
ONLINE FILE W6.1 Application Case

A DECADE OF E-GOVERNMENT DEVELOPMENT IN HONG KONG (1998 TO 2009)

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 W6.2.1, p. 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 2007.

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 Web sites 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 drivers’ 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 Web sites 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 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). The goal is to migrate e-government applications hosted on ESDlife to GovHK by January 2008. In 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.

(continued)
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 drivers’ licenses when driving.

**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)**

The Electronic Tendering System (ETS) enables international suppliers to do business with the HKSAR government online. Approximately 3,000 suppliers from over 30 countries were registered to use ETS in 2005.

**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 W6.2.1, p. 4).

**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 6.1 and Exhibit W6.2.1 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 W6.1**

- esdlife.com (accessed June 2010).
- smartid.com (accessed June 2010).
### Key Issues and Trends of E-Government Development and Implementation

<table>
<thead>
<tr>
<th>Number</th>
<th>Key Issues and Trends</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Although there is a growing body of e-government literature, relatively little of it is empirical. More empirical investigation on e-government development and implementation will be needed in the future.</td>
</tr>
<tr>
<td>2</td>
<td>More research on privacy issues in e-government is needed. The Central Intelligence Agency came under public criticism when it was discovered that its Web site used persistent “cookies” to track Web visits, in violation of federal privacy policy.</td>
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<tr>
<td>3</td>
<td>E-government adoption and diffusion in the public sector, especially in local government. Prior study in the United States shows that e-government has been penetrating state government much more rapidly than local government. Future research should study the effects of factors such as proper marketing, privacy issues, equity, and financing on full penetration of e-government in the public sector.</td>
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<td>4</td>
<td>Information technology provides some powerful supporting tools for e-government, which may empower government to provide additional and/or new services to the public that otherwise may not be possible. Future studies can look into how to provide new and value-added services through integrated e-government.</td>
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<td>5</td>
<td>Very little is known about e-government usability issues for older citizens who do not have skills in computer usage or computer access.</td>
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<tr>
<td>6</td>
<td>Future research should study the relationship between e-government and e-governance; specifically, how one issue influences another in e-government development and implementation.</td>
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<td>7</td>
<td>E-government and accountability. Will e-government lead to a more transparent, interactive, open, and, hence accountable, government? If not, what should we do to make it happen as e-government strategies are developed?</td>
</tr>
<tr>
<td>8</td>
<td>Qualification and training issues in e-government. Although e-government has a potential to substantially change the current way the public sector operates and functions, new qualification requirements arise for users, managers, and decision makers in public administration. As a result, effective training programs should be worked out to meet this potentially large demand from the public sector. However, little research has been done in this area.</td>
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<tr>
<td>9</td>
<td>Risk issues in e-government. Although e-government transaction services may offer a potential of increased efficiency and quality with minimum cost in the way the public administration deals with its customers, recent reports show that this is far from reality as e-government projects seem to be failing to deliver. Future study should look into this important issue on identifying key risk factors and how those factors influence the success or failure of e-government projects.</td>
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The following seven stages show the growth of e-government. Exhibit W6.2.1 illustrates the stages.

- **Stage 1: Information publishing/dissemination.** Individual government departments set up their own Web sites. 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 Web sites, 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. (continued)
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 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. Also, there is a movement to the use of mobile government (m-government).

Online File W6.2 (continued)

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.

- **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 W6.2


Part 3: Business-to-Business E-Commerce

Online File W6.3 The Driving Forces of E-Learning

The business forces that are driving the transition from traditional education to online learning are described here. They are divided into several categories, as shown in Exhibit 6.3 (p. 224). See elearnmag.org for more information on drivers and justification. The major drivers are:

Technological Change. Technological changes and global network connectivity have increased the complexity and velocity of the work environment. Today’s workforce has to process more and more information in a shorter amount of time. New products and services are emerging with accelerating speed. As product life cycles and life spans shorten, today’s knowledge quickly will become obsolete. In the age of JIT (on demand) production, JIT training becomes a critical element to organizational success.

Competition and Cost Pressures. Fierce competition in most industries leads to increasing cost pressures. In today’s competitive environment, organizations can no longer afford to inflate training budgets with expensive travel and lodging. Time spent away from the job, traveling or sitting in a classroom, tremendously reduces per-employee productivity and revenue.

Globalization. Globalization is resulting in many challenges. Today’s businesses have more locations in different time zones and employ larger numbers of workers with diverse cultural backgrounds and educational levels than ever before. Corporations worldwide are seeking innovative and efficient ways to deliver training to their geographically dispersed workforces in other countries. E-learning is an effective way to achieve just this. Companies do not need to bring employees to a trainer or training facility (or even send a trainer to the employees); online classes can run anywhere in the world.

Continual Learning. In the new economy, corporations face major challenges in keeping their workforces current and competent. Learning has become a continual process rather than a distinct event. To retain their competitive edge, organizations have started to investigate which training techniques and delivery methods enhance motivation, performance, collaboration, innovation, and a commitment to lifelong learning.

Network Connectivity. The Internet provides an ideal delivery vehicle for education. The emergence of online education relates not only to economic and social change but also to access. Through its increasing penetration and simplicity of use, the Internet has opened the door to a global market where language and geographic barriers for many training products have been erased. Because of the popularity of the Internet, e-learning is perhaps the most effective way to deliver training electronically.

Fueling the boom in Internet-based management education are corporations hungry for better-trained executives. General Motors pays for its employees to earn an MBA through an Internet-based school launched in 2003 by the New York Institute of Technology and Cardean University. Ingersoll-Rand has a deal with the University of Indiana to customize an online MBA program for its employees. Capella offers tuition discounts to Fortune 500 companies such as Boeing, Johnson & Johnson, and Wells Fargo for putting the school on “preferred provider” lists. Online MBAs serve “a real market need,” says Trace Urdan, an analyst with Robert W. Baird’s equity research unit. “It’s a win–win for companies and employees.”

Examples of top traditional MBA programs that are introducing e-learning are MIT, Kellogg (Northwestern), INSEAD, University of Chicago, Duke, Berkeley, Purdue, Wharton (University of Pennsylvania), and Cornell. Examples of joint ventures of MBA programs with industry can be seen at Duke, Darden (University of Virginia), UCLA, INSEAD (partners with Pensure), Columbia, Stanford, University of Chicago (partners with UNext), and Wharton (partners with FT Knowledge). Of special interest is the Harvard/Stanford joint venture in developing e-learning materials for executives. The materials are delivered in a combination of classroom teaching and e-learning known as Leading Change and Organizational Renewal. A similar venture is that of MIT (Sloan School) and IMD of Switzerland. As of 2007, more than 150 accredited business schools offer online versions of their curricula, according to GetEducated.com (geteducated.com), which tracks online education trends.

ONLINE FILE W6.4 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 its 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.

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.
- Offers additional incentives and rewards such as stock grants, promotions, and bonuses to employees who pursue specialization and certification through e-learning.

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.
Part 3: Business-to-Business E-Commerce

REFERENCES FOR ONLINE FILE W6.4

cisco.com (accessed June 2010).


Online File W6.5 Preventing E-Learning Failures

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 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 W6.5

ONLINE FILE W6.6 Application Case

ONLINE GLOBAL LEARNING CENTER AT W. R. GRACE

The newest concept for training and development is the online learning center. Online learning centers combine the Internet, intranets, and e-delivered courses with conventional learning media, such as books, articles, instructor-led courses, and audio and video.

W. R. Grace, a global specialty chemicals company (grace.com), initiated its online learning center in 2001. The company's human resources leaders were looking for a solution that would provide fast and easy access to a wide selection of tools for developing employee skills. Surveys indicated a need for self-paced professional and personal training support for employees. Strategic Partners’ learning center concept provided the solution. A pilot program was initiated in March 2001. Within six months, the center was available 24/7 to 6,000 employees worldwide.

The learning center is organized around the core competencies that characterize the knowledge, skills, and abilities all W. R. Grace employees are expected to achieve. It offers internal classroom training; external courses; CD-ROM courses; self-paced learning tools; streaming video; Internet learning conferences; e-learning courses; coaching tips for managers and mentors; audio and videotapes; books and articles; information about the corporate mission, values, and strategy; strategy guides suggesting specific development actions, on-the-job and in the community; and corporate and industry news. Employees can access resources on a particular topic; they can search a range of appropriate tools and action alternatives specific to their needs, including training sessions, recommended readings, a rental library, and a strategy guide.

The center’s Global Steering Committee, made up of representatives from all the functional areas of the business from around the world, keeps the center in tune with the development needs of employees and encourages the use of the center in all regions. The committee also provides human resources management with feedback on how the center is meeting identified needs.

Every six weeks, the center’s electronic newsletter lands on each employee’s desktop. The publication keeps employees up-to-date on the offerings of the center, reports on how employees are using the center, and encourages all employees to use the center as a source for learning and development. Corporate news also is included in the newsletter, keeping the company’s initiatives and communications visible to all employees.

Based on its experience, W. R. Grace offers the following suggestions for the successful implementation of a learning center:

- Line up strong senior management support.
- Build gradually—start with a modest center, get it running smoothly, gather feedback from the users, make needed adjustments, and develop a more extensive center over time.
- Invite involvement—people support what they help to create.
- Provide a variety of learning tools, mixing in-house and external resources.
- Keep the learning center visible.
- Ensure the content is fresh and up-to-date.

W. R. Grace’s Global Learning Center supports employee growth in a cost-effective manner while relating learning to performance and talent management, strategic communication, and individual development planning. It has proved to be a powerful learning and communications channel for the entire corporation.

Questions

1. List the factors that drive e-learning at W. R. Grace.
2. How is e-learning integrated with other learning methods?
3. List the e-learning offerings of W. R. Grace's learning center.
4. Describe the critical success factors of e-learning offered by W. R. Grace.

REFERENCES FOR ONLINE FILE W6.6

Online File W6.7 Education-Related Activities in Second Life

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 (see the following photo).

![New Media Consortium Campus in Second Life](flickr.com/photos/33002318@N00/466962751)

*Source: Image by Jo Kay, via Flickr at: flickr.com/photos/33002318@N00/466962751. Used with permission.*

- 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.

(continued)
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.

**Source:** Educational Uses of Second Life 09. Photo by Jo Kay. flickr.com/photos/jokay/3201815624/in/set-72157612171568581. Used with permission.

(continued)
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.

REFERENCE FOR ONLINE FILE W6.7


Online File W6.8 Types of E-Books

Several types of e-books are available:

- **Traditional book format.** This type of e-book is a classic or new book that is presented in traditional linear format, usually without special features, such as hyperlinks or search mechanisms. With the right software (Adobe Portable Document Format), a reader can print the book.

- **Online bookshelf.** This is a collection of books (rather than just a single book) that can be read online or downloaded. They are simple in format and do not have hyperlinks.

- **The download.** This is an e-book in simple text files, HTML source documents, or Adobe Acrobat files that can be downloaded once the viewer has paid a fee.

- **The Rubik's cube hyperlink book.** This is a truly multimedia, online-only book. It has hyperlinks and provides three-dimensional text and display, employing graphics, audio, and video in a dramatically supportive manner. It supports nonlinear exploration of topics. It is especially useful in supporting learning.

- **The interactive, build-your-own (BYO) decision book.** This kind of book puts the reader “in the driver’s seat.” Combined with multimedia and VRML (a three-dimensional version of HTML), this e-book leads to dramatic engagement with content, plot, destiny, and responsibility. More information about BYO decision books can be found at From Now On (fno.org).

- **The online reference book model.** Safari, a joint venture of technical publishing giants O'Reilly and Pearson Technologies, provides online reference book services. Users search across the content of the Safari e-books, get relevancy-ranked search results to answer their specific queries, and then view the content immediately in a Web browser.

(continued)
In addition to regular books, electronic technical documents and manuals are available from the eMatter division of Fatbrain (now a Barnesandnoble.com company). In addition to all the major publishers that sell e-books directly from their Web sites, readers also can buy e-books at electronic bookstores. All major textbook publishers (e.g., Pearson Education, the publisher of this text) are creating electronic companion textbooks that feature audio, video, and other interactive elements.

Leightons Opticians was founded in 1928 in Southampton, United Kingdom. The business progressed throughout the decades, and a number of branches were opened. In 1996, Leightons launched a franchise business aimed at attracting high-quality and business-focused opticians and optometrists. Leightons now owns 25 branch stores and has 15 franchisees. Leightons still maintains its traditional family values of outstanding personal customer service delivered by highly professional staff offering excellent treatment and advice and the best quality lens and frame technologies. As the business expanded, however, the challenge was to ensure that staff spent time serving customers and not on administrative issues, such as order tracking, filing, and the like.

Leightons decided to implement a collaborative hub from Supply Chain Connect (supplychainconnect.com), which is now part of ChemConnect (chemconnect.com). All the branches, franchises, and suppliers are able to connect to a single hub and seamlessly exchange information, irrespective of the internal systems operated at the respective sites. Leightons pays a monthly subscription fee for Supply Chain Connect’s services, which made it possible to avoid paying a substantial up-front investment in the technology.

Staff members at any of Leightons’ branches are able to send orders electronically to a number of different suppliers. Because orders are sent through the hub, they can now be tracked, so Leightons’ staff members are able to check the real-time status of any order at any time.

Leightons has been very happy with the direct cost savings generated and also believes that its staff is now able to spend more time delivering excellent personal customer service.

Leightons’ two major suppliers are Luxottica and Marchon; both are enthusiastic users of Supply Chain Connect. They receive hundreds of orders daily from a variety of branches and franchisees, and the collaboration hub enables them to view all orders from a particular buyer very easily. The system is integrated with their back-office systems, eliminating any need for rekeying data, thus saving the status of any particular order, meaning that they are better able to monitor the performance of their critical suppliers. Future expansion is planned to allow for automated matching of orders against invoices for payment approvals.

Questions
1. Why is this considered to be a collaboration hub?
2. What are the potential risks associated with participation in this collaboration hub?
3. In what other ways could these players utilize the collaboration hub?
4. Think of the various parties involved in this collaboration and identify the benefits that each derives from it.
ONLINE FILE W6.10 Application Case

WEBCOR BUILDERS GOES ONLINE WITH ITS PARTNERS

Webcor Builders (webcor.com) builds apartment buildings, hotels, and office parks and earns revenues in excess of $1 billion a year. For years, the company suffered from poor communication with its partners (architects, designers, building owners, subcontractors) and struggled with too much paperwork. Reams of paper documents were sent back and forth via “snail mail.” In a very competitive industry, inefficiencies can be costly. Therefore, Webcor decided to introduce e-commerce into its operations. Webcor’s goal was to turn its CAD drawings, memos, and other information into shared digital information.

Starting in 1999, to enable online collaboration, Webcor began using an ASP that hosts Webcor’s projects using ProjectNet software on a secured extranet. The software is complex; it was difficult to get everyone to accept ProjectNet, and some user training was necessary. However, Webcor found itself in a strong enough market position to be able to say that it would not partner with anyone who would not use ProjectNet.

With everyone on the ProjectNet system, Webcor’s business partners can post, send, or edit complex CAD drawings, digital photos, memos, status reports, and project histories. ProjectNet provides a central meeting place where users can both download and transmit information to all parties. Everyone involved in a project is more accountable because there is a digital trail, and partners now get instant access to new drawings.

One of the major benefits of ProjectNet is that employees now spend more time managing their work and less time on administrative paperwork. Several clerical workers were laid off, and the saved cost of their salaries covers the software rental fees.

By 2005 Webcor’s goals included:

- Save time and money by providing high-speed data connections at every construction job; a 12-month job could be cut to 12 weeks, saving hundreds of thousands of dollars.
- Streamline approval of design changes by establishing a Web site for each project where everyone on the project could log on; valuable time and money is saved on printing and courier deliveries.
- Better construction tracking and record keeping by updating schedules, weather reports, and change in plans on the Web site for field supervisors and subcontractors to access; time spent in meetings and on phone calls could be cut, making subcontractor scheduling more efficient.

Currently, Webcor is leading the way in building information modeling, virtual design and construction, integrated project delivery, and high-speed data communications initiatives through collaboration with world-class academic and industry organizations. The results include new methods and technologies that push the margins of quality, value, and performance.

Questions

1. Draw the supply chain of Webcor before ProjectNet.
2. What B2B model is this (e.g., sell-side, buy-side, etc.)?
3. What are the benefits of this e-commerce project to Webcor?
4. What are the benefits of this e-commerce project to Webcor’s clients?
REFERENCES FOR ONLINE FILE W6.10


Webcor Builders. webcor.com (accessed February 2009).

ONLINE FILE W6.11 Application Case

CADENCE DESIGN SYSTEMS: DEPLOYING A CORPORATE PORTAL ON ITS INTRANET

Cadence Design Systems, Inc., is a leading supplier of electronic design automation (EDA) software tools and professional services for managing and accelerating the design of semiconductors, computer systems, networking and telecommunications equipment, consumer electronics, and other electronics-related products. The San Jose–based company employs more than 5,000 people worldwide to support the development requirements of the world’s leading electronics manufacturers.

In the late 1990s, Cadence recognized that the business model for EDA products was beginning to evolve from a tools-oriented model to one where software and consulting services held the potential for the greatest revenue growth. To address this changing model, Cadence identified two areas of customer interaction: sales and logistics. The new sales strategy required the sales force to have an in-depth understanding of Cadence’s product line of almost 1,000 products and services. With two separate organizations (sales and logistics) interacting with customers, coordination and communication were needed to ensure an effective and consistent relationship built on a real understanding of the customers’ issues.

For almost a year, Cadence worked with a consulting firm to create an intranet-based corporate portal to support its sales organization. The system, called OnTrack, uses a homepage with links to other pages, information sources, and custom applications to map each phase of the sales process with supporting materials and reference information.

With OnTrack, the sales representative now has a single unified tool that provides all the information and data needed for the sales process, from finding new clients to closing a deal to managing the account. In addition, global account teams have their own homepages where they can collaborate and share information. However, OnTrack is much more than a static road map. For example, information on a customer or competitor is now available instantly through access to an outside provider of custom news. The sales rep also can use a search engine to locate everything from financial information to recent news articles and press releases about clients or competitors. In addition, the system is used to disseminate Cadence news and other information.

All creators of information in the company, from sales reps to marketing and management personnel, are responsible for maintaining the information contained in OnTrack. With a wide range of people entering data, a simple-to-use information submission process was needed. With appropriate access can now add a new message to the daily alerts, modify a step in the sales process, or update a customer presentation by using these custom tools.

Feedback is a key part of OnTrack. Reports highlight frequently accessed pages and documents, and reviews of frequent searches identify new information to include in the system to make critical information even easier to access.

Managers who made the decision to implement the OnTrack system learned several lessons. First, although the use of a browser and the navigation of a Web page required only minimal employee training, the application of the OnTrack system to the daily activities of the sales reps was not as easy. A second lesson was the holistic approach Cadence took in unifying the technology with the process. Rather than mandate a new process or install a new software system, Cadence did both. The combination of an easy-to-use technology, a refined process, and the appropriate support systems created a single coherent system that could support the new sales paradigm.

(continued)
OnTrack was implemented at a relatively low cost. Cadence leveraged its existing infrastructure and wisely hired outside experts to create the application rather than devoting internal resources to it. This choice allowed the company to focus its efforts on defining the process and tools needed to support the sales force rather than designing software.

Finally, the greatest impact of OnTrack has been the result of the shortened training time for new sales reps. A new salesperson stated that he had learned in two days from OnTrack what it took months to learn at a previous company. With 40 new reps hired in the first year, and 40 planned for each of the next two years, reducing the training time for new sales personnel has created additional profits for Cadence. Cadence calculates that OnTrack has achieved a high return on investment, well over 100 percent!

Questions
1. How does the corporate portal assist sales representatives?
2. What were the major lessons learned by Cadence? Identify EC models and transactions used in this case.
3. How can the portal system accelerate training?

REFERENCES FOR ONLINE FILE W6.11
