Topic 5: More on Persona, Scenario & HTA (Part 3)

SECV2113 Human-Computer Interaction

Faculty of Computing
Universiti Teknologi Malaysia

01 CREATING A PERSONA

02 TASKS ANALYSIS

03 WRITING A SCENARIO

CREATING
A PERSONA

Recap: What is a Persona?

- A persona is a fictional character representing a major user group for a system being designed.
- Captures the primary needs and expectations of key user segments.
- Derived from user background, tasks, behaviors, attitudes, and motivations.
- Informed by user interviews.
- Documented in a concise, CV-style format.
- Persona development is a relatively fast process.

Why are Personas Needed?

- Traditionally user-centred design involved researching the needs of as many users as possible and collecting all of their requirements. This resulted in a long list of needs with no sense of priority. This lack of direction typically translated into designs that tried to serve all users but ended up serving no user particularly well.

- Creating Personas allow you to identify discrete sets of users and create typical users to represent each group.

Benefits

- Simplifies design decision-making.
- Clarifies persona behaviours and goals.
- Prevents assumptions about users.
- Ensures diverse user needs are represented.
- Avoids designing for wants instead of actual needs.
- Enables ongoing design evaluation against personas.
- Resolves design disagreements by referencing personas.

Limitations

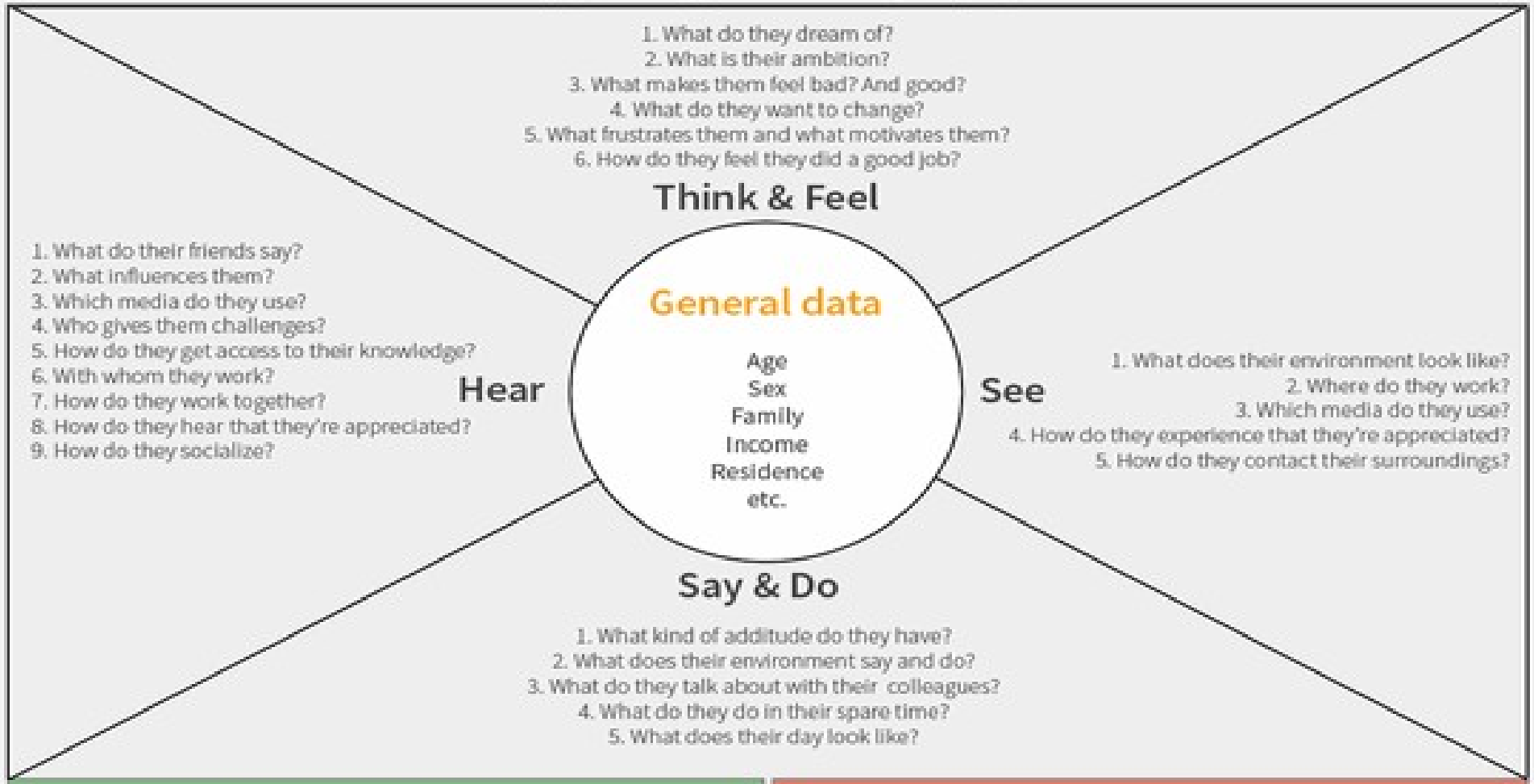
- Personas must address a specific design problem.
- They are not reusable across different projects.
- Context-specificity is critical.
- Behaviours and goals must align with the domain.
- Unique personas are required for each product.

How to Create a Persona?

- Collect background data from your target users
- Take primarily tasks, behaviour, goals, attitudes and environment into account
  - Use **empathy map**
- Add personal and motivational details
- Make the personas come to life by including real photos
- Check back with different stakeholders and people who have regular customer contact
- Check them in context with market segments

The Empathy Map

Map your target audience properly



GAIN

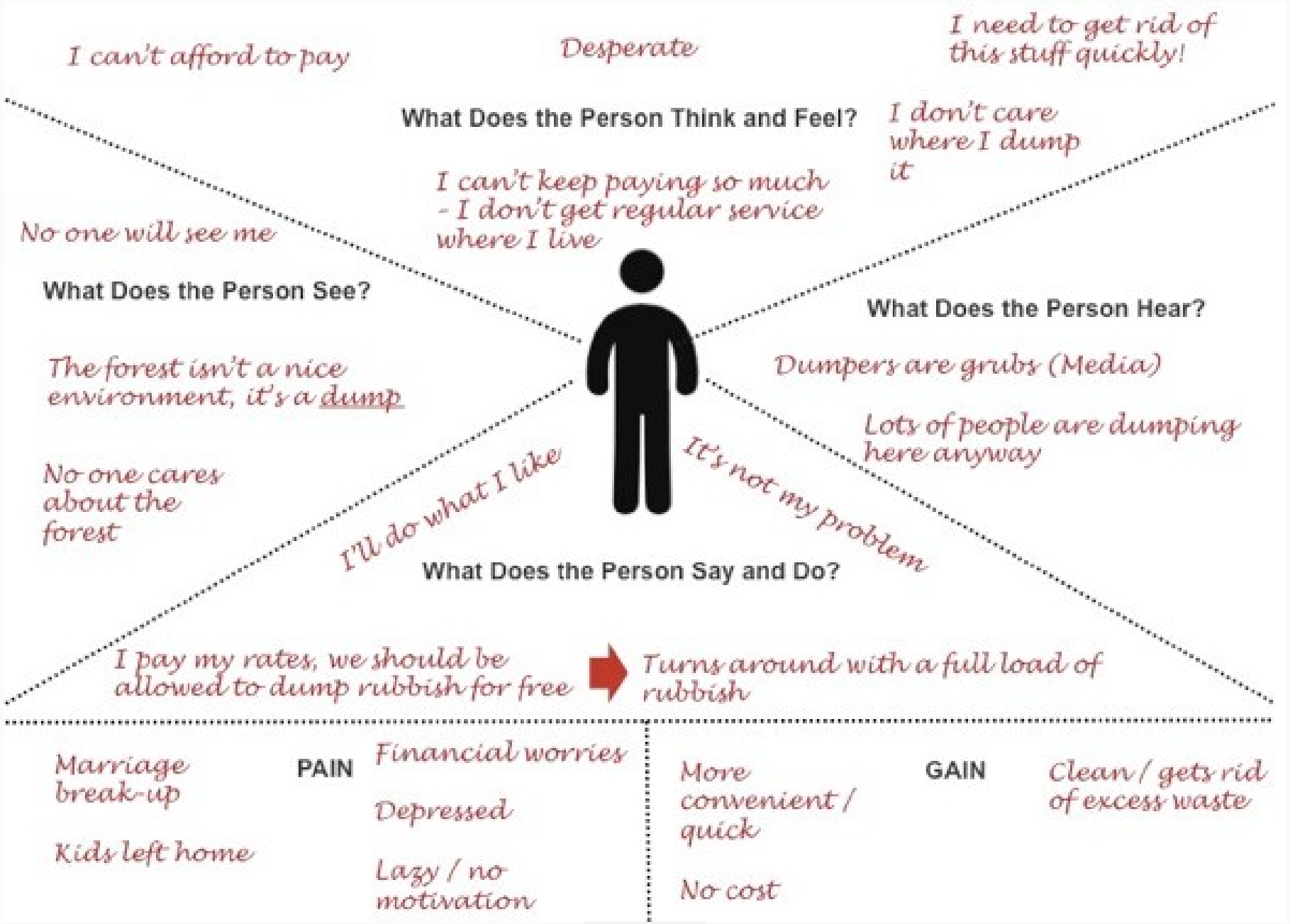
What does the target audience want to reach, how do they measure success? Desires, needs, measure of success?

PAIN

What are the fears, frustrations and obstacles or challenges that the target audience faces?

Inspired by Xplane.com

webtexttool.


I can't afford to pay
Desperate
I need to get rid of this stuff quickly!
What Does the Person Think and Feel?
I don't care where I dump it
I can't keep paying so much - I don't get regular service where I live
No one will see me
What Does the Person See?
What Does the Person Hear?
The forest isn't a nice environment, it's a dump
Dumpers are grubs (Media)
Lots of people are dumping here anyway
No one cares about the forest
I'll do what I like
It's not my problem
What Does the Person Say and Do?
I pay my rates, we should be allowed to dump rubbish for free
Turns around with a full load of rubbish
PAIN
Marriage break-up
Financial worries
Depressed
Kids left home
Lazy / no motivation
GAIN
More convenient / quick
Clean / gets rid of excess waste
No cost

https://conceptboard.com/blog/create-a-customer-empathy-map-in-6-easy-steps/

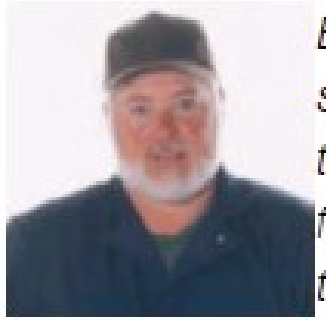
Example of a Person (1)

Nikki is 50 and works as a Doctor in the Royal Melbourne Hospital. She is a specialist in cardiology and has over 18 years experience in that field of research. She often uses a computer tomography or ultrasound machine. Nikki makes judgments rationally. She wants the software that comes with the medical devices to give her results fast and in graphical format with the opportunity to zoom things to the max. Nikki has a positive attitude in terms of technology as she has experienced it as a great support. She is confident using a computer even though he’s not an expert.

..from Nikki’s Persona Profile

- Nikki’s goals when using the software, she
  - wants the software that comes with the medical devices to give her results fast and in graphical format with the opportunity to zoom things to the max.

Example of a Persona (2)



Bob is 52 years old and works as a mechanic with an organisation offering road service to customers when their car breaks down. He has worked in the job for the past 12 years and knows it well. Many of the younger mechanics ask Bob for advice when they meet up in the depot as he always knows the answer to tricky mechanical problems. Bob likes sharing his knowledge with the younger guys, as it makes him feel a valued part of the team.

Bob has seen many changes over the years with the company and has tried his best to move with the times. However he found it a bit daunting when a new computer was installed in his van several years ago, and now he has heard rumours that the computer is going to be upgraded to one with a bigger screen that's meant to be faster and better.

Bob's been told that he will be able to access the intranet on the new computer. He has heard about the intranet and saw once in an early version on his manager's computer. He wonders if he will be able to find out want's going on in the company more easily, especially as customers' seem to know more about the latest company news than he does when he turns up at a job. This can be embarrassing and has been a source of frustration for Bob throughout his time with the company.

..from Bob’s Persona Profile

- Bob’s goals when using the internet
  - wants to avoid feeling stupid
  - would like to retain status as mentor
  - make him more informed when interacting with customers

TASKS
ANALYSIS

....

What is a Task?

- A task is a set of user actions to achieve a specific user goal, supported by the system.
- The scope of a task depends on the user’s objective and the design context.
- Tasks vary in size and complexity based on the goal and system requirements.

Task Analysis

- Task descriptions: often used to envision new systems or devices
- Task analysis: used mainly to investigate an existing situation
- Means of analysing and describing the jobs people do
  - Method and notation
- A method/set of methods for understanding the tasks users carry out with a product/system
- To analyse the underlying rationale and purpose of what people are doing; what are they trying to achieve, why are they trying to achieve it, and how are they going about it
- Focus on
  - User Analysis – involves learning about the user
  - peoples' goals and the actions they carry out
  - things people know
  - the things they act on
- Can be used for many different purposes within design and evaluation activities
- Many techniques, the most popular is **Hierarchical Task Analysis (HTA)**

Benefits of Task Analysis

- Determine:
  - The tasks the system has to support
  - The scope of the system
- Develop a
  - Streamlined interaction method.
  - Logical structured user interface
- Create a system that reflects
  - Users goals
  - Tasks
  - Workflow

What can we learn from task analysis?

- User’s goals
- How the user achieves their goals
- Personal, social, and cultural characteristics that influence the user in doing their tasks
- How the physical environment affects them in completing their tasks
- How previous experience knowledge influence their thinking
- How they approach work and the workflow they use to complete tasks

Data Collection: Where do tasks come from?

- How can we find out about what people do this?
  - Watch them
  - Talk to them
  - Read documentation, training material, etc.
  - Do the task ourselves
  - Become familiar with existing systems

Visiting Real Users

- Important to analyse real tasks
  - Not imaginary ones
  - Not the task of the designer

- Contextual inquiries
  - Genuine studies of what real users do in the workplace

- Task analysis is about **gathering and analysing data**

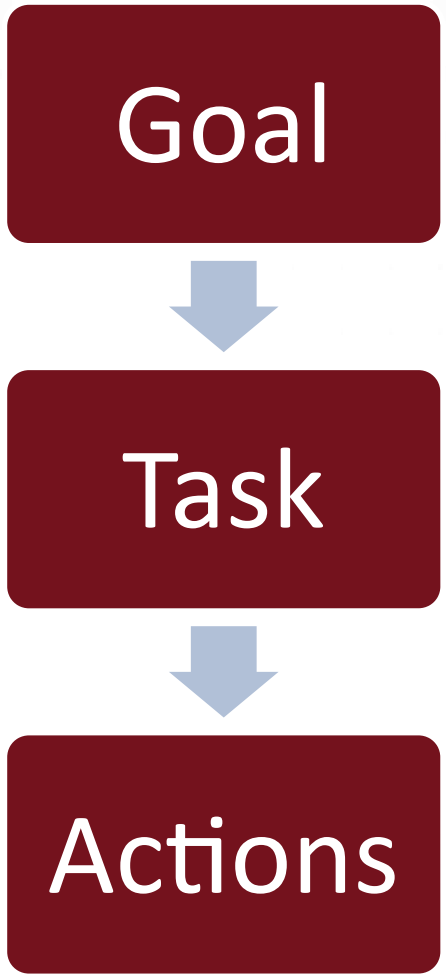
Question and Things to Consider

- Questions to ask the user:
  - What are the overall tasks you are trying to achieve?
  - What process do you follow to complete the task?
  - What likes and dislikes you have in the way you complete tasks?
- Things to consider:
  - Does the user efficiently complete the task?
  - What other ways are their to complete the task?
  - Is there a more efficient way?
- Who are the users?
  - Diversity
  - Question people who *don't* use the system
- What do they do?
  - What do they *really* do?
  - Don't give false goals
  - Observe goals as well as tasks

Structured Task Analysis Process

- Identify the task to be analysed.
- Break this down into between 4 and 8 subtasks.
- Draw the subtasks as a layered diagram
- Decide upon the level of detail into which to decompose.
- Validate the analysis with team members

Task Decomposition



- state of the system that a human wants to accomplish.
- activities required, used, or deemed necessary to achieve a goal.
- steps required to complete the task.

Hierarchical Task Analysis (HTA)

- Involves breaking a task down into subtasks, then sub-sub-tasks and so on. These are grouped as plans which specify how the tasks might be performed in practice
- HTA focuses on physical and observable actions, and includes looking at actions not related to software or an interaction device
- Start with a user goal which is examined and the main tasks for achieving it are identified
- Tasks are sub-divided into sub-tasks
- Represent the goals, sub goals, operations and plans using either:
  - graphical views (boxes and arrows)
  - non-graphical methods (e.g. tabulation, outlines, textual)

Example of HTA (Graphical)

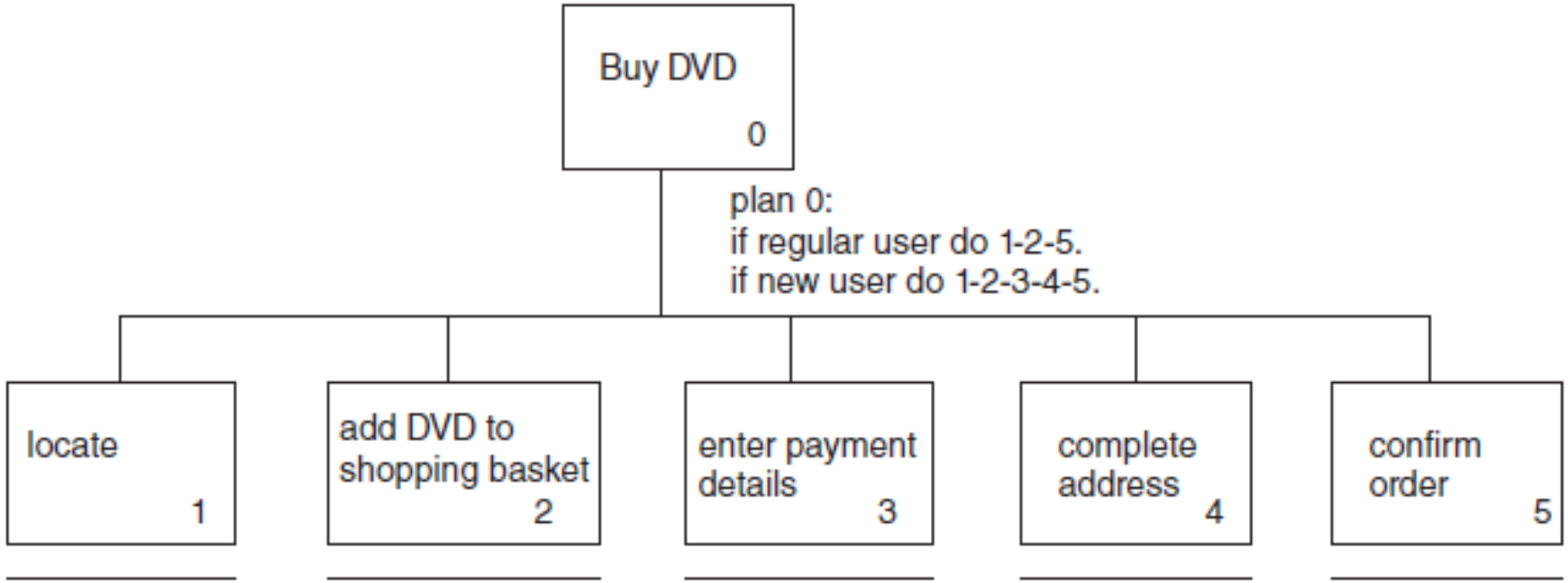


Figure 10.15 A graphical representation of the task analysis for buying a DVD

Example of Textual HTA

0. In order to buy a DVD
1. locate DVD
2. add DVD to shopping basket
3. enter payment details
4. complete address
5. confirm order

plan 0: If regular user do 1-2-5.
If new user do 1-2-3-4-5.

Adding **Plans**

- Hierarchical diagram / text specifies what subtasks are part of a task
- Does not specify how the subtasks are carried out
- Plans are used to describe
  - order of subtasks
  - conditional or optional subtasks
  - repetition
  - etc.
- A plan needed for each decomposed task

HTA Example 1: withdrawing cash from an ATM

- Withdrawing cash from an ATM requires tasks from the user...

- What are those tasks?

HTA Example 1 Textual Presentation

0 Withdraw cash
- 1 Check machine will work
  - 1.1 Look at status indicator
  - 1.2 Look for card logo
- 2 Insert card
- 3 Enter PIN number
- 4 Initiate withdrawal transaction
  - 4.1 Select withdraw cash
  - 4.2 Enter amount
- 5 Complete transaction
  - 5.1 Take card
  - 5.2 Take cash

- A plan needed for each decomposed task

Plan 0: do 1; if possible do 2; repeat 3 until PIN correctly entered; do 4; do 5.

Plan 1: do 1.1, 1.2 in any order

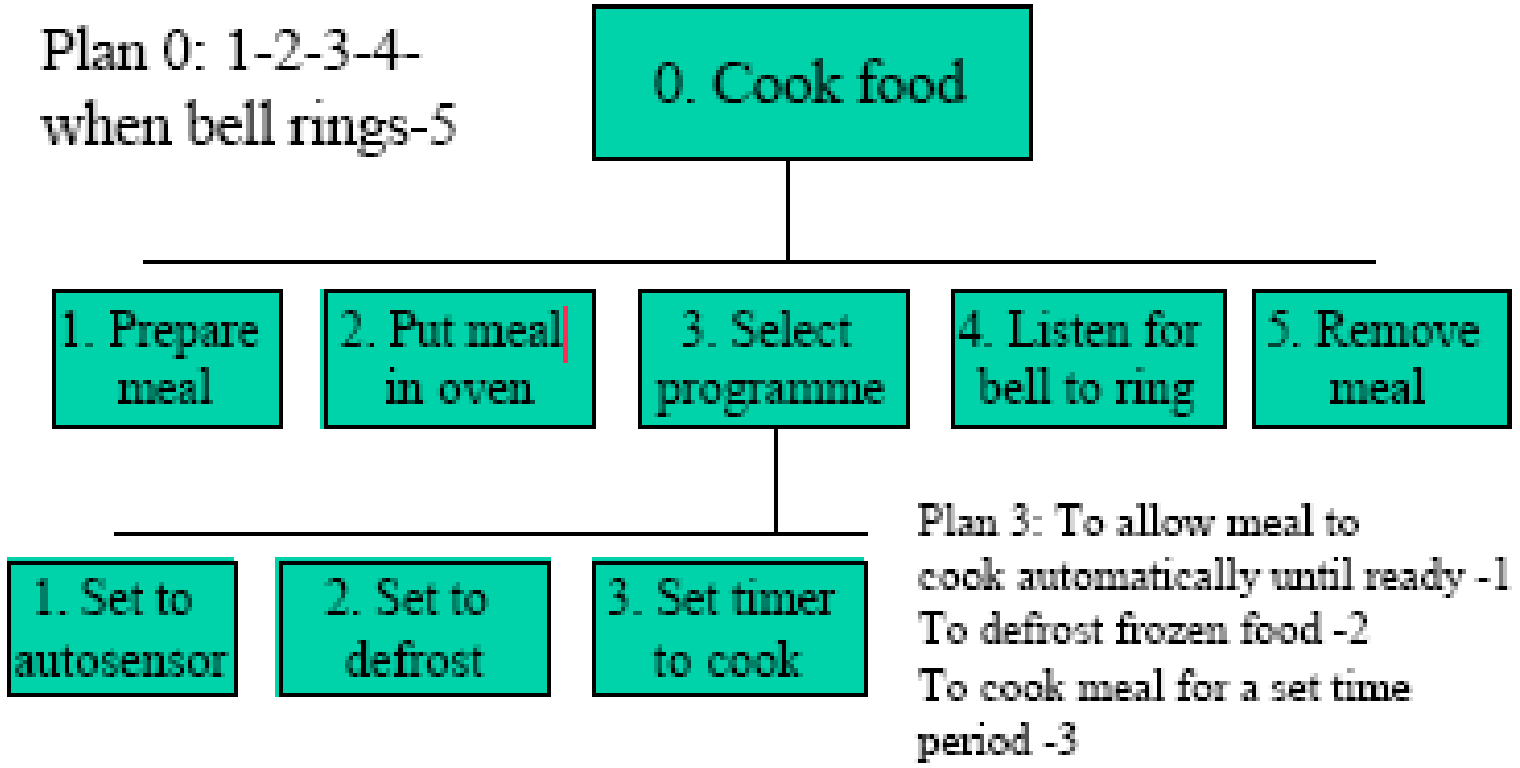
Plan 4: do 4.1; do 4.2

Plan 5: wait until card available; do 5.1; wait until cash available; do 5.2

HTA Example 2: microwave oven

- What is the overall goal?
  - “Cook food!”
- How is this done?
  - Prepare meal
  - Put meal in oven
  - Select program
  - Listen for bell to ring
  - Remove meal
- Selecting a programme - How is this done?
  - Set to auto sensor
  - Set to defrost
  - Set timer to cook
- What are the rules that influence the order in which tasks/subtasks take place? (the plans)

HTA Example 2 Graphical Presentation



HTA Example 3: filing documents

- The manual task of filing documents in a filing cabinet…
  - You have an unsorted stack of documents
  - Your filing cabinet contains folders that are ordered somehow
  - How do you get all the documents into the correct folder?

HTA Example 3: … filing cabinet

- You probably act differently if you have a lot of documents to file rather than a few…

0. Store documents in filing cabinet

1. File lots of documents
2. File one or two documents

Plan 0: Do 1 or 2

HTA Example 3:
… filing one or two things

- Simply find the appropriate folder and put the documents in…

2. File one or two documents
   - 2.1. Open cabinet
   - 2.2. File each document
   - 2.3. Close cabinet

Plan 2: Do 2.1., (2.2. repeatedly) then 2.3.

HTA Example 3:
… filing each document

2.2. File each document
- 2.2.1. Find appropriate file
- 2.2.2. Open file
- 2.2.3. Place document in file
- 2.2.4. Close file

Plan 2.2: Do 2.2.1, 2.2.2., 2.2.3., then 2.2.4.

HTA Example 3: … filing lots of document

- Sort the documents into order first
- then split the sorted documents up into ‘categories’ (i.e. all the documents whose author begins with ‘A’)
- then work through the filing cabinet, putting each category into the right file

1. File lots of documents
   - 1.1. Choose criteria on which documents are sorted
   - 1.2. Sort all documents to be filed into order
   - 1.3. Split documents up into categories
   - 1.4. Open cabinet
   - 1.5. Place each category of document into file
   - 1.6. Close cabinet

Plan 1: Do 1.1., 1.2., 1.3., 1.4., (1.5. repeatedly) then 1.6.

HTA Example 3:
… choosing sorting criteria

1.1. Choose criteria on which documents are sorted
- 1.1.1. Choose alphabetical by title of document
- 1.1.2. Choose alphabetical by author of document
- 1.1.3. Choose date order

Plan 1.1: Do any one of 1.1.1., 1.1.2., or 1.1.3.

HTA Example 3:
… placing categories in files

1.5. Place each category of document into file
- 1.5.1. Open file
- 1.5.2. Place each document in file
- 1.5.3. Close file

Plan 1.5: Do 1.5.1., (1.5.2. repeatedly) then 1.5.3.

Things to Note

- The overall task is numbered 0
- The tasks are all described by verbs
- Each task that is decomposed must have a plan to go with it
- Plan X must only refer to sub-tasks to X

Reflecting on HTA Example 3

- Imagine that you are designing an electronic filing system…
- What does this HTA tell you about filing systems?
- Which bits of the **manual task would you keep**, and **which would you do away with** or **redesign**?
- Why?

HTA Supports Refinement

How to check or improve the initial HTA?
Some heuristics are:

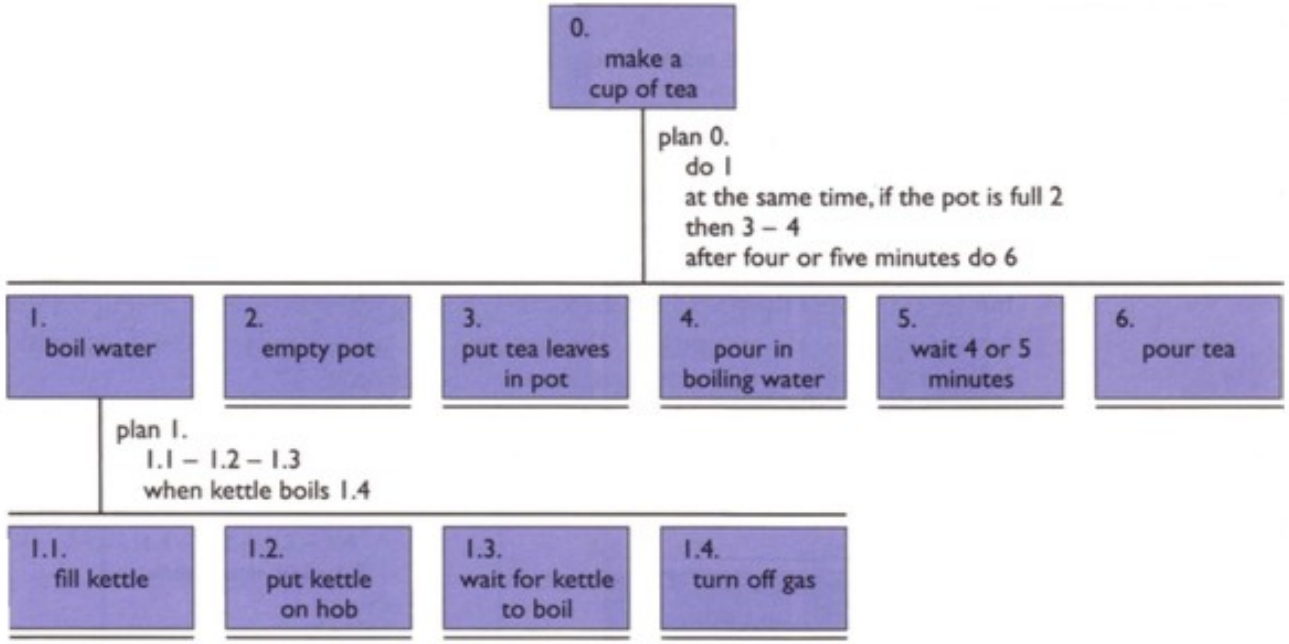
paired actions where is “turn on gas”?

restructure generate task “make pot”

balance is “pour tea” simpler than “make pot”?

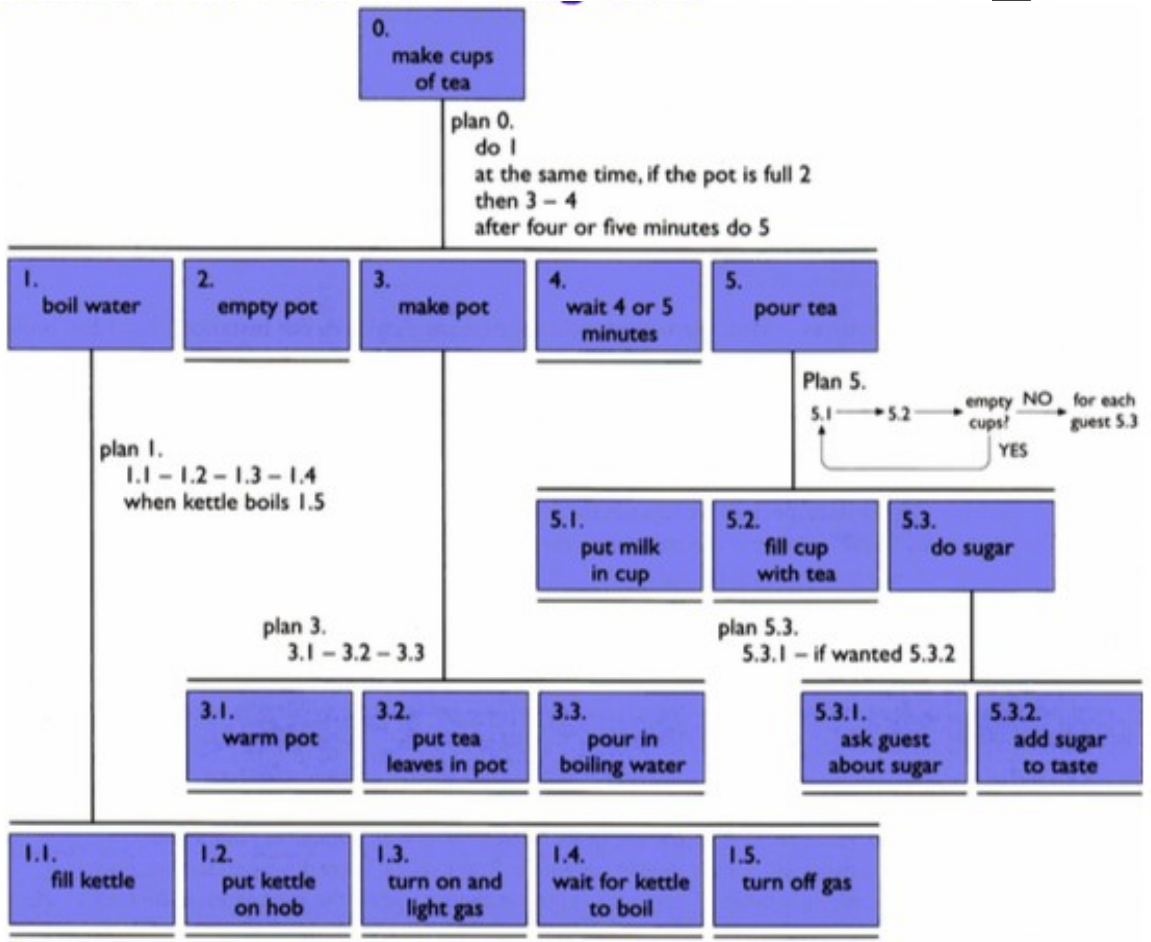
generalise make one cup . . . or more

HTA Example 4: making tea



[Dix et al, p. 515]

HTA Example 4:
… refined HTA for making tea



HTA Example 4: … types of plan

- **sequence** 1.1 then 1.2 then 1.3
- **optional** if the pot is full 2
- **wait** when kettle boils, do 1.4
- **cycles** do 5.1 5.2 while there are still empty cups
- **parallel** do 1; at the same time …
- **discretionary** do any of 1.3.1, 1.3.2 or 1.3.3 in any order

Most plans use several of these.

Waiting can be considered:

- a task — for “busy” waits, e.g. making tea
- part of the plan — end is the event, e.g. email reply received

Activity

- Jill creates a stack of new catalogues in a corner of her kitchen. When she is preparing dinner, she can flip through a catalogue to see what's new or on sale or what strikes her interest. In the evening she may pick out five or six catalogues to look at while the family is watching TV. She may even take a few to bed, or to the bath.

- Generally she simply browses through pictures, reading descriptions only when the pictures look interesting. When she finds something interesting she may dog-ear the page, draw a circle round it or mark the page with a sticky note. She keeps catalogues with marked pictures around until she wants to make a purchase.

Sample Solution

0. Using catalogues
    1. Browse items
    2. Mark items

0. Using catalogues
    1. Browse items
        - 1.1. Browse by what's new
        - 1.2. Browse by sales
        - 1.3. Browse by items that interest
        - 1.4. Browse by catalogues
            - 1.4.1. Browse in kitchen
            - 1.4.2. Browse while watching TV
            - 1.4.3. Browse in bed
    2. Mark items

0. Using catalogues
    1. Browse items
    2. Mark items
        - 2.1. Circle item
        - 2.2. Mark page
            - 2.2.1. Dog-ear page
            - 2.2.2. Sticky on page

- The source doesn't say much about how the tasks are done, but…

  Plan 0: do 1 then 2 if item found

  Plan 1: do 1.1 or 1.2 or 1.3 or 1.4

  Plan 2: do 2.1 or 2.2

Reflecting the Activity

- What does this tell us?
  - Need flexible system
  - Need portable system
  - Need system that allows lots of different browsing criteria
  - Possibly need to improve system for marking selected items

- These are passed as **requirements** to the design cycle

WRITING
A SCENARIO

....

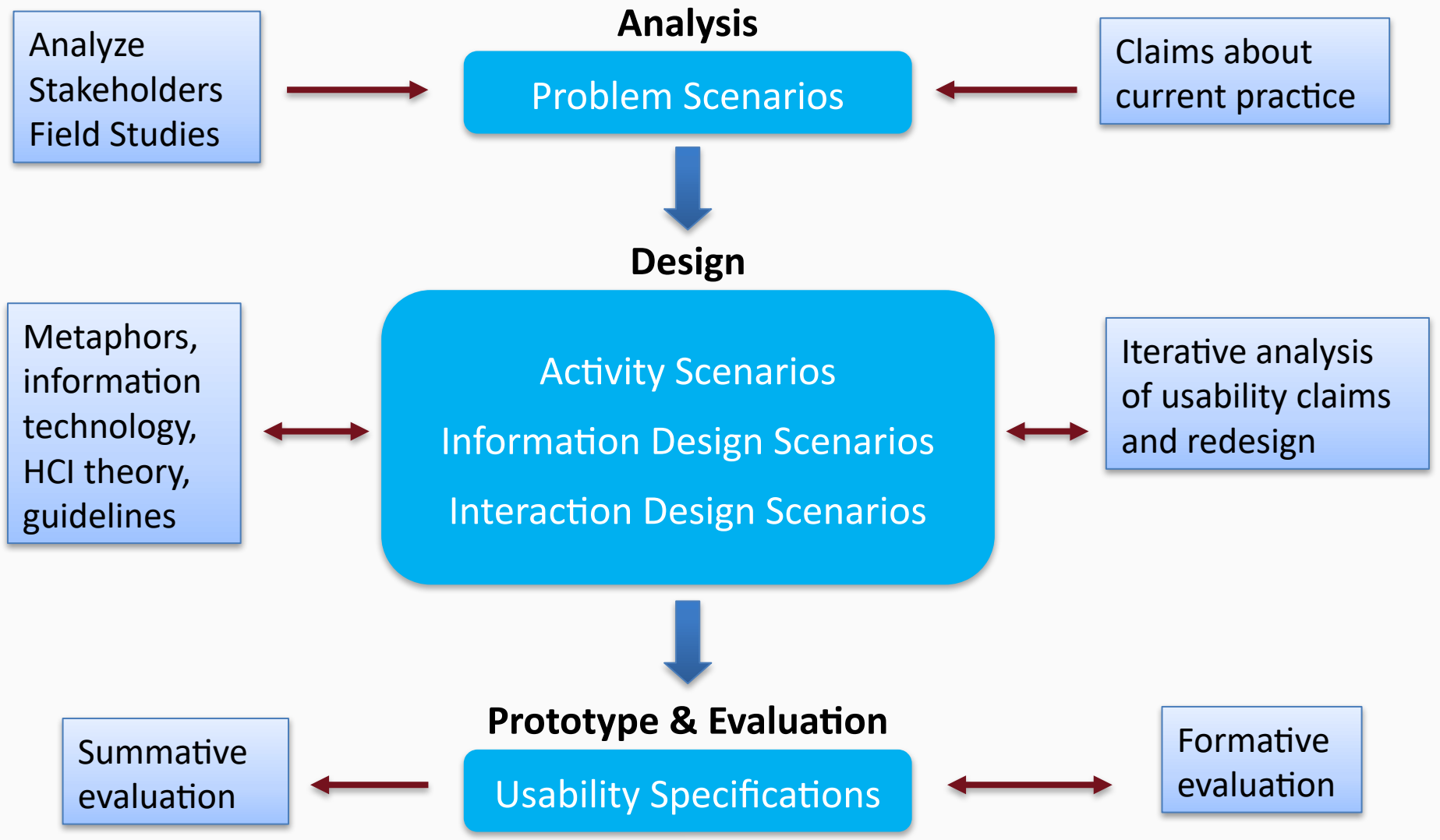
What is a Scenario?

- A narrative description that **describes how a user is intending to use** a system
- Goal or Task-based
- Can include textual descriptions, illustrated stories, animations or even videos
- Presents the user's point of view

Benefits

- Highlights an application within the work context
- Powerful communication tool
- Useful for testing of early prototypes
- Helps users understand the design
- Provides a contextual basis for testing
- Scenarios test the integrity of requirements and processes
- Gives an idea of current and future needs

Writing Scenario Process



How to Write a Scenario?

- Determine the target group and analyse their context of use
- Transform user goals into activities
- Determine the user tasks, and the system tasks.
- List in dot point the sequence of tasks
- Re-write task list into simple narrative language.
- Ensure you omit in your wording, any links to the technology
- Review the scenario to ensure it represents a real use context.

How to Write a Scenario? for using the ATM

- Persona:
  - Brad, 45, carefree office worker, travel often but does not have good time management
- User goal:
  - Withdraw money quickly from the ATM
- Tasks :
  - Identify himself
  - Key in the transaction details
  - The system responds
  - Transaction ends

Writing the Text-based Scenario

- Re-write task list into simple narrative language

It's Thursday afternoon and Brad is flying to Sydney. He doesn't have enough money for a taxi to the airport, and he's running late. He goes to the local ATM and identifies himself. He specifies that he wants $200 from his savings account. He'd like the money in $50 notes so that he can give the taxi driver the correct change. He doesn't want a printed receipt, as he doesn't bother keeping track of transactions in this account, besides he’s already late. The system draws out his money, and the transaction ends.

- Ensure you omit in your wording, any links to the technology
- Review the scenario to ensure it represents a real use context

Summary

- Scenarios, use cases and essential use cases can be used to articulate existing and envisioned work practices.
- Task analysis techniques such as HTA help to investigate existing systems and practices
- Task analysis gives designers a means of describing how people do their jobs
- Serves different purposes in design and development