[context : environment : design : evaluation : example]
Here are some assumptions I am working on, and will give you an idea where I am coming from

- Gadgets and software are badly designed and everyone accepts this as normal
- HCI does little to help programmers engineer usable systems
- Engineers like to sit in dark rooms and need to spend more time with users (who are nice people)

This is a slight rant, but I am happy to discuss any point with you.
How does this happen?

- Left to their own, programmers will produce systems they would like to use
- But, programmers are not normal people
Perception
Have you ever seen one of the people who will be users of your current project? Have you ever talked to such a user? Have you visited the users’ work environment and observed what their tasks are, how they approach these tasks, and what pragmatic circumstances they have to cope with? Such simple user-centered activities form the basis of usability engineering.

1 Note that you have to talk to the individuals who will be using the system. Talking to the users’ manager or vice president for data processing does not count since these people are likely to have a completely different understanding of the job than the actual users.

From Chapter 1, *Usability Engineering*, Jacob Nielsen
Getting away with it

- ICT is now maturing to the point where people notice unusable technology
  - iPod engineering no better than rivals
  - Are Nokia handsets better than Siemens’?

- Change is inevitable
Mature technology

- Let us switch briefly to an even more mature technology as a case study: cars
  - Originally sold on the fact they worked
  - Later came technologies ("Balanced Power")
  - Ultimately came safety and usability
    - Ralph Nader changed perception of this
Immature Cars

You’ll be proud to own and drive the car with “BALANCED POWER”!
So is the electronic industry in a mature state?
To answer this we need to look at Christensen’s ideas.
(He assumes that technology develops over time and eventually reaches some level where it is sufficient for a task. This is true for “external” tasks.)

Electronic maturity

He assumes that technology develops over time and eventually reaches some level where it is sufficient for a task.
This is true for “external” tasks.
Internal task maturity

- This time, the graph looks a little different

- The curve never meets the task line, as the line changes to keep ahead of the curve

- What is going on?
Capitlism

- Companies exist to make money for their shareholders. This means that they need to keep selling products to the same consumers.

- Unlike cars (or other physical products), software (and electronics) does not wear out.

- Therefore, companies must make you want to buy new products - the technology curve cannot be allowed to cross the task line.
Task stepping

There are many ways to produce a stepped task curve. Here are three:

− Forwards compatibility
  • Having software versions which are incompatible

− Processor exploitation
  • Here is a quote from a Microsoft executive:
    − “if we hadn’t brought your processor to its knees, why else would you get a new one.”

− Snobbery
  • Word processing - “font-itis”, “clipart-itis” etc.
Usability exploitation

- Companies can also exploit usability to step the task line using marketing and drama
  - Drama
    - Exploits the fact that products can be made to look easy to use at purchase time
    - Sales people use “demo” buttons or careful walkthroughs
  - This is backed by marketing
    - Microsoft head of marketing “perception is reality”
    - Techno-centric focus (“Super-Intelligent control”)
Exploitation

Changer Control Receiver

KS-RT700R

- RDS with EON/PTY
- Changer Controllable
- Full Logic Mechanism
- Preferred Setting Mode
- ISO Connector

35 W x 4 Max.

- Power Switch Standby Illumination
- COMPU PLAY
- Sound Control Memory
Complicity

- Most users are happy to be exploited in this way for many reasons
  - Don’t want to admit they have made a bad decision (cognitive dissonance)
  - Enjoy the kudos that comes from knowing a system and helping others
    - Early adopters buy for fashion purposes
Surely it must be like that?

Moreover, users do not know that there are better ways of doing things

- as the technology is hard to understand, users assume un-usability is essential
- Dancing Bears
Importance: London Ambulance Service

CAD

- Computer Aided Despatch (CAD) system failed on 26/27\textsuperscript{th} October 1992 (and again on 4\textsuperscript{th} November)
- Allocates ambulances to emergency calls
- Gives details of the call to the appropriate ambulance
- Purely manual system $\rightarrow$ 100% CAD
  - Paperless
- Investigation and long report
Details of Failure

- Average ring times $\rightarrow$ 10 minutes
- $\%$ responses $<$ 15 mins $\rightarrow$ 40% $\downarrow$
- Media reports
  - Many people died as a result of slow response times
- Lot of dispute about whether this is actually the case
Example of Media Report

- One particular case is related in detail, in which a disabled woman was trapped in her chair by the body of her collapsed husband. She called the LAS every 30 minutes, on each subsequent call being told that there was no trace of the earlier call. An ambulance eventually arrived 2.75 hours after the initial call, by which time the husband had died.

- Report could not identify any deaths caused by the CAD failure
Report of the Inquiry into LAS CAD Failure

- 62 page report
  - Not all such reports are made public

- Lots of detail of the causes of the failure
  - Managerial
  - Industrial relations
  - Hardware
  - Training
  - And ....
  - System Design
Examples

- (3109) There are ambiguities over the extent to which ambulance crews were consulted or involved in the setting of the original requirements specification or in the revised operational method of working… there is no evidence of the ambulance staff having joint “ownership” of the system as one of the key stakeholders.

- (3110) … There is much circumstantial evidence of wilful damage to or misuse of Datatrak equipment. …

- (3113) A key feature in the failure of the CAD system is the inability of CAC and ambulance staff to fully appreciate each other’s role in providing a service to London.

- (3116) … Management were misguided or naïve in believing that computer systems in themselves could bring about such changes in human practices …