System Design

So Where Are We Now?

- ◆ We Know How To:
  - ▪ Gather Data (Contextual Inquiry)
  - ▪ Represent Data From Individuals (Individual Work Models)
  - ▪ Represent User Population as a Whole (Consolidated Work Models)
  - ▪ Identify Good and Bad Things in Current Practice, and Identify Elements to Keep and Change

So What Do We Do With This!?

We Finally Get to Design!

- Vision

- Work Design: Storyboard Individual Tasks
  (Specific Product: Storyboards)

- Environment Design: Layout Elements and Functions
  (Specific Product: User Environment Diagram)

- Component Design:
  - Automation
  - Interfaces
  - Procedures
  - Training

- Test

Vision

- Lay out what you want the system to DO

- Lay out what you want to change

- Diagram out the parts that are important to the overall system functioning

- Think about the pro's and con's

  - In terms of system functioning!

Vision

- Story about the usage of new work practices
- Has a thread
- Informal picture
- Shows
  - People in the roles they play
  - The system they use
  - The communication flow
  - Delivery mechanism
 - Third-party relationships and services
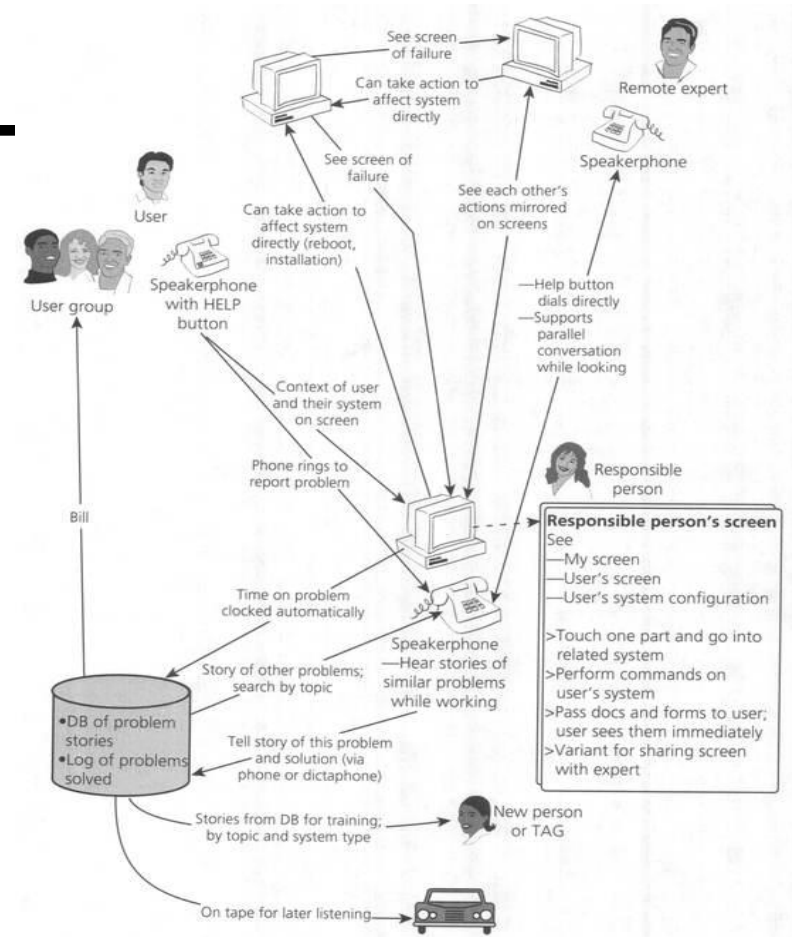
Steps before visioning process

- First explore the data
  - Read the affinity diagram form end to end
  - Inquiry into the consolidated models
- Brainstorms two lists
  - Technology
  - Starting points
    - Design ideas
    - Slogan
    - Metaphor

Storyboards

- Vision says what the new work practice will be
- But how it will happen?
- Storyboards
  - Provide the next level of detail for the design
  - Show how specific task will be accomplish
  - Based on vision
  - Follow the structure of a consolidated sequence model
  - Pull implications form other models
  - Keeps the work task coherent
    - include manual steps
    - automated steps
    - interactions with the system

Storyboard "call for help"
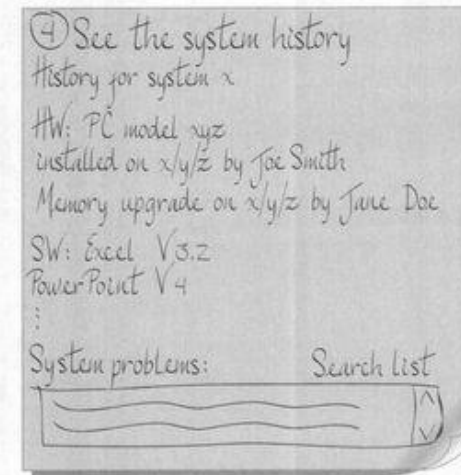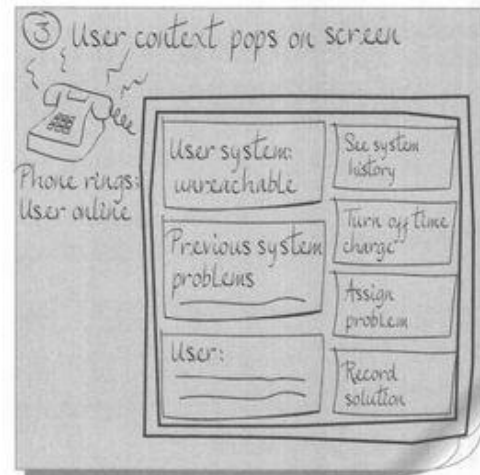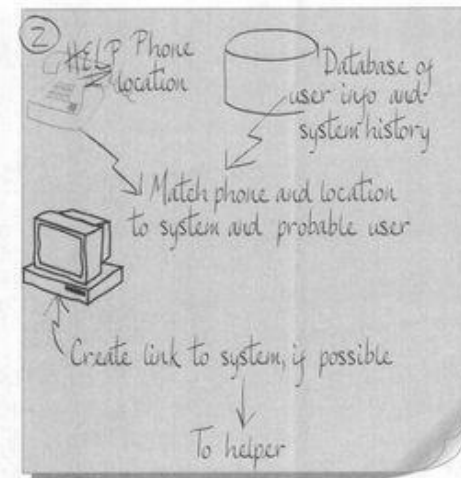
Build a storyboard

- Choose a task to redesign from the consolidated sequence model

- Review other models and affinity

- Collect the issues relevant to this task

- Sketch out how you want to redesign the task

  - Sketch out two or three options

  - Do positives and negatives

  - Consolidate one approach

Storyboard Form

- Same Form as Consolidated Sequence Models
  - How to Pick Specific Sequence Model to Mimic?
  - IT DEPENDS!

- Should Show Whatever Is Important to Task
  - If Individual's Actions Are Important, Show Them!
  - If Information Flow is Important, Show It!
  - If Machine Actions Are Important, Show Them!

- Is a Chance for You to Brainstorm!

Thoughts on Storyboarding...

- ◆ Can Reference Your Descriptive Work Models

- ◆ Difference Between Intent and Action
  - ▪ Help People Achieve Their (Good) Intents
  - ▪ Don't Have to Use Same Actions to Get There!

- ◆ Consider All Work Models
  - ▪ Look for Structures to Capitalize On
  - ▪ Look for Constraints that Limit How Can Work

User Environment Design

- So Now You Have Storyboards

    - For Lots of Individual Tasks!

- Need to Put Them Together Into One Big View of the:

    - System, if You Are Only Designing a System

    - Environment, if Changing Whole Environment

- This Process is 'User Environment Design'

    - Should Also Involve Brainstorming!

User Environment Design
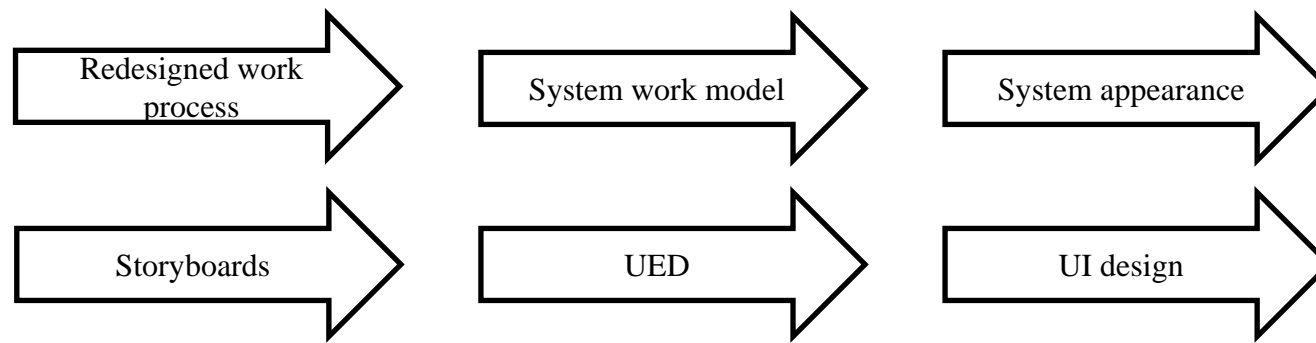
- New modeling technique to represent the system work model
- Same as floor plan
- Provide a physical representation to the structure of work

Breaking up System Design

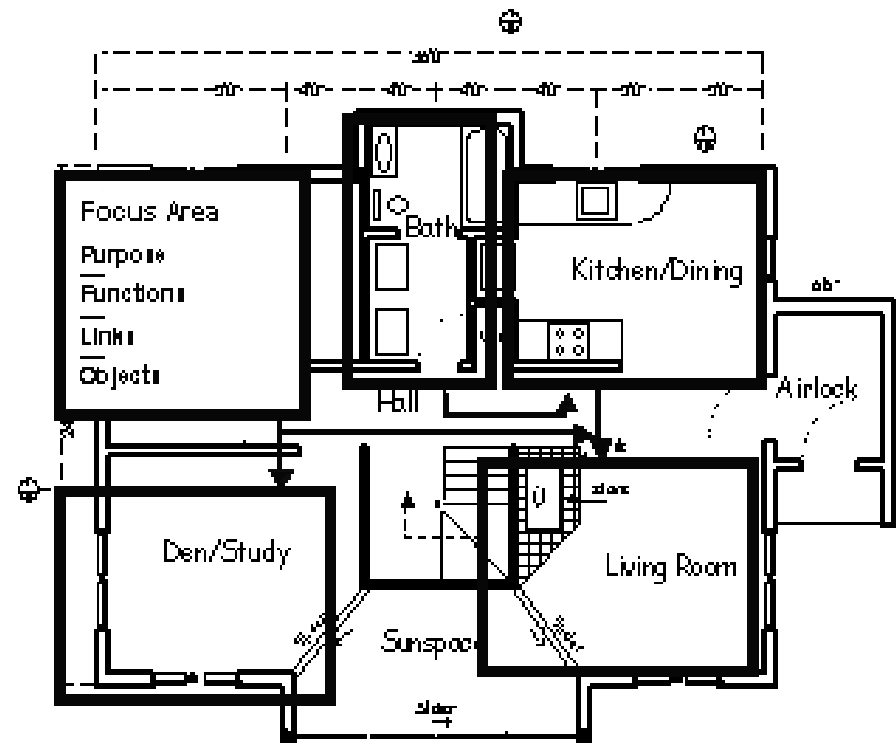- Every system has *places where user can work*

- Each place has a set of *functions available*

- Each place has *links to other, related places*

- UED is like a floor plan

for *what work will be*

performed

where and on what

Sample User Environment Diagram

Interact with Network
Purpose: To retrieve from and store to the form database
Functions:
¡Retrieve forms
¡Store forms
Links:
>Interact with Form
Objects:
Empty forms
Completed forms
Issues: Who can edit which forms?

Interact with Form
Purpose: View and edit content of form
Functions:
¡View content of form
¡Enter collected data
¡Edit previous data
Links:
>Interact with Network
>Email
Objects:
Electronic form
Issues: How is data entered while moving around?

Spell-Check
Purpose: View spelling errors and suggest fixes

Recognition
Purpose: Recognize inputs
Issues: Handwriting and Voice?

Email
Purpose: Distribution of completed forms
Functions:
¡Send forms
¡Send other comments
Objects:
Electronic forms
Notes