COMPUTERS AND WORK

1. The Changing Nature of Work
2. The Impact on Employment
3. The Work Environment
4. Employee Monitoring
5. Health Issues

The Impact on Employment

Job destruction and creation

- Computers and Employment
  - Technology is usually developed and applied to enable a reduction in necessary resources towards some end.
    - reducing cost
    - increasing productivity
    - increasing profit
    - raising living standards
  - What could be wrong with making human labor more efficient? Does the labor always become more creative and less monotonous?

- Impacted professions mentioned:
  - bank teller
  - telephone switchboard operator
  - dispatcher / courier
  - travel agent
  - film processor?
- Other professions swell in numbers and demand, e.g.
  - design
  - marketing
  - manufacturing
  - sales
  - customer service
  - repair and maintenance
- Are enough jobs created to offset losses?
- Are there general differences in the character of the created jobs vs. the obsolete jobs?

- Obsolescent general job categories include those where the primary task is to serve as an information intermediary, having no significant role in information creation or analysis.
- Will increased demand because of higher quality services/products result in a smaller net change in the required number of workers in a profession?
- Some professions have not yet been significantly affected by the computer revolution, e.g.
  * the skilled trades
  * support staffing
  * What about artisans and those working in the Arts? Live performance has changed from being necessary to being an option or luxury.
- A reduction in the work week has resulted in growth in the entertainment and recreation industries and professions.

- Technology, Economic Factors, and Employment
  - During the inception of every technological revolution, the technology itself has been the scapegoat for the problems that occurred.
    - Luddites attacked looms.
    - Later, sewing machines were attacked.
  - Other economic factors often significant
    - "business cycles"
    - disasters (e.g. 9/11)
    - runaway speculation then restoration, e.g.
      - the 1636 Dutch Tulip Mania
      - the 2000 Dot Com frenzy & crash
    - industry migration
    - changing consumer/producer demographics
      - age
      - culture

* rigid and static national economic and political policies
    - e.g., OECD: policies stalled necessary adaptation
* free markets
* diversified & multinational corporations
* economies of scale
* $\exists$ stabilizing & de-stabilizing factors
* poor business practices, e.g.
    - Enron & A. Anderson
    - S&L
    - Fingerhut
    - Oct 19 stock market crash
* "eating seed grain"
* corporate dismantlement

- Are We Earning Less?
  - Factors:
    - technological
    - social
    - political
    - economic
  - pay/hour $\Uparrow$
  - inflation $\Uparrow$ (dollar value $\Downarrow$)
  - fringe benefits $\Uparrow$
  - consumption $\Uparrow$
  - leisure & recreation $\Uparrow$
  - work hours / week $\Downarrow$
  - lifestyle expectations $\Uparrow$
  - taxes $\Uparrow$
  - overtime $\Uparrow$

- A Global Workforce
- manufacturing jobs migrate when lower pay at new location more than offsets increase in transportation costs.
- for information based jobs, the transportation costs are negligible.
- factors: [ex "Where the Butterfly Alights"]
  - relative service sector salaries
  - availability of qualified workers
  - language
  - time zone
  - telecommunications infrastructure
  - trust or previous contact
  - internet literacy
  - economic development and "openness"

Changing Skills and Jobs

- Impact of computer technology IS different from impacts of previous technologies
- Key differences:
  - a wider variety of jobs have been (essentially) eliminated (impeding transitions to new jobs)
  - more highly-skilled jobs eliminated
  - pace of change unprecedented
  - if not eliminated, most jobs now require a working facility with computer technology
  - created jobs significantly different in nature and prior training – education requirements
  - stress $\Uparrow$ (Future Shock)
  - societal socio-economic divisions exacerbated

- Reasons for Optimism
  - education system adapts to needs quickly
  - as demand grows for new skills, they are acquired
  - training software
  - automated support software
  - hiring w.o. specific skills if quickly trainable
- Transitions
- gradual reductions in job demands accommodated through normal attrition – one job for decades
- fast reductions via RIF (firing) – frequent job changes & re-education
- impeding progress not an effective solution
- helpful online resources:
  - training

- discussion & news groups
- job listings
- relocation

The Work Environment

- Teleworking
  - at home
  - at satellite "telecommuting centers"
  - in car/plane/train
  - in cafe/park
  - Benefits:
    - for employers:
      - reduced overhead
      - increased productivity
      - better customer/client relations
      - greater timezone flexibility
    - for society:
      - reduced urban congestion
      - reduced pollution

- reduced energy consumption

* for employees:
  - reduced commuting & clothing expenses
  - better time utilization
  - enabling for families, elderly, & disabled
  - broader residential choices

- Problems
  - early (telecommuting) adopters not representative of general population – more independent.
  - resentment of coworkers who must be at office
  - children could cause distraction & stress
  - employee now bears more office space & equipment overhead
  - isolation & morale – informal communication with coworkers & management reduced
  - $\Rightarrow$ not for everyone, yet
- Societal Side Effects
  - what will be our sense of community?
  - return to pre-industrial revolution patterns of community involvement, or more local isolation and enhanced integration with global virtual communities?
  - migration of jobs to other geographical areas

  - Restrictions on Telework
    - discouraged by
    - local governments
      - "bedroom communities" associate home businesses with undesirable traffic, noise, and parking problems via deliveries or clients $\Rightarrow$ zoning regulations
      - regulations predate telework, but old laws applied to new context. (appropriately?)

- unions
  - find organizing home based workers infeasible – assumed recurrence of gender specific low-wage piecework for data-entry etc.

- federal safety admin. (OSHA)
  - tried unsuccessfully to enforce workplace safety regulations at homes.

- Impact of computer tech on business structures
  - debatable trends in business sizes and scopes
    - smaller businesses & independent contracting
    - "mom & pop" multinationals
    - large multinationals, in part, via mergers
    - disintegration of large corps. into more independent sub-units
    - complex regulatory laws discourage smaller organizations because of compliance overhead
    - higher computer use $\Leftrightarrow$ smaller firm size – because of more narrowly focused business plans
- internal hierarchies flattened (pyramid)
  - middle manager tasks deskilled from above and below
  - redefining middle management as facilitation – enabling use of info. tech above and below.

- worker-empowerment increasing – more information and knowledge generation & more decision-making authority

- Monitoring of employees
  - via
    - clocking
    - counting
    - pacing
    - surveillance
    - keystrokes
    - eavesdropping
    - email
  - blue collar $\Rightarrow$ pink collar $\Rightarrow$ white collar
  - with computer aid, monitoring can be
    - constant
    - more detailed
    - unseen
    - pervasive

- causes diminished
  - sense of dignity
  - independence
  - confidence
  - privacy
- causes increased
  - stress
  - boredom
  - low morale
- many firms now state established clear and detailed monitoring policies
- worker organizations propose limiting regulations
- worker & privacy advocates recommend more restrictive regulations including
  - maintaining only group statistics
  - monitoring only probationary employees

    - notification prior to each incident of monitoring
- policy VS law
- location monitoring
- email
- voice mail
- web use
- computer files
- National Labor Relations Board
    - workers have legal right to communicate w. each other re. work conditions
    - if a union exists, surveillance policies must be negotiated w. the union

- Health Issues
  - Repetitive Strain Injury (RSI)
    - via frequent, repetitive, forceful, and/or awkward hand position or stress on hands and wrists
    - not new or limited to computer related use
    - $>$ 12 distinct conditions w. different symptom & treatments
    - few if any clear objective physiological diagnostic tests
    - symptom appearance may be delayed from weeks to years
    - $\exists$ ergonomic solutions
  - management complicity
  - legal remedies
  - law suits
  - OSHA ergonomic workplace standards (2000)
    - 1.6K pages of rules

    - $5 billion/year for 10 years for compliance = 1/2 cost of lost worker time
    - repealed (2001)
- Australian Epidemic
- training & choice