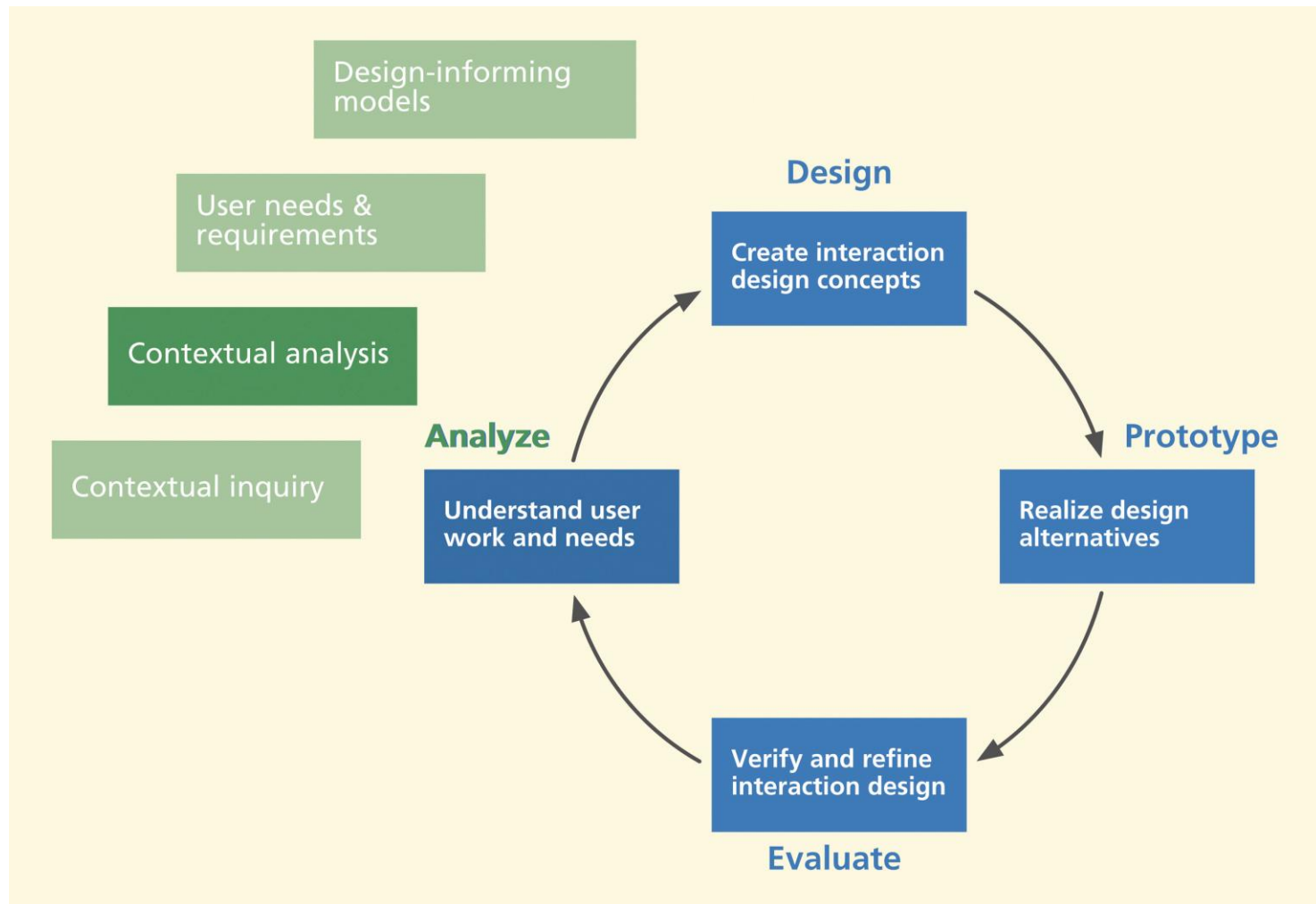


Contextual Analysis

Selected material from *The UX Book*, Hartson & Pyla



What is Contextual Analysis?

- **Systematic analysis of raw contextual user work activity data**
 - Identification, sorting, organization, interpretation, consolidation, and communication
 - **Understand the work context** in preparation for design
- **Likely identifies additional contextual inquiry questions**
- Contextual analysis **does not directly yield** either **requirements** or **design**

How to do Contextual Analysis

- Identify **work roles**
- Build initial **work flow model**
- Synthesize **work activity notes**
- Consolidate data
- Build **work activity affinity diagram (WAAD)** from work activity notes
- Communicate results to team via **walkthroughs**

Work Roles

- **Work roles – collection of job responsibilities** that accomplish some portion of the work
 - **User role**, actor
 - Class **profile** – name, personal characteristics, abilities
- Represent the **direct relationship between users and the system as roles**

“A user role is an abstract collection of needs, interests, expectations, behaviors, and responsibilities characterizing a relationship between a class or kind of direct user and a system”

Larry L. Constantine and Lucy A.D. Lockwood, *Software for Use: A Practical Guide to the Models and Methods of Usage-Centered Design*, Addison-Wesley, Reading, MA, 1999

Users

- Users of **current** and/or **competitive** systems, and **potential** users of the **future** system
 - **Primary** – direct
 - **Secondary** – indirectly affected
 - **Product champions**, subject matter **experts**?
- Understand the user
 - **Domain knowledge** : what users need to know to accomplish their jobs
 - **Abilities and disabilities**
 - Context of their **relationship to the system** : **5W+H** what, who, when, why, where and how the system is used
 - **Problems and frustrations** with current systems

Users (cont)

- Understand **goals**
 - Work activities are the means to the end
 - Successful systems meet goals
 - Hard to elicit
- **User goals** – job related but also personal and experiential; meet user goals first
- **Other stakeholder goals** – business, management, development/technology

Modeling Work Roles

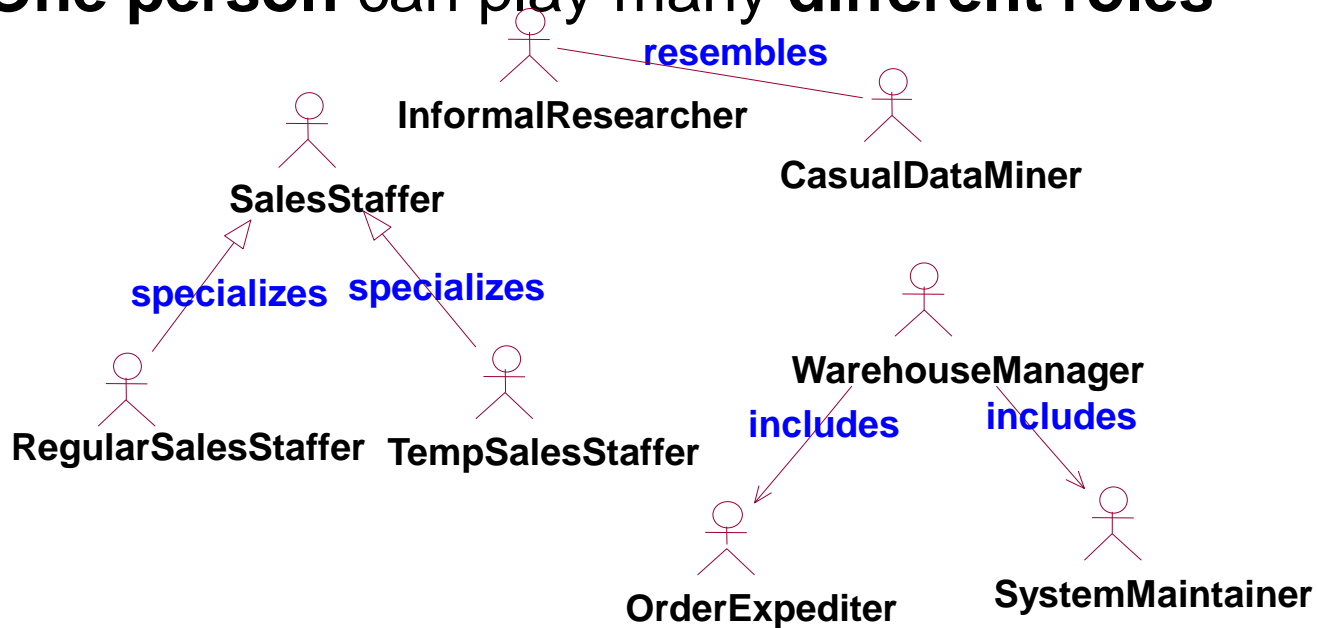
- Model what is learned from interviewing and observing (primary) users
- Identify roles
 - **Name**
 - **Description**
- **Profile** each role ...
 - **Context of use** – personal motivation (goals), problems and frustrations, frequency of use, type of work and system interaction, social/physical/technical environment
 - **Abilities** –
 - **Cognitive** - education, level of expertise, skills, domain knowledge
 - **Physical** abilities and disabilities
 - **Personal** – e.g., age, gender, cultural ethnicity

Profile Example – SIS Registration

Work Role: New Student	
Context of Use	
Goals	Get registered into the right required classes for my major. Get a schedule that allows time for extracurricular activities. Everything is new, anxious, unsure about major, who can help me get started
Frequency of use	Daily during open registration, infrequently otherwise
Work responsibilities	Register for courses for the next semester.
Work environment	Primarily on campus but could be anywhere using any computer platform with web access
Abilities	General diverse population, higher percentage of hard-of-hearing students than in the general population. Familiarity with using computers and using the web.
Personal	High percentage of freshman students, 18 yrs old but also older transfer students and graduate students. English is a second language for some students.

Work Role Mapping

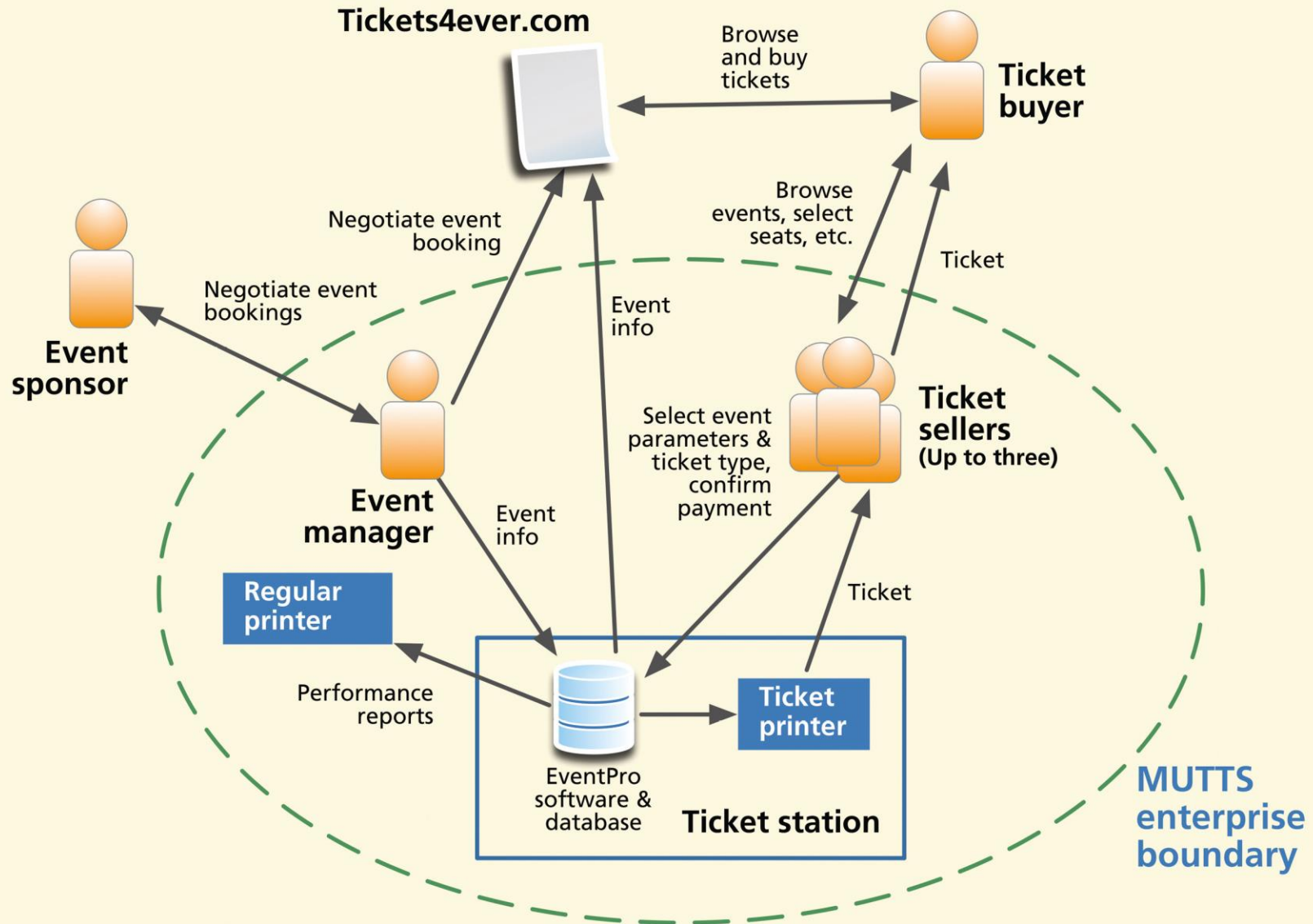
- One work role can be played by many different people
- One person can play many different roles



[Constantine and Lockwood]

Work Flow Models

- **Flow model** as the big picture diagram
 - Workflow **relationships** between work **roles**
 - **Information flow**
 - **Nodes** – **work** roles and **machine** roles (e.g., central database)
 - Flows **inside** and **outside** the system



Synthesize Work Activity Notes

- (Work activity – what users do to accomplish work)
- To start, **review** raw **interview** and **observation** notes
 - Transcribe as necessary
 - One team or split and then consolidate
 - Create and refine the work flow model
 - Create **work activity notes**
- Good time to reflect on how the contextual inquiry went – what could be improved?

Work Activity Notes

Guidelines:

- **Tag** with a source ID; the person (role) interviewed or observed
- Write a “**story**”
 - Paraphrase and synthesize
 - 2-3 sentences
 - Concise, **one concept/idea/fact**
 - Break long notes into shorter ones
 - Avoid redundancy and ambiguity
- **Sort** by the CI categories, add or change categories
 - E.g., work **role**, work **activity**, environment, social interaction
- “Print” – hand written or printed Post-Its

Example – Bicycle Rental

Raw Notes:

User 1 thinks a bicycle rental service is a good idea but has two concerns. She has bad knees. How will she know if the bike she rents fits her properly? She is concerned about her liability if something happens to the bike while she has it rented such as a theft or mechanical problem. How does she report it, will she have to pay damages?

Work activity notes:

Some renters may have physical limitations. How will they know how to rent a bike that best fits them or if one is even available?

Users need to clearly understand the liability policy at rental time. They also need to know what to do if there is a mechanical problem with the bike during rental or it is stolen.

... ?

Construct Work Activity Affinity Diagram (WAAD)

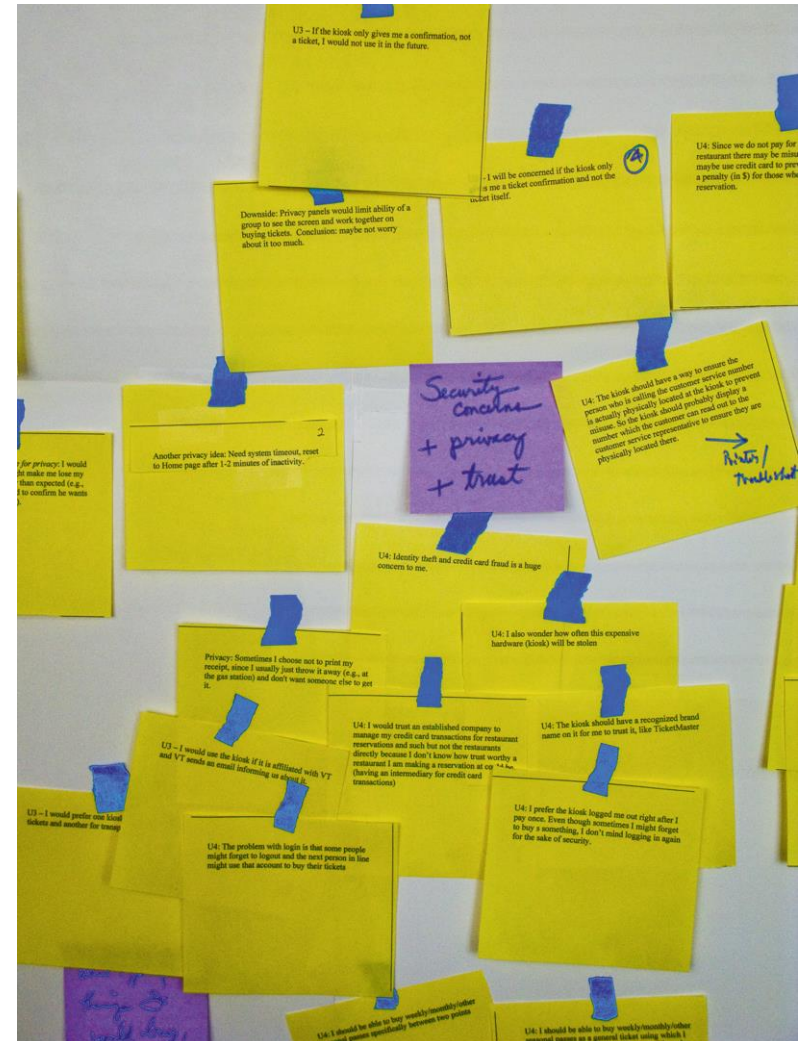
- **Affinity diagram** – hierarchical technique for organizing and grouping issues and insights of large amounts of qualitative data in a visual display
- WAAD – apply the affinity diagram technique to organize and group work activity notes across all users
- One dedicated room, use walls to post notes

The Game Rules

- Choose a moderator
- Shuffle the notes and distribute
- Allow time to read, start slowly
- Start posting work activity notes
 - Read the note aloud
 - Discuss and post it somewhere near the bottom of the work space to allow space for the hierarchy to grow
 - If there is a related note, post it next to it (affinity)
 - Move notes around as necessary
- Clusters of notes will grow, label them

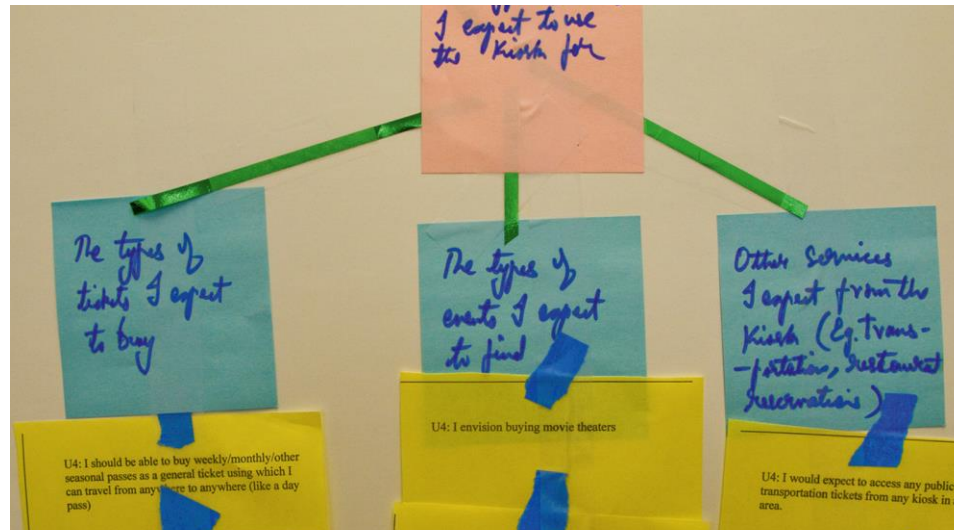
**Implementation
thinking**

- Pick up the pace, work in parallel
- Set aside outliers
- Democratic process – anyone can move or label a post, just discuss



Game Rules (cont)

- Keep groups meaningful (5-15)
- Meaningful label names – adjust as necessary
- Group groups in a hierarchy
 - Color code the labels



Game Rules (cont)

- Walkthrough, review with stakeholders

