

# U S WEST Global Village

## Company Background

U S WEST, Inc. was born on January 1, 1984 as a result of the divestiture of AT&T into seven Regional Bell Operating Companies (RBOC). The company inherited from AT&T \$16 billion in assets, \$7 billion in annual revenue, and 73,000 employees. By 1997, assets have increased to \$23 billion, revenues increased to \$11.7 billion, and number of employees dropped to 61,500 (see Exhibit 1 for U S WEST's financial data). Headquartered in Englewood, Colorado, U S WEST currently provides telecommunication services to 25 million customers in fourteen states within the United States, and also operates cellular, cable, and information services businesses in seventeen countries worldwide.

The breakup of AT&T can be traced back to 1974, when the U.S. Department of Justice filed an antitrust suit against AT&T, which owned a monopoly in local and long-distance telecommunication services and equipment business at that time. AT&T was charged with violating the Sherman Antitrust Act by conspiring to thwart competition in the long distance and customer premises equipment businesses. A long court battle ensued and finally, on January 8, 1982, the two parties agreed to a settlement, whereby AT&T decided to divest the 23 Bell Operating Companies it owned, while retaining the long distance business, manufacturing organization, and international businesses. The 23 Bell companies were consolidated into seven RBOC, approximately similar in terms of assets and revenues. U S WEST, one of these RBOC, inherited three of the 23 Bell companies: Mountain Bell, Northwestern Bell, and Pacific Northwest Bell; together comprising a 14-state operating region within the continental U.S. (see Exhibit 2).

U S WEST's operations are currently managed by two major groups:

- U S WEST Communications Group, which provides basic telephone services to fourteen western and midwestern U.S. states (namely Oregon, Washington, Idaho, Montana, Wyoming, Utah, Arizona, Colorado, New Mexico, North Dakota, South Dakota, Nebraska, Minnesota, and Iowa),

---

This case was written by Dr. Anol Bhattacharjee, with assistance from Kim Gray, Marla Reed, Eric Selber, and Issac Swanson. It is intended to serve as a basis for class discussion rather than to demonstrate the effective or ineffective handling of an administrative or business situation. This case can be downloaded and distributed free of charge by non-profit academic institutions, provided the contents are unchanged and this copyright notice is clearly displayed. No part of this case can be used by business organizations without the express written consent of the author. Copyright © 1997 by Anol Bhattacharjee. All rights reserved.

---

long distance services within specified calling areas, and high-speed networking equipment and services to business customers and government agencies.

- U S WEST Media Group, which operates the company's telephony, wireless, directory, and information services businesses in seventeen countries worldwide (namely, Argentina, Australia, Belgium, Czech Republic, Hungary, India, Indonesia, Japan, Malaysia, Netherlands, Poland, Russia, Singapore, Slovakia, Spain, United Kingdom, and the United States).

The corporate structure of the two groups is presented in Exhibit 3, and the organizational structure of U S WEST Communications is illustrated in Exhibit 4. Separation of the two groups was formally approved by U S WEST shareholders on October 31, 1995. Two classes of common stock were created: U S WEST Communications (NYSE: USW) and U S WEST Media Group (NYSE: UMG); both trading on the New York Stock Exchange.

According to Chairman, President, and CEO Richard McCormick, the goal of U S WEST is "to meet our customers' needs better than anyone else." In line with this goal, the company has evolved a strategy of technology leadership in order to provide its customers with new and innovative products and services, aided by a robust network (see Exhibit 5). Some of these innovations include:

- *ISDN*: America's first integrated services digital network customer trial was launched by U S WEST in Phoenix in November 1986. ISDN is an all-digital network simultaneously carrying voice, video, and data on the same line.
- *Custom Ringing*: This new service was introduced in September 1988, to help several customers share a common phone line using different telephone numbers and a different ringing tone for each number.
- *Community Link*: This is a videotex service started in Omaha in November 1989, to provide business and residential customers the ability to shop, order airline tickets, and access sports, cultural, and school information using over 400 information services from the convenience of their desktop computers.
- *NewsFax*: This interactive information service was unveiled in November 1992, to electronically package and deliver faxable news tailored to subscribers' interests. This service provides a daily one-page brief of news articles to subscribers, who could then select specific articles for printing on their fax machines.
- *Voice Dialing*: This is a voice recognition calling service where customers could speak into the telephone the person they wanted to call, and the service would automatically dial the appropriate number from a list of prespecified telephone numbers. Market testing of this service was started in Golden, Colorado in March 1993.
- *Digital Messaging Services*: U S WEST Cellular subscribers in Seattle became the nation's first to receive Digital Messaging Services in June 1993, made possible by Motorola's "smart" phones.

- *Personal Communications Network (PCN)*: The world's first commercial PCN was tested by U S WEST in the United Kingdom in September 1993, allowing telephone numbers to be assigned to people rather than telephone sets or places.
- *!INTERACT*: In 1995, U S WEST became the first RBOC to offer a full range of Internet connectivity for businesses, such as desktop computer networking, site hosting, directory services, and most significantly, integration with Lotus Notes applications.

Details on each of these services, along with a chronology of key events at U S WEST is provided in Exhibit 6. The company's current plans calls for expanding its portfolio of products and services with the goal of providing its customers with one-stop shopping for all their telecommunication needs. For instance, PCS/wireless services are scheduled to be introduced in early 1997, video services in mid 1997, and full long-distance services by end 1997.

In order to take advantage of deregulation in the U.S. telecommunications industry, U S WEST has attempted to venture new and more profitable industry sectors. For these new markets, the company has evolved a strategy of entering into joint partnerships and consortiums with dominant companies in these sectors. In May 1993, U S WEST and Oracle, the world's largest database software company, announced joint plans to bring interactive multimedia services to homes, businesses, and schools. That same month, U S WEST announced an alliance with Time Warner Entertainment to provide telephone services, information services, and entertainment over Time Warner cable systems in 29 states outside U S WEST's 14-state operating region. In July 1994, the company entered into a joint venture with AirTouch Communications, a reputed cellular services company, to create the nation's third largest wireless company. Three months later, U S WEST/AirTouch Communications joined Bell Atlantic/NYNEX in a wireless consortium representing 15 of the nation's top 20 cellular markets. In February 1996, U S WEST acquired Continental Cablevision, creating the nation's third largest cable company. With its various subsidiaries, the U.S. West Media Group today serves 16.2 million cable subscribers within the U.S. and 13.9 million subscribers abroad. These alliances are described chronologically in Exhibit 6.

U S WEST was the first Bell company to move aggressively into foreign markets. In 1988, it acquired partnerships in cable TV companies in France and the United Kingdom. The first cellular system in Eastern Europe was initiated in Hungary in October 1990 as a joint venture between U S WEST and the Hungarian Telecommunications Company. In July 1992, U.S. West teamed with Telecommunications, Inc. (TCI), the world's largest cable TV operator, to form TeleWest International, for managing all shared cable TV and telephone interests outside the U.S. Today, U S WEST has cable systems in ten countries, wireless communications services in seven countries, directory publishing services in three countries, and is currently helping expand the capacity of Russia's telecommunication infrastructure.

In February 1996, the U.S. Congress passed the Telecommunications Act of 1996, to promote further competition and deregulation in the U.S. telecommunications industry (i.e., local phone, long distance, and cable TV). In anticipation of this regulation and increasing competition and shrinking profit margins, U S WEST had earlier announced a series of cost-reduction plans: shifting work done in small offices to 26 regional customer service centers, eliminate 9,000 jobs (mostly managerial), and adopting an accelerated depreciation schedule for older network equipment. The goal of this reengineering drive

---

was to improve business processes, increase employee productivity, and enhance customer satisfaction, while reducing costs. Though not formally a part of this reengineering initiative, the Global Village project played a key role in achieving these goals.

## **The Global Village Project**

In early 1994, U S WEST Communications became one of the pioneers of internal company-owned computer networks or “intranets” (see Appendix for a brief description of intranet technology) with the initiation of its Global Village project, well before the word intranet was coined as a popular term. The project started on an experimental basis when the Finance organization within U S WEST was exploring ways to make its billing system flexible enough to allow for the inclusion of new products and services. Margaret Tumey, Vice President of Finance Operations at U S WEST, hired Sherman Woo, now Director of Information Tools and Technology, as a “technological visionary,” to help the company identify new products and services that the new billing system could utilize. Following a year-long study of potential changes in customer demographics, lifestyles, marketplace, and public policy, Woo concluded that the industry was headed toward increasing globalization, digital convergence of telecommunication, information, and entertainment services, and innovative use of new technologies. The subject of Internet was frequently raised in brainstorming sessions, and the idea of using Internet-based technologies on U S WEST’s existing network to facilitate company-wide information processing and distribution emerged. Woo recalled the start of the project as,

“I felt like a person who was looking at the right part of the sky and saw the comet before anyone else did. There was no intellectual magic, I simply happened to look at the right place at the right time and saw what was coming. I took a risk and proceeded to do it. Maybe I deserve credit for the fact that I acted on it rather than just observing it.”

Based on extensive project planning, Woo requested \$4 million and 40 employees for the project, but the request was turned down by the management. The final project team consisted of a small budget and only three employees, Sherman Woo, Patricia Hursh, and Suzanne Mullison, all of whom were assigned to the strategies group within the Finance organization.

By initiating a move order within the company, Woo acquired an underutilized SUN 490 server with 4 MB of memory. Three Macintosh computers and three Infocus projection televisions were purchased for approximately \$30,000. U S WEST already owned a ten-year old, SNA-based, backbone network called USWnet. This network was reconfigured to carry TCP/IP-based intranet traffic on top of the company’s existing SNA-based data and application traffic. Woo set up the SUN server and transformed a conference room into a multimedia facility to demonstrate intranet possibilities to interested individuals within the company.

Once established, the demonstration room became the cornerstone for a grassroots effort to develop company-wide interest in intranet technology. Woo gave tours of the Global Village and browser software to any interested employee. This tour included one internal web site, the external Internet, and a computerized demonstration of potential business applications that could run on the intranet. Each

---

employee who attended a tour or received the browser software was asked to show at least two colleagues how the web worked. This grassroots effort, coupled with increasing awareness of Internet technologies, generated strong interest in the Global Village project within U S WEST. As noted by Peggy Tumey,

“These efforts have provided a powerful foundation on which we can build. Sherman did a fantastic job of getting the people engaged, helping them see the potential of this technology, and spreading the word.”

Since its inception in 1994, the Global Village has been redesigned three times to serve the information and communication needs of U S WEST employees better and more effectively. The last of these revisions was implemented in September 1996, when U S WEST licensed the entire line of Netscape Communications Corp.’s client and server software for Global Village users. Netscape’s SuiteSpot server software was chosen as the platform for creating, managing, and distributing web applications and 50,000 copies of Netscape Navigator client software were licensed to serve as a common user interface across the company. Thirteen different electronic mail systems existing within U S WEST prior to this time were consolidated to two systems. Employees with specific business reasons to use Lotus Notes were allowed to continue using Notes’ e-mail application, while all other employees were asked to migrate to Netscape’s e-mail application called NetMail. Migrating to NetMail cost U S WEST only \$18 per person, and provided the company with significant cost savings in e-mail system maintenance.

Today, U S WEST employees can access the Global Village from any corporate office within the company’s 14-state operating region by typing in the appropriate uniform resource locator address in their web browser (i.e., <http://www.gv.uswest.com>). This will display the Global Village home page (see Exhibit 7) on the users’ computer screen, from where they can navigate to any internal corporate site or even the external Internet. Four types of activities are currently supported by the Global Village. These activities are listed in Exhibit 8 and described below:

- *Information sharing.* Individual employees, groups, and departments can create web sites to share personal and professional information with the rest of the company. A directory of internal web sites is maintained with information about each department and projects within these departments, which can be used by authorized users to locate information about specific projects. Employees can retrieve contact information (e.g., office location, telephone number, electronic mail address) of other employees directly from the Employee Directory. Users can browse the Headline News section on the Global Village home page for corporate news and information about U S WEST and the telecommunications industry, or access Employees News Network or ENN (see Exhibit 9) for employee-specific information such as change in company benefit plans, daily news advisories, internal job openings, and departmental announcements. Both these sections are managed and updated on a daily basis by the Public Relations organization. Employees can also access to U S WEST Media Group’s home page, currently under construction, and the public Internet, in accordance with company policy.
- *Communication and collaboration.* These activities facilitate two-way communication among U S WEST employees, using electronic mail, workflow software, and bulletin board system (BBS). Lotus Notes is the primary workflow software used for collaborative projects, while

---

Notes and NetMail are the two e-mail systems supported. Rumor Mill, a BBS managed by the Information Technology organization, allows individual employees to voice their questions and concerns anonymously or non-anonymously on the intranet, which corporate executives can respond to within a few days. In addition, a Web Developers Coalition home page was developed as a forum to help individuals, groups, and departments develop and maintain web-based applications, exchange ideas, and register for an internal listserver of web-related issues.

- *Employee transactions.* Employee transactions are interactive processes which allow employees to request specific information (e.g., benefits, project status) via on-line forms. After proper authentication, appropriate databases are queried based on the information provided and the requested information is displayed on the users' screen. For example, the Human Resources department maintains an online benefits form, where U S WEST employees can enter the life situation they are approaching (e.g., getting married, having a baby, or preparing for retirement); this form then queries a life situation database and displays all corresponding changes in benefits, taxes, and so forth, along with links to online forms that could be completed and submitted to the appropriate department. Employees whose paycheck are electronically deposited to their bank accounts can use a paystub application to receive their paystub via electronic mail instead of a paper copy mailed to their home address. These paystubs can be stored electronically and easily retrieved when required (e.g., during preparing tax returns).
- *Business computing.* These are core business applications that interface with U S WEST's legacy applications (e.g., payroll, time reporting, billing, and inventory management) using intranet technology. One such application is a Facilities Check application, which enables U S WEST service representatives to check the availability of facilities before making a service commitment to a customer. Prior to this application, customers requesting a service received commitments based on the average time for that service, which were sometimes not met because of the unavailability of the required facilities. The Facilities Check application has significantly reduced missed commitments and customer complaints and improved utilization of U S WEST facilities.

In 1994, the Global Village started with only one site, designed by U S WEST's Advanced Technologies division. The number of web sites grew rapidly as more employees became interested in the technology and started setting up personal web pages. Today, the intranet consists of about 230 sites located on servers throughout the company's 14-state operating region, with new sites being added at the rate of 5 sites per week. Additional servers have since been added to the network and a comprehensive security plan implemented using firewall technologies.

For the first two and half years since the start of the project, use of the Global Village was quite limited, mostly among technology enthusiasts within U S WEST. However, after the final version of the Global Village was implemented in September 1996, the number of accesses to the intranet servers jumped dramatically from a modest 14,000 to over 100,000 per month. Woo explained this increase as the divide between early adopters and mainstream users. About 75 percent of U S WEST Communications' 50,000 employees are currently believed to use the Global Village, generating as many as 200,000 requests per month. Note however that accessing the intranet on a regular basis is

---

difficult for a fraction of U S WEST employees, who are field technicians or mobile employees without a permanent office and/or computer.

## **The Global Village Network**

The Global Village network utilizes U S WEST Communications' internal computer network, USWnet, for all its communication and information sharing needs. This backbone network uses a combination of T1 and T3 cabling between major hubs, and also allows dial-in access on a limited basis. The original USWnet, developed ten years ago and still used for most core business applications, is SNA-based; the Global Village team piggybacked TCP/IP utilization of this SNA-based network. By leveraging an existing network, the Global Village was able to escape major network investments typically required for running an internal web. U S WEST has not yet faced severe capacity limitations on its intranet, despite its and the volume of accesses. Woo describes the reason for this as,

“Part of that is due to the discipline we exercise in not using large graphics, movie files, and sound files. We try to keep away from all the media hype and instead focus more on the business content. I think, it is a very professional approach in managing a common facility.”

But U S WEST believes that eventually traffic congestion will be experienced on the network, and more capacity will be required at that time. Given that U S WEST is in the networking business, an eventual major network upgrade is viewed not as an expense, but as an infrastructure investment required by the company to survive in the business.

With rapid growth and widespread use of the Global Village, security has become an increasingly important issue. The current intranet security plan addresses four major security concerns: (1) preventing unauthorized access to the internal network from outside, (2) preventing non-work related Internet access by company employees, (3) preventing internal or external interception of messages, and (4) preventing unauthorized access to sensitive corporate data and applications by internal employees.

USWnet secures internal data and applications from external public or private networks via a combination of routers, gateways, and application controls. The Global Village uses two firewalls (specialized gateways), located at Denver and at Minneapolis, as additional lines of defence. Netscape Proxy Servers are used for this purpose, which provide a buffer between USWnet and external computers and networks, including the Internet. Each firewall includes an IP relay server, a proxy server, an FTP server, and a commerce server. The proxy server reads the IP address of any machine attempting to read an internal site, compares it with a table of authorized IP addresses, and denies access if a match is not found. In case a matching IP address is found, the client request is transmitted to the IP relay server, which then relays the request to the appropriate internal server for processing. This two-tiered proxy server arrangement prevents unauthorized external access, while securing the IP relay server from direct contact with the outside world.

---

To prevent non-work related access to the Internet by company employees, U S WEST has created a document called "Policy on Access and Use of the Public Internet." This document defines acceptable uses of the Internet and is enforced using regulations similar to that of other company privileges such as corporate credit card or phone card. The proxy servers monitor requests for external (Internet) access from inside the company and maintain audit trails, which can be used later to identify employees who abuse their Internet privileges.

Data encryption is used as a means of ensuring data integrity even if data is intercepted by internal or external sources, while access control and authentication are used to prevent unauthorized access to sensitive data or applications by internal employees. These two processes are supported respectively by the Netscape Certificate Server and Netscape Directory Server. Both servers support Secure Sockets Layer (SSL) level 3.0 encryption and Lightweight Directory Access Protocol (LDAP) based on the X.500 electronic messaging standard. Network administrators at U S WEST issue, sign, store, index, and manage public-key certificates for secure, private communication over the corporate network. Users authenticate their identity with the intranet when they first launch the Netscape web browser, by unlocking their personal certificate(s) to the Certificate Server. The Directory Server compares this information with a predefined access privilege chart to determine whether or not to permit that user access to secure web sites within the company.

## **Managing the Global Village**

Given the unproven nature of intranet technology in 1994, the Global Village project did not evoke a lot of interest among the senior management at U S WEST. However, the project had a strong ally in Peggy Tumey, the Vice President of Finance. Tumey was instrumental in mobilizing the initial capital and human resources for the project (albeit to a limited extent) and protecting it from premature demise. According to Suzanne Mullison,

"Peggy's enthusiasm about the project and desire to see it through was the glue that made the Global Village a reality."

In retrospect, Woo considers the initial lack of interest to be "fortunate," because being a small team and having relatively low startup costs (i.e., the project utilized existing and often unused resources such as server and network), the Global Village presented no threat to anyone. Also, being sheltered within the finance organization, the project escaped potential drives for cost reduction. The approach that was employed to building the intranet was therefore of "personal evangelism" than that of a formal organizational project.

However, with time, as the project evolved and captured the interests of user organizations, the senior management gradually became supportive of the project. This is revealed in allocation of subsequent funds toward the project, formal recognition of the Global Village organization, and specification of job responsibilities. The Global Village organization today consists of a staff of ten technical support people and seven content managers, and has its own office space in Denver, Colorado. To support the ever-increasing volume of user requests, this staff has recently been formally structured into three groups:



1. *Market Innovations Group*: Located within the Finance organization, this group oversees the information content on the Global Village. The group consists of two full-time employees, Patricia Hursh, manager, and Suzanne Mullison, webmaster, who are responsible for monitoring document currency and accuracy, helping employees produce correctly formatted material, updating hyperlinks as they change, and publishing guidelines on preparing material for use on the intranet.
2. *Intranet Technologies Services Group (ITSG)*: Located within the Information Technology organization, ITSG manages the intranet “engine room,” i.e., server hardware, software, and communication architecture. It is responsible for maintaining a “server farm” consisting of several servers located throughout the 14 state region and containing web pages supported by departmental personnel, managing a multi-tiered web proxy server architecture, providing directory and cataloging services, and providing technical consulting on how to add new servers, server security, and so forth.
3. *Application Development Group*: Located within the Information Technology organization and headed by Sherman Woo, this group is responsible for designing and implementing intranet-based solutions to business needs, which are typically paid for by the requesting organization.

Publishing and content management is however done by over 2,000 employees in different user organizations within U S WEST. These individuals are responsible for maintaining the accuracy and currency of information on the intranet, i.e., they “own” the content, while the central Global Village organization (the three groups described above) manages the common resources such as intranet servers and ensures that the network are “up and running.” Woo described the shared management of the Global Village as,

“We have separated publishing from the operations of the machines. We [the IT organization] deal with server access, disk, CPU, and so forth; content is managed by people in each [user] organization. It is a collaborative effort, and so far it has been a pretty good collaboration. We do all of the technology acquisition, so that users naïve about the technology do not have to worry about stretching the dollar but can focus on managing the content. The good thing about the web concept is that it allows distributed management, and that is exactly what we are doing. The analogy will be that of a newspaper where subscribers can write and print to, as opposed to just reading in the morning.”

### **Benefits Realized from the Global Village**

Though the Global Village was initially conceived of as both a thought experiment and a testing ground for new technologies, it has provided U S WEST with several unanticipated benefits of both operational and strategic nature. These benefits include:

1. *Increased employee productivity.* By providing U S WEST employees with easy and convenient access to important corporate data via hierarchical directory structures and fully integrated search engines, the Global Village has significantly enhanced employee productivity. The electronic data is more accurate and current because the information is updated more easily and frequently (generally, on a daily basis) than the print media. Given the widespread awareness and popularity of web technologies, employees have also saved considerable time and effort in learning how to use the intranet.
2. *Reduced costs of operations.* Availability of information in electronic form has led to considerable cost savings via reduction in the processing, printing, and distribution of paper documents. For instance, the paystub application described earlier is projected to save \$300,000 annually if all U S WEST employees participate in this program.
3. *Improved customer service.* The ready and timely access to up-to-date information provided by Global Village has led to better business decision making, and thereby better customer service. For example, the Facilities Check application has helped reduce missed service commitments and improve customer satisfaction to a considerable extent.
4. *Generated new business.* By virtue of its early and successful deployment of intranet technology, U S WEST has been able to leverage its knowledge and experience with this widely popular technology to offer consulting services to business customers. One example of such service is !INTERACT, which is marketed through !ENTERPRISE, the company's Internet products and services organization.
5. *Exemplar of how to use emerging technologies.* The Global Village project operationalizes U S WEST's philosophy of using leading edge technology to further internal operations and customer service and demonstrates how this can be accomplished. Learning distilled from this project can be utilized to manage other emerging technologies that are critical for the company's survival in the immensely competitive telecommunication business.

Patricia Hursh, manager of the Global Village, summarizes the benefits from the intranet project as,

“At U S WEST, we are in the information industry. Over 70 percent of our workers are knowledge workers, the only things they move around are ideas. We have to come out with an effective and inexpensive means of doing that, which is what the Global Village attempts to do. At the same time, it has been a great tool to help employees serve customers better, while reduce internal operating costs at the same time.”

### **Future of the Global Village**

The Global Village has experienced tremendous success over its 2.5 years of existence. The use of the intranet among U S WEST employees is not likely to decrease, at least in the short run. Manageability and security of the intranet still remains major concerns for the Global Village organization. For instance, though the two-tiered proxy server (firewall) architecture secures the current network from outside access, it has been found relatively ineffective in preventing unauthorized access to sensitive

---

data and applications from within the company. A series of enhancements is currently proposed by ITSG to enhance reliability, scalability, and manageability of the intranet, while reducing security lapses as much as possible. One such proposal calls for a replacement of the current two-tiered proxy server architecture with n-tiered architecture. The first two tiers would utilize Netscape Proxy Server and will be managed by ITSG staff 24-hours a day, while additional tiers could be added on departmental levels as and when required to support data and application security at departmental levels.

Of the four types activities supported by the Global Village, business computing is expected to have the greatest impact on U S WEST's business in terms of cost savings and customer satisfaction. However, only about 10 percent of the company's legacy applications has yet been migrated to the web platform. Some business applications require data from multiple departments, and therefore require resolution of data ownership and sharing issues prior to their development. The recently-formed Application Development Group, headed by Woo, is currently attempting to address the application development backlog in this area and identify new business applications that can benefit from the intranet. The long-term strategic value of the Global Village will depend significantly on the deployment of such web-based business applications.

Despite being an useful and convenient source of company-wide information, the Global Village has not yet produced the expected costs savings, since in many cases, the intranet has duplicated rather than replaced the print media. For instance, though the employee directory is available online, it is still printed and distributed on paper every year. Cost savings was also expected by replacing paper-based communication with e-mail and web-based communication. However, paper-based messaging still remains a dominant culture within U S WEST. The overall success of the project will depend on the strategies employed by the Global Village organization to overcome users' behavioral resistance toward this new mode of communication.

Finally, training users on how to effectively use and manage the distributed information content on the internal web will be of strategic importance to the project's success. Fortunately, training employees on using the technology was not a major issue, given the widespread acceptance and use of web technologies. A more challenging issue was training users on how to utilize corporate data and applications appropriately and manage web resources owned by them. As Tumey observes,

“What we have is an exciting and useful tool that uses a technology that's very important to our industry and makes us literate in the way people communicate. To survive in the communication business, it is very essential that employees learn to use this medium, like they have learned to use computers and telephones.”

Given the worldwide trend in convergence of the digital media, such as telecommunications, information services, television, and the like, and the development of globally dispersed virtual offices, where fellow office workers are not limited by geographical distances in sharing information and collaborating on team projects, intranet technologies will assume greater importance to the sustenance of modern businesses. U S WEST has realized these trends well in advance, and has positioned itself as a premier worldwide provider of telecommunication and related services by making appropriate utilization of leading-edge technologies. According to Woo,

---

“The key to surviving in this virtual environment is to have an easy to use, effective, inexpensive communication network linking the different virtual office spaces. At the Global Village, that is the goal we would like to pursue.”

---

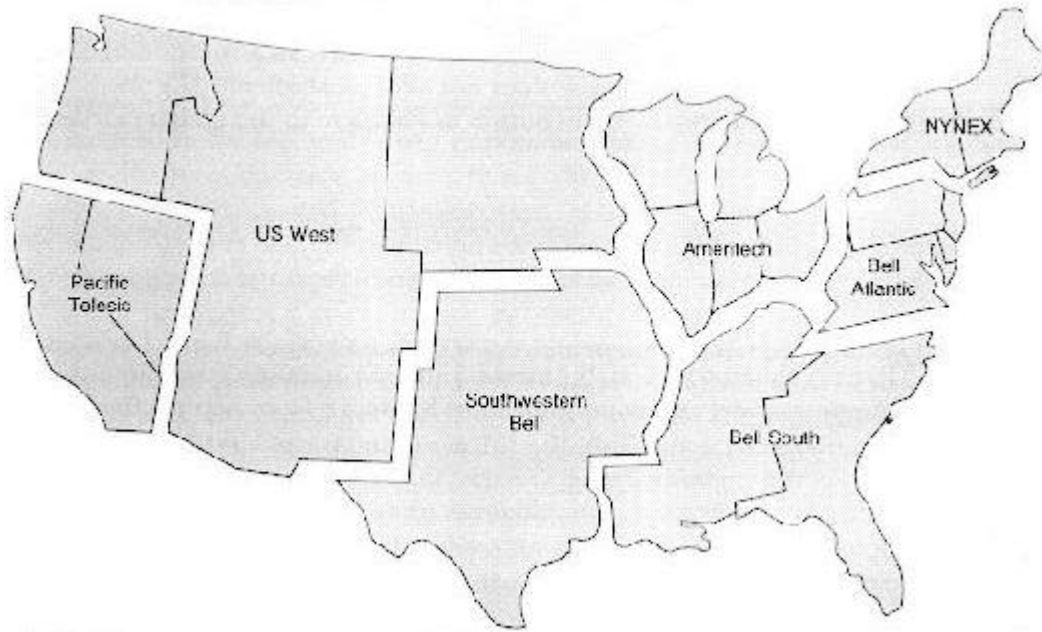
**Exhibit 1. U S WEST's Financial Trends**

	1996	1995	1994	1993	1992	1991
Operating revenues	\$11,700	\$9,483	\$9,176	\$8,870	\$8,530	\$8,345
Net income (loss)	NA	\$1,176	\$1,150	(\$2,809)	(\$809)	\$771
Total assets	\$23,000	\$16,585	\$15,944	\$15,423	\$20,655	\$20,244
Total debts	NA	\$6,754	\$6,124	\$5,673	\$5,181	\$5,287
Number of employees	61,500	50,825	51,402	52,598	55,352	57,725
Earnings per share	NA	2.50	2.53	-	-	-
Dividends per common share	NA	2.14	2.14	-	-	-
Return on equity	NA	35.6%	39.0%	22.5%	13.7%	12.8%
Debt to capital ratio	NA	66.0%	65.8%	67.6%	46.3%	41.3%
Capital expenditures	NA	\$2,739	\$2,477	\$2,226	\$2,385	\$2,194

*Source: U S WEST Annual Reports*

*Note: Dollar amounts shown above (except per share amounts) are in millions. Some of the 1996 data were not yet available at the time of writing the case. U S WEST, Inc. was divided into U S WEST Communications and U S WEST Media Group on October 31, 1995.*

**Exhibit 2. Regional Bell Operating Companies in the U.S.\***



**U S West**

Pacific Northwest Bell  
Mountain Bell  
Northwestern Bell

**Pacific Telesis (PACTEL)**

Pacific Telephone  
Nevada Bell

**Ameritech**

Illinois Bell  
Indiana Bell  
Michigan Bell  
Ohio Bell  
Wisconsin Bell

**Southwestern Bell**

Southwestern Bell

**NYNEX**

New England Telephone  
New York Telephone

**Bell Atlantic**

New Jersey Bell  
Bell of Pennsylvania  
Chesapeake & Potomac Co.  
Diamond State Telephone

**Bell South**

Southern Bell  
South Central Bell

\* Some of these RBOC's have been consolidated/merged since the time of the case.

**Exhibit 3. Corporate Structure of U S WEST Groups**

**US WEST, Inc.**

**US WEST Communications Group**

- \$9.5 billion in revenues
- \$1.2 billion in net income
- 14-state regional telecommunications company
- 25 million customers

**US WEST Media Group**

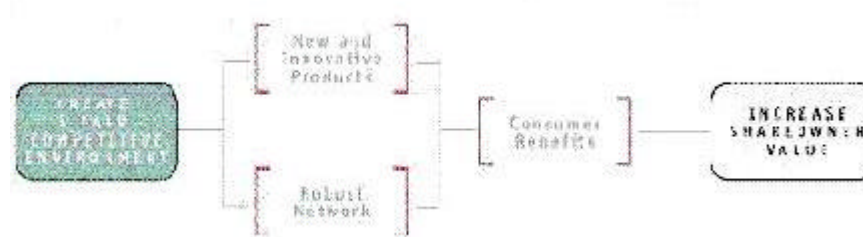
- \$2.4 billion in revenues
- \$716 million in EDITDA – earnings before interest, taxes, depreciation, and amortization
- 3.6 million cable subscribers worldwide

**Exhibit 4. Organizational Structure at U S WEST Communications**

**U S WEST Communications Group**

<b>Markets</b>	<b>Carrier</b>	<b>Operations &amp; Technologies</b>
<p><b>Products and Service Centers</b></p> <ul style="list-style-type: none"> <li>• Voice Services</li> <li>• !NTERPRISE Networking Services</li> <li>• Long-Distance Services</li> <li>• Wireless Services</li> </ul>	<ul style="list-style-type: none"> <li>• Carrier Market Units</li> <li>• Exchange Carrier Services</li> <li>• Wireless Market Unit</li> <li>• Carrier Service Delivery</li> </ul>	<p><b>Network</b></p> <ul style="list-style-type: none"> <li>• Capacity Provisioning</li> <li>• Local Network Operations</li> <li>• Network Programs and Operations</li> <li>• Service Assurance</li> </ul>
<p><b>Customer Solution Centers</b></p>		<p><b>Advanced Technologies</b></p>
<p><b>Local Markets</b></p>		<p><b>Business Resources Inc.</b></p>
<p><b>Sales and Service Centers</b></p> <ul style="list-style-type: none"> <li>• Customer Sales and Service</li> <li>• Small Business Sales and Service</li> <li>• Business and Govern-ment Sales and Service</li> </ul>		<p><b>Operator and Information Services</b></p>
<p><b>Interconnection</b></p>		<p><b>Information Technologies</b></p>

### Exhibit 5. U S WEST's Corporate Strategy



### Exhibit 6. A Chronology of Key Events at U S WEST

- Jan. 8, 1982: In settlement with the Department of Justice, AT&T agreed to divest its 22 Bell system operating companies to form seven Regional Bell Operating Companies. Mountain Bell, Northwestern Bell and Pacific Northwest Bell would be consolidated as a single RBOC called U S WEST.
- Nov. 21, 1983: U S WEST stock began trading on the New York Stock Exchange.
- Jan. 1, 1984: Divestiture--or "the breakup of the Bell System." U S WEST was officially born.
- Jan. 10, 1984: NewVector, U S WEST's cellular communications subsidiary, was the first of the seven Bell spin-off to venture outside its region, providing service to the Gulf of Mexico. Cellular service began in Minneapolis-St. Paul, Denver, Phoenix and Seattle.
- May 10, 1984 : U S WEST Direct sold Yellow Pages outside its 14-state operating region for the first time when it publishes a Quad Cities USA directory with combined Yellow Pages for customers in Davenport and Bettendorf, Iowa (in region), and Moline and Rock Island, Illinois (out of region).
- June, 1987: U S WEST became the first RBOC to adopt a market-based management approach to doing business. Market units were organized around specific groups of customers rather than around product lines or geographic areas, as traditionally done by Bell companies.
- May 2, 1988: U S WEST became the first Bell company to move aggressively into foreign markets when it announced the acquisition of a 10 percent equity investment and an operational role in a French cable TV company called Lyonnaise Communications.
- Sept. 13, 1988: U S WEST Communications launched ISDN services to provide faster speeds and integrated voice and data transmission for Denver area customers. ISDN is an all-digital network that carries voice, video and data on the same line at the same time.



- 
- Oct. 19, 1988: U S WEST became a partner in a consortium that was awarded the cable television franchise for the city of Birmingham, England, the largest single cable franchise development in the English-speaking world with about 500,000 households.
- June 1, 1989: U S WEST and six international companies began studying feasibility of constructing a fiber optic communications network—the Trans-Siberian Line—across Russia to connect the Far East and Pacific Rim with Europe. Because of international restrictions on the sale and transfer of technology, this matter is still pending.
- Nov. 20, 1989: Community Link, a videotex service providing access to more than 400 information services, debut in Omaha. This service allowed business and residential phone users shop, order airline tickets, or access restaurant menus, community sports, cultural and school information through their personal computers, or with simplified terminals connected to a telephone.
- Sept. 1990: U S WEST introduced new Self-Healing Network Services that could keep large customers and communications networks running despite cable damage.
- Oct. 15, 1990: The first cellular system in Eastern Europe—a joint venture between U S WEST International and the Hungarian Telecommunications Company—began operation with service to 3,000 customers in Budapest.
- July 14, 1992: U S WEST, Inc. and Telecommunications, Inc. (TCI), the world's largest cable TV operator, established a new joint venture company called TeleWest International to manage all their shared cable TV and telephone interests outside the U.S. This company currently owns 16 cable franchises in the U.K. supporting 29 million homes, and franchises in Norway, Sweden and Hungary supporting another 1.1 million homes, and also provides local telephone service to 36,000 residential phone lines and 7,000 business lines in the U.K.
- Sept. 30, 1992: U S WEST Communications introduced Caller Identification and several new optional telephone services to its customers in the Denver metropolitan area. Caller ID allowed customers to see the name and number of the calling person on a display set next to their telephone.
- Nov. 12, 1992: U S WEST Communications installed its 500,000th voice messaging mailbox, a service that eliminated the need for answering machines. Introduced in March 1989, this service is now available in 40 cities in 11 western and mid-western states.
- Nov. 16, 1992: U S WEST Enhanced Services unveiled NewsFax, an interactive information service that electronically packaged and delivered faxable news tailored to subscribers' interests. NewsFax provided a daily one-page brief of news articles to subscribers who could then select specific articles they wanted to print on their fax machines. The service required no extra phone lines or hardware and is available 24 hours a day, seven days a week.
- May 11, 1993: U S WEST and Oracle, the world's largest database software company, announced plans to bring interactive multimedia services to homes, businesses, and schools.
- May 17, 1993: U S WEST and Time Warner Entertainment formed an alliance to provide integrated cable television and telecommunications services plus several new interactive offerings over Time Warner cable systems in 29 states outside U S WEST's home territory. This announcement established a national presence for U S WEST.
- June 2, 1993: U S WEST Cellular customers in the Seattle/Puget Sound region were the first in the nation to receive Digital Messaging Services made possible by Motorola "smart" phones.
- Sept. 7, 1993: U S WEST begins operation of the world's first commercial Personal Communications Network (PCN) in the U.K. Phone numbers were assigned to people rather than phone sets or places. Subscribers used

- 
- wireless handsets and could transfer their personal numbers and billing information to other PCN handsets.
- Sept. 17, 1993: U S WEST announced two reengineering plans designed to position the company for anticipated competition in the local telephone market: (1) U S WEST Communications would shift work done in small offices to 26 regional customer service centers, making it easier for customers to reach and receive service from the company and improving efficiency. This plan would eliminate 9,000 jobs. (2) U S WEST will adopt an accelerated depreciation schedule for older network equipment.
- July 25, 1994: U S WEST and AirTouch Communications announced a joint venture to combine their domestic cellular telephone operations to create the nation's third largest wireless telephone company.
- Oct. 20, 1994: U S WEST and AirTouch Communications formed an alliance with Bell Atlantic and NYNEX to bid for licenses in auctions for Personal Communications System (PCS) radio spectrum to develop a national branding and marketing strategy for wireless services. The venture would provide seamless service and standardized features across the country. The alliance won cellular licenses in 15 of the top 20 U.S. cities, with more than 100 million potential customers.
- Jan. 6, 1995: U S WEST International, Itochu Corp., Toshiba Corp., Time Warner Inc. and Time Warner Entertainment Japan (TWEJ) agreed to jointly establish a company to deploy brand-new cable TV operations throughout Japan. This new company was named the TITUS Communications Corp. (acronym for Time Warner, Itochu, Toshiba, and U S WEST).
- Feb. 6, 1995: U S WEST acquired the Wometco Cable company, metro Atlanta's largest cable operator and one of the nation's largest cable systems for \$1.2 billion. Later named MediaOne, this company was converted to a telecommunications hybrid, offering 200 channels and two-way services such as home-shopping to almost 500,000 subscribers.
- Feb. 22, 1995: U S WEST signed contracts with several companies to provide educational, computer training, entertainment, legal, travel, films, and other services for its broadband TV trial in Omaha. U S WEST also unveiled plans to carry interactive services from its own subsidiaries, U S WEST Marketing Resources and Interactive Video Enterprises, such as an interactive-entertainment-information service called "GOtv".
- Feb. 27, 1995: U S WEST formed a joint venture with Binariang Sdn. Bhd in Malaysia, to launch and operate Malaysia's first satellite and telephone network. The joint venture would create multimedia networks in Malaysia and utilize its Time Warner connections to bring multimedia entertainment to Malaysia.
- May 12, 1995: U S WEST and Philips Electronics formed a consortium called A2000, which won control of KTA, a cable company owned by the Amsterdam City council, in a bid worth \$433 million. A2000 would offer telephone services to its customers by the year 2000.
- May 16, 1995: U S WEST and France Telecom announced an agreement to collaborate on research projects for multimedia systems and services. The projects would be joint venture efforts of U S WEST Technologies, based in Boulder, Colorado, and CNET, the research arm of France Telecom.
- June 9, 1995: TeleWest Communications Group, the U.K. cable venture between U S WEST, TCI and SBC Cable Comms U.K., merged in a move to consolidate U.K.'s cable television industry with access to nearly a third of the 15 million British homes capable of receiving cable service. SBC Cable Comms was owned 50/50 by Southwestern Bell Inc. and Cox Communications Inc., while TeleWest was owned 50/50 by U S WEST and TCI.
- Sept. 12, 1995: U S WEST set up a joint venture company with the Olivetti Group called Videostrada to acquire Italian cable television franchises and set a foothold in the European telecommunications and multimedia market. The company acquired a 28.5% stake in Kabel Plus to form the Czech Republic's largest cable-TV operator serving 400,000 customers in 10 cities.

- 
- U S WEST joined hands with Belgian investment house GIMV to establish Telenet Vlaanderen, a \$1 billion telephone and cable-TV network company.
- Oct. 5, 1995: U S WEST committed to investing \$70 million for a 35 percent stake in a \$200 million venture to upgrade the telephone network in West Java, the most densely populated area in Indonesia outside of Jakarta. This venture would build 500,000 telephone lines by March 1999 and upgrade existing 474,000 lines in West Java. Indonesia, consisting of more than 17,000 islands, had the lowest telephone penetration in the world at 1.8 telephone lines per 100 people.
- Oct. 8, 1995: U S WEST-backed Spanish cable consortium, Cable i Televisio de Catalunya, won Barcelona's first broadband cable license. The four-year concession allowed the group to operate a cable system covering 20,000 households in Spain's second-largest city.
- Oct. 10, 1995: U S WEST and AirTouch Communications finalized a joint venture called Wireless Management Company (WMC), to provide support services to both companies' domestic cellular operations. !NTERPRISE Networking Services from U S WEST announced plans to introduce !NTERACT, a new easy-to-use Internet-based desktop computer networking service for barrier-free business-to-business communications. Users would be able to share information, messages and networked desktop computer programs with other businesses and customers.
- Oct. 31, 1995: U S WEST shareholders approved the plan to split U S WEST stock into two classes of common stock. The first stock would track the performance of U S WEST Communications Group (NYSE: USW), the company's 14-state telecommunications business, while the second would track U S WEST Media Group (NYSE: UMG), which includes the company's multimedia, wireless, directory and international businesses.
- Nov. 1, 1995: U S WEST introduced The Home Receptionist, an all-in-one communications system designed to give customers more control over their calls. The Home Receptionist used a screen-based telephone to combine Caller ID, Call Waiting and Voice Messaging.
- Feb. 1, 1996: Congress passed the Telecommunications Act of 1996, later signed the bill into law by President Clinton. This bill was intended to promote competition and deregulation in telecommunications and set new rules for opening local phone, long distance and cable TV markets to competition.
- Feb. 27, 1996: U S WEST announced plans to merge Continental Cablevision into its Media Group. This merger made U S WEST the nation's third largest cable company.
- Apr. 8, 1996: AirTouch Communications, Bell Atlantic, NYNEX, U S WEST Media Group, and the jointly owned PCS partnership, PCS PrimeCo, announced plans to nationally market two families of wireless services -- TalkAlong and PowerBand.
- May 13, 1996: U S WEST Cellular officially began operation under the brand name AirTouch Cellular.
-

Exhibit 7. The Global Village Home Page

**U S WEST**

# Global Village

[Search](#) [Index](#) [Feedback](#) [Help](#)

[Welcome](#) [About GV](#) [Employee Directory](#) [U S WEST Web Sites](#) [Internet Gateway](#)

Thursday, September 12, 1996

[What's New?](#)  
Recent events in U S WEST and other news on the 'net.

[About U S WEST](#)  
Organization charts; executive profiles; partnerships & acquisitions.

[ENH Online](#)  
Corporate and industry news published by the U S WEST Employee News Network.

[Performance Indicators](#)  
Stock quotes; monthly business results; quarterly earnings; annual reports.

[Products & Services](#)  
U S WEST Communications and Media Group product catalogs.

**headline news**

-  ["We're not just a cable company"](#)
- [MediaOne moves closer to becoming a full-service provider](#) 
- [Microsoft introduces local news online in Seattle](#)

...for more news, see [ENH Online](#)

Document Done

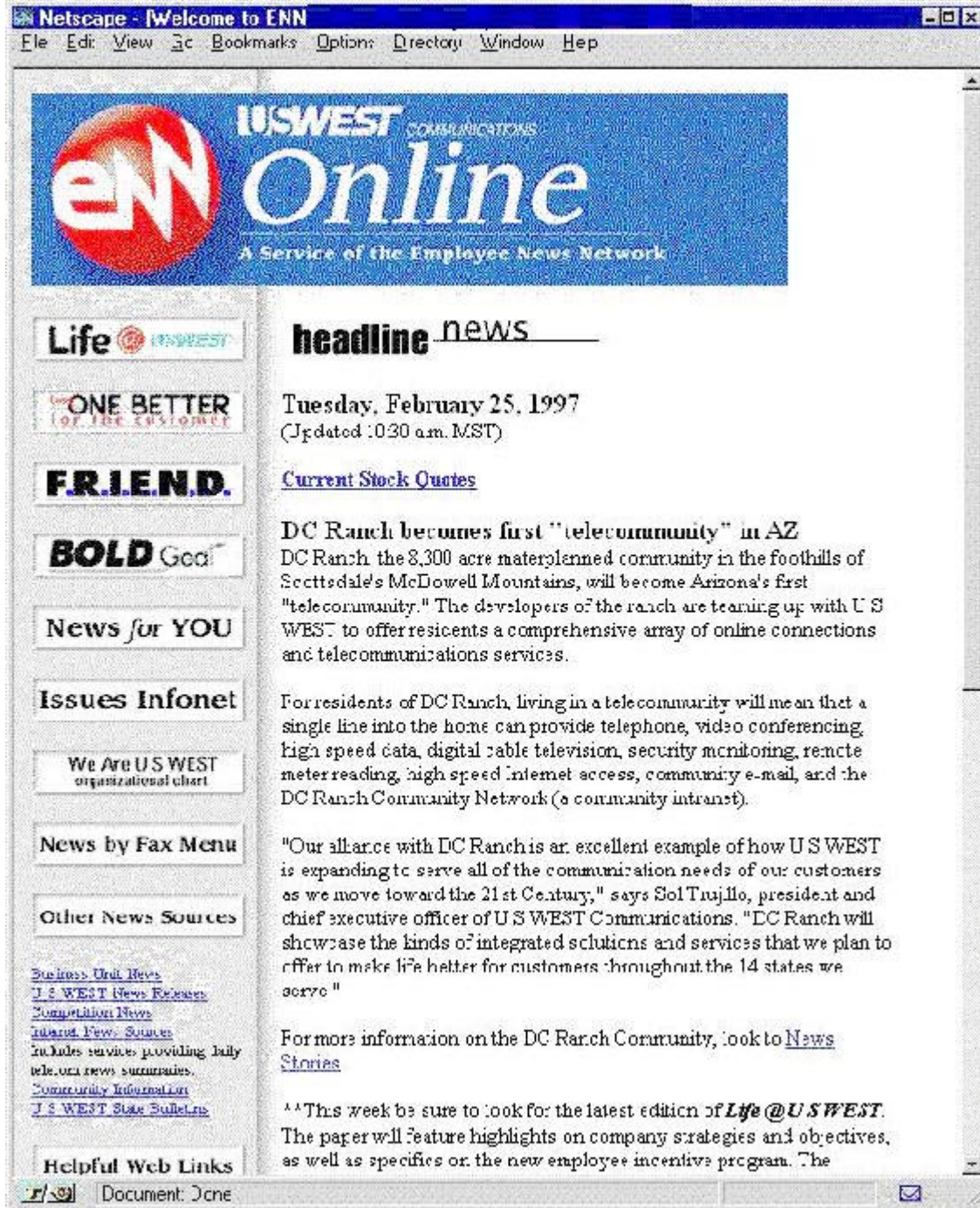
---

**Exhibit 8. Activities Supported by the Global Village**

---

1. Information sharing:
    - Headline news
    - Employee News Network (ENN)
    - Employee directory
    - Project directory
    - Personal web pages
    - Internet access
  2. Communication and collaboration:
    - Electronic mail: NetMail and Notes
    - Workflow software: Lotus Notes
    - Bulletin board systems (BBS): Rumor Mill
    - Web Developers Coalition
  3. Employee transactions:
    - Life situation database, Paystub application
  4. Business computing applications:
    - Facilities check application
-

Exhibit 9. Employee News Network



---

### Appendix: What is an Intranet

If 1995 was the year of the Internet, 1996 was definitely the year of the intranet. An intranet is essentially a “private Internet” within a business organization. It utilizes web-based technologies (e.g., web servers, hypertext markup language or HTML, TCP/IP protocol) for running corporate applications on a closed, secure, internal computer network, and uses a firewall to prevent external intruders from accessing internal corporate data or applications. Features commonly supported by an intranet include:

- *Electronic mail*: Allows instantaneous asynchronous communication among employees, without the frustrations of playing telephone tag. Unlike telephone communication, documents can be attached to e-mail and transmitted to the receiver.
- *Electronic bulletin board systems (BBS)*: Can be used to publish information commonly requested or read by employees company-wide, such as employee directory, newsletters and publications, personnel manuals, benefits information, job postings, sales and financial reports, marketing brochures, videos, and presentations, product information, supply and component catalogs, user documentation, and so forth.
- *Listservs*: An electronic mailing list for communicating with large groups of employees.
- *Newsgroups*: A forum for like-minded employees to discuss issues of common interests and respond to earlier posting using threaded discussion.
- *Chat*: Private or public conference rooms where employees can electronically converse with each other real-time on topics of mutual interest.
- *FTP (file transfer protocol)*: Provides a library of readily accessible information or software that can be downloaded to any employee’s computer for personal use.
- *Telnet*: Allows the capability of logging on to remote computers (generally, mainframes or LAN servers) for data processing needs.
- *Workflow software*: Coordinates and communicates group activities of each group member, who are generally separated across time and space.

A 1996 survey by Forrester Research, Inc. indicates that 22 percent of Fortune 1000 firms currently use intranets and another 40 percent are planning to implement intranets within the next year. Zona Research, Inc. predicts that sales of intranet-related products will increase from \$476 million in 1996 to \$4 billion in 1997 and \$8 billion in 1998. This widespread popularity of intranets stems from their perceived ability to improve information delivery while lowering operational costs. As an example, Federal Express’s package tracking database allows over 12,000 customers track the delivery of their packages using the world wide web, reducing the need for human intervention and saving FedEx up to \$2 million per year by some estimates.

Businesses today are facing dramatic and unprecedented changes in their external and internal environment. Five major drivers for this change are: (1) customers want everything faster and cheaper, (2) customers want better quality products/services, (3) businesses have gone global, (4) increased reliance on group activities as opposed to individual expertise, and (5) the rules of businesses have changed (e.g., telecommuting, virtual corporation, outsourcing, etc.). Intranets can help businesses meet these demands in several ways. Some of their salient advantages include:

- 
- They are easy to build.
  - They are relatively inexpensive to maintain.
  - They allow connection and communication among disparate platforms, since they are based on open standards.
  - They require less learning curves, since they use widely popular web technologies.
  - They empower end users by providing them with ready access to accurate and up-to-date information, thus allowing them to make better decisions.
  - They are scalable, i.e., can be conveniently expanded as the scale of operations increases.
  - They provide the richness of multimedia.
  - They provide better communication.
  - They capture and share knowledge and expertise.
  - They provide better coordination and collaboration in team activities.
  - They allow for employees' creativity and innovation.
  - They provide new business opportunities.

While intranets are commonly touted as the next phase of business computing, there are also some potential disadvantages and risks associated with this technology:

- Security risks: preventing outsiders from accessing mission-critical internal data and/or applications.
- Training employees on the appropriate use of corporate data and system resources.
- Information overload may result from a combination of internal data and Internet access and news feeds.
- Loss of centralized control (by the IS department) over data and system resources.
- Intranets can redefine organizational roles and processes, and may thereby lead to corporate downsizing and organization-wide chaos.
- Being in its infancy, the hidden costs and complexities of intranets may be still unknown.

### **Suggested Readings:**

Cortese, A. (1996). Here Comes the Intranet. *Business Week*, February 26, 1996.  
<http://www.businessweek.com/1996/09/b34641.htm>

Hills, M. (1997). *Intranet as Groupware*. New York: Wiley Computer Publishing.

Levitt, L. (1996). Intranets: Internet Technology Deployed Behind the Firewall for Corporate Productivity. *INET'96 Annual Meeting*. <http://www.process.com/intranets/wp2.htm>

Sprout, A. L. (1995). The Intranet Inside Your Company. *Fortune*, November 27, 1995.