

CS 4873: Computing, Society & Professionalism

Munmun De Choudhury | Assistant Professor | School of Interactive Computing

Week 2: Do Artefacts have Politics?
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Does Society Always Choose the Best Technology

- Apple OS vs. Linux vs. DOS/Windows
- Power Generation (coal fired, nuclear, wind, solar, etc.)



Why do you think society chooses certain technologies over others?

“Do Artifacts Have Politics?”

- How is the “goodness” of a technology measured?
 - Contributions to efficiency and productivity
- And also...
 - Positive and negative environmental side effects
 - **Technical things have political qualities (Winner’s main argument)**
 - **Manner in which they facilitate or re-establish certain power structures**
 - * *What is politics?*

The Context of a Technological System

- Technologies are not isolated, separate devices
- An individual technology becomes workable only when it is one part of a larger system (the whole is greater than the sum of its parts)
- The social or economic system in which the technology exists is more important
- Examples: washing machine, missile

Formally known as...

- **Social Determination of Technology (SDT):** What matters is not technology itself, but the social or economic system in which it is embedded.
- SDT is an antidote to those who focus uncritically on such things as “the computer and its social impacts”.
- Criticism: SDT fails to look behind technical things to notice the social circumstances of their development and use.

“It’s not the technology; it’s how it’s used”

- A “thing” can’t have politics
- Technology is neither inherently good nor bad
- People have politics, and people use the technology to achieve certain ends
- Examples:
 - Stirrups and feudal society
 - Once you can fight well from a horse, then you need a way to support this expensive way of waging battle (so, must realign society to support elite mounted warriors)
 - * Invention of guns

Formally known as...

- * **Technological Determinism (TD)**: The idea that technology develops as the sole result of an internal dynamic, and then, unmediated by any other influence.
- With the technology, people mold their thoughts and actions, and for social change.
- Criticism: Technology never forces itself on members of the society

Technologies have political properties

- Consider the invention, design, or arrangement of a specific technical device or system
- Consider how the technology forms a way of settling an issue in the affairs of a particular community
- Consider how it tends to be strongly compatible with particular kinds of political relationships which called inherently political technologies

Technologies have political properties

- Most technologies mention they are large-scale infrastructures
- This makes political arguments much more salient while de-emphasizing any smaller-scale impacts on individual ways of living.



Two ways technologies have
politics

Technical Arrangement and Social Order

- * Technologies are ways of building order in our world.
- * Technological changes express many human motives, including desire for power over others.
- * Many technologies are designed and built to produce consequences logically and temporally prior to professed uses

Inventions as Extension of Social Order

- Example: Overpasses on the Long Island parkways in early 20th century
 - Over 200 of them
 - As little as nine feet of clearance
 - Built to discourage the presence of buses on the parkways
 - Buses are public transportation: class issues
 - Builder (Robert Moses) also blocked extension of the Long Island Railroad to provide Jones Beach access

NYC Long Island Bridges



LENGTH:

- 25.9 miles

CONSTRUCTED:

- 1925-1949

REFER ROUTE:

- NY 908M
- [Current Conditions](#)
- [LI Pkwys](#)
- [nycroads.com](#)
- [HOME](#)
- [Rate This Road!](#)



This 2000 photo shows the Southern State Parkway approaching EXIT 15A (Valley Stream State Park). The original bridge crosses the eastbound lanes, while a new bridge constructed during the 1950's was added to cross the westbound lanes. (Photo by Steve Anderson.)

The Hutchinson Parkway



LENGTH:

- 18.8 miles

CONSTRUCTED:

- 1924-1941

REFER ROUTES:

- NY 908A (Bronx)
- NY 907W (Westchester)

- [Current Conditions](#)
- [Hudson Valley Pkwys](#)
- [nycroads.com](#)
- [HOME](#)

- [Rate This Road!](#)



This 1998 photo shows the northbound Hutchinson River Parkway at EXIT 9 (Wolfs Lane) in Pelham, just north of the Bronx-Westchester border. (Photo by Steve Anderson.)

Other Extensions of Social Order with Technology

- Concrete buildings and huge plazas constructed on university campuses in the United States during the late 1960s and early 1970 to defuse student demonstrations
- Soviet architecture
 - Large plazas
 - Broad boulevards
 - Huge scale of blocks, government buildings

Other Extensions of Social Order with Technology

- Baron Haussmann's broad Parisian thoroughfares, engineered at Louis Napoleon's direction to prevent any recurrence of street fighting of the kind that took place during the revolution of 1848
- Cyrus McCormick's introduction of pneumatic molding machines into his Chicago reaper manufacturing plant in the 1880s, in order to "weed out" the skilled workers who had organized a local union

Technical Arrangements and Social Order

- Technical Arrangements can achieve a social effect (e.g. the height of bridges-to limit buses, in turn, the access of racial minorities and low-income groups to Jones Beach)
- Technologies can be used in ways that enhance the power, authority, and privilege of some over others (e.g. use of TV to sell a candidate)

Myth of Efficiency as Motivator


- Technological Application has many justifications
 - McCormick factory example, pneumatic molding machines. Inferior quality at higher cost. Installed to force high skilled, unionized workers out.
- Not all designing for social uses is intentional

Technologies with unintended consequences


- Winner points out, however, that "to recognize the political dimensions in the shapes of technology does not require that we look for conscious conspiracies or malicious intentions."
- There are other interesting cases in which "the technological deck has been stacked in advance in favor of certain social interests," even though this stacking may not have been a conscious choice on anyone's part



Example: * Tomato harvesting



What are some modern day
examples of technologies extend
social order **intentionally**?



What are some modern day
examples of technologies extend
social order **unintentionally**?

Inherently Political Technologies


- **Many technologies → inherently political**
- These tech do not allow flexibility and choosing them means choosing a specific form of political life.
- Because their very creation and operation requires specific social arrangements
 - Often a particular sociological system
 - Or strongly compatible with a particular sociological system
- Four “types” of artifacts:
 - those requiring a particular internal sociological system
 - those compatible with a particular internal sociological system
 - those requiring a particular external sociological system
 - those compatible with a particular external sociological system

Plato's Republic

- Ships cannot be run democratically
- Their operation requires the coordination of so many individual workers.
- Large ships require social hierarchies that one-person canoes do not.

Friedrich Engels


- Complex technical systems
- large production factories → reinforcing centralized control
- knowledgeable → people acting at the top of a rigid social hierarchy would seem increasingly prudent



Your thoughts on some technologies that are more compatible with certain kinds of political organization:

Nuclear Power?

Solar Power?



Can you imagine creating a nuclear reactor that works with decentralized democratic control?

Can you imagine a totalitarian use of solar technology?

Jerry Mander

- Nuclear power plants
- techno-scientific industrial-military elite → nuclear power

The Atom Bomb

- Nuclear weapons
- Internal social system → Authoritarian
- Its lethal properties demand that it be controlled by a centralized, rigidly hierarchical, chain of command closed to all influences that might make its workings unpredictable
- Matter of practical necessity independent of any larger political system in which the bomb is embedded

Solar Energy

- Environmental activists argue for the democratizing qualities of solar energy → work against the concentration of power in the hands of large institutions.

Interpretations

- Two interpretations:
 - design of artifact makes establishing patterns of power convenient;
 - ways artifact properties are strongly linked to particular institutional patterns of power.
- Need to study which technologies and contexts are important – study specific technical systems and their history plus concepts and controversies of political theory.
- Note: people will resist major lifestyle changes due to political imposition, but willingly adopt for technological innovation.

Obligation

- Is it important to you to make the world a better place through your work?
 - Do you have an obligation to do no harm?
 - What about an affirmative obligation to do good?

How Do We Measure “Good” Or “Better”

- Economic costs and benefits:
 - jobs created, income generated, etc.
- Environmental impacts
 - pollutants distributed, cancers created
- Risks to public health and safety
 - exposure to natural disaster impact, “unsafe at any speed”
- “Consequences for the form and quality of human associations”