

Managing Design Process

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Organizational Design and Support Usability

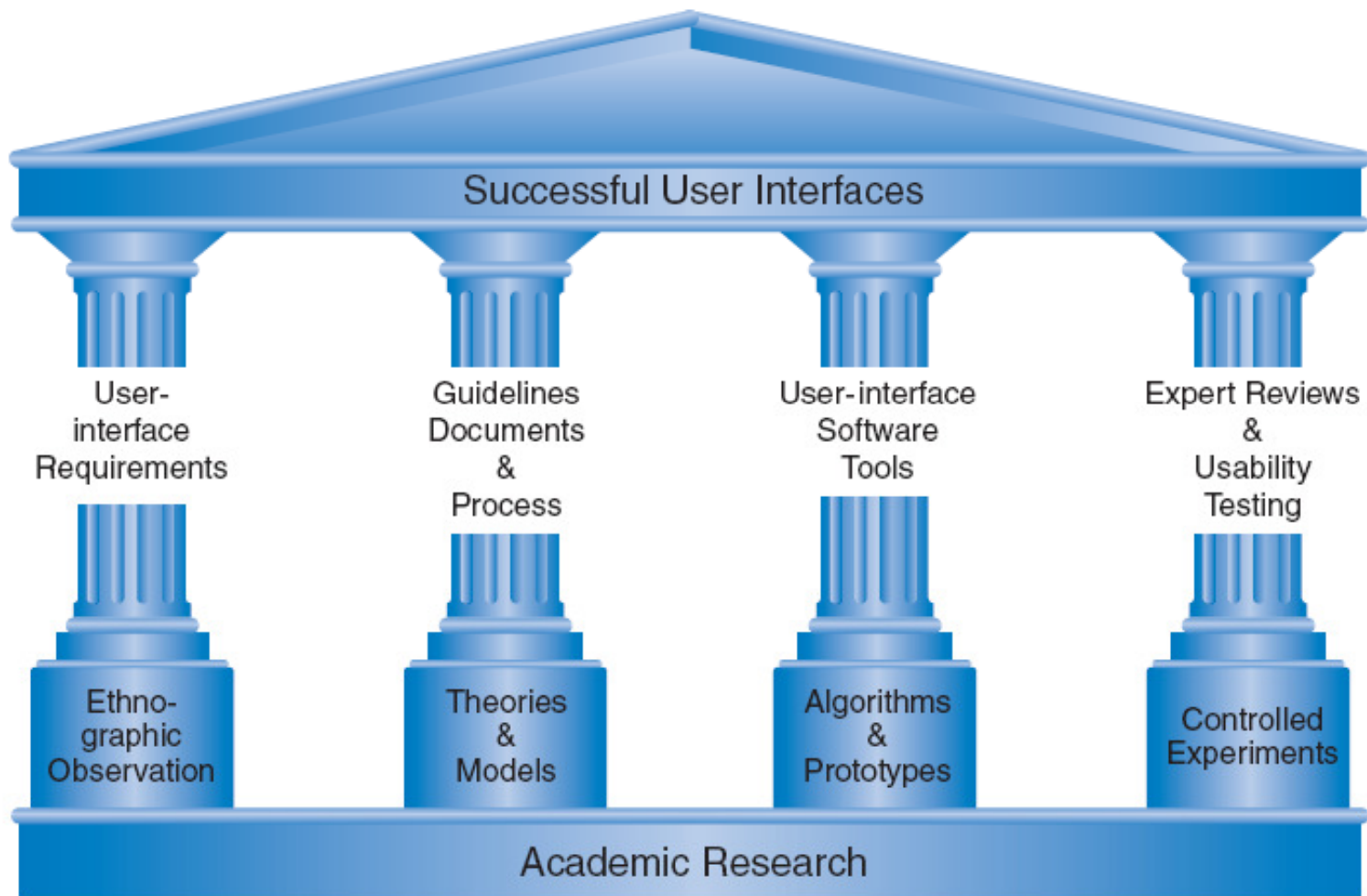
- Design is inherently creative and unpredictable.

Interactive system designers must blend knowledge of technical feasibility with a mystical esthetic sense of what attracts users.

Contd...


- Carroll and Rosson design characterization:
 - Design is a process, not a state.
 - The design process is *nonhierarchical*.
 - The process is *transformational*.
 - Design involves the *discovery of new goals*.

The Four Pillars of Design



Contd...

User Interface Requirements

- Soliciting and clearly specifying user requirements is a major key to success in any development activity
- Laying  out the user-interface requirements is part of the overall requirements development and management process
- User interface requirements describe system behavior

- **Ethnographic Observation**

- Identifying and observing the user community in action

Contd...

Guidelines documents and processes

Each project has different needs, but guidelines should be considered for:

- **Words, icons, and graphics**
 - Terminology (objects and actions), abbreviations, and capitalization
 - Character set, fonts, font sizes, and styles (bold, italic, underline)
 - Icons, graphics, line thickness, and
 - Use of color, backgrounds, highlighting, and blinking

Cont....

- **Screen-layout issues**
 - Menu selection, form fill-in, and dialog-box formats
 - Wording of prompts, feedback, and error messages
 - Justification, white space, and margins
 - Data entry and display formats for items and lists
 - Use and contents of headers and footers
- **Input and output devices**
 - Keyboard, display, cursor control, and pointing devices
 - Audible sounds, voice feedback, touch input, and other special devices
 - Response time for a variety of tasks

Contd...

- **Action sequences**
 - Direct-manipulation clicking, dragging, dropping, and gestures
 - Command syntax, semantics, and sequences
 - Programmed function keys
 - Error handling and recovery procedures
- **Training**
 - Online help and tutorials
 - Training and reference materials
 - Command syntax, semantics, and sequences

Contd...

User-interface software tools

- at early stage, the customers and users can be given a realistic impression of what the final system will look like

Contd...

Expert reviews and usability testing

- carry out many small and some large pilot tests of system components before release to customers

Development Methodologies

- Logical User-Central Interactive Design Methodology (LUCID)/Quality Usability Engineering (QUE)

- Identifies six stages

Stage 1: Develop product concept

Stage 2: Perform research and need analysis

Stage 3: Design concept and key-screen prototype

Stage 4: Do iterative design and refinement

Stage 5: Implement software

Stage 6: Provide rollout support

Stage 1: Develop product concept

- Create a high concept.
- Establish business objectives.
- Set up the usability design team.
- Identify the user population.
- Identify technical and environmental issues.
- Produce a staffing plan, schedule, and budget.

Stage 2: Perform research and needs analysis

- Partition the user population into homogeneous segments.
- Break job activities into task units.
- Conduct needs analysis through construction of scenarios and participatory design.
- Sketch the process flow for sequences of tasks.
- Identify major objects and structures which will be used in the software interface.
- Research and resolve technical issues and other constraints.

Stage 3: Design concepts and key-screen prototype

- Create specific usability objectives based on user needs.
- Initiate the guidelines and style guide.
- Select a navigational model and a design metaphor.
- Identify the set of key screens: login, home, major processes.
- Develop a prototype of the key screens using a rapid prototyping tool.
- Conduct initial reviews and usability tests.

Stage 4: Do iterative design and refinement

- Expand key-screen prototype into full system.
- Conduct heuristic and expert reviews.
- Conduct full-scale usability tests.
- Deliver prototype and specification.

Stage 5: Implement software

- Develop standard practices.
- Manage late stage change.
- Develop online help, documentation and tutorials.

Stage 6: Provide rollout support

- Provide training and assistance.
- Perform logging, evaluation, and maintenance.

Ethnographic Observation

- **Preparation**

- Understand organization policies and work culture.
- Familiarize yourself with the system and its history.
- Set initial goals and prepare questions.
- Gain access and permission to observe/interview.

- **Field Study**

- Establish rapport with managers and users.
- Observe/interview users in their workplace and collect subjective/objective quantitative/qualitative data.
- Follow any leads that emerge from the visits.

Contd...

- **Analysis**
 - Compile the collected data in numerical, textual, and multimedia databases.
 - Quantify data and compile statistics.
 - Reduce and interpret the data.
 - Refine the goals and the process used.
- **Reporting**
 - Consider multiple audiences and goals.
 - Prepare a report and present the findings.

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Fig. 5 Malinowski with Trobriand friends

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Participatory Design



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Scenario Development

Day-in-the-life scenarios:

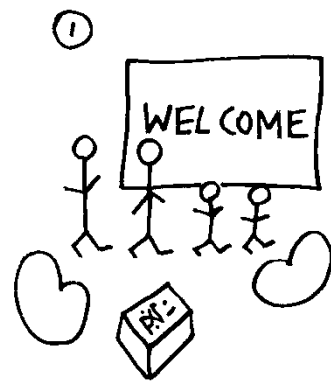
- characterize what happens when users perform typical tasks
- can be acted out as a form of walkthrough
- useful tools
 - table of user communities across top, tasks listed down the side
 - table of task sequences
 - flowchart or transition diagram

Scenario for holiday planner

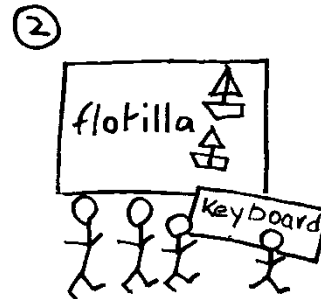
“The Thomson family enjoy outdoor activity holidays and want to try their hand at sailing this year. There are four members of the family: Sky who is 10 years old, Eamonn who is 15 years old, Claire who is 35, and Will who is 40. While out on a shopping trip they call by at the travel agents in their local town to start exploring the possibilities ... The travel organizer is located in a quiet corner of the agents’ office, where there are comfortable seats and play things for young children. They all gather around the organizer and enter their initial set of requirements—a sailing holiday for four novices. The stand-alone console is designed so that all members of the family can interact easily and comfortably with it. The system’s initial suggestion is that they should consider a flotilla holiday, where several novice crews go sailing together and provide mutual support for first-time sailors...”

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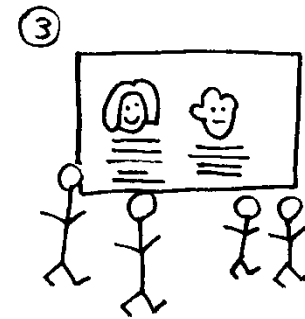
Generate storyboard from scenario



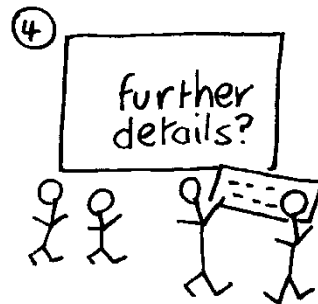
Thomson family
gather around



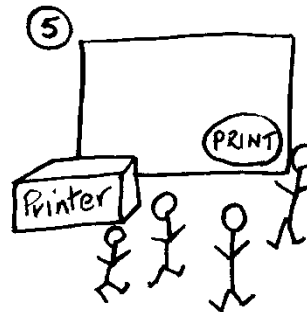
System suggests
flotilla



System shows
descriptions



System asks
for details



Summary printed

Use case for holiday planner

1. The system displays options for investigating visa and vaccination requirements.
2. The user chooses the option to find out about visa requirements.
3. The system prompts user for the name of the destination country.
4. The user enters the country's name.
5. The system checks that the country is valid.
6. The system prompts the user for her nationality.
7. The user enters her nationality.
8. The system checks the visa requirements of the entered country for a passport holder of her nationality.
9. The system displays the visa requirements.
10. The system displays the option to print out the visa requirements.
11. The user chooses to print the requirements.

Alternative courses for holiday planner

Some alternative courses:

6. If the country name is invalid:

6.1 The system displays an error message.

6.2 The system returns to step 3.

8. If the nationality is invalid:

8.1 The system displays an error message.

8.2 The system returns to step 6.

9. If no information about visa requirements is found:

9.1 The system displays a suitable message.

9.2 The system returns to step 1.

THANK YOU!!!