

CONCEPT AND IDEATION

HCI – L.EIC – FEUP – 2025

CONCEPTUAL MODEL

CONCEPTUAL MODEL

- What **people can do** with the system
- What **concepts** the team needs to understand to use the system
- It refers to **objects**, **attributes** and **actions** in the task domain
- What are the **mappings** between them
- Allows the team to **arrange ideas before designing** the U.I.
- If possible explore **metaphors** well-know to the users

It is expressed in terms of the **concepts** of the intended **users' tasks**:

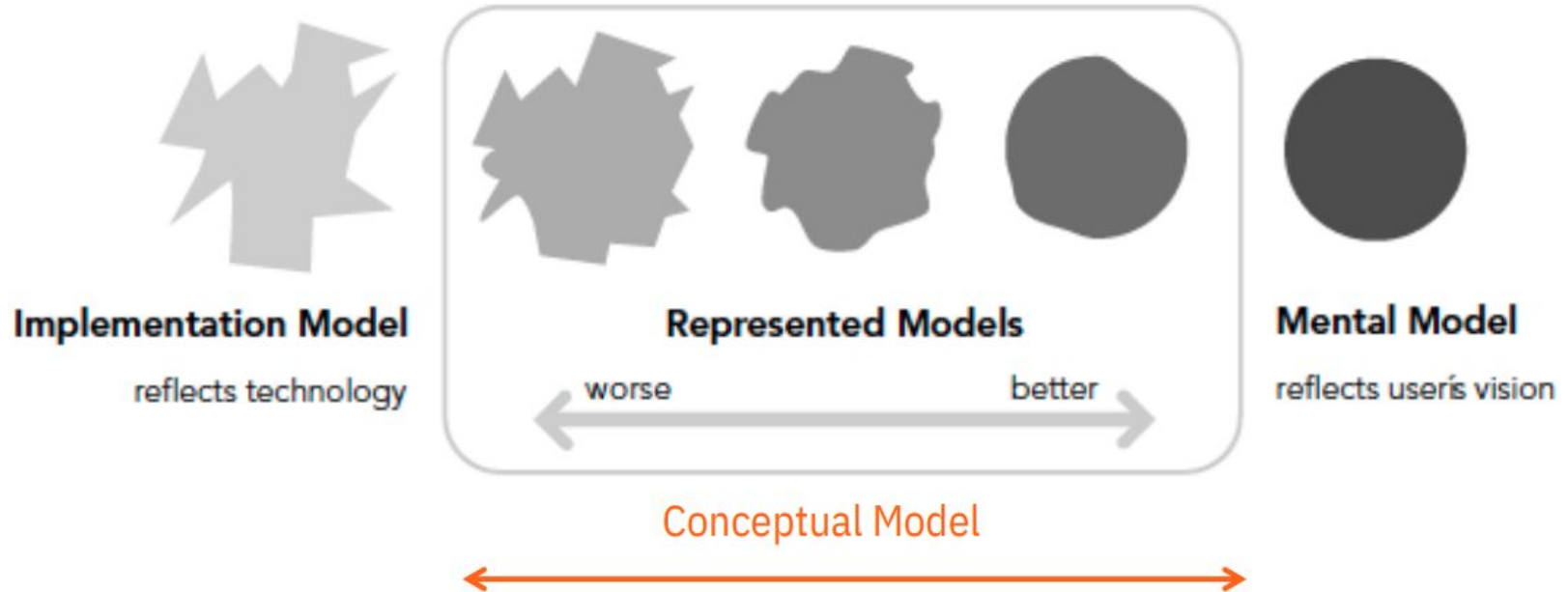
- The **data** users manipulate
- How it is **organized**
- What **users do** to it

CONCEPTUAL MODEL IS NOT

It is not:

- It is not the user interface
- It is not system architecture
- It is not about the look and feel
- It doesn't mention keys to press; Mouse actions, graphics and screen organization, commands, dialog boxes, error messages, etc.
- Does not specify type of interaction
- It is not the user's mental model

MENTAL MODEL



EXAMPLE

Recalling the context of John and his photos:

“John has just arrived from his vacation in the Caribbeans. When he got home, he took his digital camera out of his bag and went to transfer the photos to PhotoLib, his application for organizing and sharing **photos**. After **authenticating**, John **transferred** all 1047 photos. After, John starts to organize them, dividing them by the several days of the vacation. To do this, he searches for photos with the same date and **selects** them. He **creates** an **archive** which **name** is the date and moves the selected **photos** into it.”

EXAMPLE

- **Objects (attributes):**

- Photo (date, caption);
- photo set (title);
- event (local, date);
- person (name);
- archive (name, shared);
- user (name)

- **Actions:**

- Insert, remove, select photo;
- create, edit, remove caption;
- create, edit, remove event;
- create, edit, remove, share archive

- **Relations:**

- Archive has photos,
- photo set has photos,
- event has photos,
- user access shared archive,
- photo has persons,
- person can be in several photos

REQUIREMENTS AND TASK SELECTION

FUNCTIONAL REQUIREMENTS

- Define a set of functional requirements
 - Based on the personas and their context/activity scenarios, and taking the conceptual model into account
- Example - “the app should enable... “
 - Logging in
 - Manage photos
 - Insert Photo
 - Characterize
 - ...
 - Search for content
 - ...
 - Sharing
 - Select who has access...
 - ...

TASK SELECTION

- A list of specific tasks that:
 - Illustrate the use of the system
 - Cover the requirements
 - Should be the basis for future evaluation
- The tasks should be:
 - Real and representative
 - "What", and not "How" (no mention to the interface)
 - Specific in terms of intents and goals
 - Complexity mix (simple/common vs complex/rare)
 - Identify the (type of) user(s)

USABILITY REQUIREMENTS

- Used to evaluate the usability
 - Set of requirements per previously defined task
 - Should include efficacy, efficiency and satisfaction measures
- Efficacy
 - Quality with which the user achieves the goals
- Efficiency
 - Resources spent to achieve the objectives
- Satisfaction
 - Users' subjective reaction the use of the system

EXAMPLES

- Efficacy

- All users completed task, 90% made no more than 2 errors,
...

- Efficiency

- Average time under 3 minutes, 90% made less than 10 clicks,
...

- Satisfaction

- Less than 10% unsatisfied, 90% preferred our solution, ...

IDEATION

WHICH COMES FIRST?

“There is one belief that permeates academic literature and has influenced nearly all gated product development processes: it is the notion that *innovation begins with an idea*. This is the myth that misleads. **An idea is the output of the innovation process, not the starting point.**”

strategyn.com/ideation

WHICH COMES FIRST?

“Making ideation the starting point of the innovation process, turns innovation into a guessing game. Why? Because **it is nearly impossible to have a big idea before knowing** what customer, job-to-be-done, ... unmet needs, and price the idea has to address.”

strategyn.com/ideation

QUANTITY VS(?) QUALITY

“The ceramics teacher [...] was dividing the class into two groups. All those on the left side of the studio [...] would be graded solely on the **quantity of work** they produced, all those on the right solely on its **quality**.”

Bayles and Orland, 2001

QUANTITY FOR(?) QUALITY

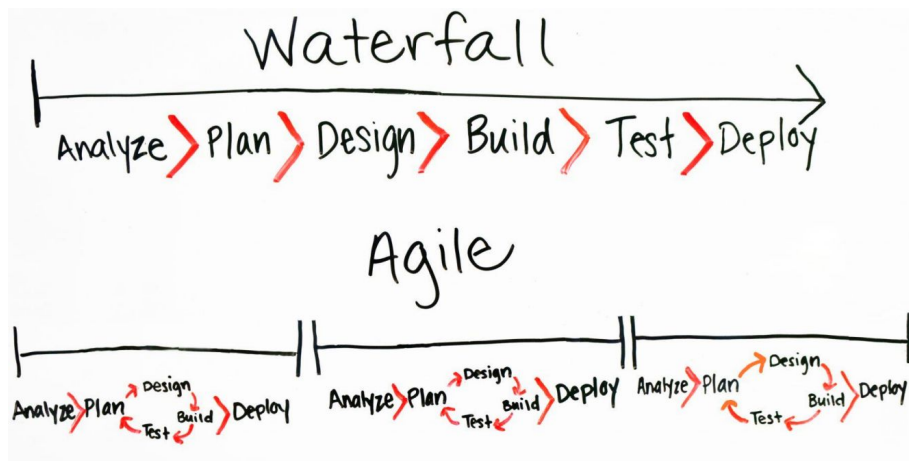
“Well, came grading time and a curious fact emerged: **the works of highest quality** were all produced by the group being graded for **quantity**.

It seems that while the "quantity" group was busily churning out piles of work – and **learning from their mistakes** – the "quality" group had **sat theorizing about perfection**, and in the end **had little more to show for their efforts** than grandiose theories and **a pile of dead clay.**”

Bayles and Orland, 2001

IDEATION AND DESIGN SPRINTS

Allow the quick generation of multiple ideas and iterate over them



In <https://developertown.com>



<https://designsprintkit.withgoogle.com/>

SOME IMPORTANT PRINCIPLES

- Ideate individually first
- Bring ideas to the group
- Share in an open-minded way
- Generate more ideas
- Generate in parallel, not in sequence
- Avoid closing in on an idea too early
- Don't interrupt other people's ideas
- Prototype ideas to validate feasibility and interest

CRAZY 8

- Basic method of Design Sprint.
- Each team member sketches 8 different ideas in 8 min.
- Goal:
 - go beyond the first idea (often the least innovative)
 - generate a wide variety of solutions for your challenge
- Each team member has then 3 minutes to share the ideas and discuss with the group.



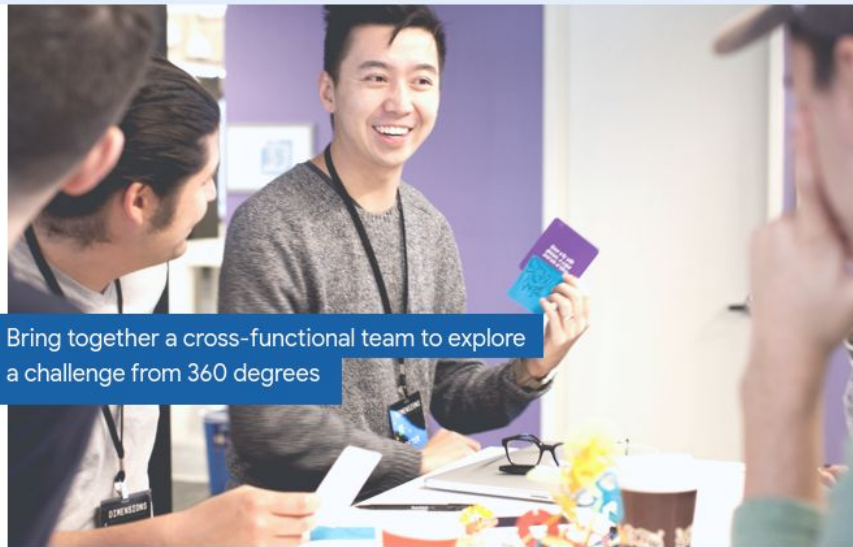
Transform the way your team works

 Collaborate

 Innovate

 Accelerate

Bring together a cross-functional team to explore a challenge from 360 degrees



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