help educators find colleagues and collaborators in SL. SLED helps educators learn about the SL environment. It also sponsors meet-and-greet events in SL, helping real-life educators to connect with each other. SLED also advises educational institutions on how to create private virtual campuses in SL that are not open to the public.

Students and educators can work together in SL from anywhere in the world as part of a globally networked virtual classroom environment. Using SL as a supplement to traditional classroom environments provides new opportunities for enriching existing curricula. Many students would gladly schedule time for the virtual classroom. Educators should not be slow to step in and embrace this simple-to-use, interpersonal, and further-developing media.

(continued)
REFERENCE FOR ONLINE FILE W5.5


The sports apparel company Fila uses a Web-based product data management and collaboration software, called Windchill, from Parametric Technology Corporation (PTC) to reduce time-to-market and product costs while improving product quality and information exchange. Windchill requires only a Web browser to use. The product helps manufacturers streamline processes to optimize the management of their supply chains. The capabilities and benefits of such a solution include the following:

- Windchill connects with Arbortext Editor for SML authoring and Arbortext Publishing Engine for dynamic publishing.
- It is a pure Internet architecture with embedded 3-D visualization of product information.
- The software interoperates with heterogeneous mechanical/electrical CAD solutions, and provides end-to-end process support to other enterprise systems.
- It supports distributed product development and enables real-time collaboration across firewalls.

The solution enabled Fila to better manage and control access to product data and images throughout its supply chain. Fila’s vice president of global product and general manager, Kristin Kohler, stated, “As the industry matures, consumer expectations increase in terms of brand and product, as well as the creation of a clear point of difference in the marketplace. Fila’s goal in repositioning the brand in this environment is to align various processes in the organization to successfully deliver against this challenge.”

The software will help Fila gain greater transparency and collaboration in its product development process, support a higher level of product analysis, and provide a better focus on delivering the right Fila product to the consumer. Fila will roll out the collaboration tool to its U.S., Italian, Hong Kong, and Guangdong operations in both the footwear and the apparel categories.

REFERENCES FOR ONLINE FILE W5.6
