

Chapter 17 - User Centered Design

- User centered design - involving the users of the system in the development process as much as possible so that they can influence the design.

- Fundamentals
 - First Step - Understanding the requirements for you product.
 - Looking at similar products
 - Understanding the needs of the users
 - Analyzing existing systems for flaws
 - Jug Example
 - Representing your design
 - Model - representation of a system or design

- Models
 - Uses:
 - communication
 - exploring the problem space (simulations)
 - Considerations
 - Who is going to be using it?
 - How it is going to be used?

The Design of Software Systems

- Waterfall Model - Linear Process
 - Develop requirement specification
 - Serves as a contract between developers and clients
 - Develop formal representation of the system
 - Implementation process
 - Includes: programming, testing, and documenting
 - Final product is verified by clients
 - Operation and Maintenance (after accepted)

– Problems with Waterfall Model

- Application description and requirements specification usually ambiguous
- Initiated by corporate or management level
- Leaves much of the work up to operation and maintenance stage of development.

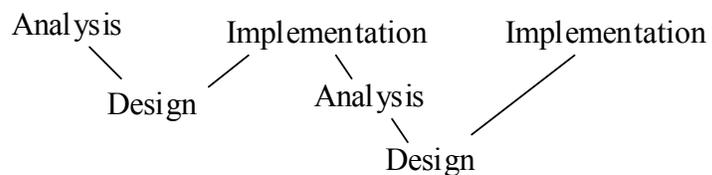
• Prototype Approach

- Better user feedback
- Possibly no end to the process

• Spiral model

- Includes stages of the waterfall model
- Incorporates the following before each stage:
 - Prototyping
 - Risk analysis
 - Evaluation

• W model



Examples of User Centered Design

- 1984 Olympic Messaging System
 - Initial analysis of requirements
 - Printed scenarios of user interfaces
 - Wrote user guidelines explaining what it did and how it worked
 - Simulations of actual device
 - Tours of Olympic Village, early demonstrations of the system, and interviewed different people involved with the Olympics
 - Ex-Olympian as part of the design team
 - “Hallway” and “Try-To-Crash-It” Tests

- Principles of user centered design used
 - Focus on users and their tasks early on in the design process
 - Keeping in mind cognitive, social, and attitudinal characteristics
 - Measure reactions by using prototypes, interfaces, and other simulations
 - Design iteratively
 - Keeping users involved

- Air Traffic Control System
 - Evaluated the controllers tasks to develop first cut design
 - Built an initial system and tested it on location
 - Identified local requirements
 - Concept testing and user feed back
 - Developed an upgraded prototype
 - “Road Show”
 - Developed a system specification

The Scope of System Design

- User factors to be taken into account
- Kind of system
 - Bespoke vs Generic
 - New system vs Old system
 - Size and Complexity
 - User developed applications
 - Large Projects
 - Constraints
 - Real time and mission critical systems