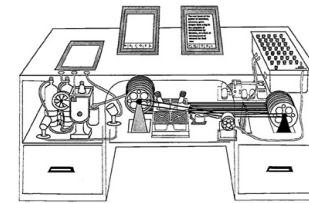


A short history of Human-Computer Interaction

See Michel Beaudouin-Lafon, *40 ans d'Interaction Homme-Machine : points de repères et perspectives*, Journées ASTI 2001
Available at <http://interstices.info>

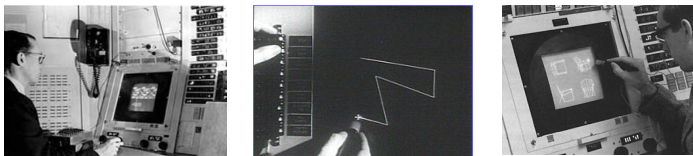
Memex - Vannevar Bush (1945)

Vision for a desktop information management system
Electromechanical system
Seen as the ancestor of the notion of hypertext



Sketchpad - Ivan Sutherland (1963)

Direct manipulation geometric shapes
Geometric constraints, zoom, click-drag



NLS / Augment - Douglas Engelbart (1968)



Inventor of the mouse (1963)



Bimanual interaction



Hypertext, cooperative work,
document sharing, video-conferencing



Visicalc - Dan Bricklin (1979)

First spreadsheet (Apple II)

HOME BUDGET, 1979			
MONTH	NOV	DEC	TOTAL
SALARY	2500.00	2500.00	30000.00
OTHER			
INCOME	2500.00	2500.00	30000.00
FOOD	400.00	400.00	4800.00
RENT	350.00	350.00	4200.00
HEAT	110.00	120.00	575.00
REC	100.00	100.00	1200.00
TAXES	1000.00	1000.00	12000.00
ENTERTAIN	100.00	100.00	1200.00
MISC	100.00	100.00	1200.00
CAR	300.00	300.00	3600.00
EXPENSES	2460.00	2470.00	28775.00
REMAINDER	40.00	30.00	1225.00
SAVINGS	30.00	30.00	3600.00

Xerox Star - Xerox PARC (1981)

First commercial graphical workstation
Document-centric approach



XEROX 6085 Workstation

User-interface Design

To make it easy to compare text and graphics to an electronic filing, printing, and making all of the same workstation, requires a revolutionary user interface design.

20-map display. Each of the places on the 19" screen is mapped to a bit in memory. Most arbitrarily complex maps can be displayed. The 1000 displays of bits and graphics as they will be printed. In addition, familiar office objects such as documents, folders, file drawers and inkblasts are portrayed as recognizable images.

The mouse. A unique pointing device that allows the user to quickly select any text, graphic or office object on the display.

See and Point

All functions are visible to the user on the keyboard or on the mouse. The user viewing and retrieval by selecting them with the mouse and holding the mouse COPY/DELETE/POWERUP command keys. Text and graphics are edited with the same keys.

Shorter Production Times

Experience at Xerox with prototype workstations has shown shorter production times and that lower costs as a function of the percentage of use of the workstations. The following equation can be used to express this:

16-point text.
24-point text.
36-point text.

NAME	EXTENSION	SIZE	DATA
COMMAND	COM	22677	15-1
ANDI	DYS	2956	18-1
ASDUM	COM	964	20-1
ATTRIB	EXE	15091	14-1
BACKUP	COM	17024	20-4
CHECKDR	COM	4435	24-1
CHKMOD	COM	9528	27-1
COMP	COM	3018	10-1
DEBUG	EXE	15364	15-1

Macintosh - Apple (1984)

Graphical personal computer

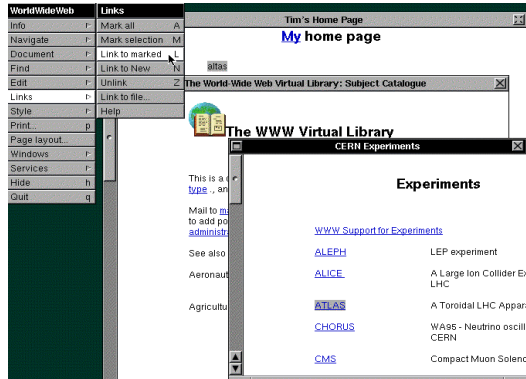
- Finder
- MacPaint
- MacWrite

Hardware + software design

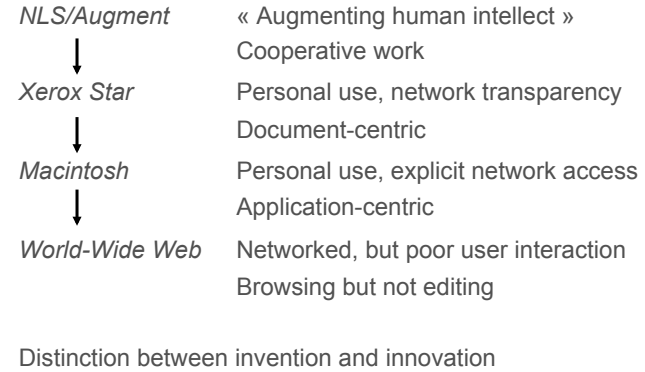


World-Wide Web - Tim Berners-Lee (1990)

Networked hypertext Integrated browser + editor



Are the visions getting more and more limited?



HCI does not follow Moore's law

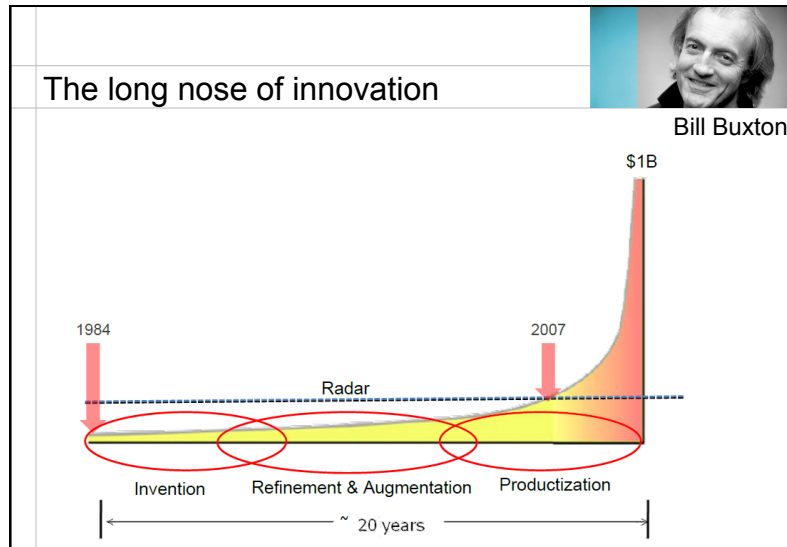


Original Macintosh		iMac 20"
January 1984 - \$2500	x0.9	November 2003 - \$2200
CPU 68000 - 0.7 MIPS	x3000	CPU G5 - 2250 MIPS
RAM 128 kB	x2000	RAM 256MB
Floppy 400 kB	x200000	Hard drive 80GB
9" n&b, 512x342	x2 / x10	20" colors, 1680x1050
Keyboard, mouse	same	Keyboard, mouse
WIMP desktop	same	WIMP desktop

HCI does not follow Moore's law



Original Macintosh		iMac 27"
January 1984 - \$2500	x0.7	September 2012 - \$1700
CPU 68000 - 0.7 MIPS	x214 000	CPU core i7 - 150 000 MIPS
RAM 128 kB	x31 250	RAM 4 GB
Floppy 400 kB	x2 500 000	Hard drive 1 TB
9" n&b, 512x342	x3 / x21	27" colors, 2560x1440
Keyboard, mouse	same	Keyboard, mouse
WIMP desktop	same	WIMP desktop



Visions are important

Augmenting Human Intellect – Doug Engelbart

Ubiquitous Computing – Mark Weiser

BUT a vision is more than just a video

Knowledge Navigator – Apple

Future Vision – Microsoft

The collage consists of several small images: a person sitting at a desk with a computer terminal; a person standing and pointing at a large screen displaying a map; a person sitting at a round table with a laptop; and a person interacting with a futuristic interface that shows a hand reaching towards a screen.