

WORKSHOP 1 OVERVIEW OF COMMUNICATION TECHNOLOGIES

GOALS

- ▶ Understand the impact of new communication technologies on today's workforce.
- ▶ Discover new communication technologies on the horizon.



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THE APPLIANCE OF SCIENCE

As invisible, electronic links are forged between people and machines, a whole new world of technology is emerging. In this workshop, we'll journey to the "cutting edge" of communication technology and explore some new methods of exchanging spoken words, written text, still and moving pictures, and other forms of information. We'll look at the Internet, telephones, wireless communication, and more—all with an eye toward how these new technologies affect the modern workplace.

The Technology of Communication Resources

Video (29:00)

CD-ROM Study Guide

Instructor's Resource CD-ROM

WebTutor

ExamView Pro Testing CD-ROM

Big Top Technology


Carla could establish a Web site with information on circus attractions and upcoming dates. She could also sell tickets online and send out e-mails to chambers of commerce, realtors, and others who update their communities on coming events.

Big Top Technology

Carla Lowery has just taken a new position as the advertising manager in the family business. The Lowerys own a small traveling circus that has been making the rounds throughout the eastern United States for over 50 years.

In the past, the family had a solid formula for letting people know when the circus would be in town. They would advertise in the newspaper and sometimes on a

local radio station. They would also hire someone to put up posters. Finally, on the day the Lowerys' circus came to town, they would have a parade down Main Street to attract customers.

 **How might the Internet and other advanced technologies affect Carla's approach to advertising?**

TOOLS OF THE TRADE

The New Communication Technologies

The following communication technologies are changing the way we communicate and share information in the workplace.

➤ **THE INTERNET**

The Internet—often called a “network of networks”—is a large collection of separate computers, all linked together by high-speed telecommunication lines. Businesses exchange billions of bits of information through the Internet every day, including voice, text, pictures, movies, and other forms of digital data.

➤ **TELEPHONES AND RELATED EQUIPMENT**

Phones are generally considered “old technology,” but they have been transformed in many ways by new telecommunication devices. Resources such as voicemail, facsimile (fax) machines, and wireless cellular networks have helped phones maintain an important role in business communications.

➤ **TELECONFERENCING AND VIDEOCONFERENCING**

A teleconference links three or more participants together by phone so that they can talk to each other at the same time. A videoconference, in simple terms, is just a teleconference with video images of the participants. As companies spread their operations around the world, teleconferences and videoconferences are increasingly necessary to coordinate activities.

➤ **WIRELESS DEVICES**

Machines of all types (not just computers) are being equipped with wireless communication links that allow them to exchange data with other machines. Wireless devices are becoming commonplace business tools—the most familiar example is the cell phone. The pager, another common wireless device, is now migrating from land-based radio networks to satellites. Wireless local area networks (LANs) are being used instead of cables to connect computers, printers, and other devices at home and in the workplace.

➤ **INTEGRATED TECHNOLOGIES**

Software tools, wireless links, and wired links now integrate systems and equipment that once operated independently. Integration can be as simple as getting a spreadsheet to export data to a graphics program. Or, it can be as complex as connecting all of the equipment in a steel mill into one purchasing, warehousing, production, and distribution system.

Key Ideas

- ★ **network**—a group of interconnected electronic devices, such as computers
- ★ **digital**—data in binary form (on, off; or 1, 0) which can be understood by a computer
- ★ **telecommunication**—transmission of information over a distance
- ★ **electronic**—anything transmitted or powered by electricity
- ★ **satellite**—a device in orbit around the earth, sometimes used to send electronic signals over long distances
- ★ **microprocessor**—a chip that performs the main functions of a computer
- ★ **automation**—the transfer of work from humans to machines

Introduction to Communication Technology

View and discuss Segment 1: *Introduction to Communication Technology*. Running time: approx. 3:30.



INTRODUCTION TO COMMUNICATION TECHNOLOGY

Segment 1

In this program, you'll discover how new technologies such as the Internet, cell phones, two-way pagers, and satellite-tracking systems are becoming the lifeblood of nearly every workplace. You will visit Roberts Express and see how they use satellite technology to deliver packages. You will also see how one healthcare agency uses computers to prevent and solve outbreaks.

Communication technologies are changing the way we communicate and share information in the workplace.



Post-Viewing Questions

1. Examples include speech recognition, cellular technologies, satellite tracking, and a faster Internet.
2. Roberts integrates satellite-tracking technology along with cellular, computer, and transportation technologies to pick up and deliver packages in the most efficient manner possible.
3. PulseNet is a network of health agencies linked by computers. PulseNet is a giant database used to manage and disseminate health-related information. The system enables fast recognition and treatment of outbreaks. Their epidemiologists have been able to solve the outbreaks, preventing more people from getting sick.

Post-Viewing Questions

1. List some examples of emerging communication technologies.

2. How does Roberts Express integrate technologies?

3. How does PulseNet use technology to improve healthcare?

ON THE JOB

Laptop Vending

Inca Kola is Peru's favorite soft drink. It's sold mostly through street vendors and small, family-owned groceries or cafés, which can only buy and stock a small amount of the product. That makes things tough for the company's sales associates, who need to visit a very large number of low-volume customers frequently in order to keep their product moving.

The solution, as it turns out, is a new communication technology. Sales associates now carry laptop computers as they make their rounds by train, bus, trolley car, or foot. They use the laptops to enter and transmit sales orders directly to the factory from any location, at any time. This new technology speeds up deliveries and makes the sales force much more efficient.

Now, instead of visiting the average customer once every two weeks, the sales associates can visit at least once every week. That makes it a lot less likely that individual retailers will run out of Inca Kola before their next shipment arrives!



How do you suppose the Inca Kola sales associates get customer orders straight from the field to the factory? In addition to speeding up the entry and transmission of orders, how might a laptop computer make a sales associate's job easier?

On the Job

Laptop Vending

Laptops allow the sales associates to make better use of their travel time. They can enter orders and do other reports while on the road. This cuts down on time they would have to do paperwork in the office or at home. They can also enter orders using their laptops while meeting with customers. With a phone or cable modem, they can transmit the information directly into their company's inventory and ordering system from any location, at any time. This keeps customer information and inventory up-to-date and allows for faster shipments.

DID YOU KNOW?

Telecommuter Nation?

Telecommuting—working from home on a computer linked to the workplace—is not a new technology in and of itself, but it's *made possible* by new technologies like the Internet. Telecommuting may become an increasingly attractive option in the future. A key to making it work is the availability of high-speed communication "on-ramps" from individual homes onto the Internet. Once those are widely available, most of the resources that people have in the central office will be accessible from home. If managers are convinced that employees can do their jobs just fine without coming to the office every day, they may embrace telecommuting as an option that benefits both workers and their employers.

Literature Connection

Mark Twain and the Typewriter: Part 1

Twain's enthusiasm is clear as he writes his older brother. Rather than cautiously approaching new technology, Twain eagerly purchases the typewriter as soon as he sees it. However, with new technological advances, the user is often required to learn new skills. The learning process is more apparent in his letter to Howell with its misspellings.

Twain reconsidered his audience as he wrote the second letter. When writing his older brother, Twain was more positive about the outcome of the typewriter and its uses. He appears more comfortable when writing his close friend, allowing a clearer view of his typing efforts and frustration.

Orion Clemens was Mark Twain's older brother. Although Orion was ten years older, the two brothers remained close throughout their lives. William Dean Howells, an American writer, was a close friend of Twain's. In 1910, Howells wrote a book entitled *My Mark Twain* about his memories spanning over 40 years of friendship.

Samuel L. Clemens (1835-1910)—better known as Mark Twain—has been one of the most widely loved and celebrated American authors since the publication of his first books in the late 1860s.

For more information on Twain, the typewriter, and technology, check out these Web sites:

<http://fayette.k12.in.us/~cbear/cy/index.html>

<http://etext.lib.virginia.edu/railton/yankee/cymach4.html>

<http://www.mytypewriter.com/generic.jhtml?pid=28>

Mark Twain and the Typewriter: Part 1

It was during the trip to Boston with Twichell that Mark Twain saw for the first time what was then a brand-new invention, a typewriter; or it may have been during a subsequent visit, a week or two later. At all events, he had the machine and was practicing on it December 9, 1874, for he wrote two letters on it that day, one to Howells and the other to Orion Clemens. In the latter he says:

I am trying to get the hang of this new-fangled writing-machine, but am not making a shining success of it. However, this is the first attempt I ever have made, and yet I perceive that I shall soon easily acquire a fine facility in its use. I saw the thing in Boston the other day and was greatly taken with it.

He goes on to explain the new wonder, and on the whole his first attempt is a very creditable performance. With his usual enthusiasm over an innovation, he believes it is going to be a great help to him, and proclaims its advantages.

This is the letter to Howells, with the errors preserved:

You neednt alswer this; I am only practicing to get thre; anothe slip-up there; only practici?ng ti get the hang of the thing. I notice I miss fire & get in a good many unnecessary letters & punctuation marks. I am simply using you for a target to bang at. Blame my cats, but this thing requires genius in order to work it just right.

Describe Twain's reaction to the latest advances in technology.

How did his writing style change from one letter to the next? Did his audience affect his writing style? Why?

Excerpts from *Mark Twain: A Biography* by Albert Bigelow Paine. Harper & Brothers, New York, Copyright© 1912

PRACTICE

1. Think of a company that makes cars (or clothes, or computers, etc.). Pick three tasks from the list of common business activities below, and consider how workers might use new communication technologies to accomplish them.

- Market research
- Business intelligence (gathering information about competitors)
- Coordination of team projects
- Retail sales
- Sales to other businesses
- Inventory management
- Supply ordering
- Transportation of supplies and finished products
- Training
- Automation of manufacturing

2. Using the Internet or other resources, research the use of new communication technologies in education, transportation, healthcare, retail sales, or an industry of your choice. Specifically, you might want to examine:



- Educational computer software
- Computer usage in schools
- Driver-less automobiles
- Wireless tracking of trucking shipments
- “Telemedicine”
- Electronic commerce (e-commerce)

Have these applications of new technology been effective? Explain and justify your conclusions.

Practice

1. Encourage learners to be creative and brainstorm as many options as possible. Technologies to consider include: Web research, groupware, project management software, bar codes and inventory software, telecommuting, teleconferencing, videoconferencing, webcasting, e-commerce, cell phones, PDAs, and pagers.
2. Try these Web sites for detailed information.
Software in education: <http://www.aace.org/>
Driver-less cars: <http://www.abc.se/~m10183/eflwa01.htm>;
Wireless tracking of shipments: <http://fedex-prod-reg.w-trade.com/um/registration.cgi?>;
Telemedicine and e-health: <http://www.atmeda.org/>;
E-commerce: <http://www.howstuffworks.com/ecommerce.htm>

“ Our technology has already outstripped our ability to control it. ”

—Omar Bradley, U.S. Army general during World War II



The International Telecommunication Union

The International Telecommunication Union (ITU) is a specialized agency of the United Nations, responsible for regulating, standardizing, and developing telecommunications worldwide. Established in 1865 and based in Geneva, Switzerland, the ITU's membership today includes 189 countries and more than 600 groups working in the telecommunications field.

The ITU has many important responsibilities, including overseeing all forms of international communication by wire, radio, optical systems, and other electromagnetic systems. For example, the ITU manages the radio frequency spectrum, ensuring that it is used efficiently, fairly, and economically among countries. One task of the ITU is to keep the



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radio frequency spectrum free from interference between stations. This keeps communications flowing between aircraft and control towers, ships at sea and coast stations, and spacecraft and earth-based stations.

The ITU's goal is to ensure that all the world's inhabitants experience the benefits of new communications technologies. The ITU helps improve and develop telecommunications equipment, networks, and infrastructures in many remote and poor areas of the world. This might include installing telephone lines or providing easier and more feasible access to the Internet.

The ITU organizes many world conferences that provide a forum for working out international telecommunications agreements among different governments and competing companies. The ITU also celebrates World Telecommunication Day each year in May.

SUMMARY

- A wide range of communication technologies are used in the workplace, from “old fashioned” phones to high-speed wired and wireless communication networks, including the Internet.
- These tools allow information to be transmitted quickly to every corner of a business organization.
- Technology integration allows electronic devices to work together as coordinated systems.

REVIEW QUESTIONS



1. What do we mean when we say that the Internet is a “network of networks?”

2. What developments have contributed to the continued use of phones in the workplace?

3. Explain what “integrated technologies” means, and give an example.

Review Questions

1. The Internet is a “network of networks” because it consists of a large collection of separate computers, all linked together by high-speed telecommunications lines.
2. Telephones continue to fulfill an important role in business communications because they have been transformed by telecommunications devices such as voice mail, fax machines, and wireless cellular networks.
3. “Integrated technologies” refers to systems and equipment that once operated independently and are now linked, or integrated, by software, wireless networks, or wired links. Examples include exporting spreadsheet data to a graphics program, “smart” appliances, global positioning systems, groupware, “smart phones,” and electronic bar coded inventory-tracking systems.

Not Quite

As a new computer programmer for Lookatch Technologies Inc., a company that develops privacy software, Cheryl must correspond with the company's international clients through e-mail.

Though many of the company's clients are tech-savvy, Cheryl began receiving complaints about her e-mails shortly after beginning her job. One client grumbled that it took him 15 minutes to download a very long attachment in one of Cheryl's e-mails. Another complained that he was unable to open a file because he did not have a compatible program. A third griped about a number of abbreviations in Cheryl's e-mails that she didn't understand, such as FWIW (for what it's worth) and TTYL (talk to you later).

After much confusion, Cheryl realized that her company's international clients don't all have the same e-mail capabilities, nor do they understand all the quirky English-language abbreviations and expressions that she was so comfortable using. Cheryl's e-mails reflected poorly on her company and caused misunderstandings that were avoidable.

Got It Right

As the information officer for the International Studies Program at Aldo University, Casey corresponds frequently with prospective students through e-mail. In addition to text messages, Casey often sends attachments, including application materials and program information.

Casey knows that not all students have the same e-mail programs. Before sending attachments, he asks whether they have the capacity to send and receive large files. Casey also asks his e-mail recipients if they have the same version of the program he uses and always includes an explanation of the files he sends. Because Casey corresponds with people from around the world, he keeps his e-mails short and uses simple, clear language with no abbreviations that might puzzle his readers.

Casey's awareness of his audience and conscientious e-mail practices have helped his communication with students run smoothly. He has had few misunderstandings in his e-mail correspondence, and when he does, the problems are quickly resolved.



On the Net

The Federal Communications Commission (FCC) is an independent U.S. government agency that regulates the nation's communications systems, including radio, television, wire, satellite, and cable. Established by the Communications Act of 1934, the FCC is directly responsible to Congress and dedicated to protecting the interests of the public in all sectors of the communications industry.

www.fcc.gov

PROJECTS

1. Pick a company that's traditionally been considered "all-American," such as Ford, General Electric, or Boeing. Analyze the company's overseas operations. What products does it now make and/or sell overseas? When did this transition occur? What new communication tools made the move possible? Report your findings to the class.
2. Interview someone who is at least 60 years old. Ask that person to think back to a job he or she had in the 1950s or 1960s. Make a detailed list of all the tasks the person was responsible for performing. Then ask the following questions:
 - What information did you need to perform your job duties?
 - How was that information communicated to you?
 - What information did you generate?
 - To whom was the information communicated, and how?

When you've gathered the data, consider the impact of new communication technologies on your interviewee's former job as it exists today. How has it changed? Does a human being still perform these duties, or is the job now automated? Report your observations to the class.



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Projects

Have learners complete one or both of these projects as homework or an out-of-class assignment. Encourage them to work in pairs or small groups.

1. Large companies will have the most information available. Learners will find a great deal of information on the Internet but should search beyond the companies' home pages. Encourage learners to create a timeline or line graph that shows the progression and share their findings in an oral report to the class.
2. Learners will find that in the 1950s and 1960s, employees were not encouraged to work with others or share in decision making and problem solving. Employee recognition was minimal. Workers were managed closely by supervisors and given their directions daily. There was little self-direction or long-term goal setting. Information was probably shared only to the extent that a worker needed it to do his or her job. Communication took place via written letters and memos (typed on a typewriter), meetings in which the supervisor did all of the talking, and, to some extent, phone calls (though most workers did not have their own phone on the job).