

Cards for matching types of design from Voland Chapter 1

- Each pair of slides represent a trend in modern design and an example of that trend being implemented.
- these cards are designed to be printed out 6 per page using adobe acrobat and cut into cards
- In class students match the cards.

Nth – Generation Design

Typewriter (Case study 1.3)



Image from: National Museum of Science and Industry (nmsi), UK, "Remington No 1 typewriter, c 1876," www.ingenious.org.uk, n.d., Accessed Aug. 2006

- 1868 QWERTY typewriter
- 1878 shift key mechanism
- 1889 portable machine
- 1933 IBM Electromatic
- 1956 portable electric
- 1961 spherical ball typing element
- 1965 typewriter with memory
- 1979 print wheels
- 1981 IBM PC (with 128 – 640 kilobytes of memory, and a 4.6 kHz processor) ...

Life-Cycle Design

The J.T.Baker CYCLE-TAINER® Solvent Delivery System



Image from: Anachemia, "CYCLE-TAINER® Solvent Delivery System," <http://www.anachemia.com/image/itb2.jpg>, n.d., Accessed Aug. 2006

- Containers for ultra-high purity solvents
- Designed to be plumbed into customers process (shipping container becomes feed tank)
- Empty solvent tank is piped into system as a waste tank
- Wastes is sent back to Mallinckrodt Baker, Inc for repurification.

Design for Manufacture (& Assembly)

Corning 168 Blood Gas/pH Analyzer



- The 168 analyzer represented a reduction in the total number of parts by over 25%.
- This reduction in parts improved reliability and reduced the cost of the instrument.

Image from: Production Engineering, "Laboratory analyzers.," <http://www.pertech.com/lab/instr/laborator.htm>, 1993-2006, Accessed Aug, 2006

Design for Quality

W. Edward Deming

- A key figure in post WW II Japan.
- Taught a total commitment to quality that changed Japanese industry
- The prize in Japan for quality today is the "Deming Prize"
- Point 3 of his key 14 points states:

"Cease dependence on mass inspection to achieve quality. Instead, improve the process and build quality into the product in the first place."

from Chapter Two of W. Edwards Deming, *Out Of Crisis*, MIT Press, 1986.

Faster Design Cycles

Personal Computers

- The rapid evolution of computer technology has made it essential that computer manufactures design replacement products rapidly
- Moore's law dominates:
the complexity (number of transistors) of an integrated circuit approximately doubles every two years.

Engineering without Walls

1991 AIM Alliance to Produce the Power PC microprocessor

A design cooperation of Apple Computer, Motorola and IBM.



from "The History of Microcomputers," Glencoe-Norton Online, <http://www.glencoe.com/content/norton4e/history.html#1993>, n.d., Accessed Aug. 2006.

"In just 12 months--far less than typical in the industry--the engineers at AIM completed the design and fabrication of the PowerPC 601. Containing 2.8 million transistors ..., it would run several operating systems, including Mac OS, SunSoft's Solaris, IBM's AIX, and Microsoft's Windows NT.

from "Engineering Megatrends", Design News, August 18, 1995)

Design for Export

Eastman Kodak's Fun Saver Panoramic (Case history 1.4)



Image from: Eastman Kodak Co. "The History of Kodak: 1980-1989," http://www.kodak.com/US/en/corp/kodak/history/1980_1989.shtml, n.d., Accessed Aug. 2006.

- This 1989 camera was a complete redesign
- It included improvements of a smaller size, rounded edges, a faster flash
- Kodak's research on customers desires in the US, Japan and Europe lead to the focus on these particular features.