



What is Technology?
(Think more broadly)

Old Stone Age

- Moving, manipulating, assaulting
- Fire, spears, arrows
- Hunting, gathering

New Stone Age

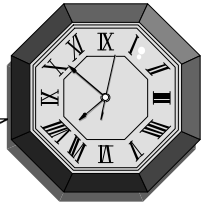
- Containing: protecting and preserving
- Baskets, pots, bins, vats, barns
- Cooking, milking, dyeing, tanning, brewing, gardening.

Scope and Focus

- Both Tools and Processes
- Both Old-Tech and High-Tech
- Many accounts of technology apparently regard Old Stone Age technologies (and their modern equivalents) as more important / interesting than New Stone Age ones. But social historians such as Lewis Mumford and Dora Russell suggest that this preference reflects gender bias.
- While certain technologies attract more attention than others, similar theoretical principles apply to all technologies, however old-fashioned and unglamorous.

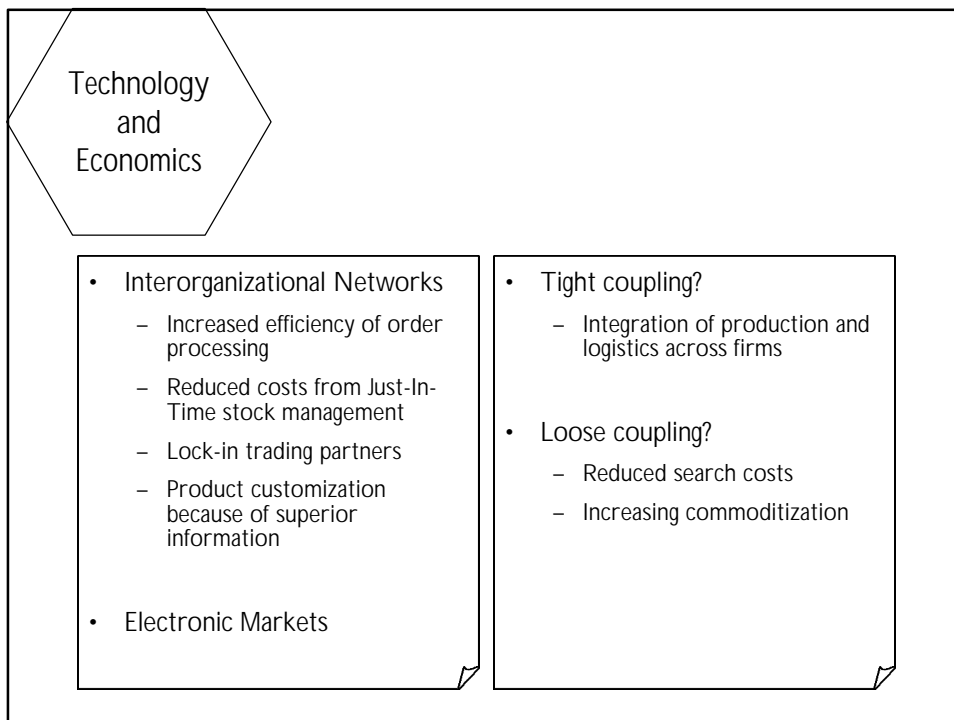
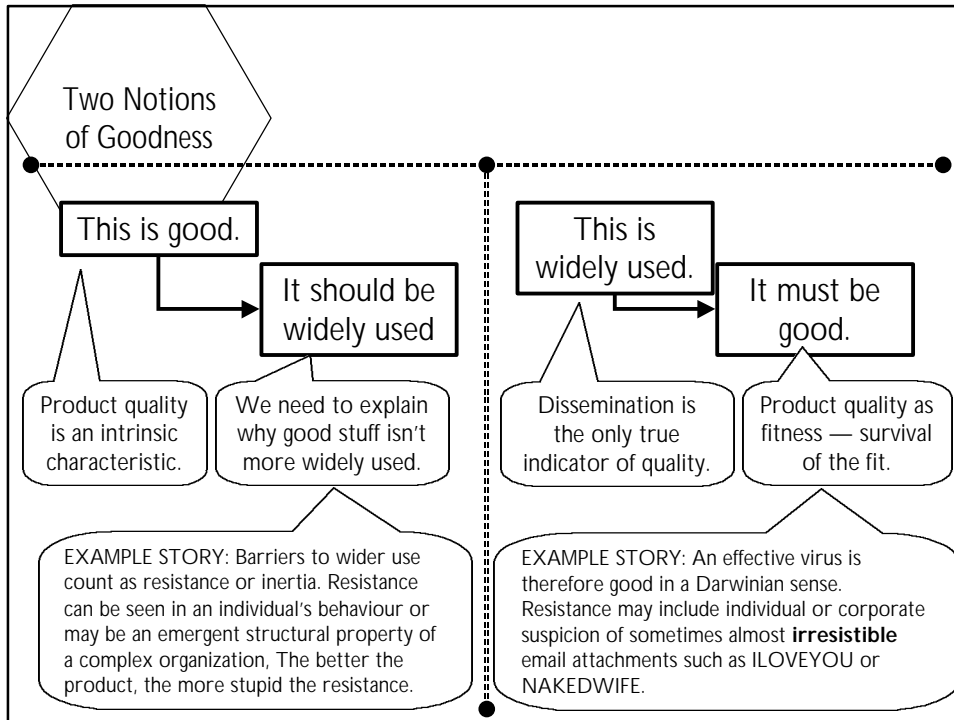
Perhaps the defining technology of the past millennium
The clock.

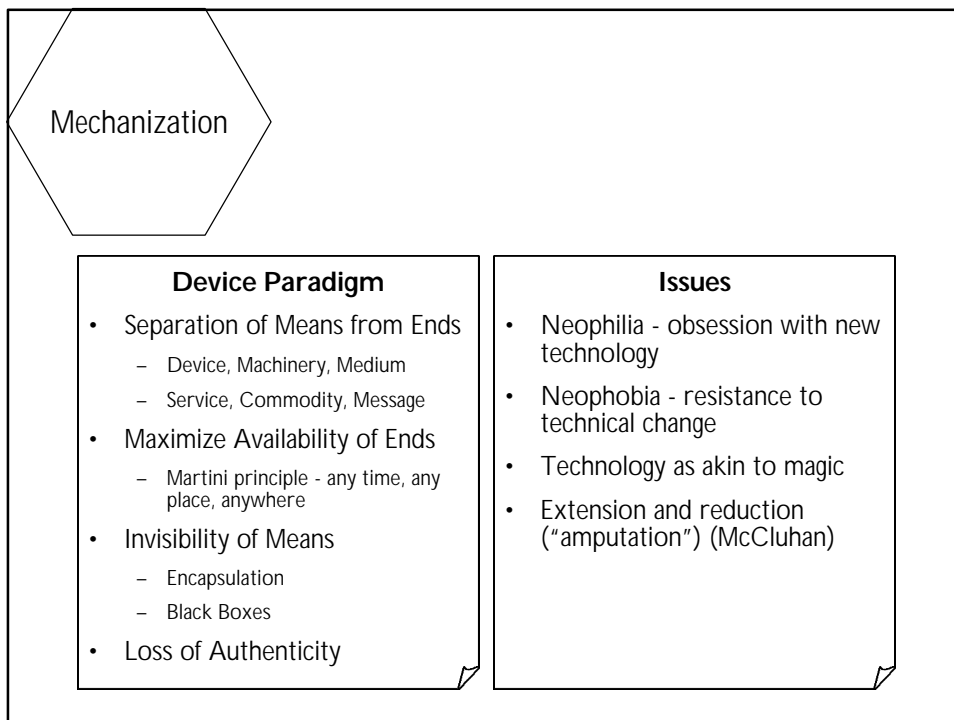
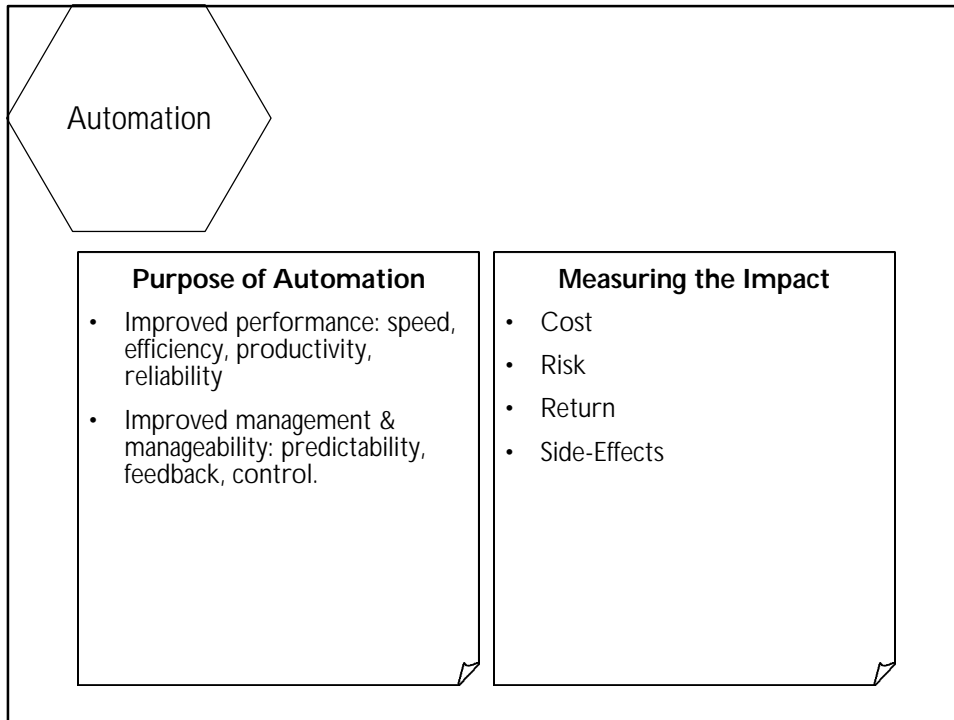
"I was your slave,
now you are mine,
I am Time."



- Mechanical clocks were invented around 1000 CE.
 - *Pope Sylvester II*
- Monasteries used the clock to control work and prayer. Early factories took over the clock-based work ethic. The industrial revolution was regulated by the clock.
 - *Lewis Mumford*
- Clocks are now everywhere. Clocks have transformed our conception of time.

- Business obsession with time: productivity, time to market, just-in-time, cycle time, ...
- Technological obsession with time: frequency, speed, acceleration, ...
- Sometimes this obsession equates to a foreshortening of **distance**.





Progression of
Technology -
Extension and
Reduction

- Marshall McLuhan noted that technology both **extends** and **reduces** human powers. (McCluhan called this "amputation".)
- Reduction is complementary to extension. For example, a telescope gives you a **close-up** view of something far away, but only a very **narrow scope** of vision.
- How do the other technologies on this slide reduce as well as extend human powers?

- naked eye
 - normal sighted person can make direct visual judgement
- spectacles
 - myopic person can make visual judgements
- telescope
 - distant person can make visual judgements
- telecamera projecting images directly onto TV monitor
 - person elsewhere can make visual judgements

- telecamera converting non-visible radiation to visible light, before projecting onto TV monitor
 - person anywhere can make visual judgements of invisible phenomena (e.g. infrared or Xray spectrum)
- telecamera feeding images to videotape
 - person at a later time can make visual judgements, by watching the tape
- telecamera feeding data to computer
 - person at an earlier time can make visual judgements, by programming them into the computer in advance

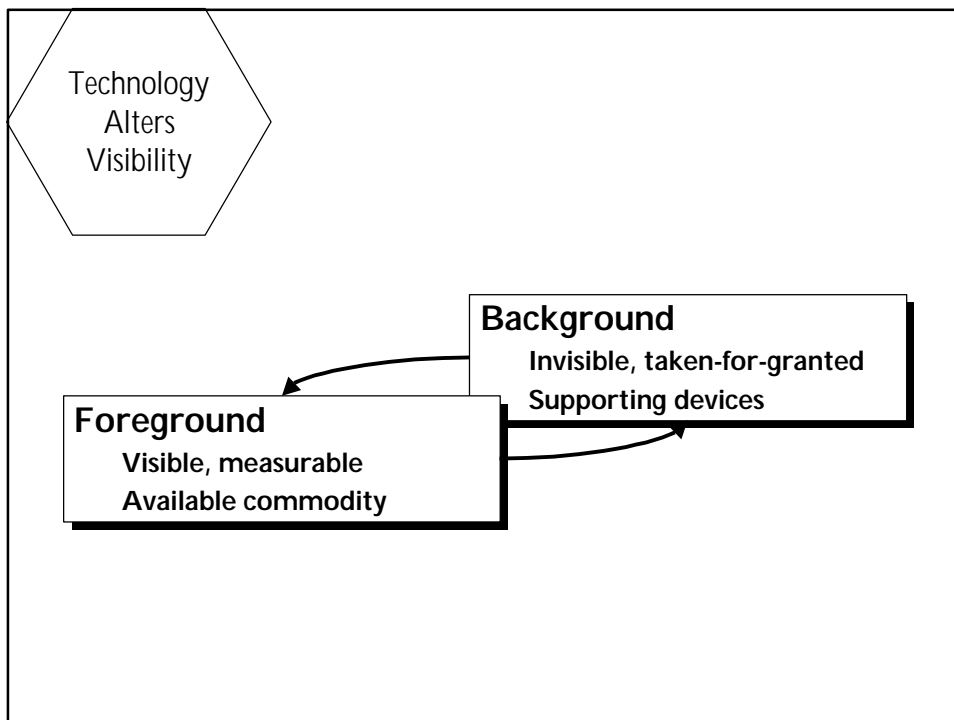
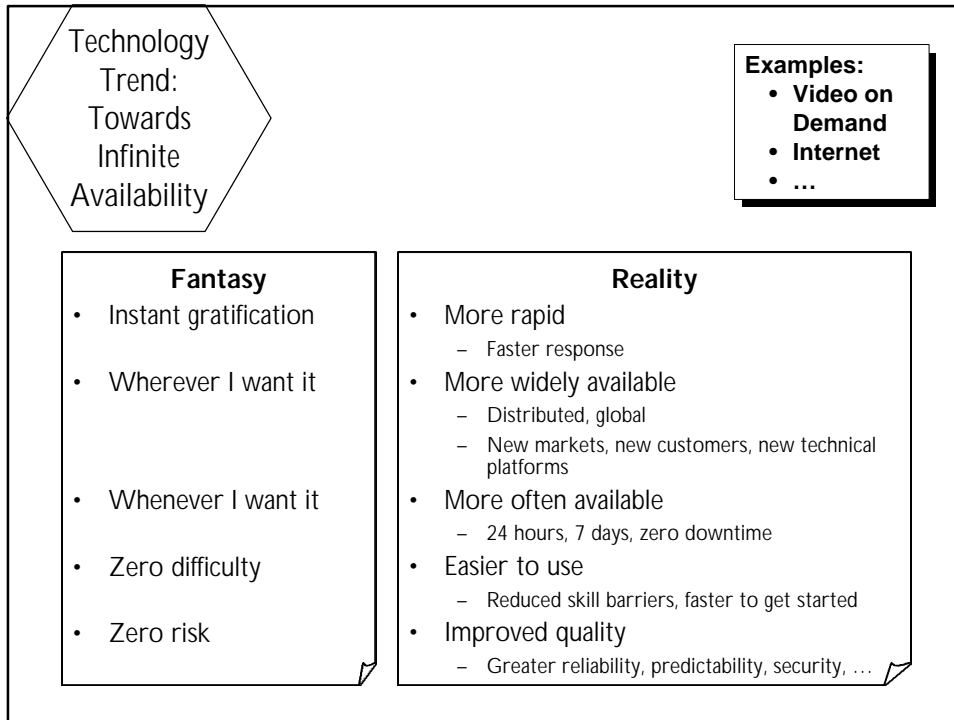
Surveillance &
Panopticon

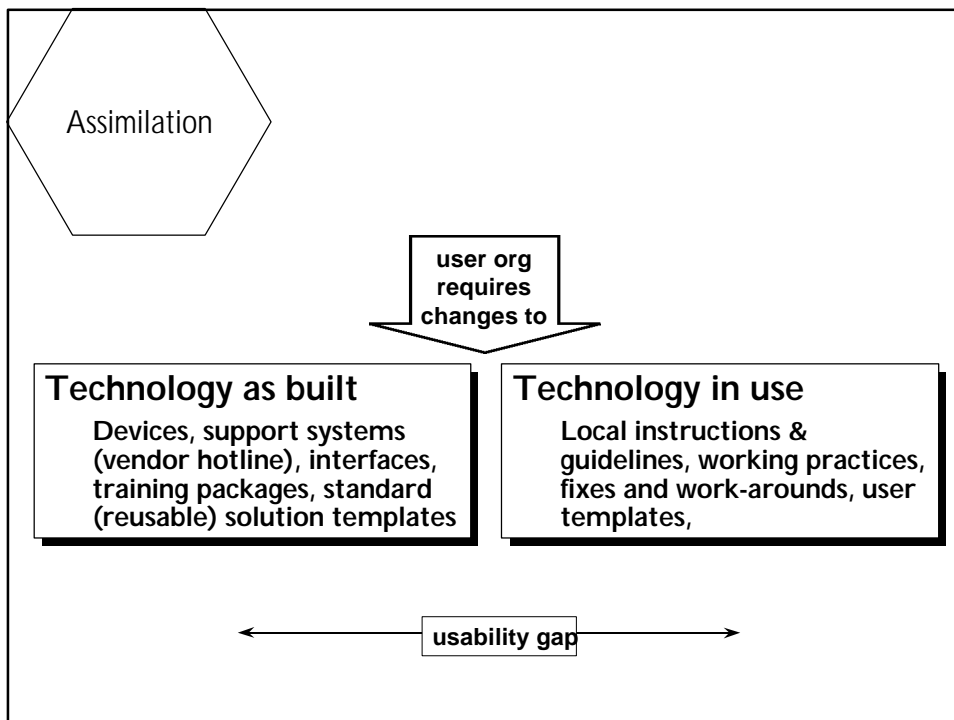
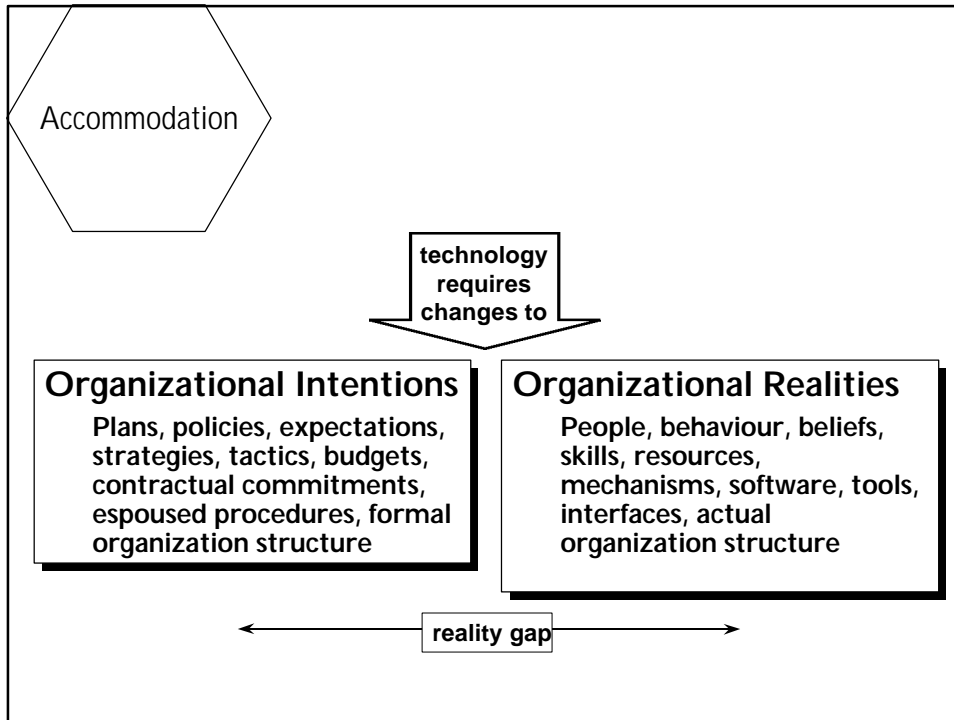
- Bentham's panopticon - originally a prison designed so that the warder could watch all the prisoners at the same time.
- By extension, any technical or institutional arrangement to watch/monitor large numbers of people.
- Provides a metaphor for various modern technologies
 - CCTV
 - database (e.g. CRM: customer relationship management)
 - workforce monitoring.

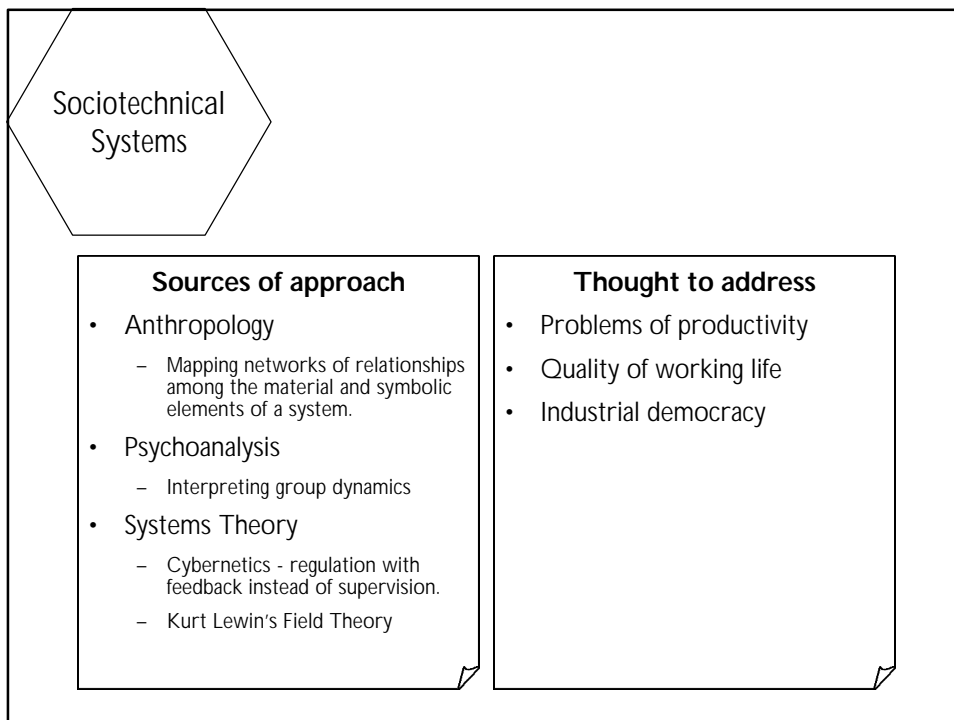
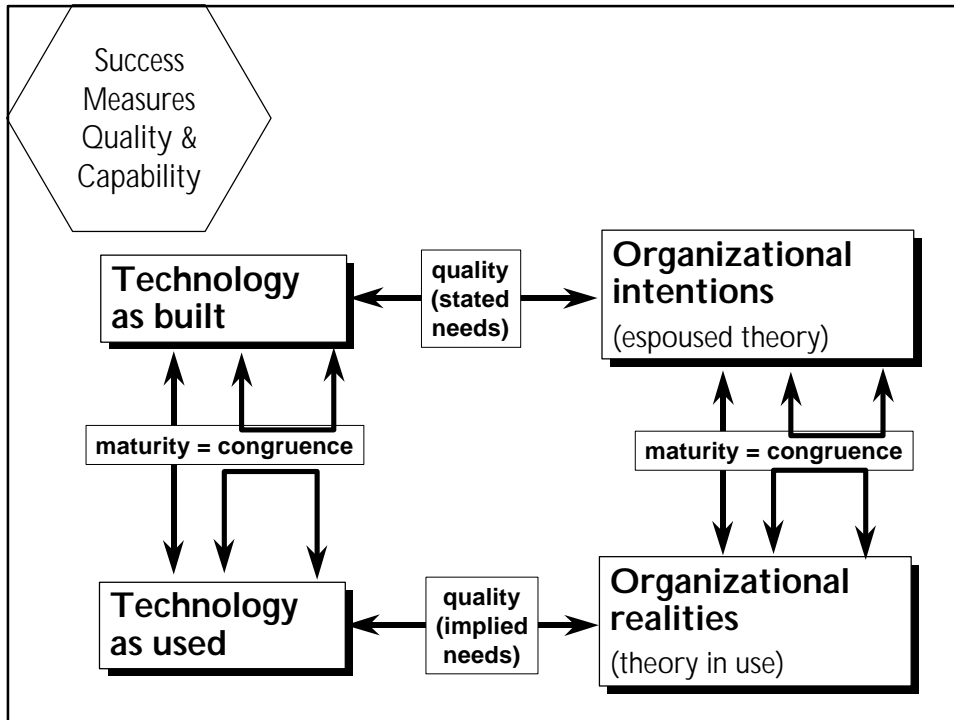
- The panopticon provides surveillance, and may result in a loss of privacy for the people being watched / monitored.
- If you know you're being watched, this may trigger various feelings - both positive and negative.
- The panopticon gives the illusion of completeness - so the watcher comes to believe two fallacies
 - 1) that everything visible is important
 - 2) that everything important is visible

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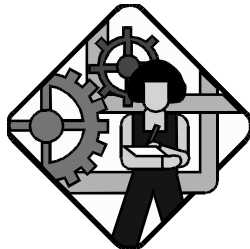






Sociotechnical Systems

People Control Machines



Or is it the other way around?

Situation 1

- Machine = Aeroplane
- Man = Pilot
- Training = Intensive, Complex, Realistic Simulation

Situation 2

- Machine = Nuclear Power Plant
- Man = Operator
- Training = Simplistic, Linear

Discussion Questions

- A large financial institution has a call centre, where employees are engaged full-time taking telephone calls from customers. A technology project is initiated to develop and install a new system; this system will monitor and control the duration of each call, so that the productivity and throughput of the call centre may be improved. Identify the management issues for this project, including any potential benefits, costs, risks and other impacts.
- While visiting a factory, you notice an operator who spends most of his time watching woollen material pass into a machine where it is scoured. 25% of his time is involved adjusting the input to the machine, 75% is spent watching. It is as if the operator is chained to the machine; he complains that he cannot even take time to read a newspaper, let alone a training manual. What kinds of improvement might be worth investigating? Sketch what kind of detailed investigation you would need to carry out before you could recommend specific improvements to the management of the factory.

Reading

Required	Advanced
<ul style="list-style-type: none">• Hatch, Chapters 5 & 12• Handy Chapter 9	<ul style="list-style-type: none">• Albert Borgmann, Technology and the Character of Contemporary Life (Chicago University Press)• Bruno Latour, Science in Action (Harvard)
<p>Suggested</p> <ul style="list-style-type: none">• Mary Catherine Bateson, "The Revenge of the Good Fairy"• Scarbrough & Corbett, Technology & Organization	