

# *Technological determinism*

- the web as the product or outcome of scientific advances
- see technology (e.g. the web) as ‘a thing’ (a process of *reification*) with effects on society.
- Resource: Tim Berners-Lee “inventor” of the web  
[http://www.ted.com/index.php/talks/  
tim\\_berners\\_lee\\_on\\_the\\_next\\_web.html](http://www.ted.com/index.php/talks/tim_berners_lee_on_the_next_web.html)



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## Computer games leave children with 'dementia' warns top neurologist

- Children are staring at screens for 2,000 hours a year
- Expert says browsing habits could lead to 'temporary dementia'

By SADIE WHITELOCKS  
UPDATED: 13:24 GMT, 14 October 2011

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Children's brains could be left damaged and they could suffer temporary 'dementia' by playing computer games, a leading scientist has warned.

Eminent neurologist Baroness Susan Greenfield said yesterday that spending time online gaming and browsing internet sites such as Facebook could pose problems for millions of youngsters.

She told attendees at a Dorset conference that an unhealthy addiction to technology could



## *A counter view: social shaping*

- the relationship between science and technology is far more messy, contingent and complex.
- technologies do not have ‘an essence’ (they are not ‘a thing’, they are not fixed)
- our relationship with technologies is *reciprocal* (**we shape the web and the web shapes us**).

# Today's lecture

## Thinking about ...

## technology and modernity

## (...for the first time?)

Pre-modern  
Modernity  
Post modernity

# Pre-modern

- Traditional (agrarian/feudal)
- Pre-ordained position
- Natural (Divine) law
- Natural and 'man-made' are the same



# Modernity

- Capitalist (industrial)
- Social order (division of labour) is socially created
- Nature/society and nature/science are distinct



# Technology and Modernity

- Technology made modernity possible
- Modernity and technology = “tangled”

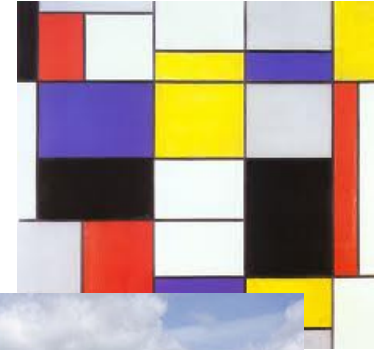
Reference: Misa T, Brey P, Feenberg A. (eds)  
*Modernity and Technology*. MIT Press, 2003

- ‘Information society’ is the product of ‘information technology’



# Modernity – cultural shift

- Art (reject realism)
- Architecture (e.g. Le Corbusier)
- Production (e.g. model T)



# Renaissance

- C12<sup>th</sup> (medieval renaissance)
- C15/16<sup>th</sup> ‘bridge to modernity’
  - Humanism (resurgence of the classics, rhetoric, dissemination, political citizenry)
  - Art (da Vinci, Michelangelo... perspective & light)
  - Science (reason and evidence, questioning)
  - Religion (reformation, challenge to Catholicism)
  - Technology (windmills, spinning wheels, Arabic numbers)

# Enlightenment

- C18<sup>th</sup> : philosophy, maths (Spinoza, Locke, Newton...)
- ‘emancipation from ignorance’ (Kant)
- Emergence of civil society/public sphere
  - Democracy (equality, freedom)
  - Literacy (debate, critique and discussion)
  - Question religious/monarchical authority
- Reason / science & rationality
- ‘progress’ / Industrial revolution

# Industrial revolution

- Mechanisation
  - Technologies (e.g. textile, mining, steam engine)
- Population growth
- Urbanisation
- Productivity increases -> Trade expansion

# Scientific attitude

- Direct observation (*empiricism*)
- Demarcation (break with natural law, testing)
- Reject idealism (Plato) and *essentialism* (Aristotle)
- Causality (laws)
- Idea of progress

# Impact

- Economic complexity/inter-related institutions and phenomena
- Rise of democracy and nation state
- We can transform the world (science is central to this)

# Theorising modernity

Modernity as a way of organising social life

- Weber (*rationalisation*)
- Marx (changed economic structure – new productive power relations - *capitalism*)
- Giddens (dynamism and *globalisation*)
- Beck (reflexive – dealing with risk)
- Castells (*networked society*)

# Weber

Rationalisation is the key to modernity

- Technological
- standardization of knowledge and production
- Rational calculation (e.g. of profit)
- Administrative order (bureaucracy, division of labour)

Modernity as liberating (progress, reason, freedom)  
but also the “iron cage” of modern bureaucratic  
organizational forms



# Marx

- Shared Weber's view of rationalisation and technological progress

“The hand-mill gives you society with the feudal lord; the steam-mill society with the industrial capitalist.” (1847)

- but also saw the ‘dark side’ to modernity - technological and market alienation (in labour process and from the result/product of labour)
- the culture of the working class produced by technology

# Giddens

- Modernity resting on 4 institutions: industrialism, capitalism, surveillance, military.
- Key features
  - Separation of time and space,
  - Dis-embedding of social life (e.g. timetables, money)
  - Reflexive appropriation of knowledge

# Beck

- simple modernization = the transformation of agrarian society into industrial society.
- (late) modernity = reflexive modernization - modern society confronts itself with the negative consequences of simple modernization; less about distribution of goods – more about distribution of risks.

# Castells

- information age = economic organization via the network (subjects and organizations) continually modified and adapting to (market) environments
- opposition (and new forms of social struggle) between
  - the Net (abstract universalism of global networks)and
  - the Self (strategies for people to affirm their identities)

# Studies of the history of technology

Focus on how a technology (e.g. PC) evolved and reflects the contexts in which it is developed/used.

Often

- Time specific (e.g. focus on a particular development stage)
- Space specific (e.g. in a geographical area).

Look at

- organizational, policy, and legal context
- actors, groups, organizations (e.g. engineers, industry, govt)
- discourses
- behaviours

# Social Studies of Technology

Focus on context in which technologies are developed  
(e.g. laboratory life)

*next few lectures explore these ideas*

- Both SST and historically focussed perspectives assume that technology is socially shaped

But

- society also shaped by technology

# Technology ... Modernity

- Technology as the driver of modernity
- Institutions and culture of modernity are not just shaped or influenced by technology, they are also constituted by it.

BUT

- technology is seldom discussed/central in theories of modernity.



# Why is this ?

## Technology...

- as 'background' (as catalyst or means by which modern institution operates (e.g. military) ;
- Is un(der)specified and vague; it's part of phenomena under study (e.g. for Weber it's is part of *rationalisation*, for Marx it enables new productive forces) but not discussed in detail
- *Essentialism & reification* - technology has fixed, context-independent properties that apply to all technologies; autonomous force.

# Using modernism and post modernism to understand computer technologies

Sherry Turkle (1995) *Life on the Screen: Identity in the Age of the Internet* - Explores rival computer design in mid-1990s

IBM-DOS PC users = modernist : wanted detailed understanding and control over (by typing inscrutable computer codes at the “command line”) and liked operational transparency and conceptual openness.

Apple Mac users used postmodernist images to describe their relationship to their machines - factory sealed beige boxes (+ a special factory tool to open them) which discouraged reductive understanding and detailed control. They surfed the conceptual “surface” of their machines with mouse clicks, windows, and icons.



# Surveillance in modern society

Lyon D. (2003) in Misa et al (eds) *Modernity & Technology*.

Modernity characterised by surveillance (practices and technologies)

- technological developments: information infrastructures (*surveillance networks*) trigger surveillance (e.g. cross checking, verification)
- proliferation of *surveillance data* flows between networks
- *surveillance practices* (e.g. police broker information for insurers industry) to manage risks (e.g. predict terrorism)

mutual shaping / amplified modernity via digital technology and consumerism -> postmodernity)

Miller D, Slater D (2000) *The Internet: An Ethnographic Approach*. Oxford: Berg

- ethnographic study of fast adoption of internet in Trinidad demonstrates that the concepts of "modernity" and "technology" are context-dependent rather than global
- "the context of a technology is also partly a consequence of that technology"

We need to bridge the gap between technology and modernity

Technologies interact deeply with society and culture, but the interactions involve mutual influence, substantial uncertainty, and historical ambiguity, eliciting resistance, accommodation, acceptance, and even enthusiasm. In an effort to capture these fluid relations, we adopt the notion of co-construction.

Misa TJ. *Modernity and Technology*. 2003:3