

Top-5 topics we had to leave out...

Introduzione all'usabilità nelle interfacce web

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Important topics that didn't fit in 15 hours...

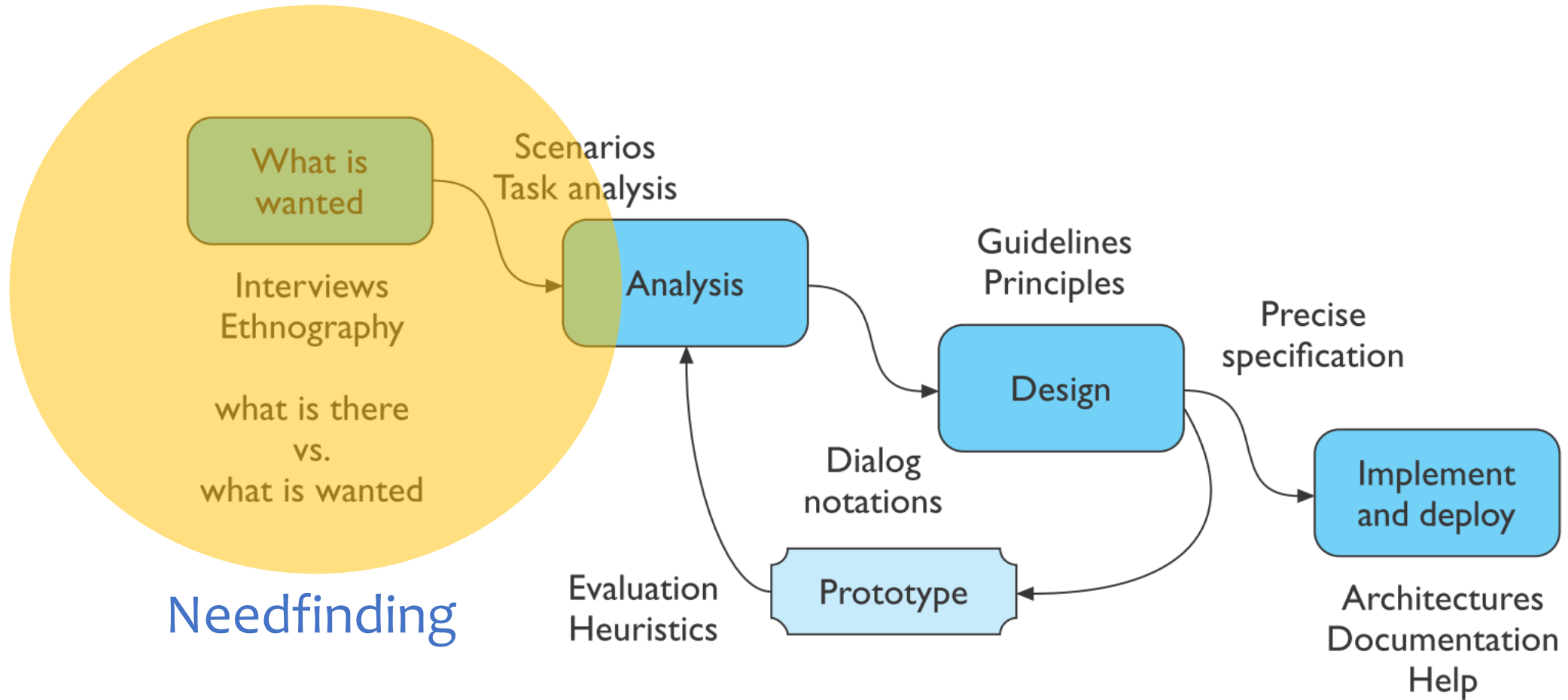
- Needfinding
- User Evaluation
- Information Architecture
- Accessibility
- Development process

Needfinding

Top-5 topics we had to leave out...



Human-Centered Design Process



Main Needfinding questions

- Needfinding = **Finding Potential User Needs**
 - What do users need?
 - What do users want?

- That also requires
 - Who are the users?
 - How are they doing it, now?
 - What is the context in which they are doing it?
 - Can't we just ask them?



Know Your Users (1)

- Who are the users of the system?
 - Uniform, or different categories/groups?
 - Young/old? Novice/experienced?
 - Do not think of “generic” users, split the categories
- ***You*** are not a [representative] user
 - Designers and developers’ skills, knowledge, attitude, background, interests, ... are totally unlike those of your users
 - Except by chance (e.g., you are also students, developers, ...)
- The **client** is not a [representative] user
 - Bosses, managers, directors, ... believe they know their employees and their jobs. Actually, they don’t
 - Always seek the actual users that will use the system

Know Your Users (2)

- Talking to users
 - Surveys
 - Interviews
 - Direct involvement (participatory design)
 - Bypass corporate policies
 - Understand real current behavior, pain points, workarounds, ...
- Watching users
 - Observation sessions
 - Video recording (and analysis)
 - Diaries
 - Analyze their work (artifact, processes, action sequences)
 - Discuss with users the findings of the observation (may discover the “why”)

Know Your Users (3)

- Imagining users
 - When real users are not available
 - Imagine how a real user would behave (very difficult)
 - Building “imaginary” users: *personas*
 - Detailed description of hypothetical persons in a given role
 - Imagine them as they were a real person

Needfinding Methods

- Observation, ethnographic research
- Surveys
- Interviews
- Focus groups
- Diaries

User Evaluation

Top-5 topics we had to leave out...



Evaluation Approaches (recap)

- Evaluation may take place:
 - In the laboratory
 - In the field
- Involving users:
 - Experimental methods
 - Observational methods
 - Query methods
 - Formal or semi-formal or informal
- Based on expert evaluation:
 - Analytic methods
 - Review methods
 - Model-based methods
 - Heuristics
- Automated:
 - Simulation and software measures
 - Formal evaluation with models and formulas
 - Especially for low-level issues

Involving Users: Experimental Methods

Usability/User Testing

- "Let's find someone to use our app, so that we will get some feedback on how to improve it."
- anecdotal, mostly
- observation-driven

Controlled Experiments

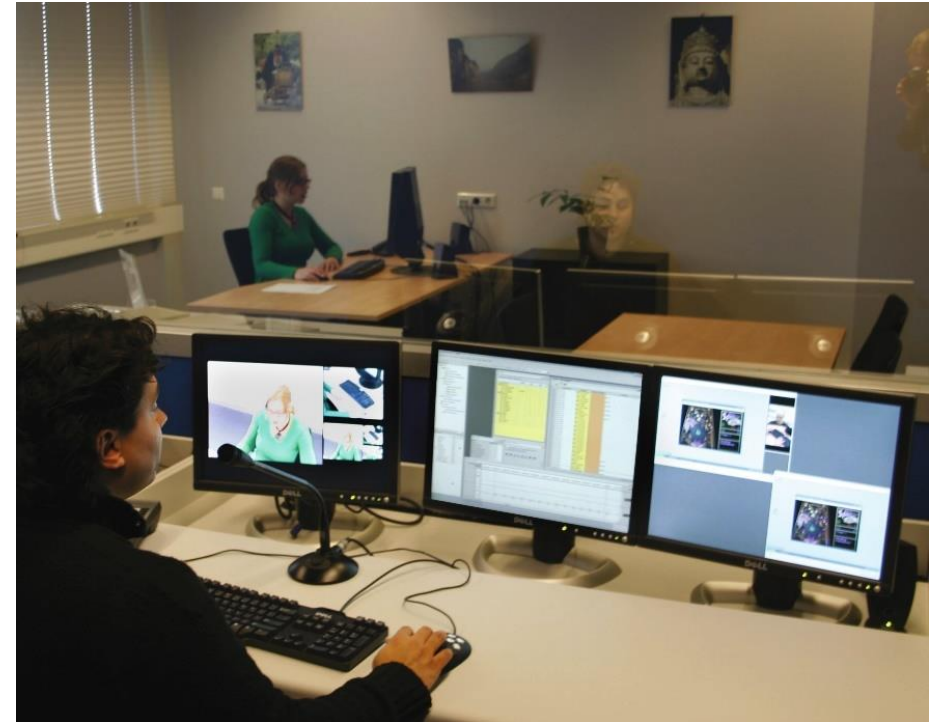
- "We want to verify if users of our app perform task X faster/.../with fewer errors than our competitor's app."
- scientific
- hypothesis-driven

Usability Testing

- Usability testing speeds up many projects and produces cost savings in a system development
- Participants should represent the intended user communities, with attention to:
 - background in computing and experience with the task
 - motivation, education, and ability with the natural language used in the interface
- The movement towards usability testing stimulated the building of ad-hoc usability labs

Usability Testing Labs

- The usability lab usually consists of two areas
 - the testing room
 - the observation room
- The testing room is typically smaller and accommodates a small number of people
- The observation room can see into the testing room typically via a one-way mirror
 - it is larger and can hold the facilitators with ample room to bring in others, such as the developers of the product being tested



Usability Testing: 3 Steps

1. Plan

- who are your participants? what are you going to test, where, and how?

2. Run

- one participant at time, multiple sessions
- collect data about the interactive system/interface

3. Analyze

- extract information from the collected data, both qualitative and quantitative

Involving Users: Experimental Methods (recap)

Usability/User Testing

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Controlled Experiments

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Controlled Experiments

- Controlled evaluation of **specific** aspects of interactive behavior
 - typically in lab
- The evaluator chooses a **hypothesis** to be tested
 - most appropriately, a null hypothesis to be confuted
- Various experimental **conditions** are considered
 - which differ only in the value of some controlled variables
- Three main steps: *plan, run**, and *analyze*

Experimental Design: Planning the Study

1. Choose what you want to study, which **narrow and testable question** you want to answer
2. Choose the **hypothesis** (with variables and measures)
3. Select your **participants**
4. Decide the **experimental method** that you will use
5. Write the **task(s)** you will give participants to (dis-)prove your hypothesis
 - along with the experiment procedure
6. Decide which **statistical tests** you are going to use to analyze the results

Information Architecture

Top-5 topics we had to leave out...



**POLITECNICO
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Human Computer Interaction

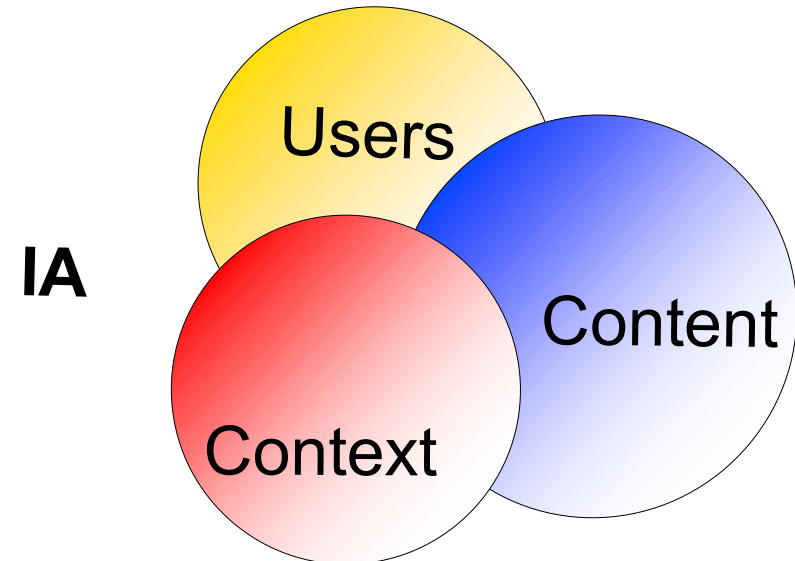


What makes a web site good?

- “...proper WWW site design is largely a matter of balancing the structure and relationship of menu, home pages, and individual content pages...”
- “...build a hierarchy of menus and pages that feel natural and well structured to the users...”
 - By Lynch, P.J. (1995) WWW Style Guide

Information Architecture is ...

- “the art and science of structuring, organizing and labeling information to help people find and manage information”
 - By Louis Rosenfeld, Peter Morville, “Information Architecture for the World Wide Web”, 3rd edition, November 2006.
- Balances the characteristics and needs of users, content, context.



Basic design questions

- Where am I?
 - How can I find something?
 - What's available on this site?
 - I know what I want, how can I find it?
 - What happens now?
 - How can I restart from scratch?
 - I know what I want, how can I browse to reach it?
 - ...
- What can I do here?
- Where can I go?

The 3 Pillars of Information Architecture

- Site Structure
 - Categorization
 - Classification
 - Hierarchy
- Navigation
 - Accessing the site structure
 - “Findability”
- Labeling
 - Naming sections, links, navigation, etc.

Accessibility

Top-5 topics we had to leave out...















**POLITECNICO
DI TORINO**

Human Computer Interaction



"Normal"... Who?

- The interactions we design with technology depend heavily on what we can understand/remember, see, hear, say, and touch
- Assuming all those senses and abilities are fully enabled all the time means ignoring several people
 - it also reflects how people really are, as "life happens"
- We want our designs to reflect that diversity

	Permanent	Temporary	Situational
Touch	 One arm	 Arm injury	 New parent
See	 Blind	 Cataract	 Distracted driver
Hear	 Deaf	 Ear infection	 Bartender
Speak	 Non-verbal	 Laryngitis	 Heavy accent

Inclusive Design

- A design methodology that enables and draws on the full range of human diversity
 - i.e., including and learning from people with a range of perspectives
- Designing a diversity of ways to participate so that everyone has a sense of belonging
- It not a "one size fits all" approach, but a "*one size fits one*"
 - it is more designing a system, a portion of it, or an application for a specific use case and extending this to others
- **Beware:** there is no "standard" and shared definitions, principles, and practices
 - here, we rely on a recent definition and practices by Microsoft Design (<https://www.microsoft.com/design/inclusive/>)

W3C Web Accessibility Initiative

- The W3C Web Accessibility Initiative (WAI) provides a set of **guidelines** that are internationally recognized as standards
 - [Web Content Accessibility Guidelines \(WCAG\)](#)
 - [User Agent Accessibility Guidelines \(UAAG\)](#)
 - [Authoring Tool Accessibility Guidelines \(ATAG\)](#)
 - [Accessible Rich Internet Applications \(WAI-ARIA\)](#)
- and adopted in laws, e.g., the Italian's Stanca Act that promotes the accessibility of information technology

WCAG 2.0: Example

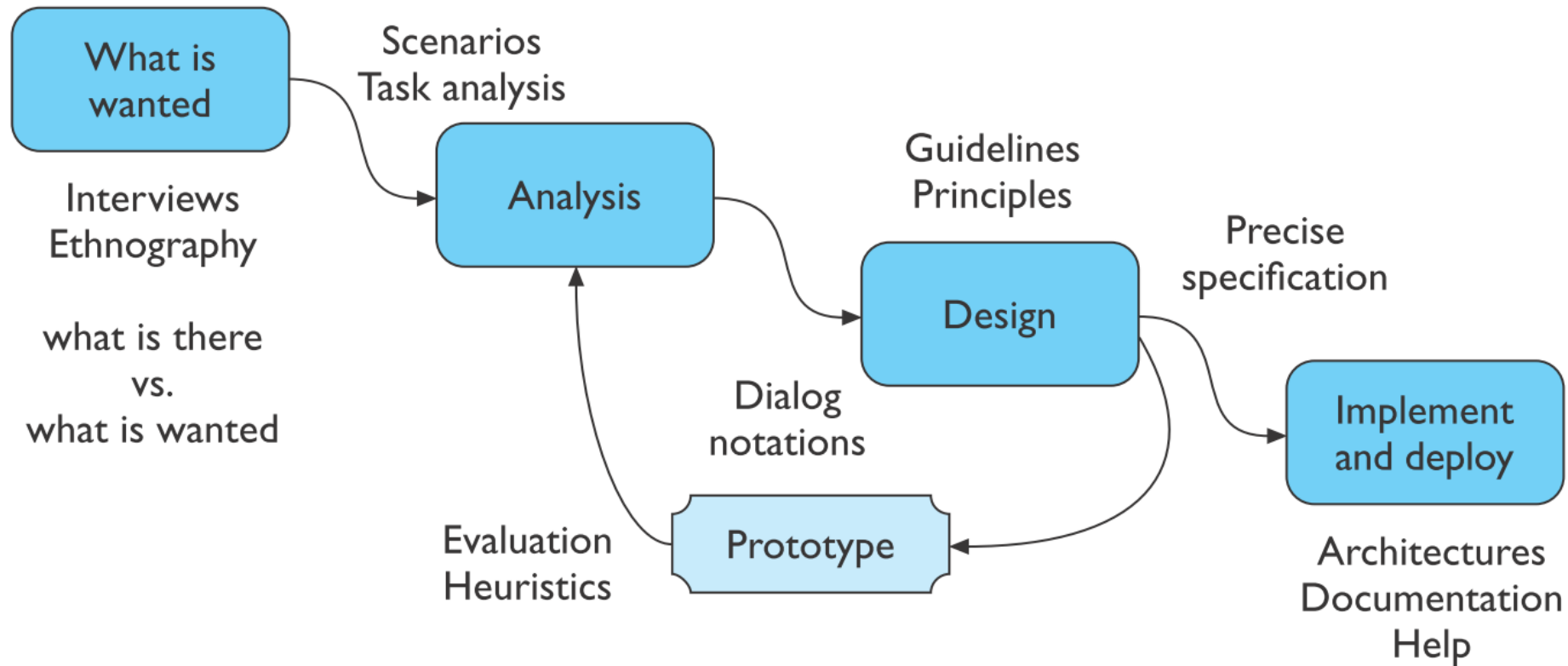
Principles	Guidelines	Level A	Level AA	Level AAA
1. Perceivable	1.1 Text Alternatives	1.1.1		
	1.2 Time-based Media	1.2.1 – 1.2.3	1.2.4 – 1.2.5	1.2.6 – 1.2.9
	1.3 Adaptable	1.3.1 – 1.3.3		
	1.4 Distinguishable	1.4.1 – 1.4.2	1.4.3 – 1.4.5	1.4.6 – 1.4.9
2. Operable	2.1 Keyboard Accessible	2.1.1 – 2.1.2		2.1.3
	2.2 Enough Time	2.2.1 – 2.2.2		2.2.3 – 2.2.5
	2.3 Seizures	2.3.1		2.3.2
	2.4 Navigable	2.4.1 – 2.4.4	2.4.5 – 2.4.7	2.4.8 – 2.4.10
3. Understandable	3.1 Readable	3.1.1	3.1.2	3.1.3 – 3.1.6
	3.2 Predictable	3.2.1 – 3.2.2	3.2.3 – 3.2.4	3.2.5
	3.3 Input Assistance	3.3.1 – 3.3.2	3.3.3 – 3.3.4	3.3.5 – 3.3.6
4. Robust	4.1 Compatible	4.1.1 – 4.1.2		

Development Process

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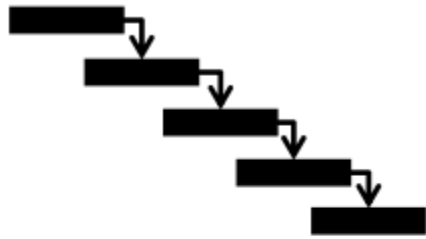


Human-centered design process (simplified and generic)

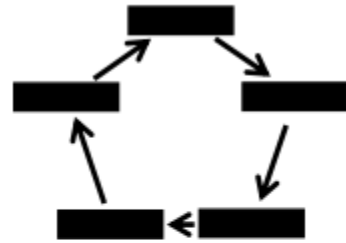


Software Engineering Processes

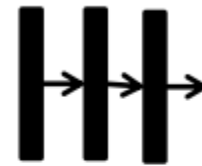
Where / how does HCI fit in?



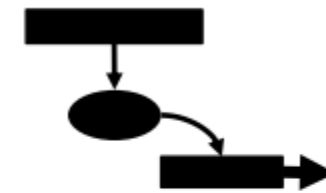
Waterfall



Iterative
waterfall



Agile
(scrum)

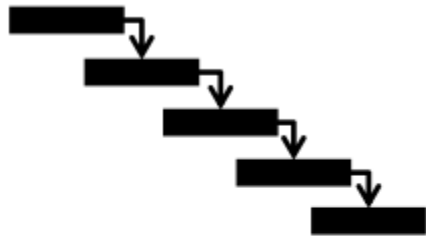


Lean

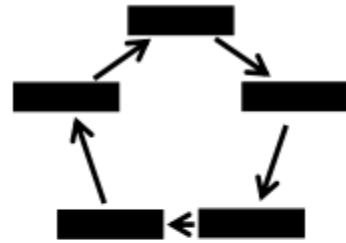
Software Engineering Processes

Where / how does HCI fit in?

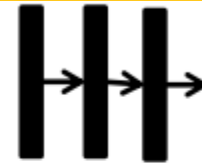
Always a step ahead!



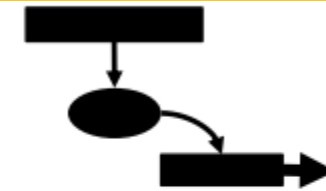
Waterfall



Iterative
waterfall



Agile
(scrum)



Lean

Always a step ahead

- Before
 - Every design step
 - Every implementation step
 - Any product iteration (or sprint)
 - ...
- You need a user-centered step
 - Evaluate usability
 - Experiment with users
 - Evaluate alternative flows
 - Evaluate alternative layouts
 - ...
- User-centered steps are cheaper than development
 - User research about users' needs to decide what to design
 - Heuristic evaluations before testing with users
 - Evaluating prototypes instead of full-fledged products
- Anticipate critical decision points later in the project

Always a step ahead

- Usability, Safety, Performance, are part of Non-Functional Requirements
- User-centered steps are cheaper than development
 - User research about users' needs to decide what to design
 - Heuristic evaluations before testing with users
 - Evaluating prototypes instead of full-fledged products
- Anticipate critical decision points later in the project

~~Secondo me...~~

~~Dovrebbe...~~

~~Penso che...~~

~~Mi sembra...~~

Coinvolgere gli utenti...
prima... durante... dopo...

Bisogni / Usabilità / Efficienza



Takeaway messages



Metodi, approcci,
soluzioni sono
conosciuti

Test, test, test

Sperimentare
Valutare
Esplorare
Scegliere



What next?

- **Mi permetto di azzardare...**
- Ribadiamo e sottolineiamo l'alta l'importanza strategica dell'IT nei confronti dell'Ateneo
- Cerchiamo spazi, risorse e tempi per puntare a lavori di qualità
- Rompiamo muri e barriere, avviciniamo gli utenti, facciamo comunicare i gruppi di sviluppo

Vostro feedback

- Opinioni? Impressioni? Giudizi? Valutazioni?
- Anche su Teams nei prossimi giorni/settimane
- Anche in forma anonima

Vogliamo approfondire?

- Tematiche mancanti
- Approfondimento maggiore
- Collaborazione hands-on
- Gruppi più piccoli e focalizzati
- ...



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