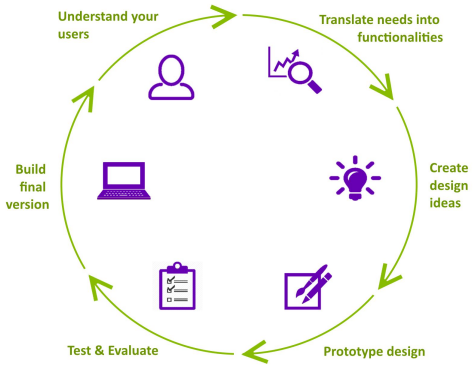
CS449/649:
Human-Computer Interaction

Winter 2018

Lecture XVII

Anastasia Kuzminykh

User Centered Design Process
January 4 - March 1



History of user centered design in HCI
March 6, March 8

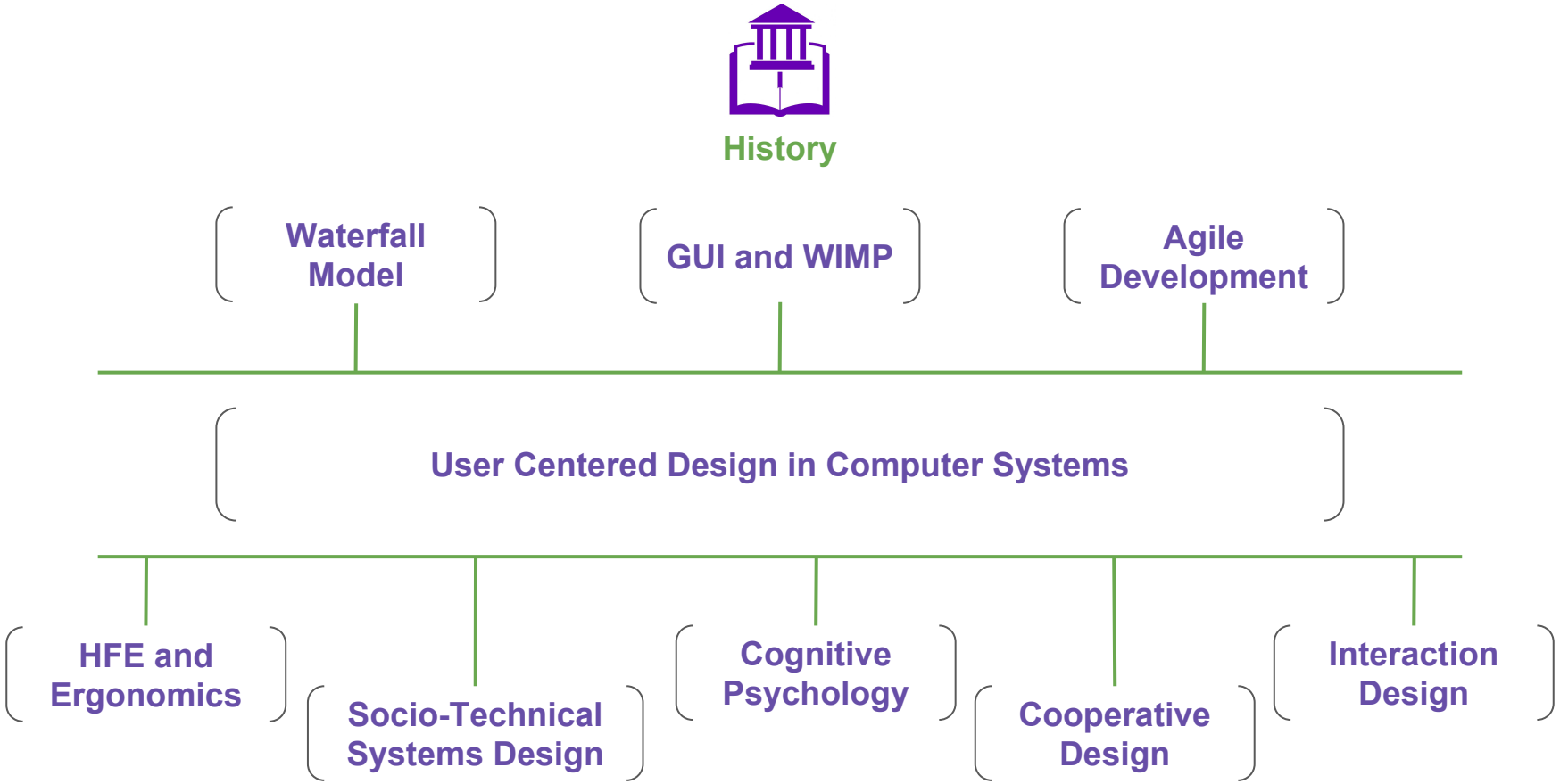
Academic HCI
March 13, March 15

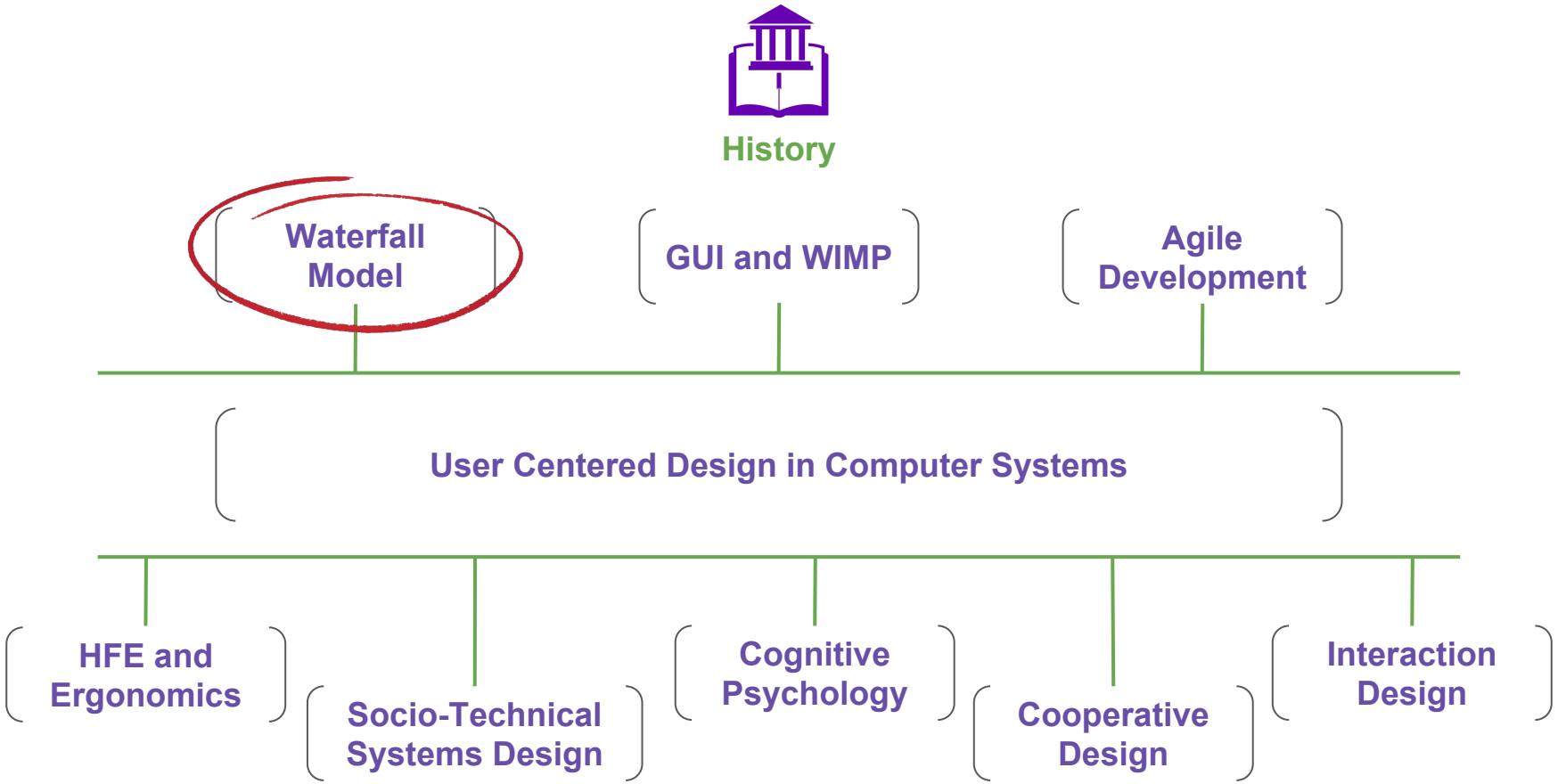
Special topics in HCI
March 20, March 22

Course Review
March 27

Presentation 2
March 29

Last class
April 3


History
Waterfall Model
GUI and WIMP
Agile Development
User Centered Design in Computer Systems
HFE and Ergonomics
Socio-Technical Systems Design
Cognitive Psychology
Cooperative Design
Interaction Design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History

Waterfall Model

The first mentioning:

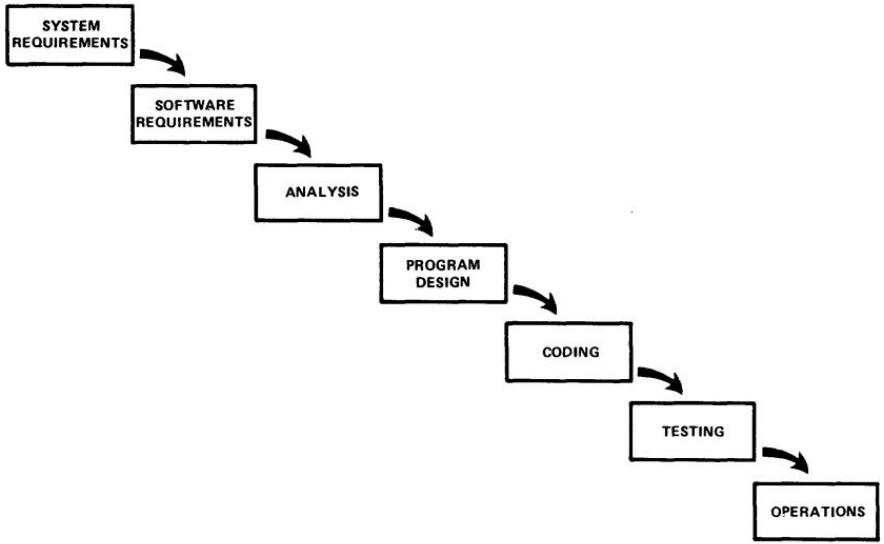
Herbert D. Benington, Symposium on advanced programming methods for digital computers, 1956

The first formal description:

Winston W. Royce, "Managing the Development of Large Software Systems", 1970

History

Waterfall Model



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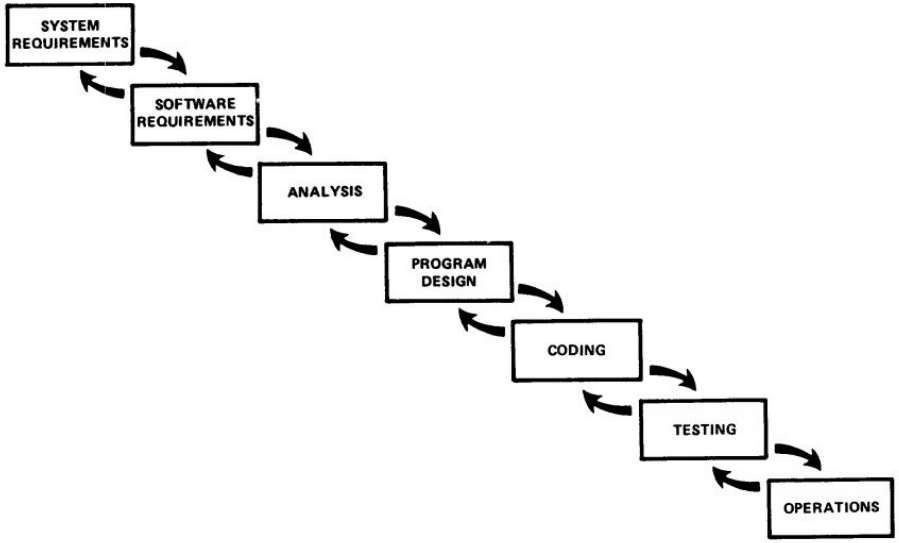

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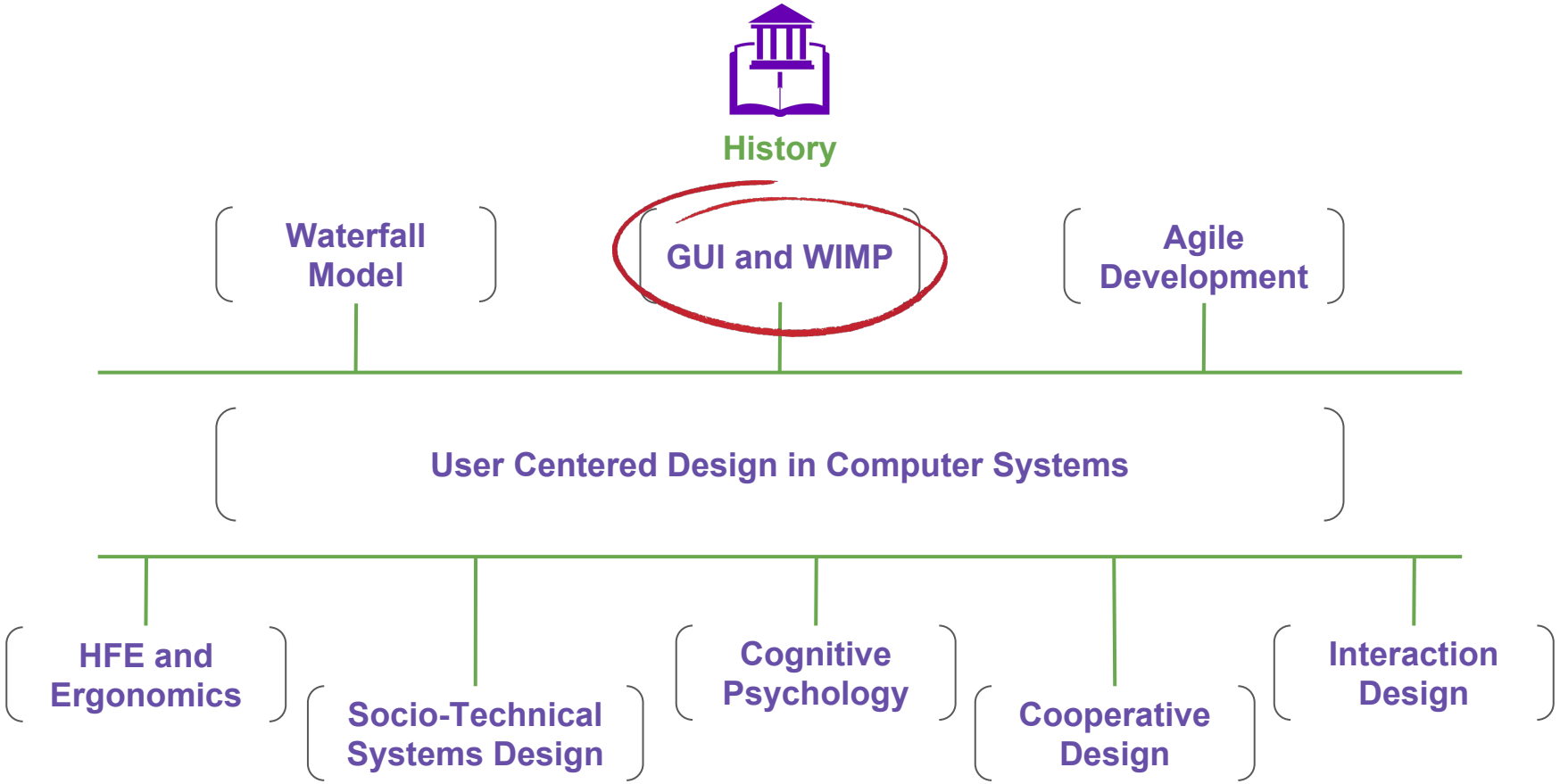
Additional requirements:

1. **Program design comes first**
2. **Document the Design**
3. **Do it twice**
4. **Plan, Control and Monitor testing**
5. **Involve the Customer**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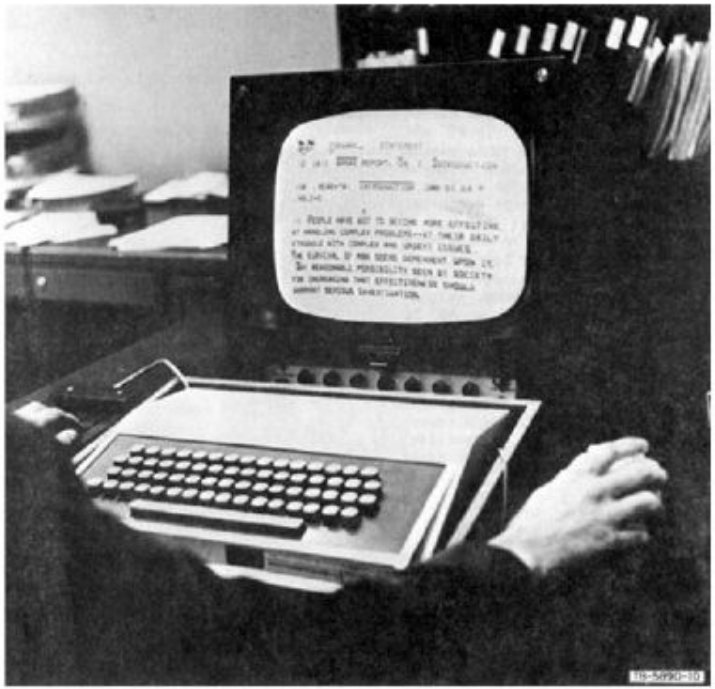

NLS demo (1968) Image source: UXPlus

NLS - oN-Line System - developed by Douglas Engelbart and his colleagues at the Augmentation Research Center, SRI

First demonstrated December 19, 1968 at the Fall Joint Computer Conference, San Francisco.
Was called “The mother of all demos”

“We were not just building a tool, we were designing an entire system for working with knowledge.” Douglas Engelbart

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MOVE STATEMENT
1

1  ORANGES
2  APPLES
3  BANANAS
4  CARROTS
5  SOUP
6  NEWSPAPER
7  LETTUCE
8  FRENCH BREAD
9  BEAN SOUP
10  TOMATO SOUP
11  PAPER TOWELS
12  ASPIRIN
13  NOODLES (ELBOW KIND)
14  BEANS
15  SCOTCH TAPE
16  CHAPSTICK
17  MILK
18  FILM
19  BROOM
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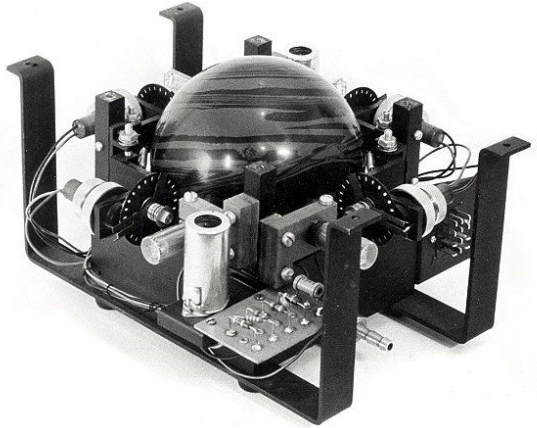
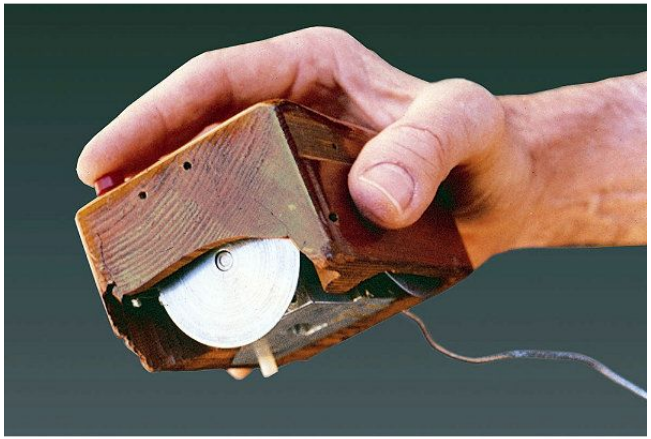
History

Doug Engelbart at an NLS workstation

Bill English with several ergonomic setups for the oNLine System (NLS); late 1960s



DATAR Trackball, 1952

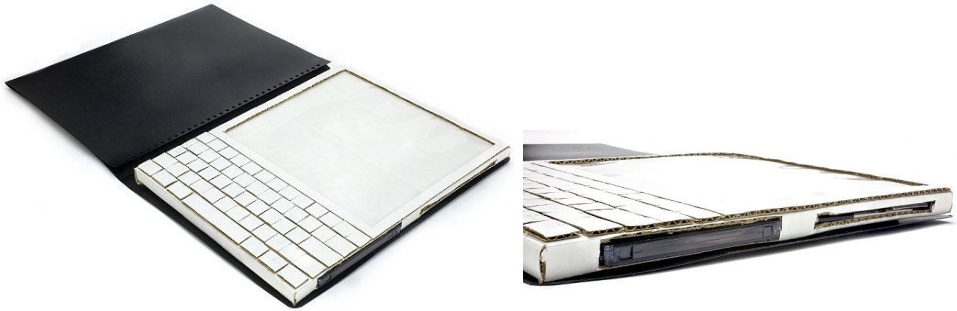


Doug Engelbart's mouse prototype, 1968

Hypertext Editing System (HES) console, 1969

PARC 5-key Chord Keyboard

History



Model of the Dynabook

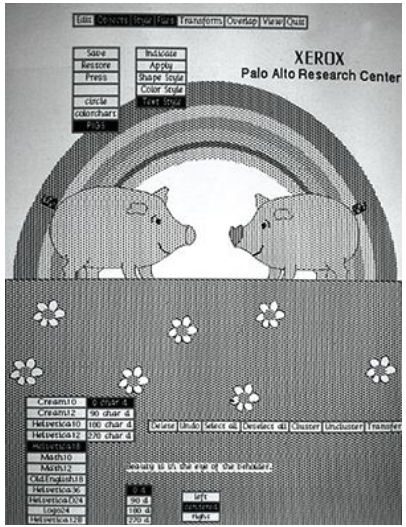
Dynabook by Alan Kay, "A personal computer for children of all ages", 1972

Concept of a portable educational device. Target audience was children.

“If the computer is to be truly ‘personal’, adult and child users must be able to get it to perform useful activities without resorting to the services of an expert. Simple tasks must be simple, and complex ones must be possible.” Alan Kay

History

PARC's Alto computer, 1973



Xerox Alto GUI

Developed at Xerox PARC, inspired by NLS and Dynabook

First computer to support operating system using GUI, used bitmap display, first to use an early version of the desktop metaphor

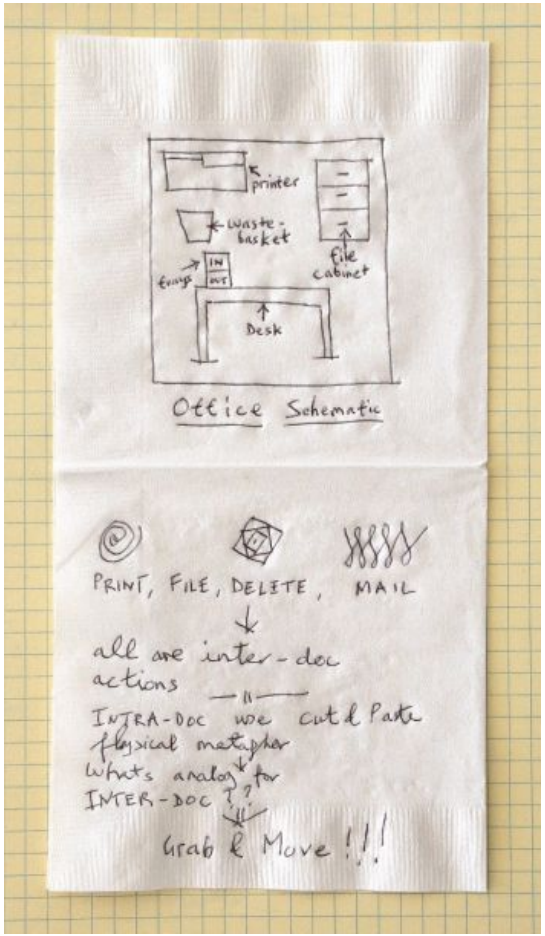
"If our theories about the utility of cheap, powerful personal computers are correct, we should be able to demonstrate them convincingly on Alto," Butler Lampson

History

Bravo - the first WYSIWYG document preparation program, 1974

Gypsy - the first document preparation program to use mouse as a point-and-click interface tool, 1975

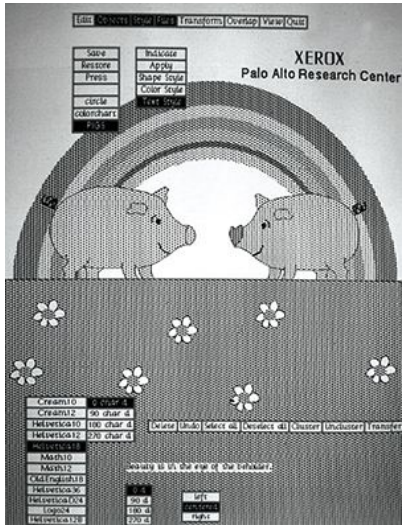
Tim Mott and Larry Tesler



Tim Mott's sketch of a desktop on a bar napkin,
From: Bill Moggridge and Bill Atkinson. Designing interactions.

History

PARC's Alto computer, 1973



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Apple Lisa (1983)

Apple Macintosh (1984)

History

Texas Instruments Silent 700, 1973

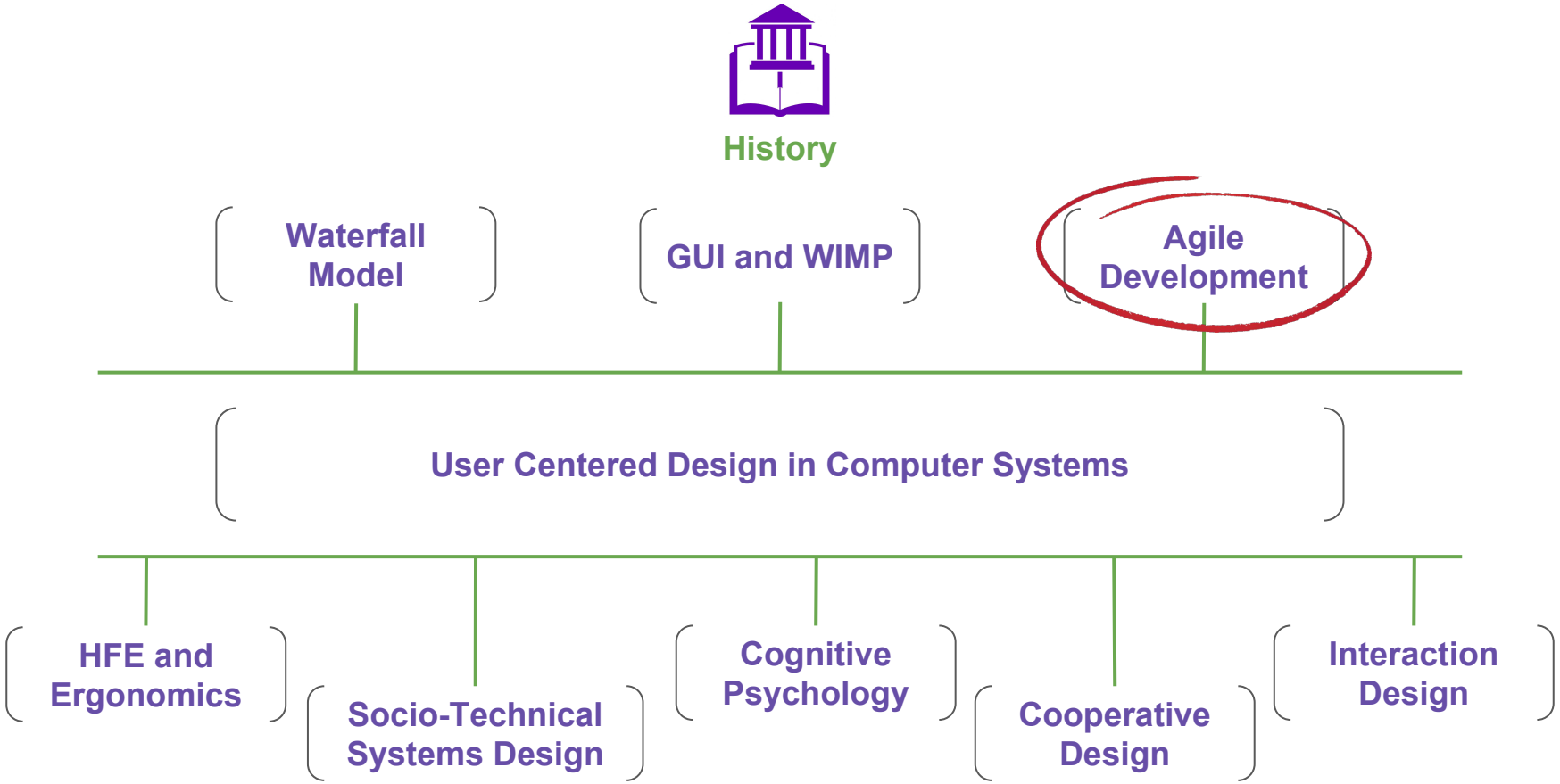
Osborne 1 computer, 1981

History

GRiD Compass 1101, 1982

Designed by Bill Moggridge and John Ellenby

First laptop computer, clamshell design, easy-to-read screen, allowing full 80x24 text, used graphical GRID-OS, no mouse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Agile Development

The Manifesto for Agile Software Development, 2001

Focus on Individuals and Interactions

Continues process of Customer Collaboration

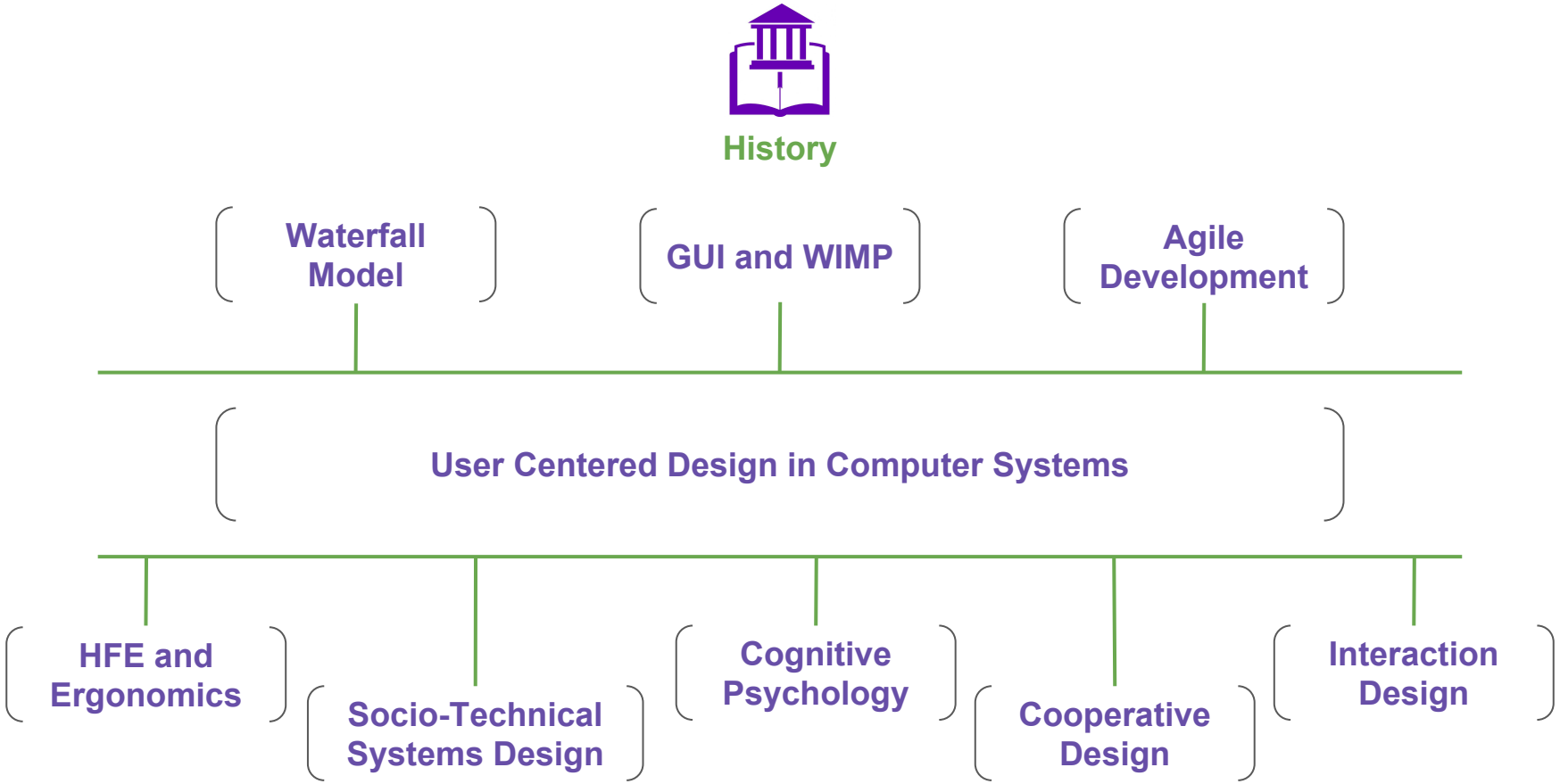
Presenting Working Software

Responsiveness to Changes and Continuous Development

History

Agile Development Principles

- Customer satisfaction by early and continuous delivery of valuable software
- Welcome changing requirements, even in late development
- Working software is delivered frequently (weeks rather than months)
- Close, daily cooperation between business people and developers
- Projects are built around motivated individuals, who should be trusted
- Face-to-face conversation is the best form of communication (co-location)
- Working software is the principal measure of progress
- Sustainable development, able to maintain a constant pace
- Continuous attention to technical excellence and good design
- Simplicity—the art of maximizing the amount of work not done—is essential
- Best architectures, requirements, and designs emerge from self-organizing teams
- Regularly, the team reflects on how to become more effective, and adjusts accordingly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