


Task Analysis

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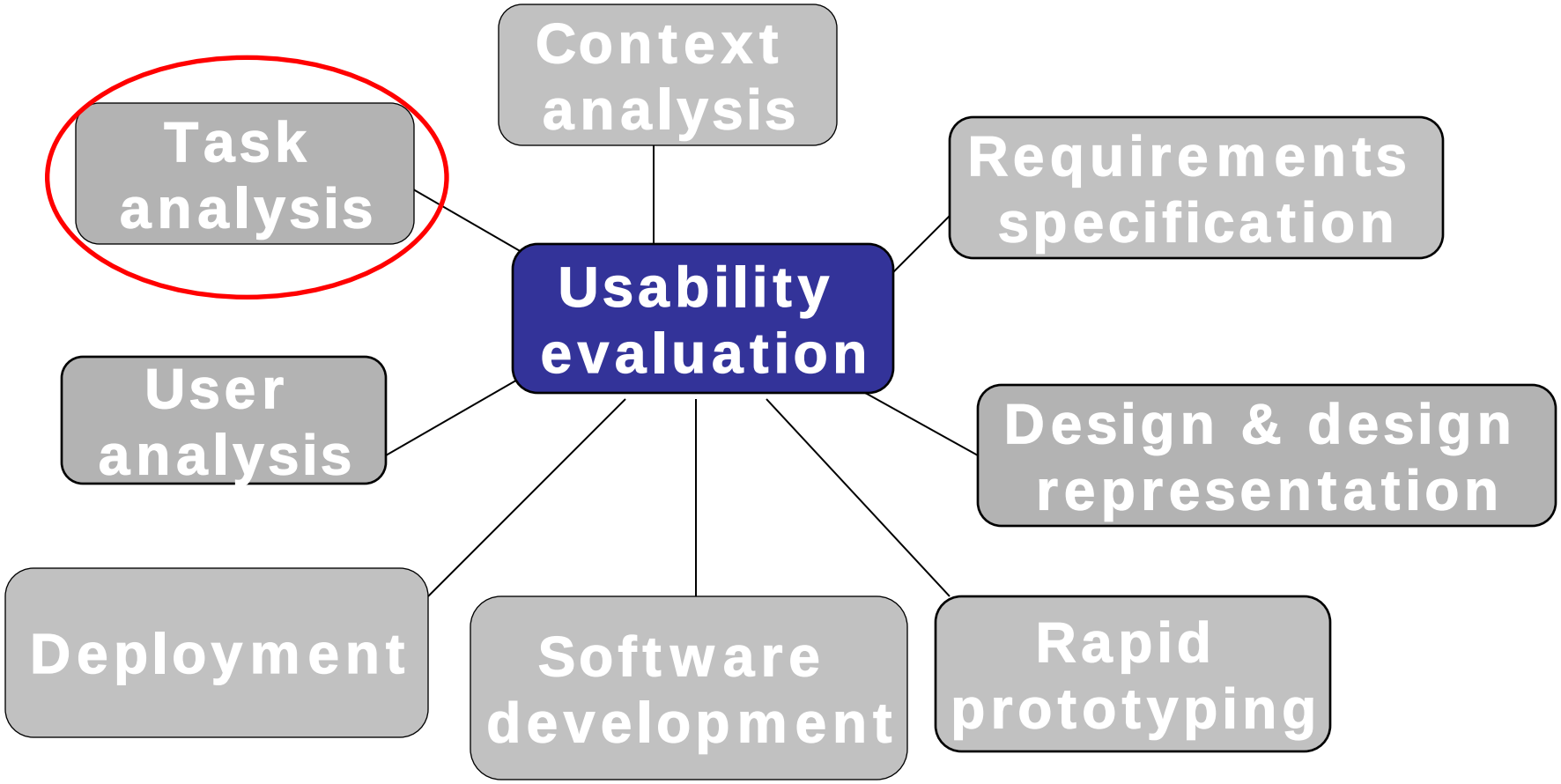
What is usability and why is it important?

Users, user classes and personas

Usability engineering methodology

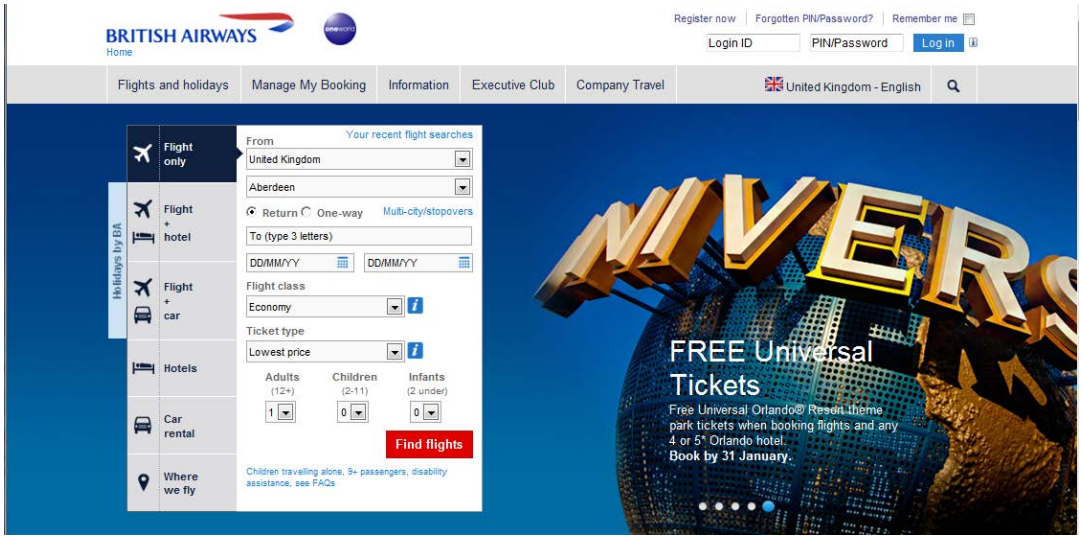


What we will cover...

- Tasks
- Task models
- Scenarios

Define Core Tasks: E-flights

- Search for a flight to a certain destination
- Search for a flight on a certain day
- Search for a cheap flight
- Add flight to order
- Pay by Credit Card…



Example of email program

- Core Tasks:
  - Compose email
  - Add recipients
  - Include Attachments
  - Include signature
  - Read email
  - Delete email, etc...

What is a Task?

- A task is something that the user wishes to achieve
  - an element of work or an activity with a specific start and termination point.
- A task should be meaningful to the user:
  - associated with a goal
  - described using the language the user normally uses
- Focus is on the user...

Scenarios

Persona

+

Who is she?
Name, age, interests

Tasks

What does she want to do?

= Scenario

Define Scenarios

Combine persona and task, plus realistic data

E-flights:

Helen Beatty wants to book a flight to Amsterdam. She only needs a single, as her brother will come back with her and he has a car. Because of her tight work schedule, she needs to fly on 7th November. She is worried about the cost of flying and a friend has recommended using the web to find a cheap flight.

What is Task Analysis?

Method of analysing people's jobs:

- What people do
- What things they work with
- What they must know

General design methodology

- Not only for computer science

An Example

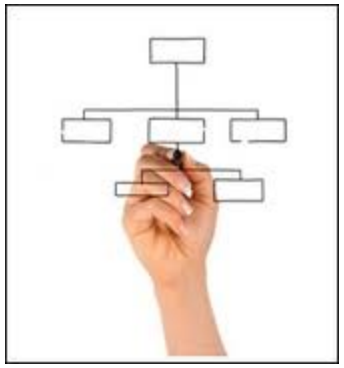
- In order to clean the house
  - Get the vacuum cleaner out
  - Fix the appropriate attachments
  - Clean the rooms
  - When the dust bag gets full, empty it
  - Put the vacuum cleaner away

- Typical user knows about:
  - Vacuum cleaners, their attachments, dust bags, cupboards, rooms , etc.

Your go...

What are the core tasks for making a sandwich?

Task Decomposition



- Aims:
  - describe the actions people do
  - structure them within task-subtask hierarchy
  - describe ordering constraints of subtasks

- Focus on Hierarchical Task Analysis (HTA)
  - text and diagrams to show **hierarchy**
  - **plans** to describe order

Textual HTA description

Hierarchy description ...

0. in order to clean the house
    1. get the vacuum cleaner out
    2. get the appropriate attachment
    3. clean the rooms
        3.1. clean the hall
        3.2. clean the living rooms
        3.3. clean the bedrooms
    4. empty the dust bag
    5. put vacuum cleaner and attachments away

... and plans

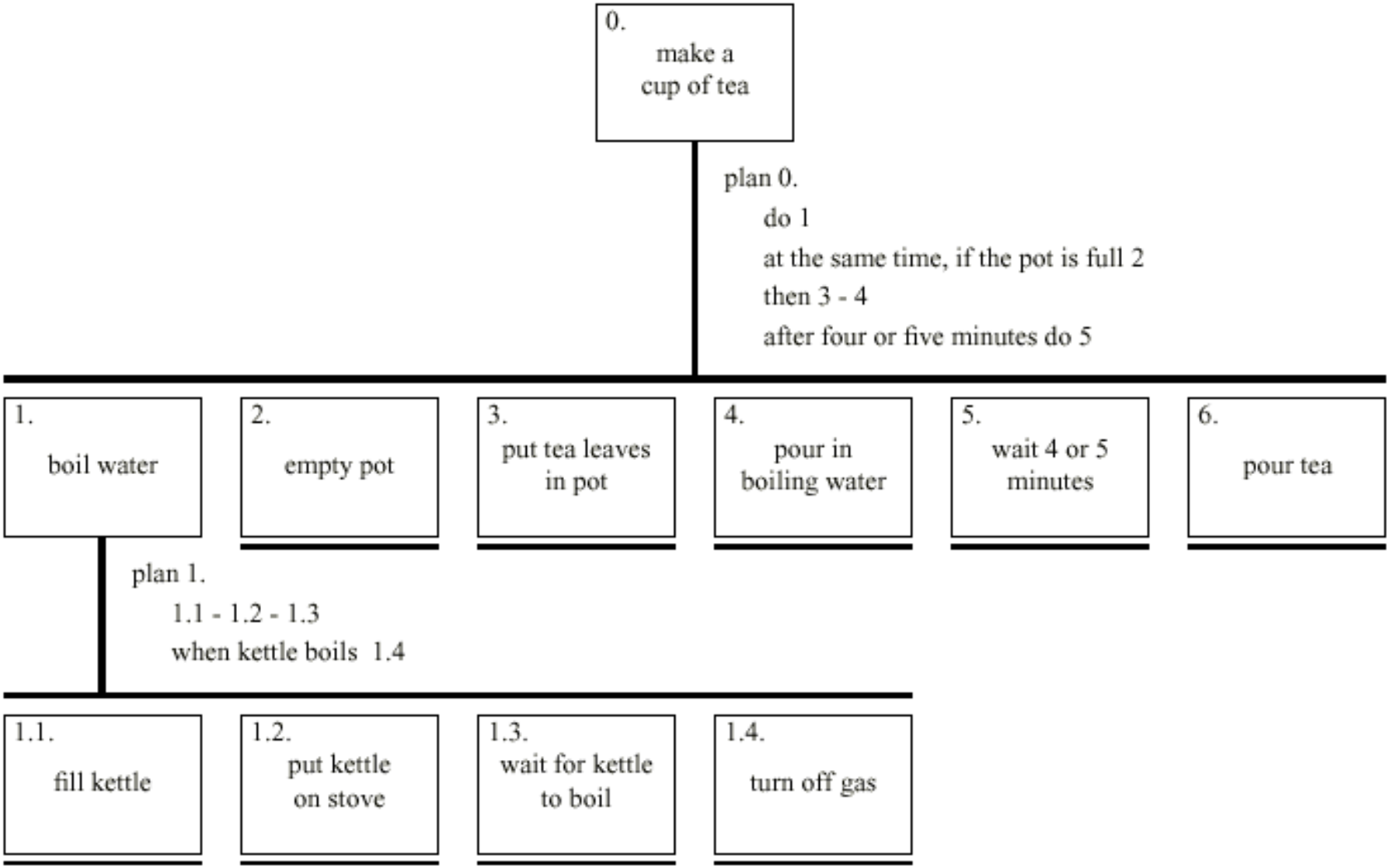
Plan 0: do 1 - 2 - 3 - 5 in that order. when the dust bag gets full do 4

Plan 3: do any of 3.1, 3.2 or 3.3 in any order

Generating the hierarchy

- Get list of tasks
- Group tasks into higher level tasks
  - Aim for 4-8 tasks at top level
- Decompose lowest level tasks further
- Stopping rules - How do we know when to stop decomposing?
  - Is “empty the dust bag” simple enough?

Diagrammatic HTA

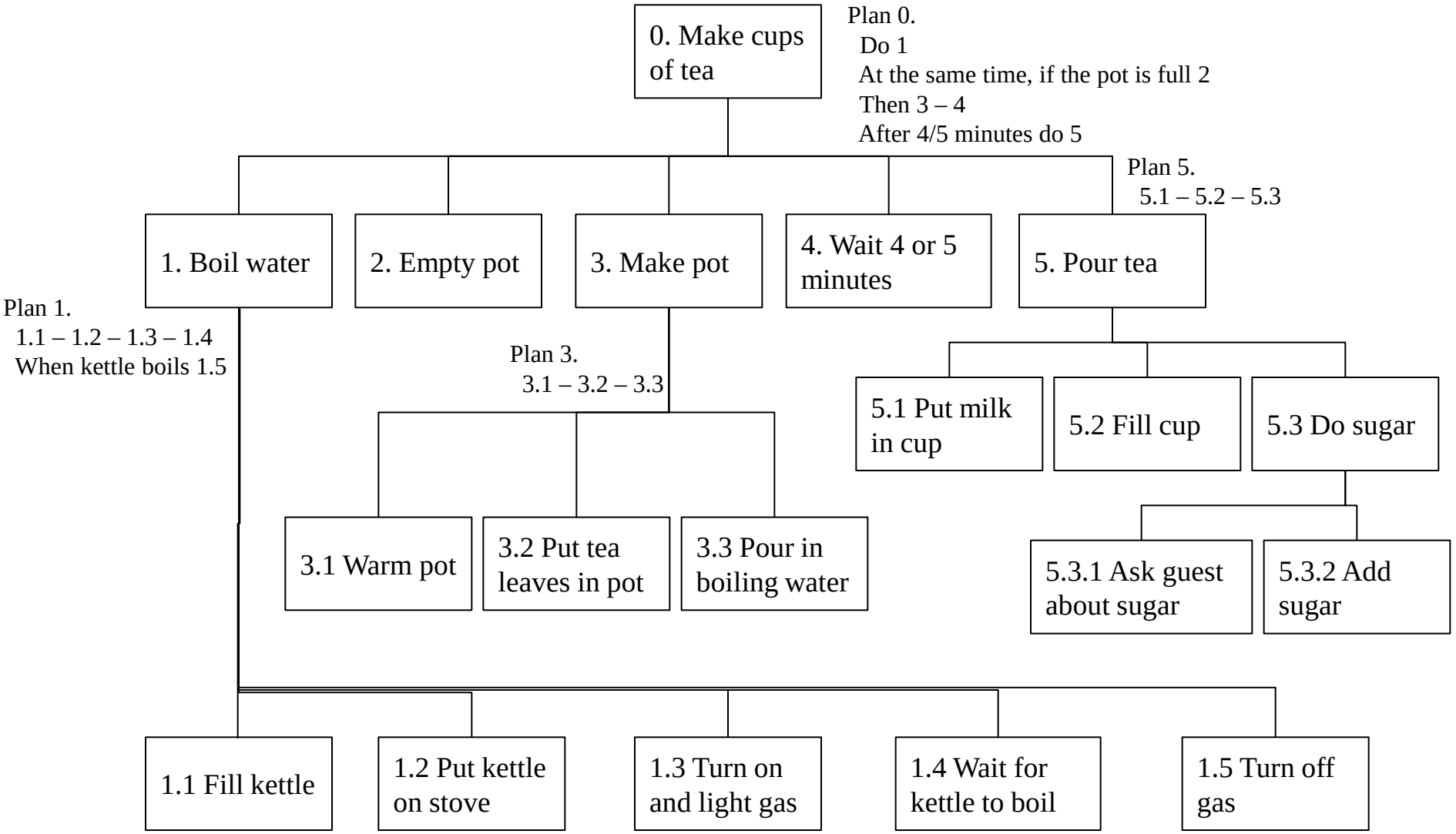


Refining the description

Given initial HTA (textual or diagram)
How to check/improve it?

Some heuristics:
paired actions
    e.g., where is `turn on gas'
restructure
    e.g., generate task `make pot'
balance
    e.g., is `pour tea' simpler than making pot?
generalise
    e.g., make one cup or two….. or more

Refined HTA for making tea



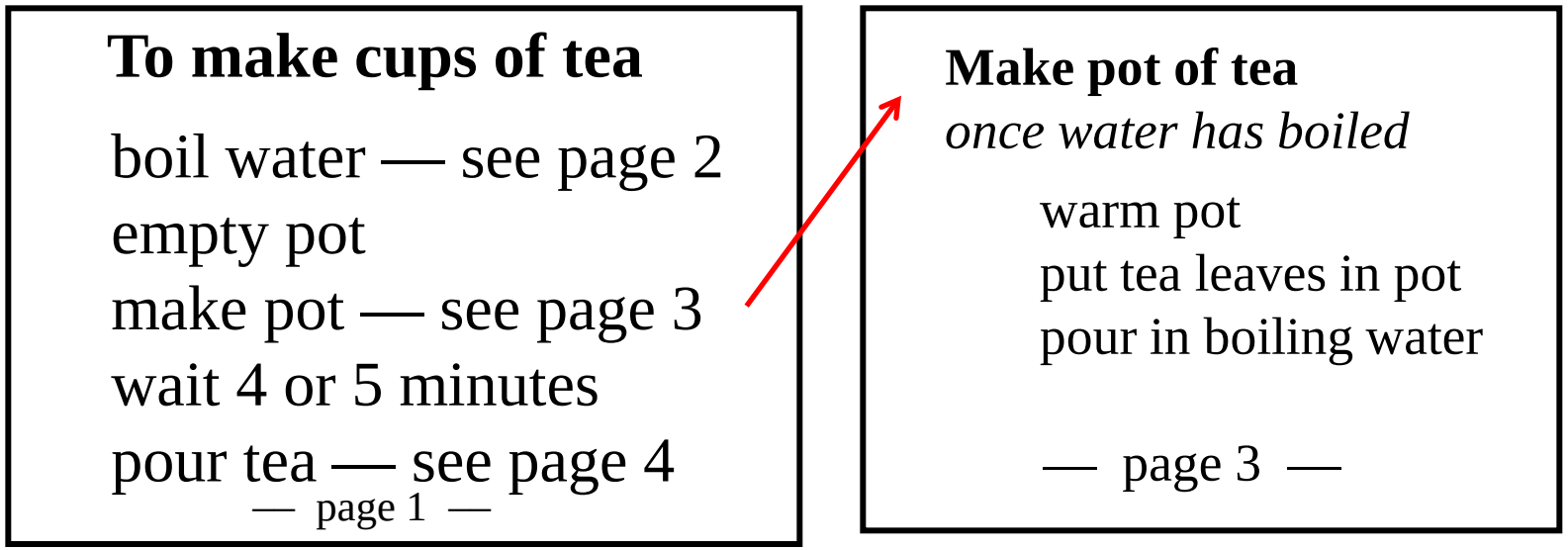
Types of plan

Fixed sequence	-	1.1 then 1.2 then 1.3
Optional tasks	-	if the pot is full 2
Waiting for events	-	when kettle boils 1.4
Cycles	-	do 5.1 5.2 while there are still empty cups
Time-sharing	-	do 1; at the same time ...
Discretionary	-	do any of 3.1, 3.2, 3.3 in any order
Mixtures	-	most plans involve several of the above

Uses of Task Analysis (1)

Help and documentation,
e.g. procedural ‘How to do it’ Manual

- from HTA description
- good for novices
- assumes all tasks known



Uses of Task Analysis (2)

Requirements capture and systems design

- lifts focus from system to use
- suggests candidates for automation
- uncovers user's conceptual model

Detailed interface design

- Hierarchy suggests menu layout
- Task frequency guides default choices
- Existing task sequences guide dialogue design

NOTE: task analysis is never complete

- Rigid task based design => Inflexible system

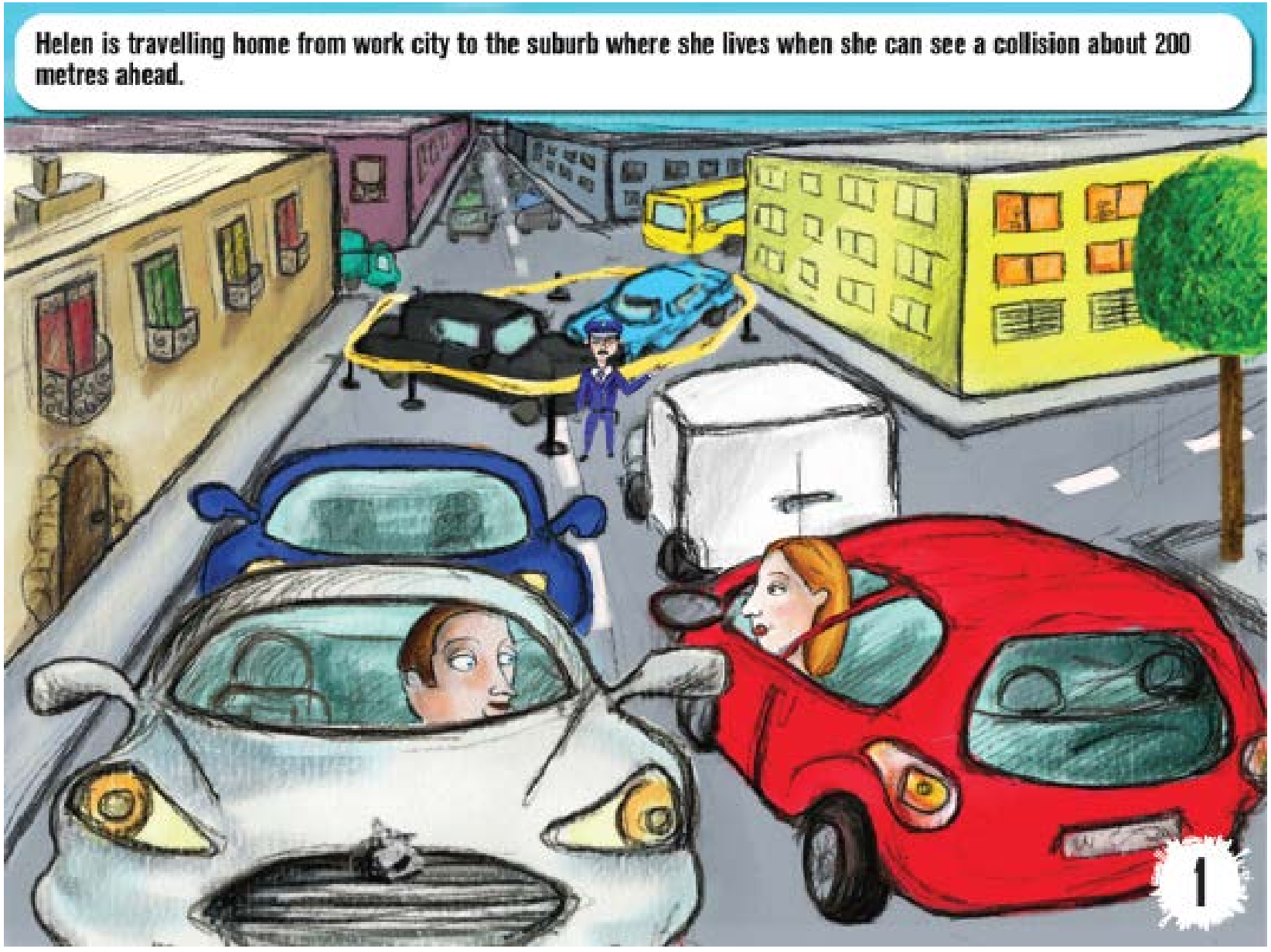
Seperation of concerns

- Tasks and scenarios should **not** contain information about the user-interface
- So, same task analysis can be used for different types of interfaces
  - PC, web, mobile..
  - Touch screen, voice control, gesture control…

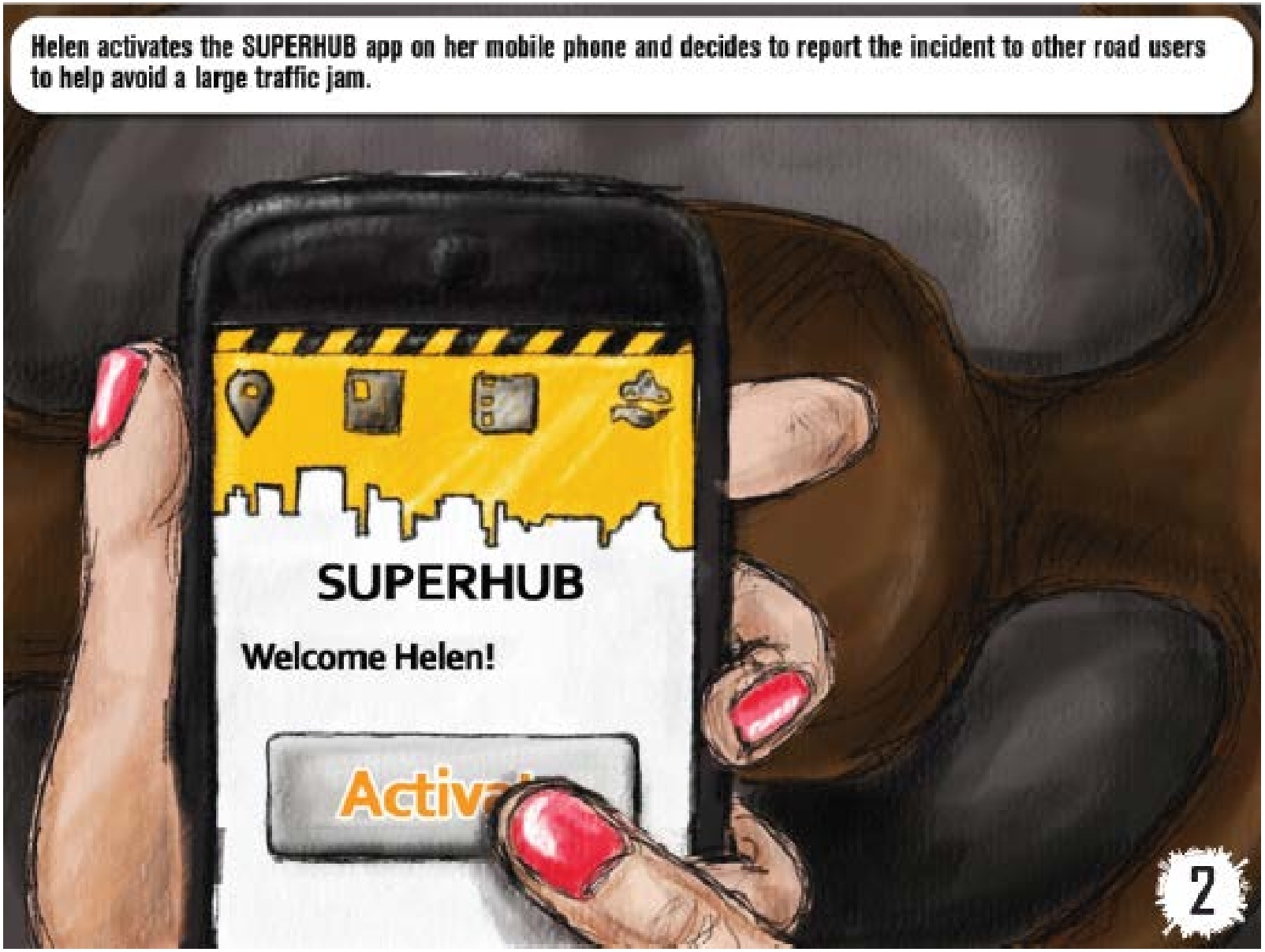
Another Use of Scenarios

- As a story showcasing what your system/app may do
- Making your ideas easier to communicate (to potential investors, end-users, your colleagues) for feedback, input, approval
- Stories can be just text or illustrated
- Illustration may show some implementation detail
  (e.g. mobile phone app, with touch in next example)

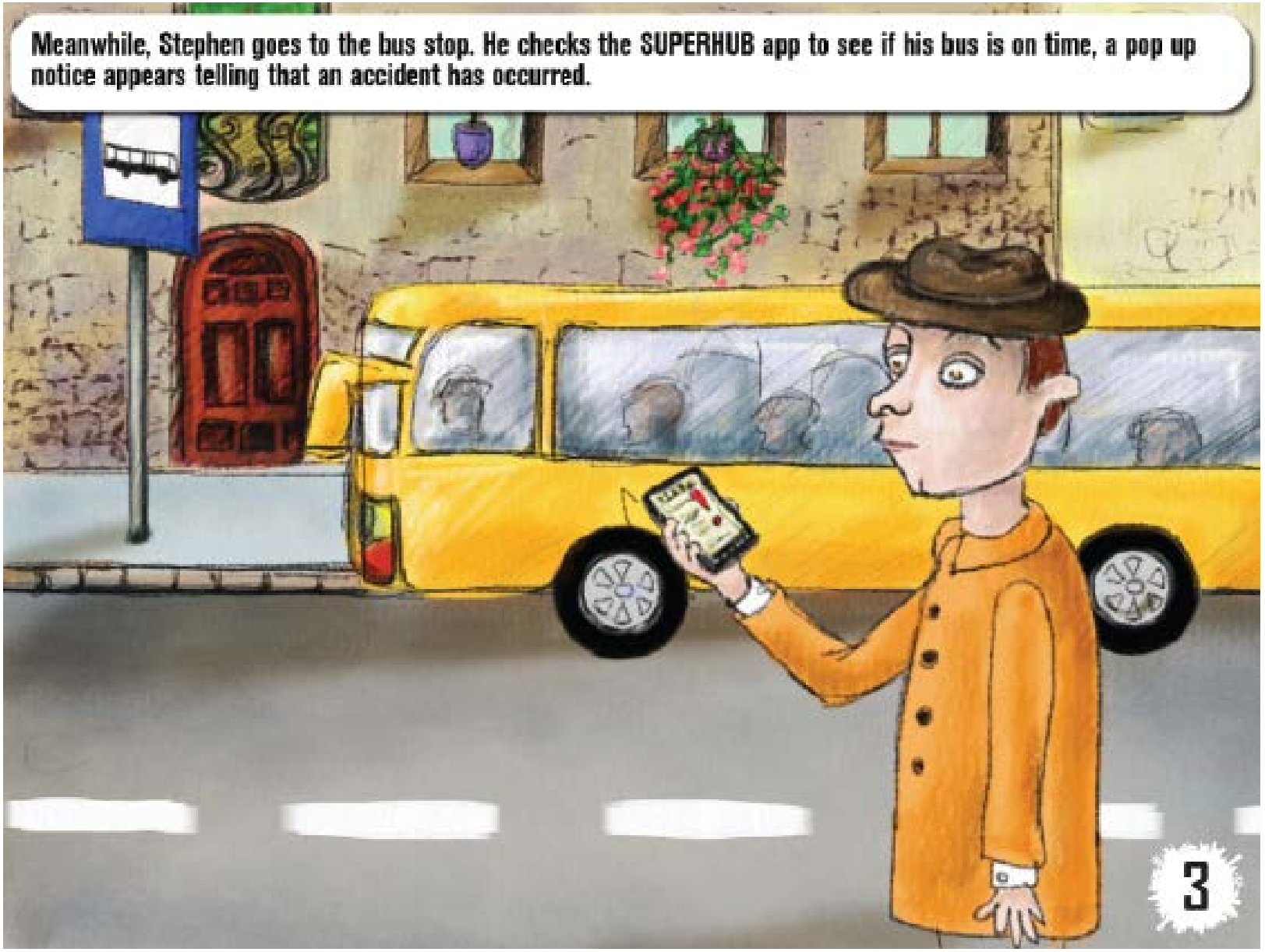
Example Scenario from EU Project Superhub Illustrated – Part 1



Example Scenario from EU Project Superhub Illustrated – Part 2



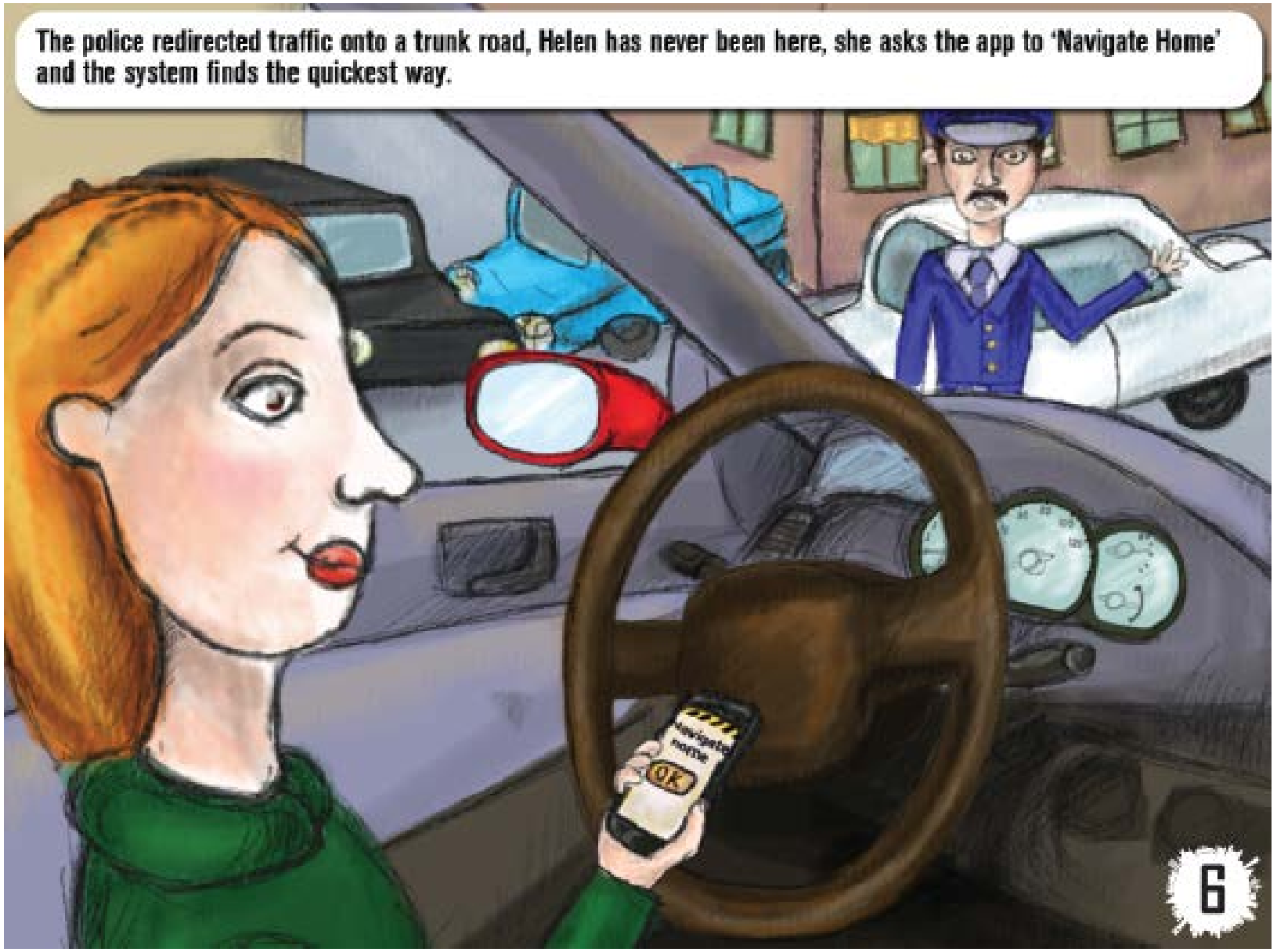
Example Scenario from EU Project Superhub Illustrated – Part 3



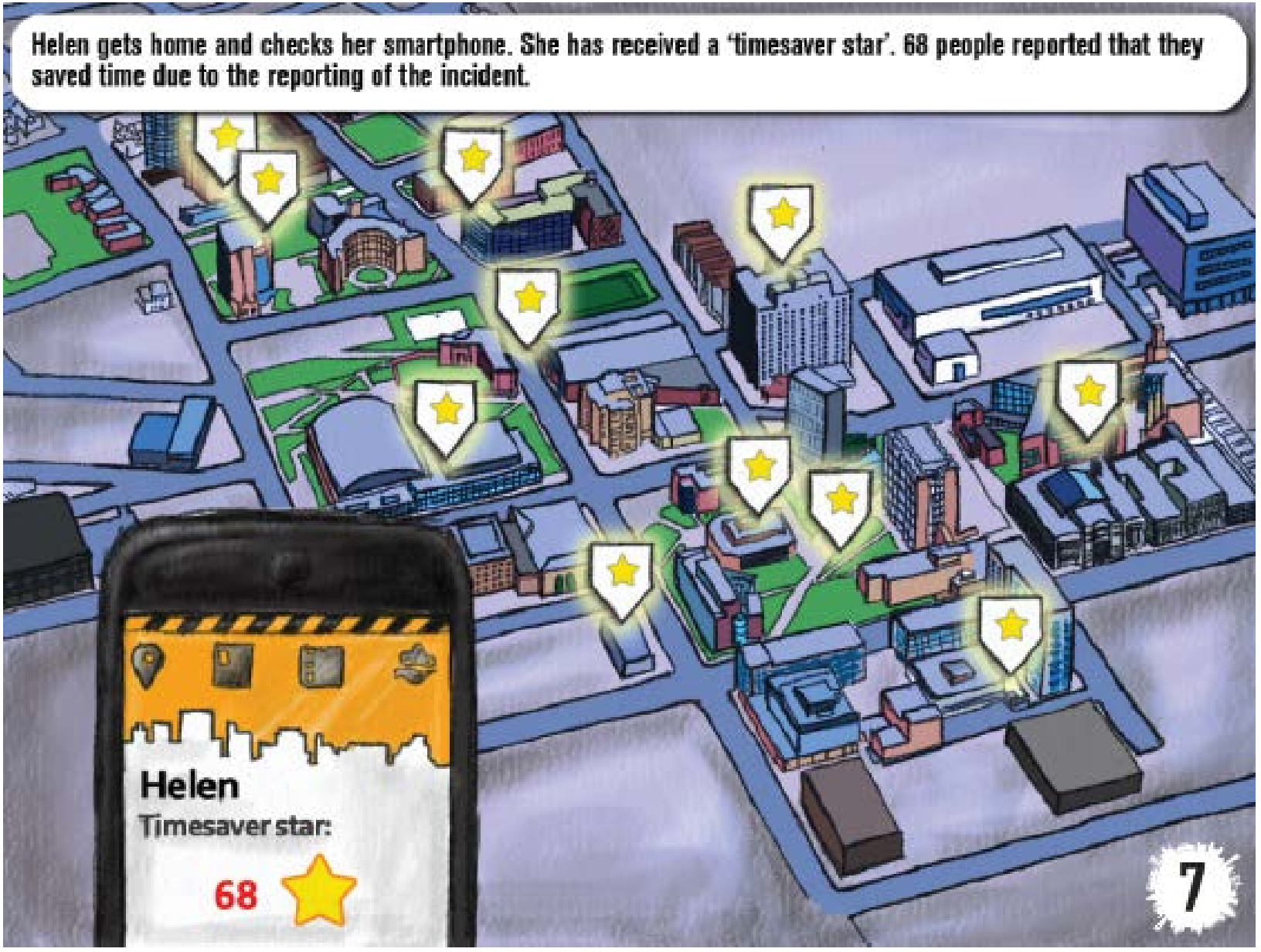
Example Scenario from EU Project Superhub Illustrated – Part 4

Example Scenario from EU Project Superhub Illustrated – Part 5

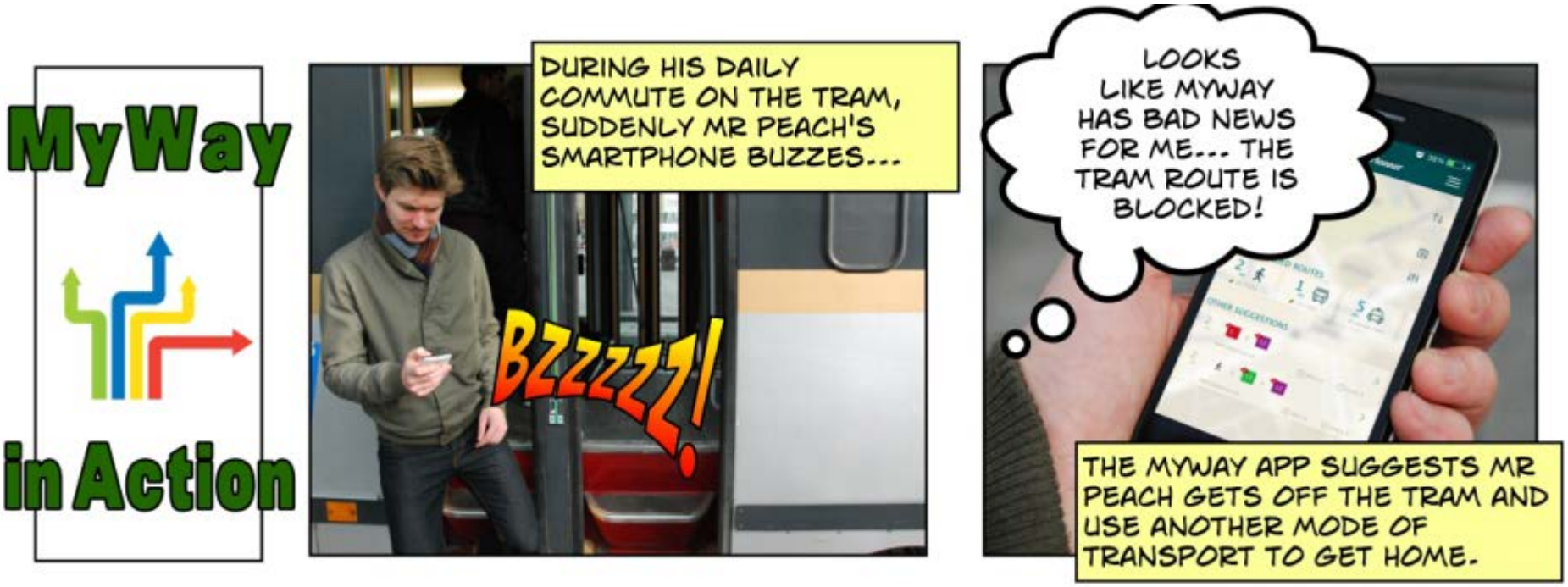
Example Scenario from EU Project Superhub Illustrated – Part 6



Example Scenario from EU Project Superhub Illustrated – Part 7

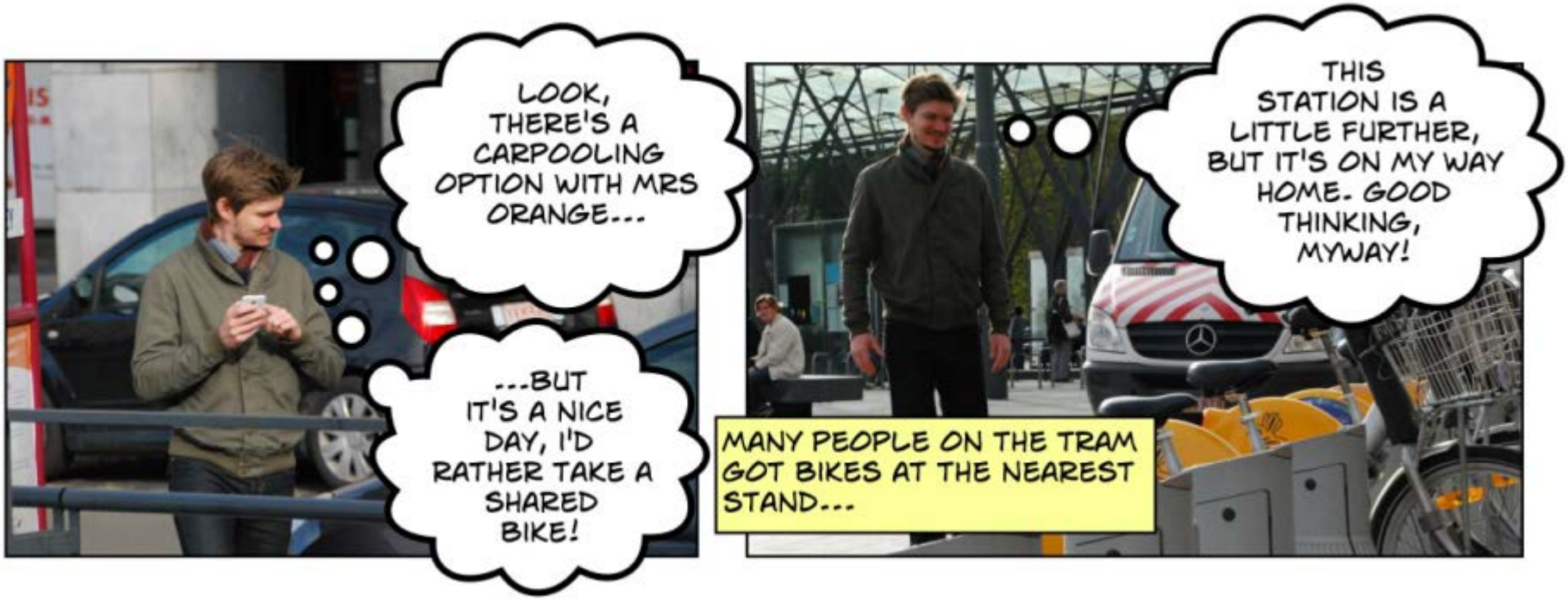


Example scenario from EU project MyWay illustrated – Part 1



Example scenario from EU project MyWay illustrated – Part 2

Example scenario from EU project MyWay illustrated – Part 3



What you should be able to do

Given an application in a domain you know

- What are the core tasks in this application?
- Develop some scenarios
- Make a hierarchical task model