WORK

CSE 312 – Legal, Social, and Ethical Issues in Information Systems

Stony Brook University

http://www3.cs.stonybrook.edu/~cse312

CH 6: WORK

6.1 Fears and Questions

6.2 Impacts on Employment

- 6.2.1 Job Destruction and Creation
- 6.2.2 Changing Skills and Skill Levels
- 6.2.3 Are We Earning Less and Working More?

6.3 Changing Work Patterns

- 6.3.1 Telecommuting
- 6.3.2 The Sharing Economy, On-demand service, and Gig work

6.4 The Global Workforce

6.5 Employee Communication and Monitoring by Employers

- 6.5.1 Social Media Content
- 6.5.2 Separating or Merging – Work and Personal Systems
- 6.5.3 Monitoring employer systems and tracking employees

6.1 FEARS AND QUESTIONS

- The introduction of computers in the workplace generated many fears
  - Mass unemployment due to increased efficiency
    - Computer systems and the Internet provide quick, reliable access to information so that we work smarter and more efficiently
    - The need for increased skill and training widens the earning gap
    - But people still do the work
      - Architects use computer-aided design systems, but they still design buildings.
      - Accountants use spreadsheets and thus have more time for thinking, planning, and analysis
    - But will computers design buildings one day?

FEARS AND QUESTIONS

- New trends still generating fears
  - Employers use of technology to monitor their employees
    - It could affect productivity, privacy, and morale
  - *Why do employers monitor employees?*
  - *Should monitoring be limited?*
- *Telecommuting*: the phenomenon of working at a distance from the traditional company office or factory, connected in cyberspace
  - Effects of telecommunication: *Offshoring* = hiring people or companies in other countries to perform services that workers in one's home country used to do -> to eliminate a huge number of jobs

6.2 IMPACTS ON EMPLOYMENT

Job Destruction

- As the use of ATMs grew, the number of bank tellers dropped by about 37% between 1983 and 1993
- Reduced need for telephone operators, meter readers
- The number of telephone switchboard operators dropped from 421,000 in 1970 to 164,000 in 1996
- The jobs of building, selling, and repairing typewriters have disappeared
- Railroads computerized their dispatch operations and eliminated hundreds of employees
- Travel agencies closed as consumers made airplane reservations online
- The jobs of 35,000 electric meter readers disappeared as utility companies installed devices that send meter readings to company computers
- Technology monitors vending machines and oil wells, reducing the number of people needed to check on them in person
- Shopping on the Internet and self-service checkout systems in stores reduced the need for sales clerks

IMPACTS ON EMPLOYMENT

Job Destruction and Creation

- Hundreds of music stores closed and jobs in the printing industry declined as music magazines, newspapers, and books went digital.
  - Digital cameras put film processors out of work; Kodak, founded in 1880, laid off thousands of employees and filed for bankruptcy protection in 2012.
- As use of cellphones increased, the number of employees in the wired telecommunications industry dropped by more than 120,000

- Technology increases productivity
  - Humans are a resource for companies
  - While the number of telephone operators was dropping by more than 60% between 1970 and 1996, the number of long-distance calls increased from 9.8 billion to 94.9 billion

- A successful technology eliminates some jobs, but creates others
  - The World Wide Web contributed to the creation of about 100,000 new Internet-related jobs in 1996
  - By 1997, more than 109,000 people worked in the cellular communications industry in the United States
  - By 1998, the Semiconductor Industry Association reported that chip makers employed 242,000 workers, directly, in US, and 3 million indirectly

IMPACTS ON EMPLOYMENT

Discussion Questions

- *What jobs have been eliminated due to technology?*
- *What jobs that were once considered high-skill jobs are now low-skill due to technology?*
- *What new jobs have been created because of technology?*
- *Do automated systems mean fewer jobs for low-skilled workers?*
- *Do automated systems mean fewer jobs for high-skilled workers?*
- *Will human intelligence in employment be "devalued"?*

IMPACTS ON EMPLOYMENT

Job Creation

- Lower prices increase demand and create jobs
  - Music industry changed from serving the wealthy to serving the masses, employing more than just musicians
    - A few hundred years ago, listening to professional-quality music was a rare luxury for most people
    - Technology, including electricity, radio, CDs, DVDs, iPods, smartphones, data-compression algorithms, and the Web brought the cost down, so everyone can enjoy music
    - The effect on employment?
      - Tens of thousands of musicians make a living, and some make a fortune, in jazz, country, classical, zydeco, new age, rock, and rap music

IMPACTS ON EMPLOYMENT

Job Destruction and Creation

- Unemployment rates fluctuate
  - Growth of computers has been steady, while unemployment has fluctuated widely
  - Many new jobs created by computer technology are ones not imagined or possible before
    - Computer game designers, professional computer game players, and video game coaches

IMPACTS ON EMPLOYMENT

Job Destruction and Creation

- Unemployment has a lot to do with an economy's ability to adapt to change
  - Technology did not cause the Great Depression in the 1930s
    - historians attribute the depression to a variety of factors: then-new Federal Reserve Bank's inept manipulation of interest rates, and "greed."
  - "Job churn", roughly 30 million jobs opening and closing in the U.S. each year, is typical of a flexible economy.
  - In stagnant economies, people do not change jobs often.
  - In the United States, in the ten years between 1993 and 2002 (a decade of increasing computer and Web use), 309.9 million jobs ended and 327.7 million jobs were added (for a net increase of 17.8 million jobs)

IMPACTS ON EMPLOYMENT

Job Destruction and Creation

- Long-term net social gains from technology are not of much interest to a person who is fired or cannot find a job
  - The loss of a job is immediate and personal and can be devastating to the individual and his or her family
  - When large numbers of people lose their jobs in one small community or within a short time, difficult social problems occur
  - There is a need for people (individual workers, employers, and communities) and institutions (e.g., schools) to be flexible and to plan for change
- Unemployment in many European countries is often higher than in the United States (Organization for Economic Co-operation and Development (OECD))
  - The differences have more to do with differences in flexibility in the economies and other political, social, and economic factors
  - The Organization for European Economic Co-operation (OEEC) was formed in 1948 to administer American and Canadian aid in the framework of the Marshall Plan for the reconstruction of Europe after World War II

IMPACTS ON EMPLOYMENT

Job Creation and Destruction

- We earning less than in 1970s:
  - Economists agree that the average hourly pay of manufacturing workers quadrupled (in constant dollars) between 1909 and the mid-1970s
  - Since the 1970s, wages decreased ~10% but fringe benefits increased
  - People work fewer hours since the Industrial Revolution
    - Many people continue to work more hours while income rises because they have higher expectations. They consider the lifestyle now possible to be essential.
  - Aspects of the tax and compensation structure encourage employers to have regular workers work overtime rather than hire additional employees (according to Cornell University labor economist Ronald Ehrenberg)
  - Decrease in take-home pay may be due to other factors (e.g. increased taxes)
  - Purchasing power increases as prices fall

IMPACTS ON EMPLOYMENT

Changing Skills and Skill Levels

- New products and services based on computer technology create jobs in design, marketing, manufacture, sales, customer service, repair, and maintenance.
- But, the new jobs created from computers are different from the jobs eliminated.
- Computers eliminate a much wider variety of jobs than any single new technological advance in the past
  - The transition to new jobs is more difficult because of the broad impact.
  - New jobs such as computer engineer and system analyst jobs require a college degree, where jobs such as bank tellers, customer service representatives and clerks did not
- Some companies are more willing to hire people without specific skills when they can train new people quickly and use automated support systems.

IMPACTS ON EMPLOYMENT

Changing Skills and Skill Levels

- Software makes decisions that used to require trained, thinking human beings
  - Computer programs analyze loan applications and decide which to approve.
  - Some programs are better than people at predicting which applicants are likely to default on their loans.
- Some computer programs write computer programs, reducing the need for training programmers

IMPACTS ON EMPLOYMENT

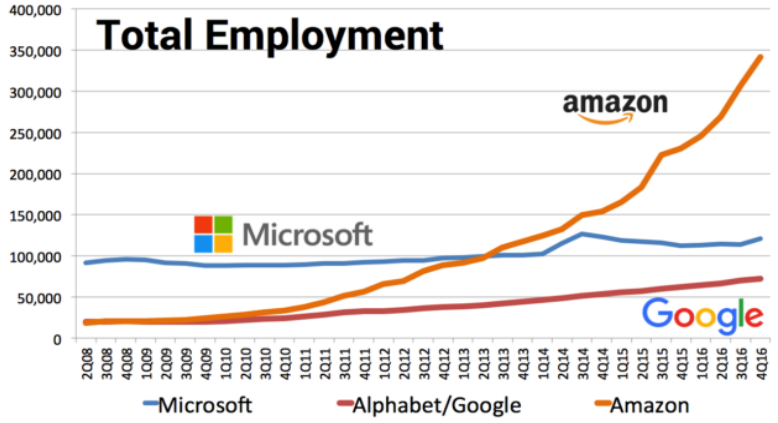
Changing Skills and Skill Levels

- Some jobs are not impacted by computers much:
  - The Bureau of Labor Statistics expects many jobs to be available that require little, if any, computer skill.
  - Areas in which the BLS expects the most new jobs created through 2018 include nursing, home health aid, packaging and delivery and food preparation and services.

IMPACTS ON EMPLOYMENT

Changing Skills and Skill Levels

- The Facebook app industry alone accounted for between 180,000 and 235,000 fulltime jobs in the U.S. in 2011.
- The enormous growth of retail sales on the Web contributed to an increase in jobs in the package shipping industry.
  - Amazon soars to more than 341K employees — adding more than 110K people in a single year



http://www.geekwire.com/2017/amazon-soars-340k-employees-adding-110k-people-single-year/

IMPACTS ON EMPLOYMENT

- Are We Earning Less and Working More?
- Wages increased very little since 1970s
  - Value of human work is declining
- Nonwage benefits have risen, adding 40% of wage amount
  - Total real compensation was up by 6.5% between 2000-2012
- Research by Michael Cox and Richard Alm found between 1970-1990 there is an increase in
  - Attendance in operas and symphonies
  - Attending professional sporting events
  - Spending on toys
  - Home size (though number of people living there decrease)
  - Televisions, automobiles per household
  - Homes with air conditioning (49% to 88%)

6.3 CHANGING WORK PATTERNS

Telecommuting

- Working at home using a computer electronically linked to one's place of employment
- Mobile office using a laptop, working out of your car, coffee shop or at customer locations
- Fulltime and part-time telecommuting
  - Independent consultants and contractors ("*information entrepreneurs*") work part time for different employers or clients
  - Companies (even big companies) can be located in small towns because their employees can work remotely
- One study reported that more than 33 million people in the United States telecommute at least one day per month
- The United States Marine Corps began allowing some civilian employees to telework from home in 2010

CHANGING WORK PATTERNS

Telecommuting

- Benefits
  - Reduces overhead for employers
    - Reduces need for large offices
  - Employees are more productive, satisfied, and loyal
    - It saves time that workers can use for exercise, sleep, or more interaction with friends and family
  - Reduces traffic congestion, pollution, gasoline use, and stress
  - Reduces expenses for commuting and money spent on work clothes
  - Allows work to continue after blizzards, hurricanes, etc.
  - Improves productivity: data entry showed productivity gains of 15%
- 58% of woman-owned businesses are home-based businesses
  - It can help reduce child-care expenses and give parents more time with their children
- A person can accept a job with a company in a distant state without having to move

CHANGING WORK PATTERNS

Telecommuting

- Problems
  - Cost for office space has shifted to the employee
    - Being at home with children is an advantage for some telecommuters, but a distraction for others
    - The employee who must give up space at home for the office
  - For some telecommuting employees, corporation loyalty weakens
    - Lacking immediate supervision, some people are less productive
  - Odd work hours
  - Working from home can lead to social isolation and low morale
  - Employers see resentment from those who have to work at the office
  - Security risks when work and personal activities reside on the same computer

CHANGING WORK PATTERNS

Telecommuting

- Side Effects
  - Working from home is not a new trend:
    - Even in the past few centuries, working at home has not been uncommon
    - Writers traditionally work at home.
    - Farmers work in the fields, but the farm office was in the house.
    - Doctors, especially in small towns, had their medical offices in their homes.
    - Shopkeepers often had an apartment behind or above the store
  - They did not have an isolation problem
    - Writers spent the evenings at coffee houses or at intellectual "salons" talking with other intellectuals
  - They lived, worked, and socialized in communities
  - Telecommuting may encourage a return to involvement in one's local community
    - The vitality of the community that is less likely to develop when one returns home after dark, tired from a day at the office

CHANGING WORK PATTERNS

Discussion Questions

- *Would you want to telecommute? Why or why not?*
- *How has telecommuting made entrepreneurship easier? Harder?*

THE SHARING ECONOMY, ON-DEMAND SERVICE AND GIG WORK

- The Web, and later smartphones, enable a flourishing sharing economy by matching people offering goods or services with others who want them.
  - People sell items they no longer need in Craiglist, eBay
  - Airbnb matches travelers with people who want to rent their house/apt, spare room, sofa bed etc.
  - Waste No Food/Community Food Rescue reduce food waste matching restaurants, supermarkets with charities to distribute extra food.
- On-Demand Services
  - Very quick delivery of products and services (within few minutes or a day)
- Gig Work
  - Workers work the hours they choose and paid by the job, rather than hourly, e.g., ride sharing Uber, Lyft

THE SHARING ECONOMY, ON-DEMAND SERVICE AND GIG WORK

- Advantages
  - Unused goods turned into economic assets, reducing waste
  - Source of income
  - Consumers can get goods and services in lower price, less time
  - Apps connects gigs with customers are creating more jobs
  - …
- Disadvantage
  - Gig workers do not have health care, sick leave, vacation days etc.
- Problem
  - Home sharing made neighbors unhappy. People in residential area complain of noisy vacation rentals.
  - Trashed the rented place
  - Consumers spied with hidden cameras

THE SHARING ECONOMY, ON-DEMAND SERVICE AND GIG WORK

- Discussion Questions
- What kind of screening of potential users can be done without unreasonable intrusion on their privacy?
- What policies should services such as Airbnb have for terminating memberships of people who generate a lot of complaints?
- To what extent are the problems integral to technology-enables services?

6.4 THE GLOBAL WORKFORCE

- *Outsourcing* - phenomenon where a company pays another company for services instead of performing those tasks itself
- *Offshoring* - the practice of moving business processes or services to another country, especially overseas, to reduce costs
  - Especially in Asia
  - The difference in pay rates was large enough to make up for the extra transportation costs
  - The Internet reduced "transportation" costs for many kinds of information work to almost zero
  - Data processing and computer programming were among the first service jobs to go offshore, many to India
  - The move of customer-service call centers and software "help desks" to India and other countries
  - Also "back-office" jobs, such as payroll processing
- *Inshoring* - when another company employs thousands of people in the U.S. (e.g. offshoring for a German company means inshoring for U.S.)
  - Almost 5% of U.S. workers are employed by foreign companies

THE GLOBAL WORKFORCE

- Offshoring is due to many factors:
  - Financial
  - Insufficient skilled workers in the United States:
    - Companies send off work in legal services, aircraft engineering, biotech and pharmaceutical research, and stock analysis and other financial services
    - Steve Jobs told President Obama in 2011 that Apple had 700,000 factory workers in China because 30,000 engineers are needed on site in the factories and Apple cannot find enough qualified engineers in the United States

THE GLOBAL WORKFORCE

- Problems and side effects of offshoring
  - Many social scientists, politicians, and organizations view the globalization of the workforce as a terribly negative phenomenon, one of the negative results of information and communications technology and corporate greed for increased profit
  - Consumers complain about customer service representatives, because accents are difficult to understand
  - Employees in U.S. companies need new job skills (e.g., managing, working with foreign colleagues)
  - Increased demand for high-skill workers in other countries forces salaries up

THE GLOBAL WORKFORCE

But

- Americans are working for foreign companies
  - Japanese car makers build cars in the United States
  - The German software company SAP employs thousands of people in the United States
  - People in the United States work for Sony, Ikea, Bayer, Novartis, Unilever, Toyota
- The United States is an exporter of services: banking, engineering, accounting
- Offshoring is likely to yield more jobs on all sides
- The need for new job skills encourages:
  - Flexibility, planning, and changes in educational programs

THE GLOBAL WORKFORCE

- Ethics of hiring foreign workers
  - Apply some of the ethical theories from Chapter 1 to analyze the practice from an ethical perspective

6.5 EMPLOYEE COMMUNICATION AND MONITORING

Learning About Job Applicants

- The Web and social media provide new means of information collection on job applicants. Employers:
  - search online newsgroups and social networks for:
    - racist remarks, references to drugs, sexually explicit material, displays of weapons or bombs, and violent activity
  - hire data-collection agencies
  - use a variety of screening methods to efficiently reduce a large pool of applicants to a reasonable number
- But there is also private information: race, religion
- Marc Rotenberg, president of the Electronic Privacy Information Center, expressed the view that "*employers should not be judging what people in their private lives do away from the workplace*"
- Some job-seekers attempt to clean up their online persona
- Search companies can have a policy that they perform social media searches only if the applicant consents.

EMPLOYEE COMMUNICATION AND MONITORING

Verifying workers

- It is illegal for an employer in the United States to hire an illegal immigrant or a legal immigrant without legal authority to work
  - E-Verify uses data from the Social Security Administration and the Department of Homeland Security (DHS).
  - E-Verify is not mandatory:
    - Approximately 200,000 employers use E-Verify
  - The system incorrectly rejects 0.3% whom it later approves after a process to correct the error
    - Inconsistencies in the spelling of names cause rejections.
  - Approximately 60 million people in the United States change jobs or enter the workforce every year.
  - An error rate of 0.3% incorrect initial rejections would affect 180,000 people who are legal workers each year
  - Privacy issues: most widely accessible databases of private information

EMPLOYEE COMMUNICATION AND MONITORING

Risks and Rules for Work and Personal Communications

- Employee monitoring is not new
  - Employers have always monitored their employees.
  - Degree of detail and frequency of monitoring has varied depending upon kind of work, economic factors, and available technology.
    - Time-clocks and logs.
    - Early monitoring was mostly 'blue-collar' (factory) and 'pink-collar' (telephone and clerical) jobs
  - Bosses patrolled the aisles watching workers
  - Output counts at the end of the day
  - Now, monitoring can be constant, more detailed, and unseen by the worker
    - The supervisors can remotely observe the computer screens of the workers they supervise.

EMPLOYEE COMMUNICATION AND MONITORING

Risks and Rules for Work and Personal Communications

- Separating – or merging – work and personal communications
  - Employers often prohibit employees from using their work email, computers, and other devices for personal use.
  - What about employees using personal email accounts, social media, laptops, smartphones, and other devices for work?
    - Security of company information and operations
      - When an employee leaves the company for any reason, the employer cannot demand the he or she turn over a personal phone or tablet—even though it likely contains confidential client information and company files
      - In government agencies, email is part of the official record and is subject to public disclosure
        - Some government officials use their personal email specifically to keep communications "off the record."

EMPLOYEE COMMUNICATION AND MONITORING

Risks and Rules for Work and Personal Communications

- Separating – or merging – work and personal communications
  - Some devices can be separated into a personal area and a secure work area
  - The policy about erasing a device must be made clear to employees
  - Some employers have a policy that employees may not install any software on their (work) computers or laptops other than what the employer provides
    - To someone who travels for work, this seems over restrictive
  - The restrictions varies with the particular industry and the kind of work done

EMPLOYEE COMMUNICATION AND MONITORING

Risks and Rules for Work and Personal Communications

- Monitoring employer systems
  - Roughly half of major companies in U.S. sometimes monitor the email or voice mail of their employees on company systems.
  - Most companies monitor infrequently, some routinely intercept all emails.
  - Reasons vary:
    - Protect security of proprietary information and data.
    - Prevent or investigate possible criminal activities by employees, such as embezzlement
    - Check for violations of company policy against sending offensive or pornographic messages.
    - Investigate complaints of harassment.
    - Comply with legal requirements in heavily regulated industries.
    - Prevent personal use of employer facilities (if prohibited by company policy).
    - Locate employees.
    - Find needed business information when the employee is not available

EMPLOYEE COMMUNICATION AND MONITORING

Risks and Rules for Work and Personal Communications

- Monitoring employer systems
  - Many major companies use software tools that provide reports on employee Web use.
  - 26% of employers said they had fired employees for misusing company email
  - Employees spend time on nonwork activities on the Web
  - Some companies block specific sites (e.g. adult content, sports sites, job search sites, social-network sites)
    - About 25% of companies in a 2011 survey block access to social network sites

EMPLOYEE COMMUNICATION AND MONITORING

Risks and Rules for Work and Personal Communications

- Monitoring employer systems
  - Purposes of monitoring employee communications include training, measuring or increasing productivity, checking compliance with rules for communication, and detecting behavior that threatens the employer in some way.
  - Concerns over security threats such as viruses and other malicious software
  - Concerns about inappropriate activities by employees (e.g., harassment, unprofessional comment)

EMPLOYEE COMMUNICATION AND MONITORING

Law and cases for employer systems

- Electronic Communications Privacy Act (ECPA) prohibits interception of email and reading stored email without a court order, but makes an exception for business systems
- Courts put heavy weight on the fact that computers, mail, and phone systems are owned by the employer who provides them for business purposes
- In addition, courts generally allow employers to look at messages an employee sends or receives on personal email accounts if the employee uses the employer's computer system or mobile device to do so
- In a few cases, courts ruled against an employer for reading email sent at work but on a personal account between an employee and the employee's attorney
  - The longstanding principle of attorney-client privilege protects such correspondence
  - But violated the policy that prohibits personal use of the company system

EMPLOYEE COMMUNICATION AND MONITORING

Law and cases for employer systems

- Employees do not give up all privacy when they enter an employer's premises
- The bathrooms belong to the employer too, but camera surveillance in bathrooms is not acceptable
- Courts have ruled against monitoring done to snoop on personal and union activities or to track down whistle blowers.
  - Workers have a legal right to communicate with each other about work conditions
- Court decisions sometimes depend on whether an employee had a reasonable "expectation of privacy."
- Many employers have privacy policies regarding email and voice mail
  - The employer should make clear how it treats messages in personal accounts sent through the employer's equipment
  - Warning the employee when someone is observing his or her apparently private actions or communications
- The National Labor Relation Board (NLRB) sets rules and decides cases about worker-employer relations.

EMPLOYEE COMMUNICATION AND MONITORING

Personal social media

- Basing disciplinary action on personal, nonwork social media is more controversial because it extends employer control beyond the workplace.
- Content in social media is often widely distributed; thus impact is stronger than that of a private conversation.
- Employer restrictions on nonwork social media do not violate employee's freedom of speech
  - Employers prohibit various kinds of speech—for example, disparaging the employer or its customers in public
  - These are conditions of the job; they do not violate the First Amendment (unless, in some cases, when the employer is the government).

EMPLOYEE COMMUNICATION AND MONITORING

Discussion Questions

- *It is reasonable for employers to fire employees for content of their blogs, tweets, or posts on social networks?*
- *Are there good reasons for employers to be concerned about what their employees post in such places?*

EMPLOYEE COMMUNICATION AND MONITORING

Monitoring location and equipment usage

- Employers supply smartphones to employees
  - Allow monitoring of employee movement
  - Building inspectors in Massachusetts refused the phones, calling them an invasion of privacy.
- Long-haul trucks are fitted with GPS
  - Companies can use data on speed and rest periods to ensure that drivers follow safety rules
- Electronic identification badges that serve as door keys
  - Provide increased security
- Nurses in some hospitals wear badges that track their location
  - supervisors can locate nurses quickly in emergencies
- Should employer policies permit employees to turn off locating devices when they are on a break?

EMPLOYEE COMMUNICATION AND MONITORING

Discussion Questions

- *How much privacy is reasonable for an employee to expect in the workplace?*
- *Under what circumstances is it appropriate for an employer to read an employee's email?*