



**LUT**  
**University**



# User Interfaces and Usability

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# Understanding your users



# UNDERSTAND and specify the context of use

ISO 9241-210:2010 Human-Centred  
Design for Interactive Systems

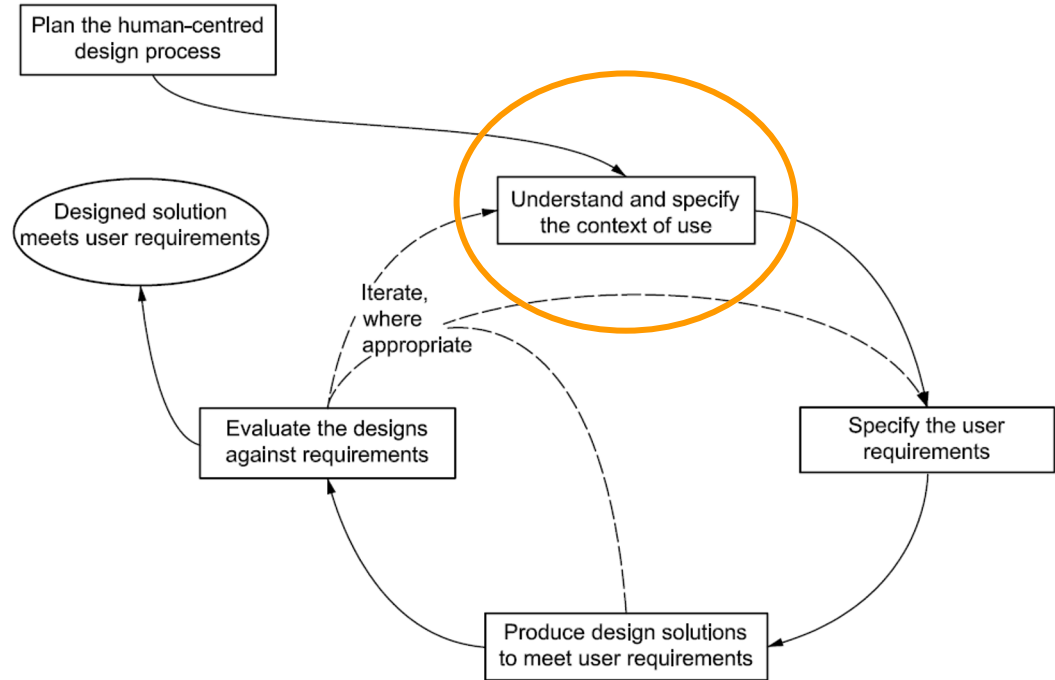


Figure 1 — Interdependence of human-centred design activities





## RECAP: UNDERSTAND and specify the context of use

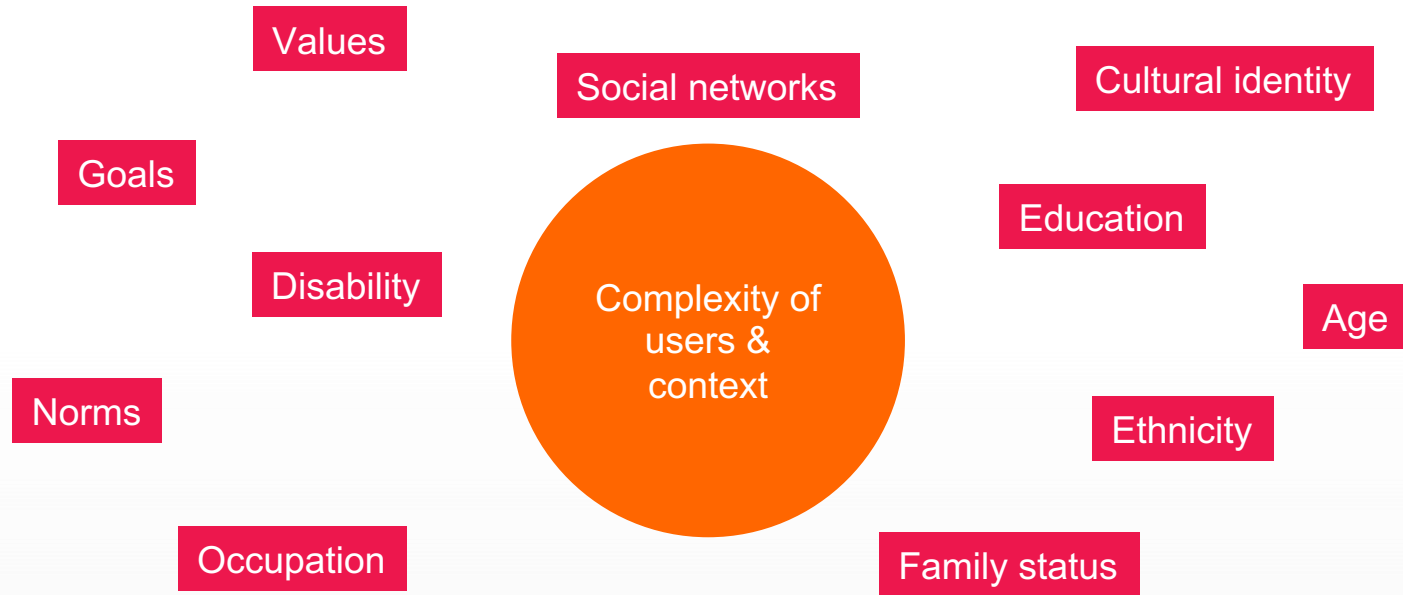
- Context is defined by
  - **User** and **task** characteristics
  - The **environment** (organizational, technical, physical)
- Analyze and define the context of use:
  - Users and stakeholder groups
  - User and group characteristics
  - Goals and tasks
  - Environments
- Specify this information at a sufficient level to support design

Consider and specify desires, needs and emotions





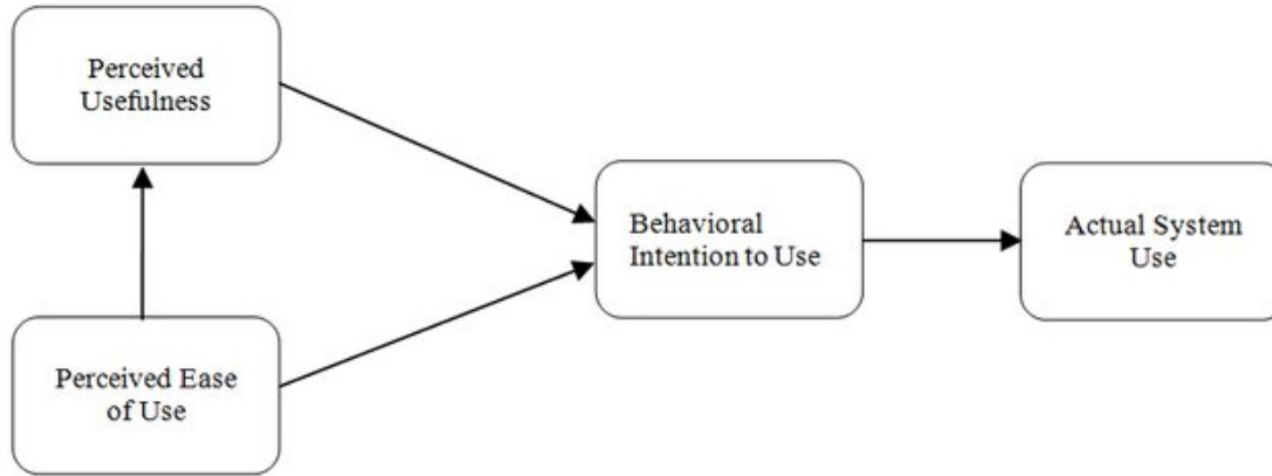
# UNDERSTAND and specify the context of use



The complexity and implicit needs and values of users make it difficult to understand them



# Technology Acceptance



Usability

*\*simplified version*

Usability as one of the main factors influencing the actual system use



## Detour: Emphasize

From understanding to emphasizing

- Experience how the users feel, what they see and hear
- Capture emotions and experience emotions

### Methods

- Interview for empathy
- Shadowing
- Fieldwork

Frustration

Work-arounds



Immersing yourself in the user experience



## Example: POV user experience video

POV video of someone performing industrial services and using a tablet for digital support on a wind turbine



Immersing yourself in the user experience

Better: Try it yourself

Project: Design Thinking for Industrial Services (DETHIS)

Screenshot from <https://www.youtube.com/watch?v=xUjCD-fFU9k>



## Example: Importance of understanding



GE Healthcare

<https://www.ideo.com/blogs/inspiration/from-design-thinking-to-creative-confidence>



## Example: Importance of understanding



GE Healthcare

<https://www.ideo.com/blogs/inspiration/from-design-thinking-to-creative-confidence>



# How to find out all these information?

## Study!

- Technologies and environments **Context**
  - Observation / fieldwork (workplace ethnography)
- Users and group characteristics
  - Interview for empathy
  - Participative design
  - Shadowing



**Next:** Examples of popular methods





## UNDERSTAND: Observing and fieldwork

- Fieldwork: Observing activities in situ
  - Watching how people are trying to accomplish a task
  - It's a skill, and requires both tact and unobtrusiveness
- Research as a data instrument - observe the community and the work
- Data collection
  - Field notes → revise and reflect → systematize

Do they use work-arounds?

Best at initial stages of research

**Ethics:** The person and the workplace must be informed in advanced



Icons by flaticon.com



# Fieldwork: Example

ObsidianComix - Obsidian v0.13.14

Service Design

- 5. Future and speculative design
- 3. Principles and theories of service design (\*\*Online\*\*)
  - 1. Definition of service design (Service Ecosystem Design: Propositions, Process Model, and Future Research Agenda)
  - 2. Human-centered
  - 3. Collaboration and open innovation
  - 4. Co-creation and crowdsourcing
- 4. Processes and methods of service design (\*\*In Person\*\*)
  - 1. Service design thinking
  - 2. Method: Service blueprinting
  - 3. Method: Customer journey mapping

Videos:  
<https://www.youtube.com/watch?v=324TRVpVzGI>

Meeting with Sami:  
- 22.10. - 29.10.2021  
- Start 9:45 on a Friday (22.10.)  
- Friday in-person (Book a room)  
- Friday in-person maybe as well  
- approx. 5-30 (maximum is 25)  
- Booking a room?

Book a room:  
[https://cloud.timesdit.net/ut-saimia/web/tutstaff/M19\\_](https://cloud.timesdit.net/ut-saimia/web/tutstaff/M19_)

Best:  
D247/80 (best-flat with movable seats)  
A122/71 (typical lecture room)

0 backlinks 529 words 3498 characters

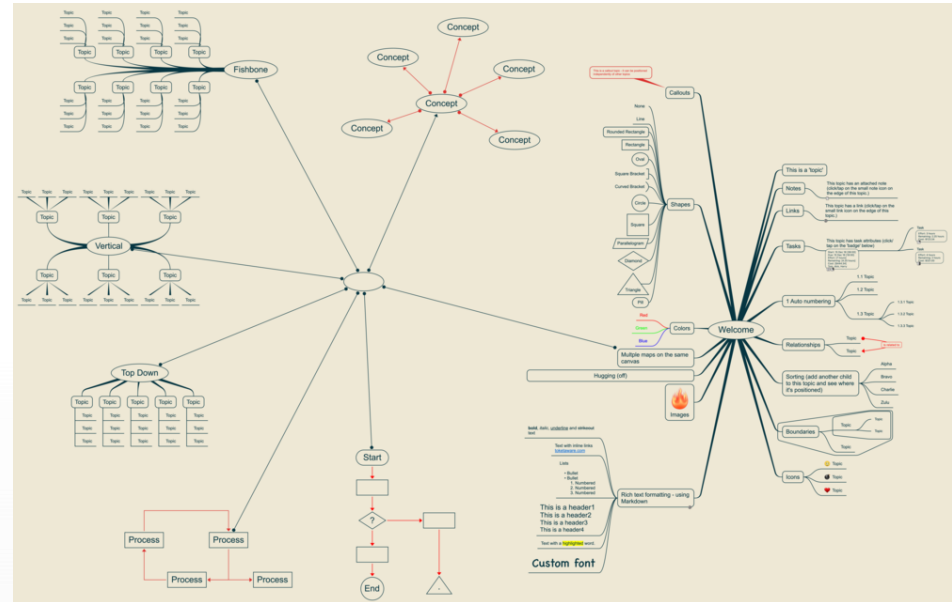
From notes

Software: Obsidian

Enrich

To information

Software: iThoughts X





## UNDERSTAND: Interview for empathy

- How to find what they want? Ask them!
- How to find why they want it? Ask and observe them!
- Formal - semiformal - informal
  - Structured interviews Pre-prepared survey sheet, no deviations
  - Semi-structured Pre-prepared questions. Room for discussion and additional questions
  - Unstructured (**not recommended**)

Take care not to bring your own biases into the interview



Icons by flaticon.com



# UNDERSTAND: Interviews, practical considerations

- Preparation Know background information
- Keeping track Record it and take notes (transcribe the recordings)
- Interview for empathy is usually done with two people
  1. Leading the interview
  2. Observing the interviewee (reactions, emotions)
- Look out for stories Ask why?
- Reflection and exploration Review the summary together
- Exploratory questions

“What else should we have talked about?”

“Tell me about your typical day”



**Important:** Know when to stop (reach data saturation) or interview is too long



## UNDERSTAND: Some tools for communication. Design provocations, probes and card sorting

- Design provocations: Showing props, visuals, and sketches to stimulate feedback and discussion.
- Probes: Ask the interviewee to e.g. take photos of frustrating things or to keep a diary.

Collect much and diverse data!



Icons by flaticon.com



# How to express your research findings?

(SPECIFY the user requirements!)

ISO 9241-210:2010 Human-Centred  
Design for Interactive Systems

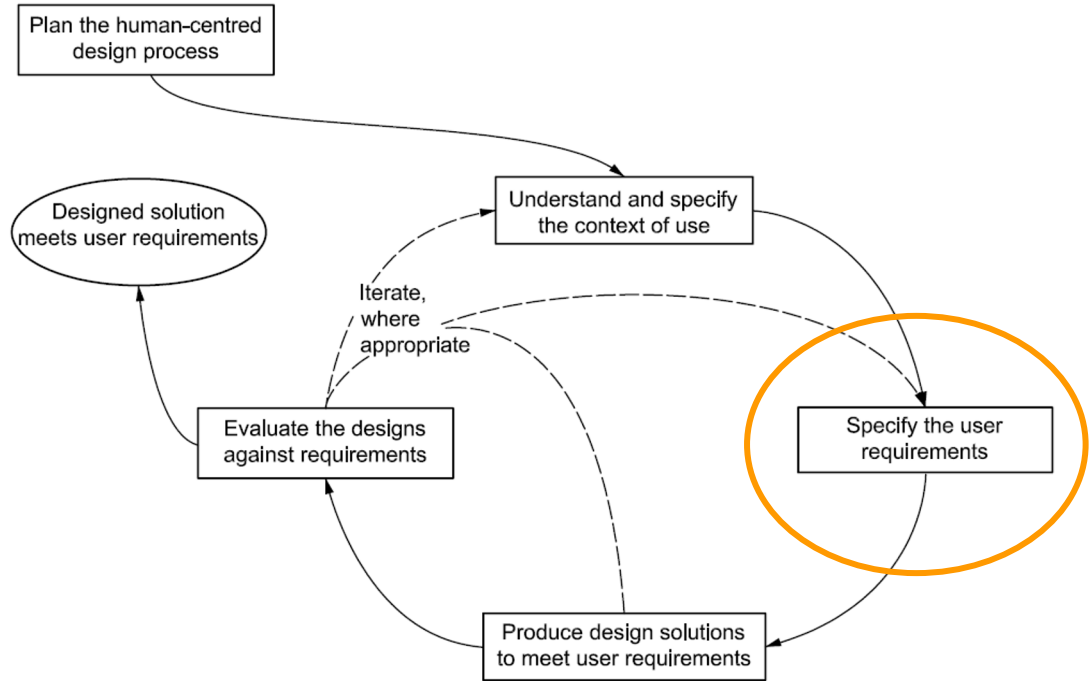


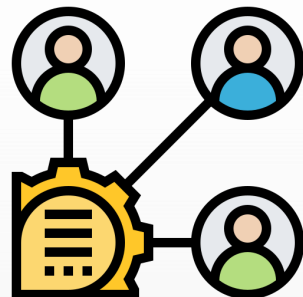
Figure 1 — Interdependence of human-centred design activities



## Analyze, systematize and document

- Add context and meta-data
- Think about the context of use and systematize (People, activities, contexts, and technologies) **Mindmaps and diagrams**
  - Who are the users? What are user and group characteristics?
  - What are user goals and tasks?
  - What is the environment of use?
  - What technologies and devices will be in use?

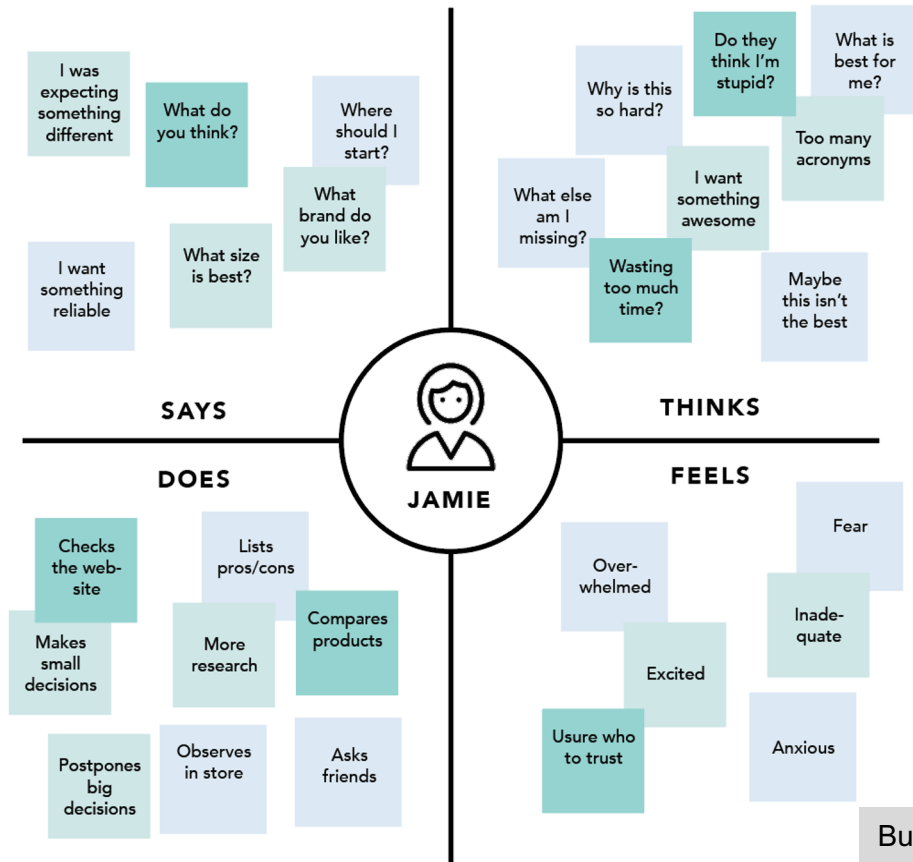
Interprete and connect the dots



Icons by flaticon.com

# Example: Empathy Map

Document interview (for empathy) results, observations, fieldwork etc.



From <https://www.nngroup.com/articles/ux-mapping-cheat-sheet/>

Buying a TV





## Example: Personas and their journeys

- **Personas**
  - Represent an archetype that collects the the experiences of more than user
  - A bit like a user group
- and their **scenarios**
  - Develop several fictional persons to represent your data
  - Describe their *journey* through a *scenario*
  - Journey is an “informal narrative description”
  - Think about the touch points: When and how they interact with UIs?

Representation of a class of users

The manager





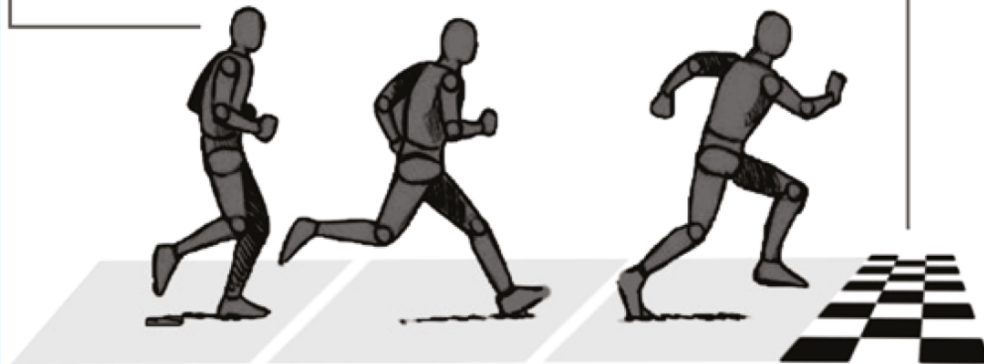
# Persona → scenario → goal

## 1. Persona

Defines who the story is about. This main character has attitudes, motivations, goals, and pain points, etc.

## 3. Goal

Defines what the persona wants or needs to fulfill. The goal is the motivation of why the persona is taking action. When that goal is reached, the scenario ends.



## 2. Scenario

Defines when, where, and how the story of the persona takes place. The scenario is the narrative that describes how the persona behaves as a sequence of events.

From Sharp (2019)



# Example: Persona, presented systematically

Example: Jakob

<https://thispersondoesnotexist.com/>  
For random faces that don't exist



Age: 58

Education: PhD

Occupation: professor

Photo by Jesse Courtemanche,  
taken from <http://www.flickr.com/photos/jesse75/4170721192/>

## Jakob

Jakob is a professor of industrial design. He has been working in the university for almost 30 years. As a designer and researcher he has participated in many R&D projects but his real love is teaching.

In last few years Jakob has decided to spend less time on projects and travelling. This means that he has more time for preparing his courses and trying out different things. He has experimented with blogs and social software. In his last course he decided to try personal learning contracts. It took quite a lot of time but he hopes that learning contracts will help him to give a more personal learning experience for his students.

## Goals:

**Adjusting the course:** "I would like to know what the students expect to learn in my course. Then I can adjust the course assignments according to their needs."

**Personalized support:** "I want to give more personalized guidance and support for my students."

**Fair grading:** "I don't like grading but in some courses I am required to do it. I have found that learning contracts help me on fair grading. I rely on learning contracts when I negotiate grades with my students."

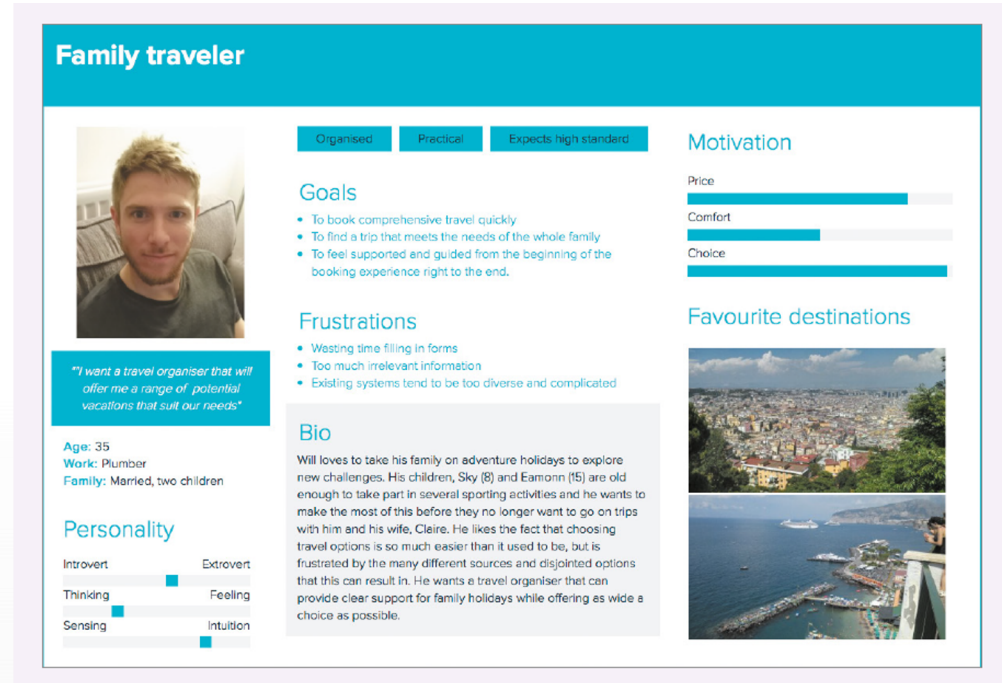
(LeContract blog, 2010)

From <https://www.interaction-design.org/literature/article/customer-journey-maps-walking-a-mile-in-your-customer-s-shoes>



# Example: Persona, presented systematically

## Example: Family traveler



From Sharp (2019)



# How to present the scenario?

## As a written narrative

*The Thomson family enjoys outdoor activities and wants to try their hand at sailing this year. There are four family members: Sky (8 years old), Eamonn (15), Claire (32), and Will (35).*

*One evening after dinner, they decide to start exploring the possibilities. They want to discuss the options together, but Claire has to visit her elderly mother so she will be joining the conversation from her mother's house down the road. As a starting point, Will raises an idea they had been discussing over dinner—a sailing trip for four novices in the Mediterranean.*

*The system allows users to log in from different locations using different devices so that all members of the family can interact easily and comfortably with it wherever they are. The system's initial suggestion is a flotilla, where several crews (with various levels of experience) sail together on separate boats.*

*Sky and Eamonn aren't very happy at the idea of going on vacation with a group of other people, even though the Thomsons would have their own boat. The travel organizer shows them descriptions of flotilla experiences from other children their ages, and they are all very positive, so eventually, everyone agrees to explore flotilla opportunities.*

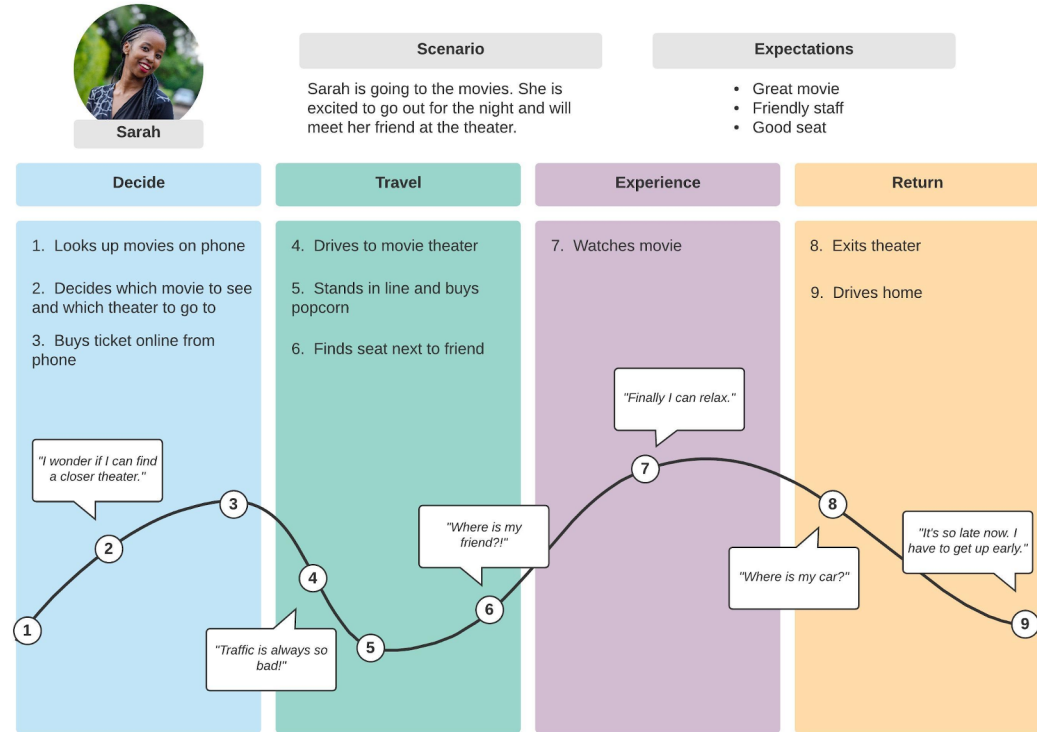
*Will confirms this recommendation and asks for detailed options. As it's getting late, he asks for the details to be saved so that everyone can consider them tomorrow. The travel organizer emails them a summary of the different options available.*

From Sharp (2019)



# How to present the scenario?

## Journey map



From

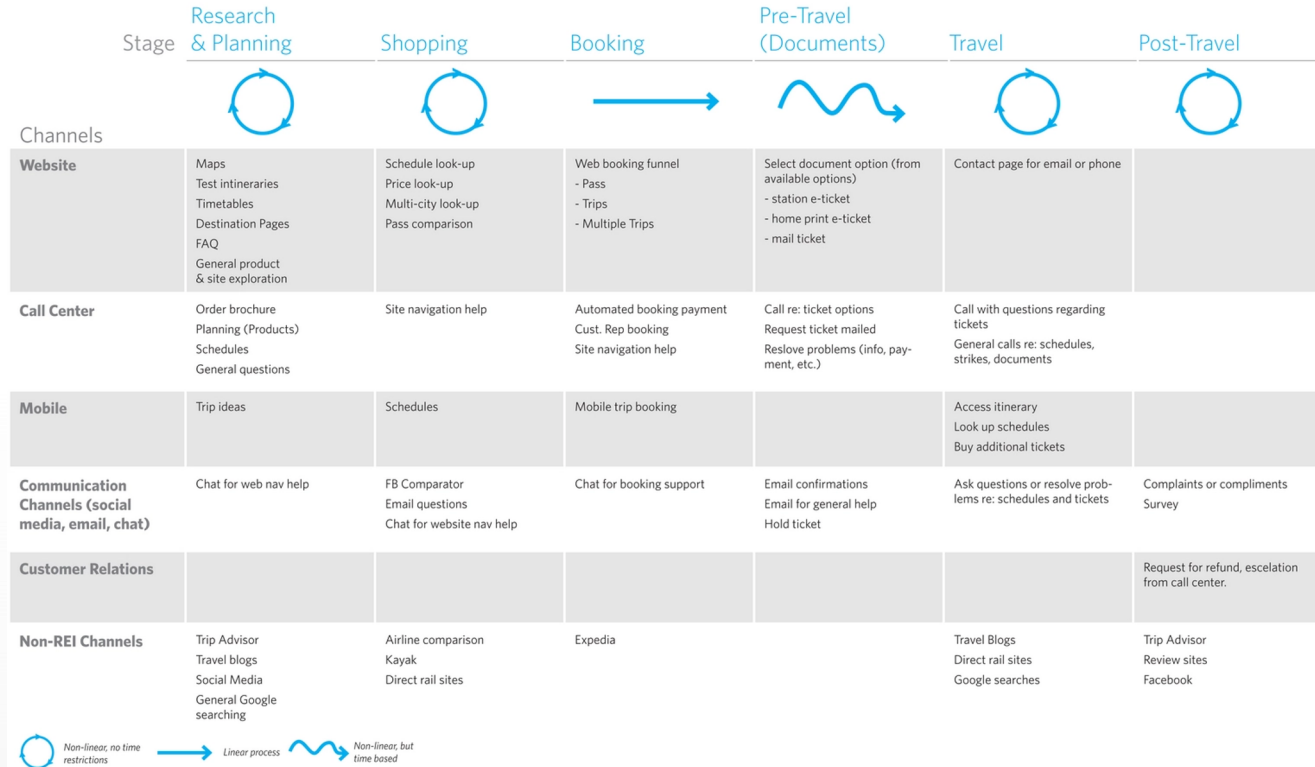
<https://www.lucidchart.com/pages/examples/customer-journey-mapping-software>



# How to present the scenario?

## Touchpoints

Rail Europe Touchpoints by Channel



From

<https://cxl.com/blog/customer-journey-maps/>



## Summary and thoughts

- **Who** are your users?
- **What** do they *really really* want? (PACT)
- Base yourself in **data** - for example sometimes personas or user descriptions are based on “wishful thinking”
- From understanding to **emphasizing**
- It's not enough to collect the data - you need to
  - analyze
  - summarize
  - present it in a usable manner

Empirical evidence



Always remember: Don't design for you; design for the user





## SPECIFY the user requirements:

Further reading from coursebooks

- Benyon
  - Chapter 3.2, “Developing personas and scenarios”
  - Chapter 3.3, “Using scenarios through design”
- Sharp
  - Chapter 11, “Discovering requirements”
- HCD field guide
  - Co-creation session
  - Storyboarding
  - Card sort (good for prioritizing requirements)

In future, see all material in the requirements engineering and relevant software engineering literature (upcoming courses you will have in our program).