Social Impacts of Computing

• Are computers, *in principle*, compatible with our ideas and ethics?
  – maybe, are computers, *in fact*, supporting...
  – contrast with evolutionary ideals
    • may have nothing to do with human ideals?
      – the question is then, who controls the machines...

• Main issues include
  – autonomy, access, community or isolation, deskilling, other stuff
Social Impacts

• you can get a degree in this stuff!
  – good jobs are available
    • social and multi-disciplinary studies of computing
  – legitimate academic pursuit?

• Underlying visions
  – positive
  – negative
Issue 1: Change

• Do computers produce social change?
  – has banking really changed?
  – has the “workplace” changed?
    • “direct experience” of the phenomena vs simulation
    • combat analogy
Big Issues

• Has technology changed the way we live?
  – our social structure is changed? (stronger)
    • if so, how? good/bad?
    • supports our ideals or not? should we support the changes?
      – what controls the direction for society?
      – what values do we want to preserve through the changes?
Second Issue

• Computing reproduces (reinforces?) preexisting social patterns
  – power relationships as example
    • employee monitoring
      – centralization of power rather than distribution
Third Issue

• Computers cause the change or other forces?
  – what is the role of computers in social change?
    • computers are malleable to our desires?
  – competition as a driver instead of technology?
    • business automation
    • employee deskilling
Fourth Issue

• Are computers value neutral or value laden?
  – this is hard to look at in abstract, use examples
• Autonomy
  – privacy examples to show erosion in individual autonomy
    » some are pushing back
  – hacker examples to show enhancement of autonomy
    » but law enforcement pushes back
  – computers seem to have various effects
Centralization / Decentralization

• Power
  – organizations who use computers
    • hierarchy is the norm
      – division of labor, efficiency (defined narrowly)
      – structures of responsibility are centralized
        » also possible to distribute (decentralize)
    • historical trend cited by Weizenbaum
      – centralization required by WWII scale of operations
      – stock exchange reversed its fate due to computing power
        » computing as preventing change, preserving status quo
Decentralization

• Robert Paul Wolf (In Defense of Anarchism 1970) suggests real democracy via computing!
  – how much has materialized?
  – who does/doesn’t want it?
Dual Effects

• Centralize store inventory for franchise
  – seems to gather power in center from local mgr
  – also frees mgr for working with local issues

• Expert systems
  – increase individual MD autonomy
  – as it gets “better” may decrease autonomy!

• What is happening?
The Nature of Computing to Blame?

• Research says
  – 4 possible positions
    • computers cause centralization
    • computers cause decentralization
    • computers and centralization unrelated
    • computers merely reflect centralization
  – “use of computing technology to reinforce decision authority status quo” in organizations (George and King)
Access to Resources as an Issue

- Computing resources and their social value
- Who has (should have) access to computing resources?
  - distinguish centralization issue: about power structures in decisionmaking environments
  - *competition* is a driving force in society
    - education, customers, wealth, protection
    - computing resources as powerful tools
Access to Resources

• Do wealthy and powerful have advantages?
  – nothing new here?
  – but computers not scarce... what gives?
  • for whatever reason, computing resources not equally distributed
    – recall idealistic visions of the “possibilities” of computing
      » but do the handicapped provide a market?
      » do the unemployed, the poor, the uneducated etc?
      » how does the potential get realized?
Access to Computing Resources

• The “Free Market”
  – social, cultural, political, economic factors decide what gets produced!
  • that determines whose needs get addressed by computing
Are Computers Value Free?

• An old question ("science" as "value free" search for "truth")
  – but try to explain large paradigm shifts
    • and accompanying backlashes!
• Simple shot: values of the designers
  – but inherent bias?
Value Freedom

• Consider binary nature of computing
  – to describe a continuous world
  – an example of abstraction
    • *all software* is an abstraction of reality
    • “unimportant” details are left out
      – that is the *value* of abstraction
      – but it is its bane at times!