

User Environment



Contextual Design: Stages

- Interviews and observations
 - Done this
- Work modeling
 - Five Models
- Consolidation
 - Affinity diagrams + consolidated models
- Work redesign
 - Task Analysis, Visioning, New task description (HTA)
- User environment design
 - Today
- Prototypes
- Evaluation
- Implementation

Transforming Work

- First step is to identify a set of breakdowns that can be addressed
- Generate your vision of a new system from this
 - What you want to solve.
 - What you want to keep.
 - How you will evaluate success.
- Transform work in a way that incorporates new system you design
 - Synthesis of new work and system



From Vision to Design

- A new way of working
 - Transform work using HTA to represent new work practice
- An intermediary representation of system
 - Allows us to represent coherent chunks of work process
 - Allows us to define functionality necessary to perform those coherent chunks of work
 - Want to define the intent of the system independently of how system will meet that intent
- Intermediate representation preserves freedom
 - Can still explore alternative implementations

Intermediary Representation



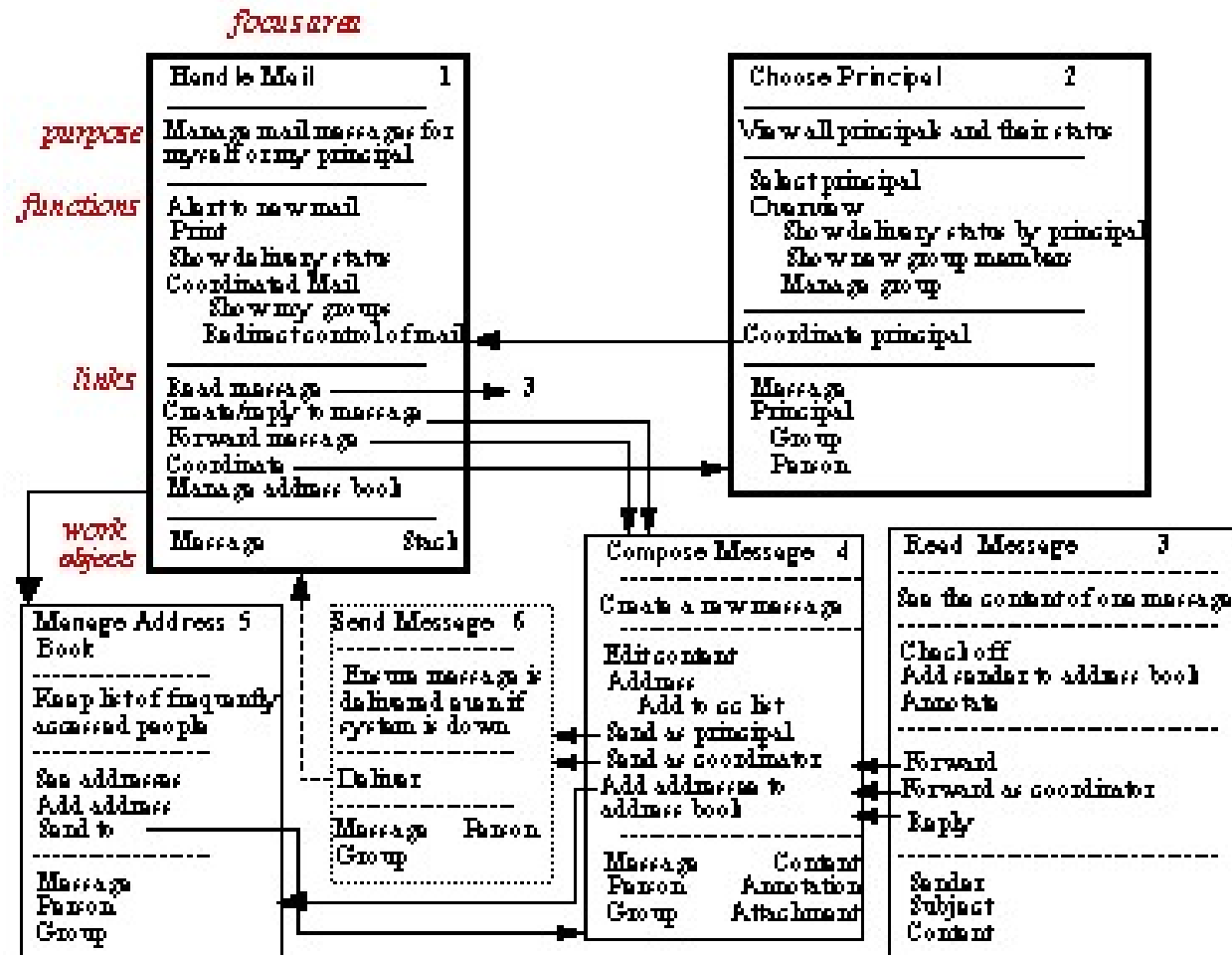
Breaking up System Design

- 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*

UED Elements

- Focus areas (the places)
- Links between focus areas
- In each focus area:
 - Name
 - Purpose
 - Functions provided
 - Objects that are manipulated

Example UED



UEDs and UML

UEDs

- Logical places within system
 - Screens, views where work occurs
 - No h/w or s/w constraints
- A user-centric view

UML

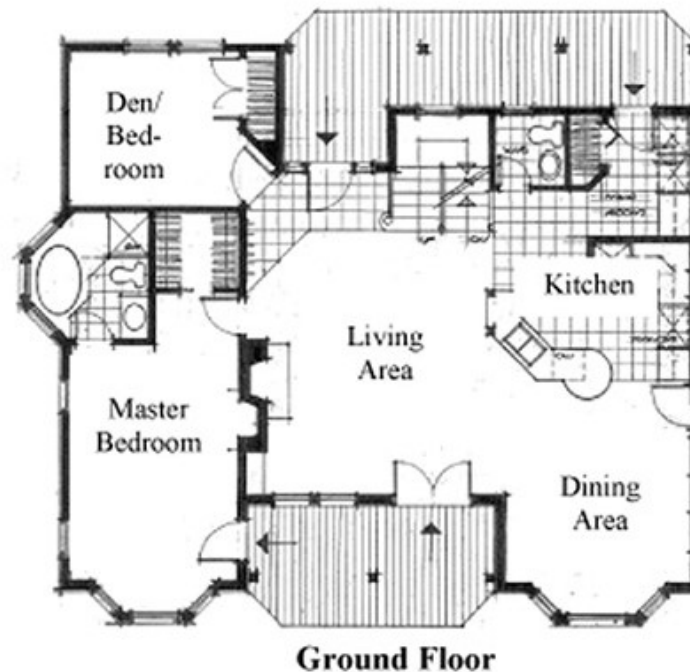
- Architecture of program
 - Classes with attributes, methods responsibilities
 - Interactions between classes
- A programmer-centric view

- Beyer and HoltzBlatt paper
 - Note that UED can represent a simplification of class diagram



Examples

- What is intent of the following places?
- What is *not* offered in each place?



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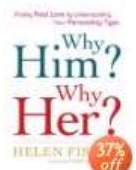


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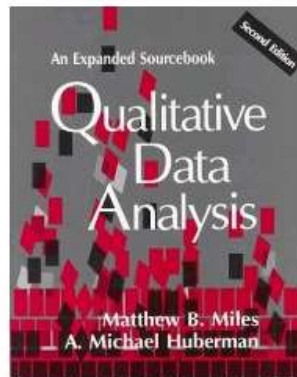
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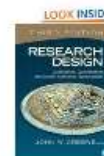
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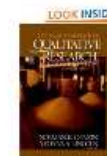
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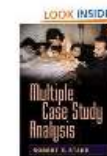
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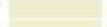
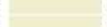

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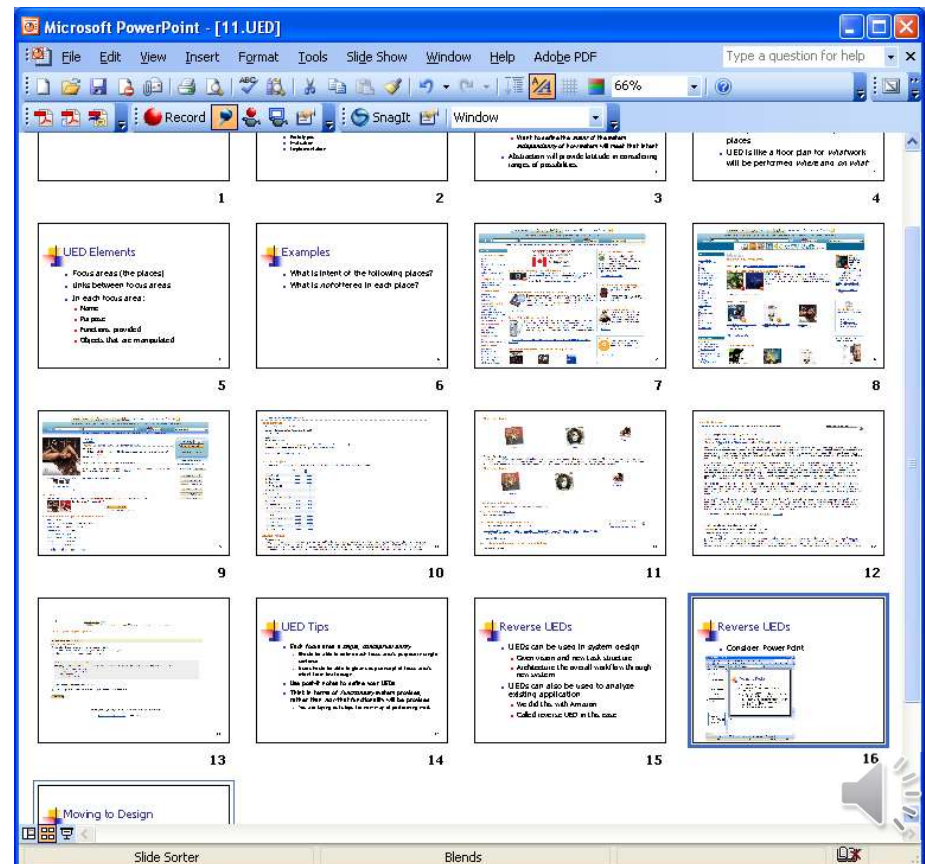
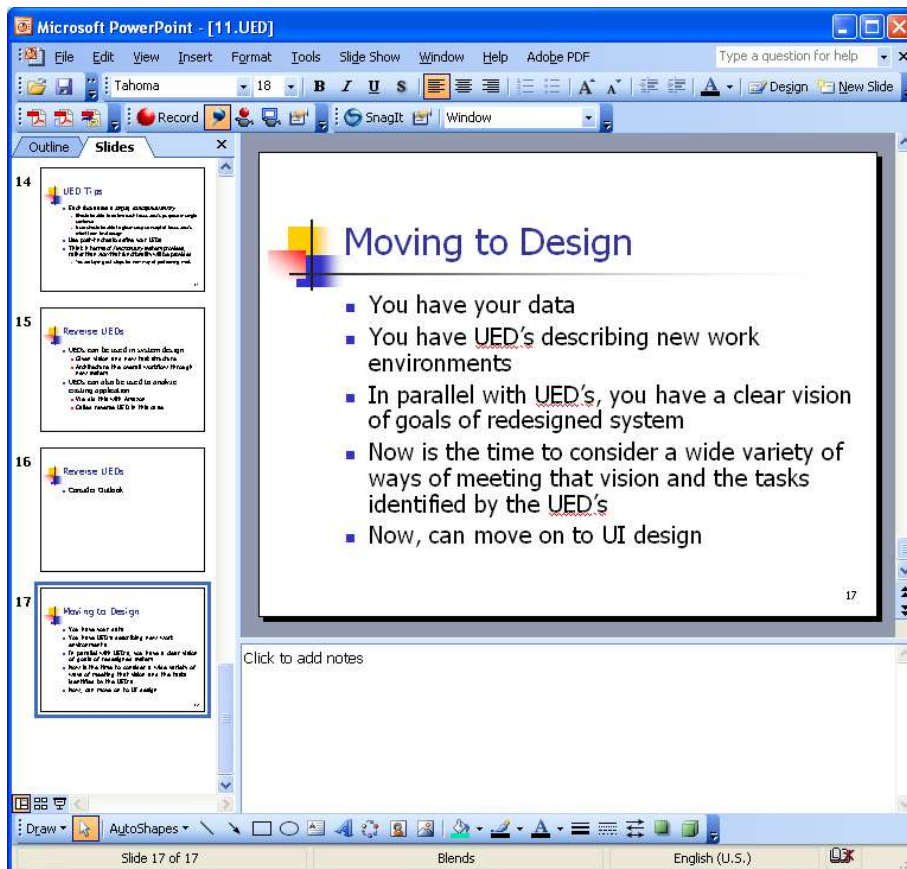
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Benefits of UEDs

- Presents structural issues of system
 - Goal is to produce a system design that keeps users work coherent
 - Formalizes system structure to support work flow, connected activities
- Any system you think of has UED
 - If system seems incoherent, probably poorly structured
 - Banking systems
 - Post-its
 - You can reverse engineer systems using UEDs
 - Competing systems, previous systems
 - We did this with Amazon
 - Called **Reverse UED**

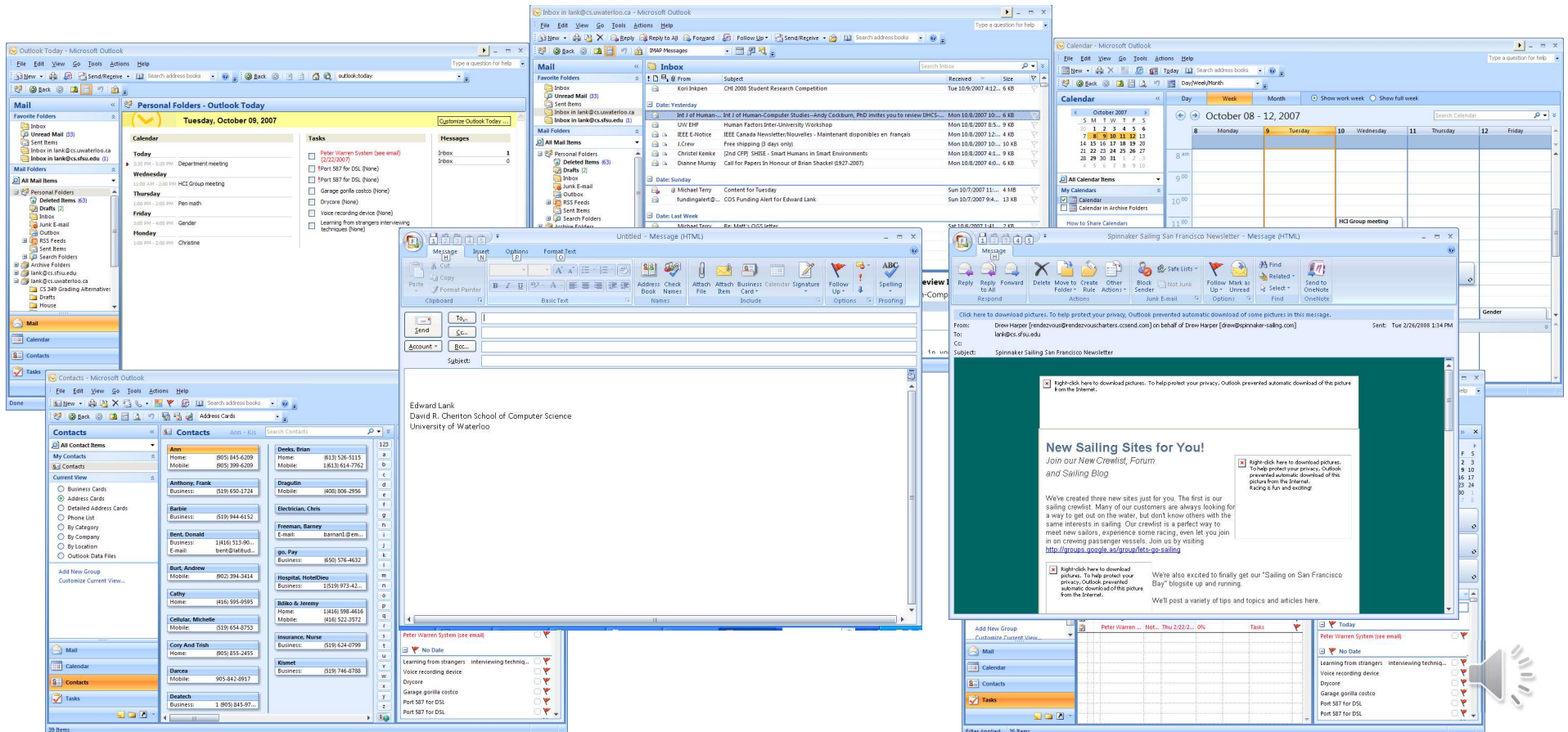
Reverse UEDs

- Consider PowerPoint



Reverse UEDs

- Consider Outlook



UEDs and Contextual Design

- UEDs are used to further identify what functionality your system will provide
- Also shows where users need that functionality



Building your UEDs

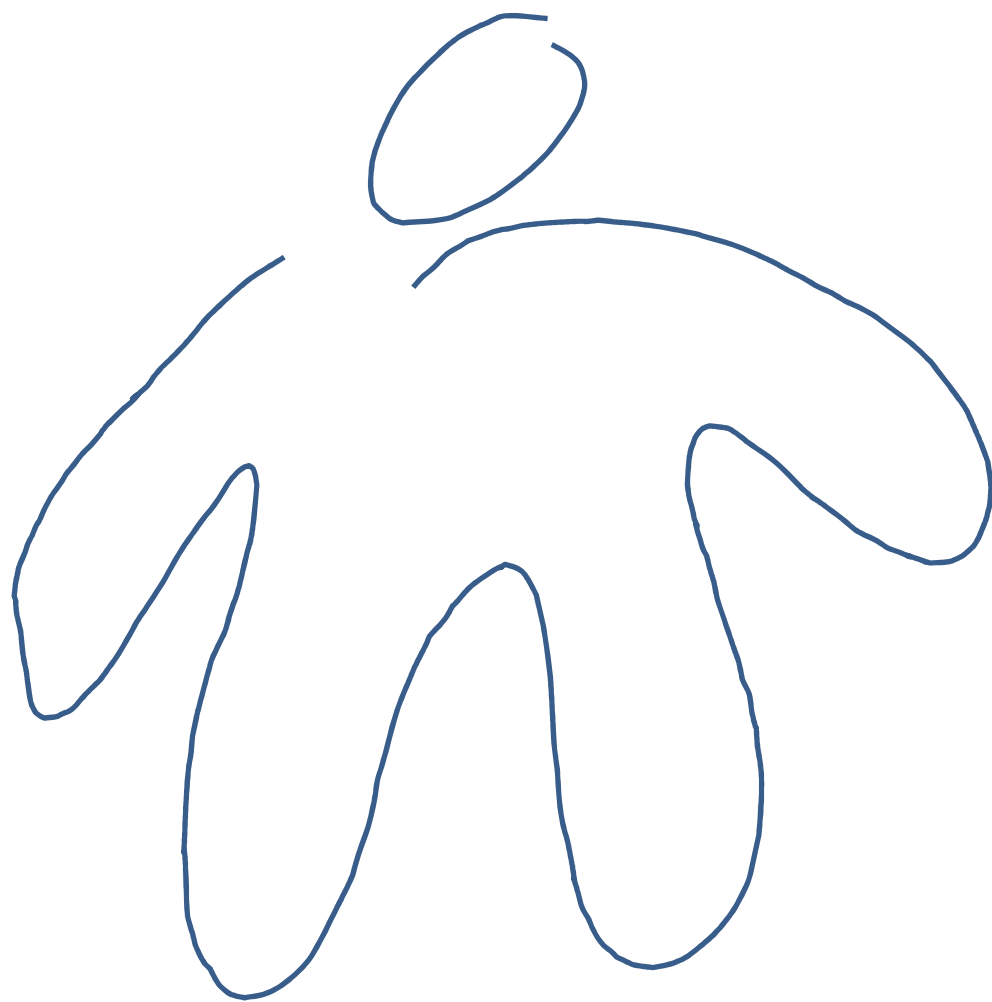
- Using HTA to capture work redesign useful for UED construction
 - HTA captures steps and sequences associated with new work practice
 - Use HTA steps to construct a UED, going through new activities one by one

UED Tips

- Each focus area a *single, conceptual entity*
 - Should be able to define each focus area's purpose in single sentence
 - User should be able to glean crisp concept of focus area's intent from final design
- Use post-it notes to define your UEDs
- Think in terms of *functionality* system provides, rather than *how* that functionality will be provided
 - You are laying out steps for new way of performing work

UED Tips (2)

- Not separated but parallels work redesign
- Look at UED to check redesign
 - Are areas coherent?
 - Do focus areas overlap in purpose
- Textbook suggests using storyboards
 - Do this too, if you feel more comfortable
- Storyboards and droopy leaf figures



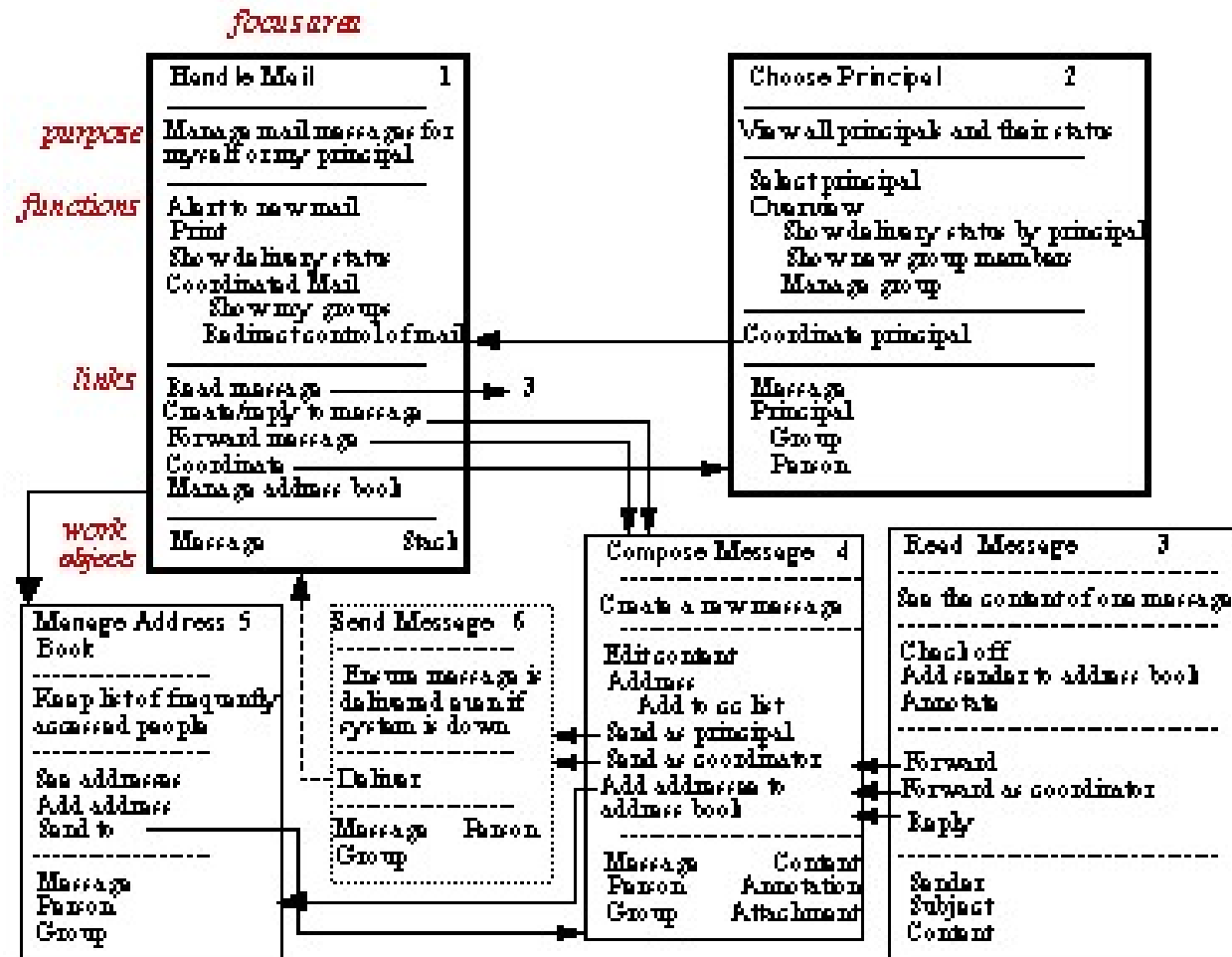
UED Tips (3)

- Textbook
 - “We’ve found teams coming up to speed ... do better thinking and designing in UI sketches, capturing them in storyboard, and then pulling out the implications for the UED.”
 - Feel free to mix this with UI sketching (next day)

Summary of UEDs

- UEDs can be used in system design
 - Given vision and new task structure
 - Architecture the overall workflow through new system
 - Done in conjunction with work redesign
- UEDs can also be used to analyze existing application
 - Called reverse UED in this case

Example UED



Moving to Design

- You have your data
- You have a clear vision of goals of redesigned system
- You create new work flow using HTA
- You create UED's describing new work environments (system you build)
- Now consider ways of meeting that vision and the tasks identified by the UED's
 - Move on to UI design, platform and technology selection, etc.
 - Back to brainstorming