

# IT, Work, and Workplace Privacy

CIS 150: Fundamentals of Information Systems

# Last Class

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- Definition of information privacy?
- Have we created a panopticon?
  - The role of IT and privacy-invasive technologies
- Fair Information Practices
  - Notice, choice, integrity, access, and enforcement
- Solutions
  - Social norms-based solutions (privacy policies, consumer education)
    - » Allow the companies to self-regulate
  - Technology-based solutions (encryption, cookies cutters, anonymizers, automated privacy audits)
  - Market-based solutions (privacy policies, consumer demands)

# Trade Secrets

## (Another Recent Example)

- The Courier-Journal, Saturday, October 18, 2009, B9

### Ex-Ford worker indicted in secrets theft

A former product engineer at **Ford Motor Co.** stole more than 4,000 pages of documents containing trade secrets and tried to use the confidential papers to help secure a new job with at least one Chinese auto company, according to a federal indictment.

Xiang Dong Yu, 47, of Beijing, was charged in a five-count indictment with theft of trade secrets, attempted theft of trade secrets and unauthorized access to a protected computer, according to court papers. Yu, also known as Mike Yu, was arrested Wednesday at Chicago O'Hare International Airport after disembarking from a flight from China. An attorney for Yu in Chicago didn't return a call for comment.

According to the indictment brought by Terrence Berg, the U.S. attorney for the Eastern District of Michigan, Yu, a Chinese national, worked for Ford from 1997 to 2007 and had access to Ford trade secrets, including the automaker's design

documents.

In December 2006, Yu accepted a job at the China branch of Foxconn, PCE Industry. The indictment alleges that on the eve of his departure from Ford in January 2007 and before he told Ford of his new job, Yu copied some 4,000 Ford documents onto an external hard drive, including sensitive Ford design documents.

etc. ...

# Privacy Invasive Technologies

(Hogan, D. and M., "System 'sees' through walls", Courier Journal, 10/19/09, D3)

Radio tomographic imaging can provide a picture — of sorts — of what's really behind a solid surface

By Dan and Michelle Hogan  
Science News Daily

University of Utah scientists showed that a wireless network of radio transceivers can track people moving behind solid walls.

The system could help police, firefighters and others nab intruders, and rescue hostages, fire victims and elderly people who fall in their homes. It also might help retail marketing and border control.

"By showing the locations of people within a building during hostage situations, fires or other emergencies, radio tomography can help law enforcement and emergency responders to know where they should focus their attention,"

Joey Wilson and Neal Patwari wrote in one of two new studies of the method.

Both researchers are in the university's De-



partment of Electrical and Computer Engineering — Patwari as an assistant professor and Wilson as a doctoral student.

## Tracking the transceivers

Their method uses radio tomographic imaging (RTI), which can "see," and track moving people or objects in an area surrounded by inexpensive radio transceivers that send and receive signals. People don't need to wear radio-transmitting ID tags.

One of the studies — which outlines the method and tests it in an indoor atrium and a grassy area with trees — is awaiting publication in a journal of the Institute of Electrical and Electronics Engineers, Transactions in Mobile Computing.

The study involved placing a wireless network of 28 inexpensive radio transceivers — called nodes — around a square-shaped portion of the atrium and a similar part of the lawn. In the atrium, each side of the square was almost 14 feet long and had eight nodes spaced 2 feet apart. On the lawn, the square was about 21 feet on each side and nodes were 3 feet apart. The transceivers were placed on 4-foot-tall stands made of plastic pipe so they would make measurements at human-torso level.

## Measuring signal strength

Radio signal strengths between all nodes were measured as a person walked in each area. Processed radio signal strength data were displayed on a computer screen, producing a bird's-eye-view, blob-like image of the person.

A second study detailed a test of an improved method that allows "tracking through walls." That study has been placed on arXiv.org, an online archive based at Cornell University for pre-prints of scientific papers. The study details how variations in radio signal strength within a wireless network of 34 nodes allowed tracking of moving people behind a brick wall.

The method was tested around an addition to Patwari's Salt Lake City home. Variations in radio waves were measured as Wilson walked around,

son's location to within 3 feet.

The system used in the experiments was not a Wi-Fi network like those that link home computers and other devices. Patwari says the system is known as a Zigbee network — often used by wireless home thermostats and other automation.

Wilson demonstrated radio tomographic imaging during a mobile communication conference last year, and won the MobiCom 2008 Student Research Demo Competition. The researchers now have a patent pending on the method.

"I have aspirations to commercialize this," says Wilson, who has founded Xandem Technology LLC in Salt Lake City.

## How it works

Radio tomographic imaging is different and much less expensive than radar, in which radar or radio signals are bounced off targets and the returning echoes or reflections provide the target's location and speed. RTI instead measures "shadows" in radio waves created when they pass through a moving person or object.

RTI measures radio signal strengths on numerous paths as the radio waves pass through a person or other target. In that sense, it is similar to medical computerized tomographic scanning, which uses X-rays to make pictures of the human body, and seismic imaging, in which waves from earthquakes or explosions are used for a "look" at rock structures underground. In each method, measurements of the radio waves, X-rays or seismic waves are made along many different paths, and are used to construct a computer image.

## Developing computer signal-strength program

In their indoor, outdoor and through-the-wall experiments, Wilson and Patwari obtained radio signal strength measurements from all the transceivers — first when the rectangle was empty and then when a person walked through it. They developed formulas and used them in a computer program to convert weaker or "attenuated" signals

creates "shadows" by walking through the radio signals — into a bird's-eye-view image of that person walking.

"RF (radio frequency) signals can travel through obstructions such as walls, trees and smoke, while optical and infrared imaging systems cannot," the engineers wrote. "RF imaging will also work in the dark, where video cameras will fail."

Even "where video cameras could work, privacy concerns may prevent their deployment," Wilson and Patwari wrote. "An RTI system provides current images of the location of people and their movements, but cannot be used to identify a person."

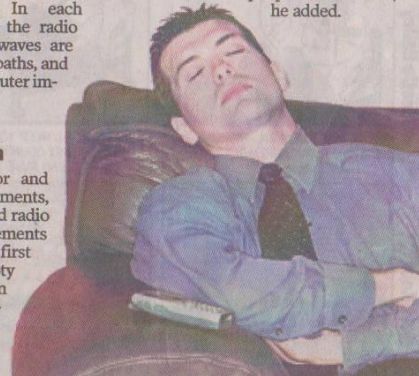
## No hazards anticipated

Would bombardment by radio waves pose a hazard? Wilson said the devices "transmit radio waves at powers 500 times less than a typical cell phone."

"And you don't hold it against your head," Patwari added.

Patwari says the system needs improvements, "but the plan is that when there is ... some kind of event that makes it dangerous for police or firefighters to enter a building, then instead of entering the building first, they would throw dozens of these radios around the building and immediately they would be able to see a computer image showing where people are moving."

The technique cannot distinguish good guys from bad guys, but at least will tell emergency personnel where people are located, he added.



# Impact of IT on Employment

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- IT and the destruction of jobs
  - ATMs led to a 37% reduction in the # of bank tellers from 1983 - 1993
  - Electronic calculators killed jobs related to the manufacturing of slide rules
  - # of telephone switchboard operators fell from 421,000 in 1970 to 164,000 in 1996
  - Utility companies installed electronic reading devices - 35,000 meter reading jobs eliminated
  - PCs eliminated jobs associated with building, selling, and repairing typewriters
  - Online airline reservations led to the demise of travel agencies
  - Digital cameras have put film processors out of work (e.g., Kodak initially eliminated 1,000 jobs in response to the success of digital cameras)
  - Online music has put many music stores out of business (e.g., Tower Records in 2006)
  - The Internet and self-service checkout systems have reduced the need for sales clerks
  - Cell phones have led to a reduction in jobs in the wired telecommunications industry
- Yes, IT does eliminate jobs! But...
  - Successful IT leads to dramatic increases in productivity
    - » Manufacturing productivity essentially doubled between 1980 and 2000 - much of it was due to technology
    - » If you developed a cure for the common cold should you keep it secret to spare some health care jobs?
  - Successful IT eliminates some jobs but creates others

# Impact of IT on Employment

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- IT and the creation of jobs
  - IT has changed the economics of industries
    - » Think about the development of the sewing machine
      - ◆ A person could produce more than 2 shirts/day
      - ◆ The increase in productivity along with the increase in supply → lower prices
      - ◆ Lower prices → higher demand → hundreds of thousands of new jobs
    - » Reconsider ATMs → between 1996 and 2008 the # of tellers has increased from ~300,000 to ~600,000 (mostly due to banks opening more branches)
  - IT has created new products, services, and entire industries
    - » Electronic spreadsheets (Visicalc), online auctions (e-Bay)
    - » IT development companies (e.g., Microsoft, IBM, Apple)
    - » IT consulting services (Booz Allen Hamilton, Deloitte Touche Tohmatsu, IBM Global Business Services, Ernst & Young)
    - » IT maintenance and IT support services
    - » Microprocessor industry (which did not exist before 1971)
    - » Social-networking sites, cell phone industry, digital music (DVD players, ipods, etc.)
    - » And so on...

# Impact of IT on Employment

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- IT and the creation of jobs
  - Data on the following slide comes from the Bureau of Labor Statistics  
[http://www.bls.gov/oes/2008/may/oes\\_nat.htm](http://www.bls.gov/oes/2008/may/oes_nat.htm)
  - The table presents May 2008 employment data for Computer Science Occupations (i.e., only includes IT jobs for computer specialists)
    - » Does not include self-employed workers or jobs
    - » Does not include other IT jobs in Office and Administrative Support Occupations
      - ◆ ~ ½ million data entry keyers and word processors and typists
      - ◆ >100,000 computer operators
      - ◆ In 2004 it was estimated that >10.5 million people in the U.S. worked in IT jobs
    - » Does not include jobs created by IT in the areas of product design, manufacturing, marketing, sales, repair, and support staff like receptionists, janitors, etc.
    - » Does not include how Web sales have increased the number of jobs in the package shipping industry

Occupation Title (only include computer specialties)	Description	# in US Employed (2008)
<a href="#">Computer and Information Systems Managers</a> (11-3021)	Plan, direct, or coordinate activities in such fields as electronic data processing, information systems, systems analysis, and computer programming.	276,820
<a href="#">Computer and Information Scientists, Research</a> (15-1011)	Conduct research into fundamental computer and information science as theorists, designers, or inventors. Solve or develop solutions to problems in the field of computer hardware and software.	26,610
<a href="#">Computer Programmers</a> (15-1021)	Convert project specifications and statements of problems and procedures to detailed logical flow charts for coding into computer language. Develop and write computer programs to store, locate, and retrieve specific documents, data, and information. May program Web sites.	394,230
<a href="#">Computer Software Engineers, Applications</a> (15-1031)	Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team.	494,160
<a href="#">Computer Software Engineers, Systems Software</a> (15-1032)	Research, design, develop, and test operating systems-level software, compilers, and network distribution software for medical, industrial, military, communications, aerospace, business, scientific, and general computing applications. Set operational specifications and formulate and analyze software requirements. Apply principles and techniques of computer science, engineering, and mathematical analysis.	381,830
<a href="#">Computer Support Specialists</a> (15-1041)	Provide technical assistance to computer system users. Answer questions or resolve computer problems for clients in person, via telephone or from remote location. May provide assistance concerning the use of computer hardware and software, including printing, installation, word processing, electronic mail, and operating systems.	545,520
<a href="#">Computer Systems Analysts</a> (15-1051)	Analyze science, engineering, business, and all other data processing problems for application to electronic data processing systems. Analyze user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling limitations. May analyze or recommend commercially available software. May supervise computer programmers.	489,890
<a href="#">Database Administrators</a> (15-1061)	Coordinate changes to computer databases, test and implement the database applying knowledge of database management systems. May plan, coordinate, and implement security measures to safeguard computer databases.	115,770
<a href="#">Network and Computer Systems Administrators</a> (15-1071)	Install, configure, and support an organization's local area network (LAN), wide area network (WAN), and Internet system or a segment of a network system. Maintain network hardware and software. Monitor network to ensure network availability to all system users and perform necessary maintenance to support network availability. May supervise other network support and client server specialists and plan, coordinate, and implement network security measures.	327,850
<a href="#">Network Systems and Data Communications Analysts</a> (15-1081)	Analyze, design, test, and evaluate network systems, such as local area networks (LAN), wide area networks (WAN), Internet, intranet, and other data communications systems. Perform network modeling, analysis, and planning. Research and recommend network and data communications hardware and software. Include telecommunications specialists who deal with the interfacing of computer and communications equipment. May supervise computer programmers.	230,410
<a href="#">Computer Specialists, All Other</a> (15-1099)	All computer specialists not listed separately.	191,780
<b>Total</b>		<b>3,474,870</b>



# Impact of IT on Employment

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- According to the BLS, IT occupations make up five (5) of the 25 fastest growing occupations in the U.S. (2006-2016)
  - 1. Network systems and data communications analysts
  - 4. Computer software engineers, applications
  - 23. Computer systems analysts
  - 24. Database administrators
  - 25. Computer software engineers, systems software

# Impact of IT on Employment

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- Worldwide IT Spending ~ \$3.2 trillion
  - That creates a lot of jobs worldwide

**Table 1**  
**Worldwide IT Spending Forecast (Billions of U.S. Dollars)**

	2008 Spending	2009 Spending	2010 Spending
Computing Hardware	379.5	317.8	317.7
Annual Growth (%)	2.5	-16.3	0.0
Software	221.9	218.3	225.3
Annual Growth (%)	10.3	-1.6	3.2
IT Services	805.9	761.0	784.0
Annual Growth (%)	8.2	-5.6	3.0
Telecom	1,945.2	1,855.9	1,898.7
Annual Growth (%)	5.7	-4.6	2.3
<b>All IT</b>	<b>3,352.5</b>	<b>3,152.9</b>	<b>3,225.7</b>
<b>Annual Growth (%)</b>	<b>6.2</b>	<b>-6.0</b>	<b>2.3</b>

Source: Gartner (June 2009)

Additional information is available in the Gartner report "Gartner Dataquest Market Databook, June 2009 Update." The report provides detailed regional data for worldwide IT spending through 2013. The report is on the Gartner Web site at [http://www.gartner.com/DisplayDocument?ref=g\\_search&id=1052412&subref=simplesearch](http://www.gartner.com/DisplayDocument?ref=g_search&id=1052412&subref=simplesearch).

- So what is the net effect of IT on jobs?

# Impact of IT on Employment

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- New jobs created by IT are different from jobs eliminated by IT
  - IT created jobs often require a college degree
    - » Systems analysts, computer programmers, database administrators, network administrators, etc.
  - IT destroyed jobs often may not require a college degree
    - » Bank tellers, customer service representative, phone operators, electricity meter readers, sales clerks, etc.

# IT and a Global Workforce

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- IT offshoring
  - Hiring companies/employees in other countries for products or services
    - » As transportation and communications cost improved, manufacturing jobs moved from wealthier countries to less wealthy countries (especially India, China, Brazil, and Canada) where pay rates are historically much lower
    - » More recently, the Internet/Web has significantly reduced the “transportation” costs for many kinds of information work
      - ◆ Data processing, customer service, and computer programming were among the 1<sup>st</sup> service jobs to go offshore (mostly to India)
        - India has a large pool of low-skilled workers (for data processing) and a large pool of well-trained, English-speaking computer programmers
        - India also has lower wages (but the disparity is decreasing – used to be 25% of US wages, now is about 75%)
    - » By 2004, ~12% of U.S. IT companies moved some of their operations offshore
      - ◆ Customer service call centers, software help desks, back-office jobs (e.g., payroll processing)
      - ◆ Doctors in US dictate notes on patient visits, send digitized voice files to India where medical scribes transcribe them and return the text files

# IT and a Global Workforce

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- IT offshoring
  - 2005
    - » Offshoring of skilled work (i.e., knowledge work) increased, leading to more worries about the threat of job losses (especially high-paying jobs)
      - ◆ Marketing, research (e.g., pharmaceutical and biotech), legal services, stock analysis, and other financial services
  - 2009 → < 5% of IT jobs are offshored
  - Important: In some fields (such as technology), an important reason for offshoring is that there are not enough trained professionals in the U.S.
    - » Late 1990s/early 2000s → “dot-com bust”
      - ◆ Enrollment in Computer Science (CS) and CIS programs dropped significantly
        - University of Arizona (top 5 CIS program): from about ~200 CIS majors to ~25 majors in 3 years
        - UNLV: from ~300 CIS majors to ~50 majors in 4 years
        - University of Minnesota and UT Austin (both top 5 CIS programs): CIS faculty forced to teach Accounting courses due to lack of CIS majors

# IT and a Global Workforce

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- IT offshoring

- Important: In some fields (e.g., computer science) one important reason for offshoring is that there are not enough trained professionals in the US
  - » While enrollment in CS and CIS majors dropped dramatically in the early 2000s (following the “dot-com bust”) the demand for computer and network specialists remained very high
  - » So where did companies turn to fill positions? They went offshore
  - » As some of these high-skill information jobs began moving offshore, more people became worried about CS and CIS as a major, leading to further reductions in CS/CIS enrollments and a further reduction in a skilled domestic workforce to fill IT jobs
- The end result
  - » It is important to look at not only the offshoring trend, but also the reasons for it
  - » According to the BLS IT occupations make up five (5) of the 25 fastest growing occupations in the U.S. (2006-2016)
  - » The demand for your problem-solving and IT skills will continue to grow!
  - » There are not enough of you to satisfy the future needs of our employers!

# IT and Getting a Job

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- The Internet has made the process of finding information about jobs and employers much easier
  - [Jobster.com](http://Jobster.com)
  - [Monster.com](http://Monster.com)
  - [Yahoo!HotJobs](http://Yahoo!HotJobs)
- But, keep in mind that most employers also use the Internet to learn about applicants and employees
  - Many search blogs and social networking sites
    - » Make sure to clean up your online material before you put in a job application
  - Many use huge data collection companies (e.g., ChoicePoint) to perform background checks

# Workplace Monitoring

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- Employers monitor workers to:
  - Ensure that corporate IT usage policy is being followed
  - Evaluate worker performance and ensure productivity
  - Maintain a safe and comfortable work environment
- Fourth Amendment cannot be used to limit how a private employer treats its employees
  - Public-sector employees have far greater privacy rights than in the private industry
- Privacy advocates and Unions want federal legislation to keep employers from infringing upon privacy rights of employees



# What is Different?

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- Traditional monitoring was:
  - Periodic
  - Less detailed
  - Typically seen by workers
  - Affected “blue collar” (factory) and “pink collar” (telephone and clerical) workers
- Electronic monitoring can be:
  - Constant and much more detailed
  - Largely unseen by workers
  - Also targets “white collar” (professional) workers
  - Much less about efficiency and more about potential abuses

# Electronic Monitoring (EM)

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- What is it?
- How is it done?
- Arguments in favor of EM
- Criticisms of EM
- Legal considerations
- Management guidelines

# Types of Electronic Monitoring

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- Phone monitoring
- Keystroke loggers
- Internet monitoring and filtering, e-mail monitoring, instant message monitoring
  - Packet-sniffing software (Silent Watch)
- Location monitoring
  - “Smart” ID cards, global positioning systems (GPS)
- Personality and psychological testing, drug testing, intelligence testing, genetic testing, etc.
- Closed-circuit video monitoring

# Phone Monitoring

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- Can my employer listen to my phone calls at work?
  - Unannounced monitoring for business-related calls? Yes (Electronic Communications Privacy Act)
  - Personal calls? No (Watkins v. L.M. Berry & Co., 1983)
  - Headset conversations with co-workers? Yes
- Can my employer obtain a record of my phone calls?
  - Yes (pen register)
- What about my employer's promises regarding workplace privacy issues. Are they legally binding?
  - Generally, yes.
  - Exception: investigations for wrong-doing
- Often used to measure employee performance, training, ensure quality (customer service), provide a digital transaction record <sup>20</sup>

# Keystroke Monitoring

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- Is my employer allowed to see what is on my PC while I am working?
  - Generally speaking, yes.
  - Since the employer owns the computer network and the terminals, she is free to use them to monitor employees
  - Courts have held employers accountable to inform their employees about the right and ability (usage policy)
  - Law favors employer property rights over employee privacy
- Used to measure employee performance, uncover employee crimes, and protect the work environment
- Frequently used in the retail industry to prevent theft

# Keystroke Monitoring

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- The Case of Newport Electronics (fictitious)
  - Julie is a great salesperson just promoted
  - Her friend is a secretary in marketing who was fired for a relationship with an executive
  - Julie sat at her computer and wrote a nasty letter:
  - “I am writing to protest your recent handling of the Patricia C. situation. She has been shabbily treated in a one-sided and sexist decision making process. You should be ashamed of your conduct in this matter. How can you justify firing her and letting Mr. X remain in his position... ”
  - She then decided to stop the letter, did not send it, and deleted it.
  - The company had installed a keystroke monitoring software (*iNVESTIGATE*) that tracks all keystrokes
  - She was fired
  - She sued – said that Newport Electronics said all computers activities were monitored but it did not say every keystroke (even deletions) were monitored
  - **Has Julie been treated fairly? Why or why not? Is this “wrongful termination”? Is the use of *iNVESTIGATE* software unethical? Can this be used responsibly?**

# Location Monitoring

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- Nurses
  - Smart IDs for T&A, access to medications, or to locate a specific person
- Companies with fleets of vehicles
  - Late 1980s - satellite tracking systems on long-haul trucks to track location, rate of speed, length of rests, when driver turns on headlights
    - » Benefits:
      - ◆ Better planning of deliveries
      - ◆ Don't waste time at public phones to check in
      - ◆ Communication about schedule changes, traffic and weather conditions
      - ◆ Data on speed and rest stops improves safety
      - ◆ Trucks with valuable goods are target for theft and more easily found (100s of stolen trucks found cause thieves didn't know about tracking devices)
      - ◆ Reduces insurance rates, overtime costs, workers' compensation
    - » Problems
      - ◆ Truckers see it as Big Brother and an invasion of their personal privacy
      - ◆ Wrapped foil over the device transistors or took rest stops under bridges
  - Would it be as good to use cell phones and wireless email as opposed to tracking devices and GPS? Is that overkill for the purpose?

# Email and Internet Monitoring

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- Is electronic mail private? What about voice mail?
  - Generally, no
    - » Incoming and outgoing emails, personal accounts like yahoo or hotmail
  - Property rights over privacy rights (Electronic Communications Privacy Act - 1986)
  - No expectation of privacy
  - Workplace privacy court cases in the employer's favor
    - » Smyth v. Pillsbury - [http://www.loundy.com/CASES/Smyth\\_v\\_Pillsbury.html](http://www.loundy.com/CASES/Smyth_v_Pillsbury.html)
    - » Fraser v. Nationwide - <http://caselaw.findlaw.com/us-3rd-circuit/1061695.html>
- When I delete messages from a PC, are they still in the system?
  - Yes
- My employer's electronic mail system has an option for marking messages "private" - are those messages really “protected”?
  - In most cases, no



# Email and Internet Monitoring

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- Reasons to monitor email, Web surfing, computer files
  - Find needed business information in an employee's messages or files when the employee is not available
  - Protect security of proprietary information and data (e.g., monitor participation in blogs to make sure no derogatory comments about company or release of trade secrets)
  - Prevent or investigate possible criminal activities by employees (running betting pools)
  - Prevent personal use of employer facilities, if prohibited by company policy (running a personal Website)
  - Check for violations of company policy against sending offensive or pornographic email (including questionable jokes) - in order to prevent a "hostile workplace environment"
  - Investigate complaints of harassment
  - Check for illegal or improper use of software

# U.S. Workplace Privacy Laws

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- Few laws currently exist in the U.S.
- Electronic Communications Privacy Act of 1986 (ECPA)
  - Firm property rights (corporate) over privacy rights
  - EM for purposes noted earlier is essentially legal
  - Exception: cannot eavesdrop on personal phone calls but employers can get around this by getting worker consent
- To win in courts, an employee must conclusively show an “expectation of privacy”?
  - Very difficult to demonstrate in a court of law
  - Employee locker example and the Microsoft email case
- Most employers have little issue with “casual use”



# European Workplace Privacy Laws

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- More comprehensive
- Protecting human dignity
- France (Article 120-2 of France's Labor Law)
  - Employer must inform worker in advance of any surveillance
- Italy (Italian Worker's Statute)
  - Prohibits remote surveillance of workers by video camera and other devices unless agreed to by the union for the sake of a business necessity
  - The worker may still challenge the surveillance
  - Can't install software to monitor a worker's performance

# Arguments in Favor of EM

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- Employers always have the broad rights of observation and record keeping of employees performance, EM is just an extension of those rights.
- EM helps to increase productivity
- EM gives more accurate cost accounting
- EM improves management of people
  - No bias
  - Fair performance expectations
  - Improves performance appraisal
  - Provides data quickly and frequently

# Criticisms of EM

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- EM is an invasion of employee privacy
- The monitoring is continuous:
  - Everything an employee does, from regular work to toilet breaks, is timed to the second
- Employees typically have no control over or very little knowledge of when and how monitoring takes place

# More Criticisms of EM

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- EM erodes trust and loyalty between employees and employer
- EM increases stress on the employees and leads to stress-related health problems
  - What are the implications for health costs to the firm?
- EM leads to management expectation of:
  - A machine-established work pace
  - Excess production quotas
  - Work speedups

# And Even More Criticisms

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- EM leads to over-dependence on quantifiable data as a measure of employee performance, eliminating softer, qualitative aspects of a job.
- EM can result in:
  - Lower morale
  - Increased turnover and absenteeism
  - Consequent poor customer service

# Moral and Legal Considerations

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- Employee hostility and unhappiness may result from non-involvement in the design and implementation of such systems. A sense of unfairness results.
- Fairness involves:
  - The work standards
  - The measurement process
  - The methods used to evaluate employees



# Guidelines for Management

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- Establish a clear and detailed monitoring policy
- Seek worker involvement
  - Explain why an EM system is necessary
  - Explain how employees can benefit from an EM system
  - Involve employees in the planning and design of the EM system
  - Form a quality circle with the employees to provide feedback to management

# Guidelines for Management

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- Decide what information is really needed
  - Explain to employees why that information is needed
  - Eliminate the “more is better” mentality
  - Only collect data necessary for the stated purpose
    - » Consider the use of GPS for long-haul trucker vs. use of cell phones or wireless email
  - Give workers the respect and privacy they deserve

# Guidelines for Management

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- Communicate with employees - when, how, why...
- Only business calls can be monitored, not personal calls
  - Employers should provide unmonitored telephones for personal calls
- Strive for fairness and provide data access
  - Employees whose performance has been criticized should have access to monitoring data and an opportunity to challenge the evaluation (access and resolution mechanism)
- Implement a reward-for-performance practices
- Provide management training on performance feedback
- Provide feedback to improve employee performance

# Conclusions

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- The appeal of EM will increase with the continued use of computers
- Management perceives EM will contribute positively towards productivity goals
- Management must balance conflicting perceptions and objectives

# Summary

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- The impact of IT on employment
  - IT and a global workforce
  - The truth about IT offshoring
  - Why is IT still an excellent career choice?
- Workplace privacy issues
  - Information access and use
  - Workplace monitoring
    - » Balancing the employer's right to know vs. the employee's right to privacy
    - » Applicable laws