Design Strategies

Accessibility Chair of UPC
Architecture, design and technology for all

Dr. Daniel Guasch Murillo

December 2022

P

Paradigm

Design paradigms

Conceptual approach

Design is to design a design to produce a design

1 A concept

2 An action

3 A plan or an intention

4 The result

John Heskett (2005)

Design paradigms

Formal approach

Result of creating a concept, in a certain context, from perspectives, using the methodologies and the appropriate set of tools.

- Agent: people or/and entities which participate on the design. **Context**: Environment where the concept will be used.
- **Perspectives**: premises or requirements to contemplate.
- **Methodologies**: Application of the methods and the processes to achieve the result.
- **Tools**: Products and techniques to achieve a milestone in the methodology.

Definition based on the article de Paul Ralph and Yair Wand; A Proposal for a Formal Definition of the Design Concept; Lecture Notes in Business Information Processing book series (LNBIP, volume 14); Springer

Design Paradigms

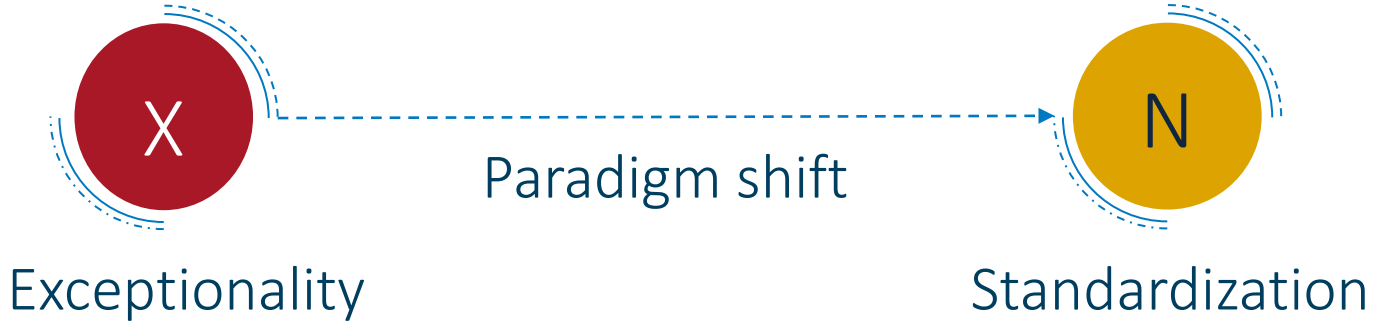
Change of focus of products, environments and services to the experience that the user lives when interacting with them.

Design Paradigms

The user goes from being an object of study to a co-creator of products, environments and services

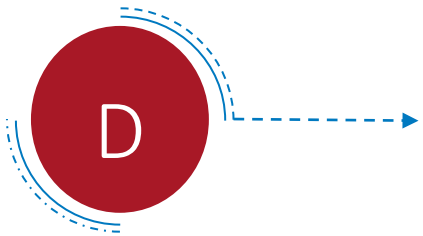
Design Paradigms

Understand human diversity as a norm, rather than an exception.



Design Paradigms

Evolve from designer-centric methodologies...

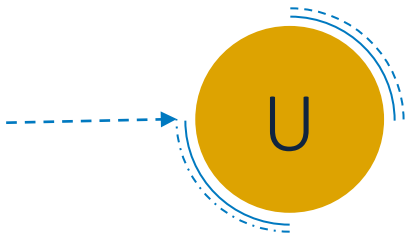


Designer

«This is my understanding of who you are, what I have learned from what you want or need to do, what are your preferences and why. This is the system that I have designed for you, and this is the way you can or should use it in order to meet the variety of purposes that are within this point of view.»

Design Paradigms

... to user-centric methodologies.



User

«This is my comprehensive part of who you have been, which after having wished for a need, the songs are the preferences you have to do. This is the system that has been designed for you, and this is the way your work is used to meet the variety of purposes that exist in this point of view.»

Design paradigms

Inclusive Design

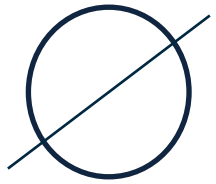
It incorporates accessibility at all stages and results of the design.

It focuses its attention on the experience that the user will have when interacting with the resulting product, environment or service.

It guarantees the inclusion of all users in the elements and stages of the process.

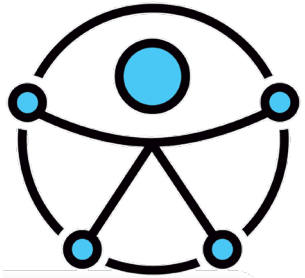
Design paradigms

The perfect solution



Does not exist

The user's interaction with the product, environment or service must be facilitated.



- Accessibility (for everyone)
- Personalization (to the user)
- Specific technical aids(to the limit user)

M

Model

Design model

Daniel Guasch

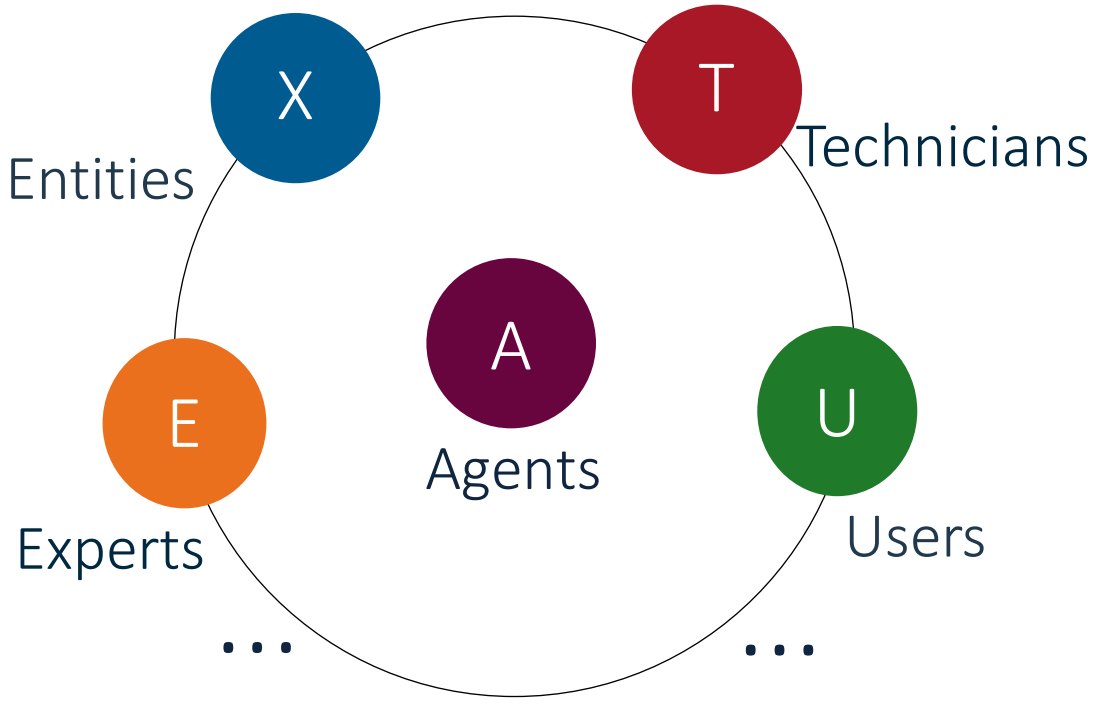
Accessibility Chair
Of UPC

https://www.catac.upc.edu/es/

Design model

Result of creating a concept, in a certain context, with some agents, from some perspectives, by means of the methodologies and using the set of suitable tools, so that the user lives an experience.

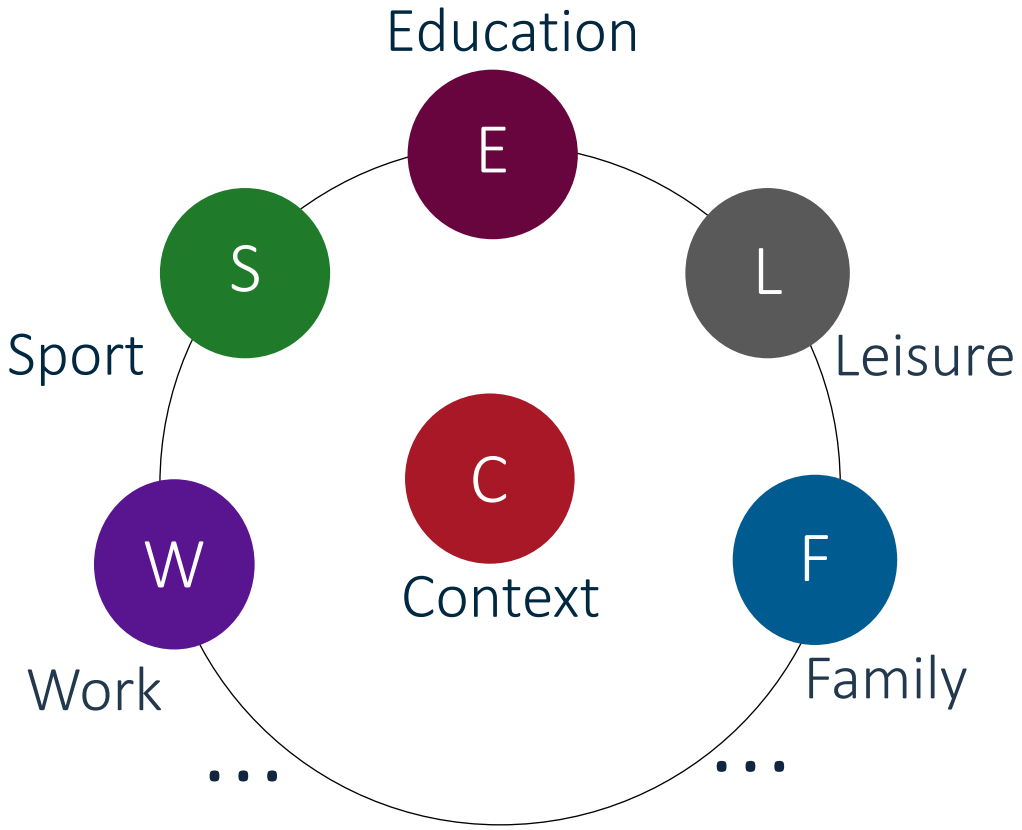
Agents



Each agent participates throughout the processes.

In each process it brings a meaning.

Context

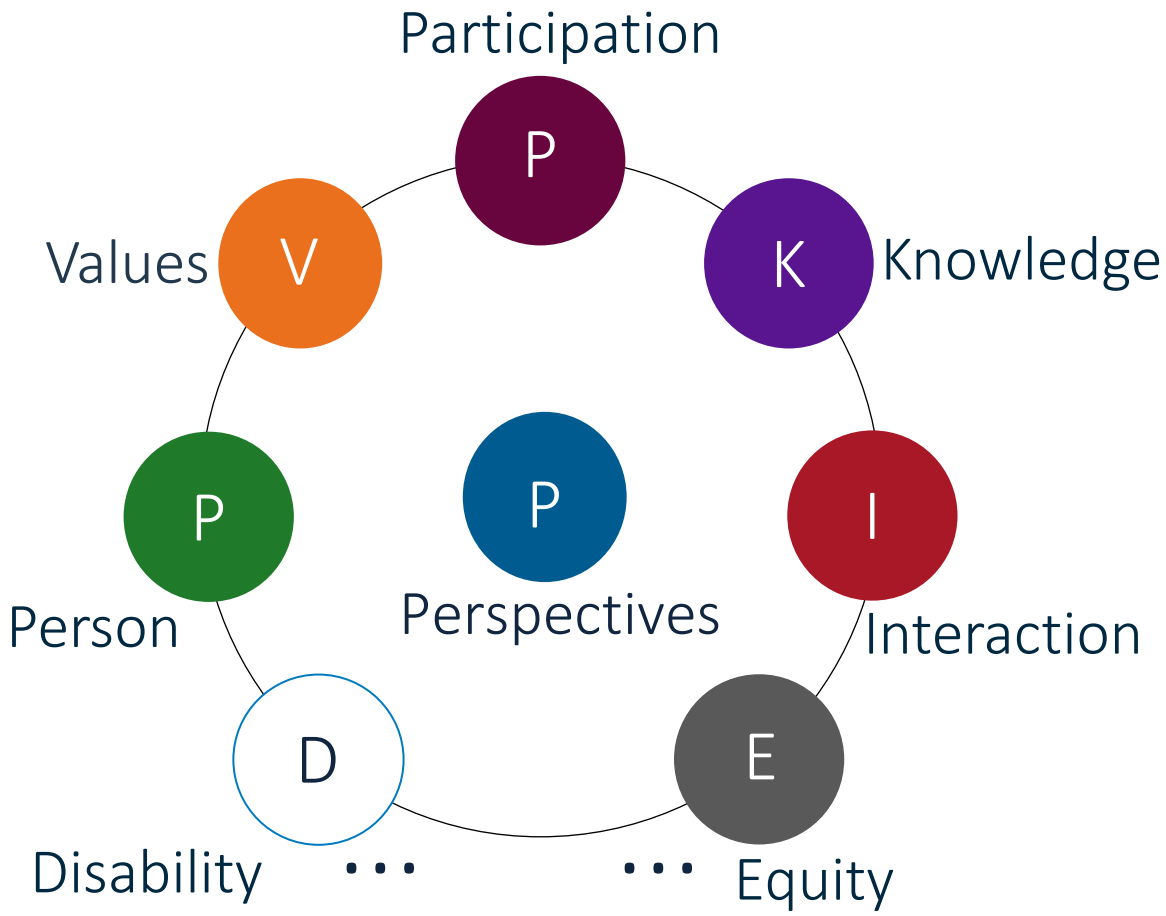


Daily activities

Each context affects an activity.

Each activity implies conditions of use.

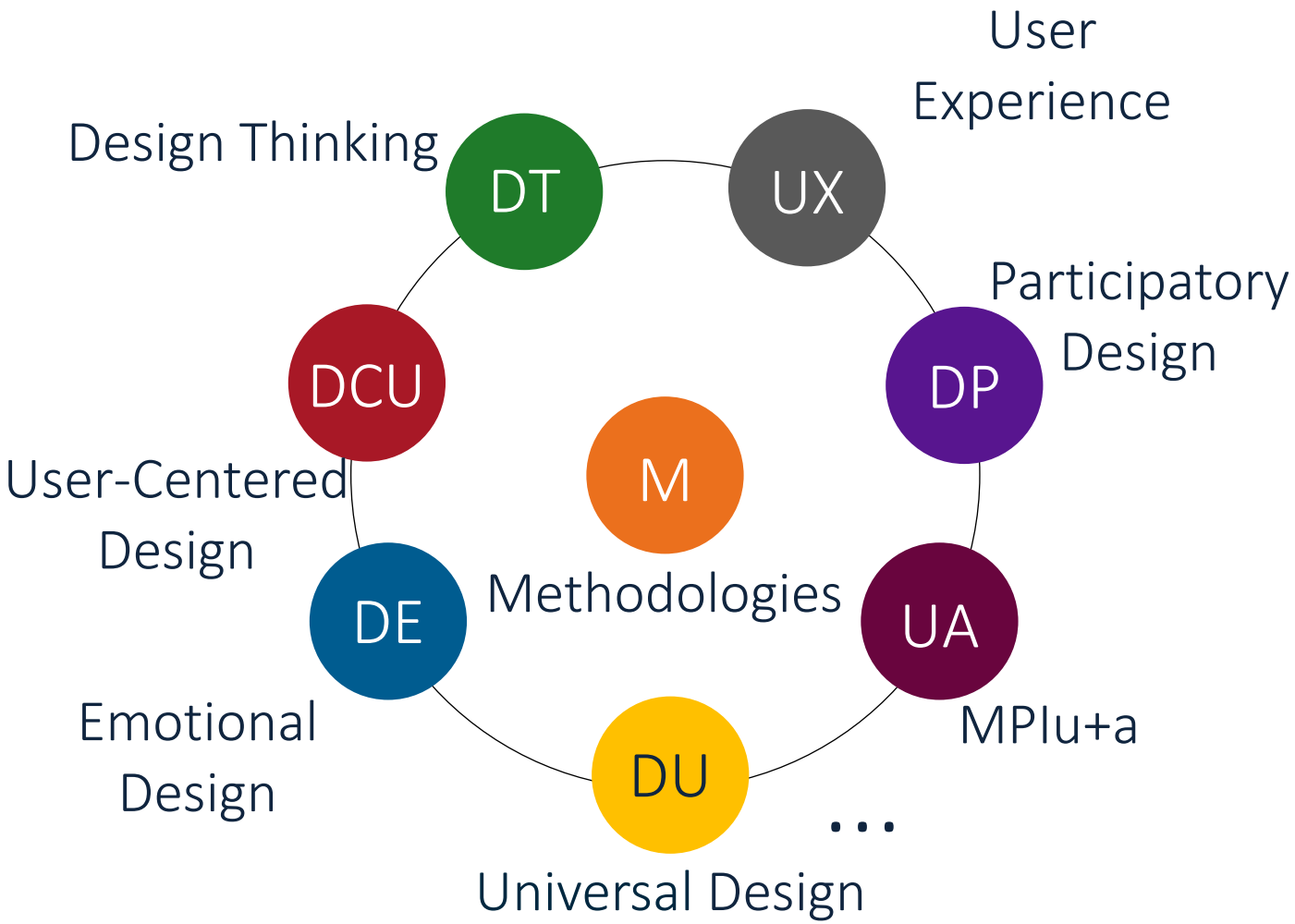
Perspectives



Each perspective incorporates some requirements.

Each requirement specifies a benefit.

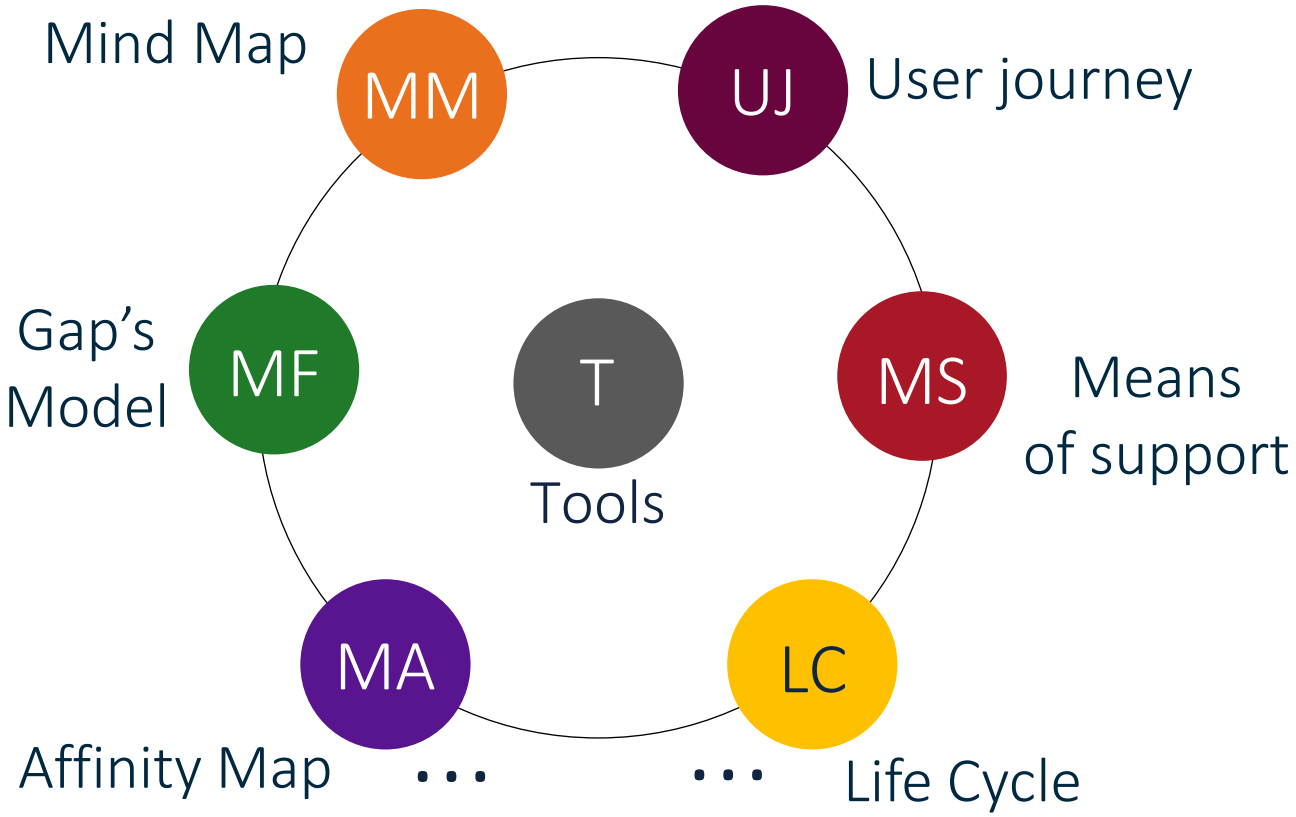
Methodologies



Each methodology provides a dynamic.

Each dynamic affects learning.

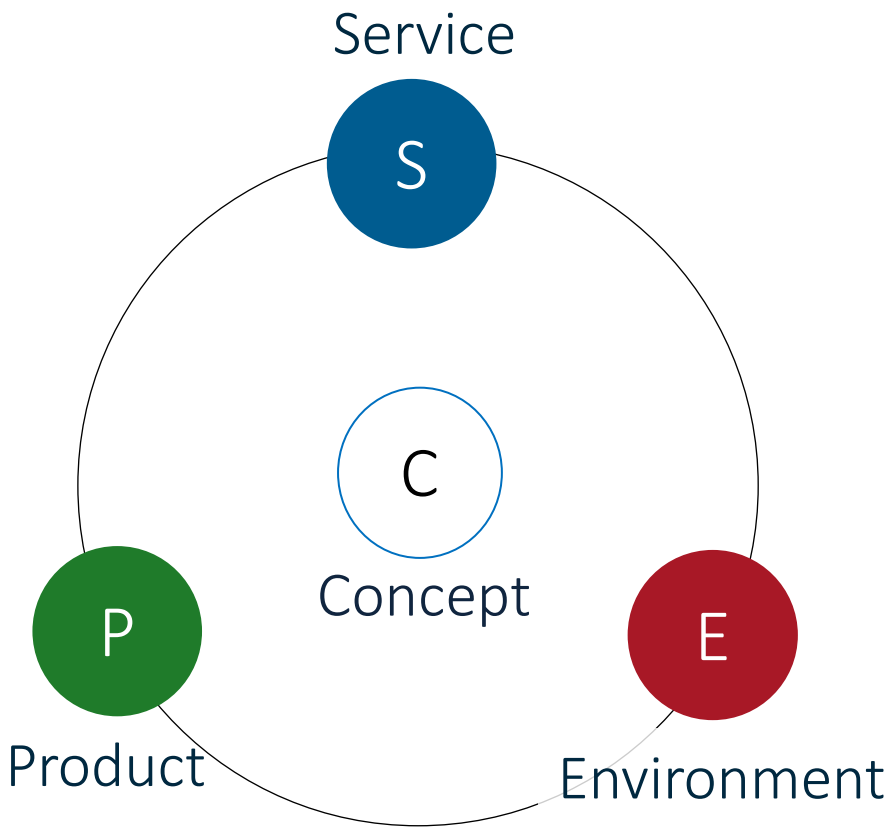
Tools

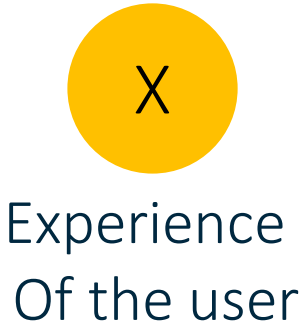


Each tool has a target.

Each target provides knowledge.

Concept





The concept will materialize in a product, environment or service.

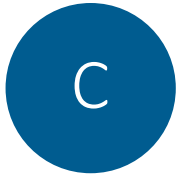
The product, environment or service will create an experience for its users.

P

Perspectives

Values

Values



Cultures

Policies

Practices

We need to analyze the values of society, in the field of inclusion, and understand how they are reflected in the culture, how they are formalized in policies and how, finally, they are implemented in practices.

People

Person

Needs

Abilities

Aspirations

You need to understand the person based on what he needs, what he can do and what he would like to achieve. It does not necessarily have to match what you really need with what you want to achieve.

Disability

D

Disability

Any

Age

Blindness

Deafness

Motor

With support

Mental

...

It is necessary to understand the capacities of the people at the base of the design so that it is not a patch in the concept.

Interaction

Interaction

Restrictions on participation

Limitations on activities

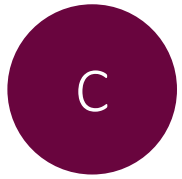
Functional Deficit

The functional deficit of a part of the body limits the activities that can be done and, therefore, restricts the participation within the society. It is necessary to understand how the person interacts with their environment at each level.

Participation

Participation

Object of Study



Co-creator

In the design process, the role of the user may be that of the object of study; or the co-creator of the concept within a multidisciplinary team.

Equity

Equity

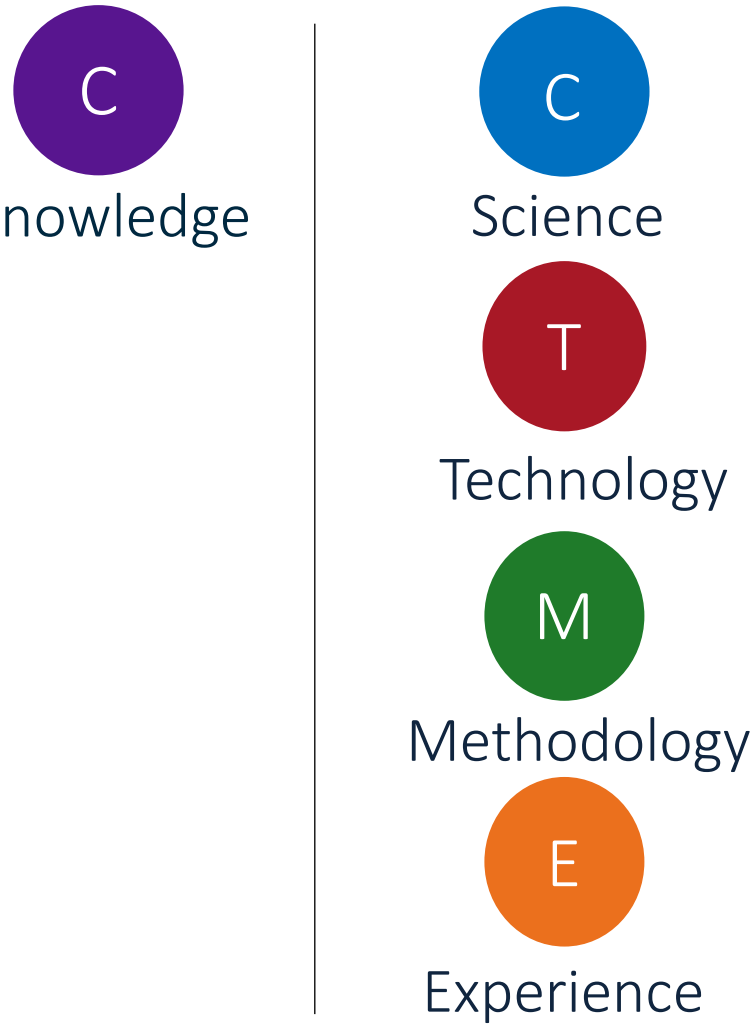
Rights

Duty

Opportunity

Only when you participate in equal rights, obligations and opportunities can real inclusion be given.

Knowledge



The basis of accessibility lies in the application of science, technology and methodology based on the experiences of people, with and without disabilities.

M

Methodologies

Universal Design

Ronald Mace

Universal Design

Universal Design

Concept

Design of environments, products or services that guarantees that, without the need for adaptations, all people can access them, as far as possible, without excluding the use of means of support, if necessary, for particular groups of people with requirements specific accessibility features.

Universal Design

The keys of Universal Design

7

The 7 criteria

P

Personalization

IU

The user interfaces

P

Means of support

It needs to be designed for all people and where you don't get to allow yourself to interact with the support media.

Universal Design

Universal Design Criteria

1. Equitable use
2. Flexibility in use
3. Simple and intuitive use
4. Perceptible information
5. Tolerance error
6. Low effort
7. Size and space for access and use

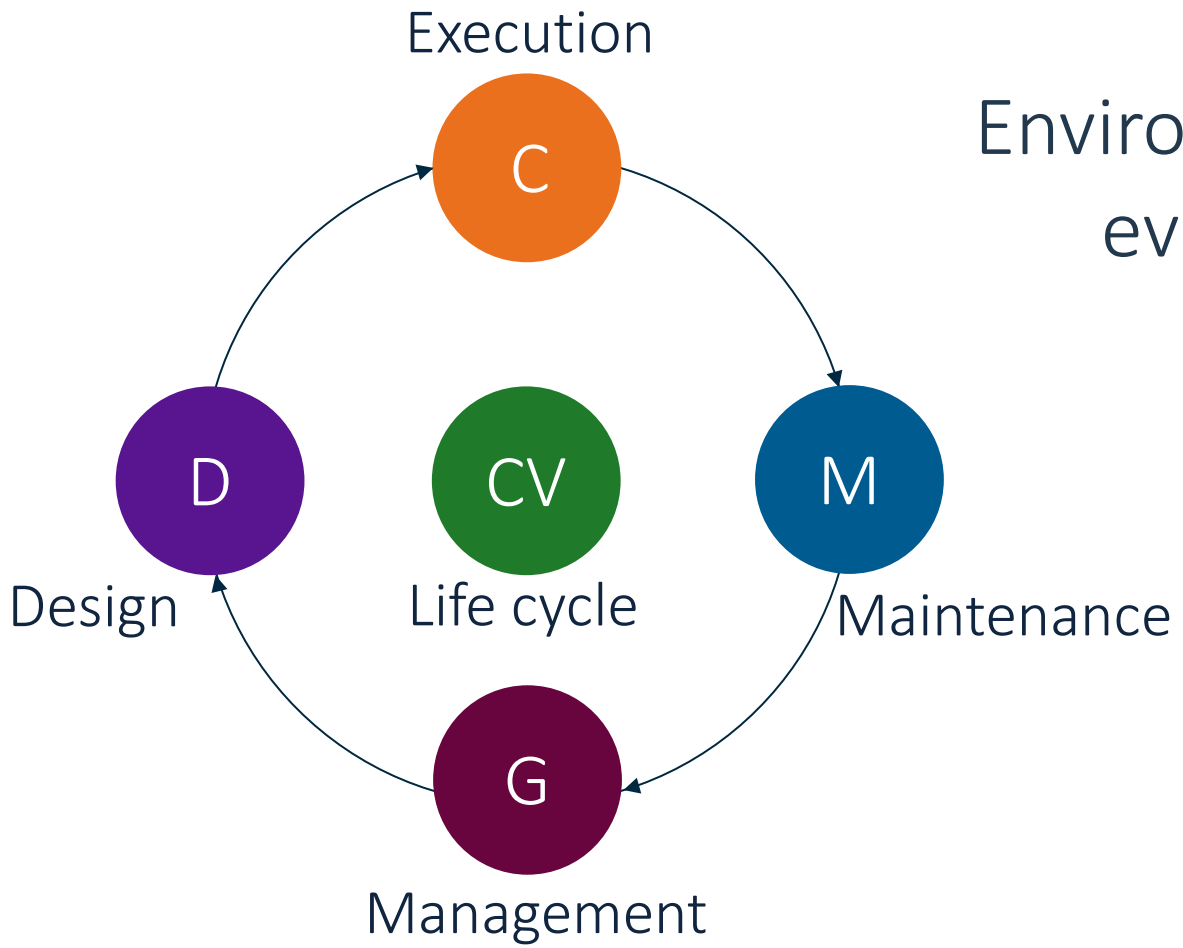
Universal Design

... and in the limit: Means of support

The means of support are grants that act as intermediaries between the environment and people with disabilities, which allows them to improve the quality of life and increase personal autonomy.

Universal Design

It is necessary to contemplate the life cycle



Environments, products and services evolve throughout their lives.

- Design
- Execution
- Management
- Maintenance

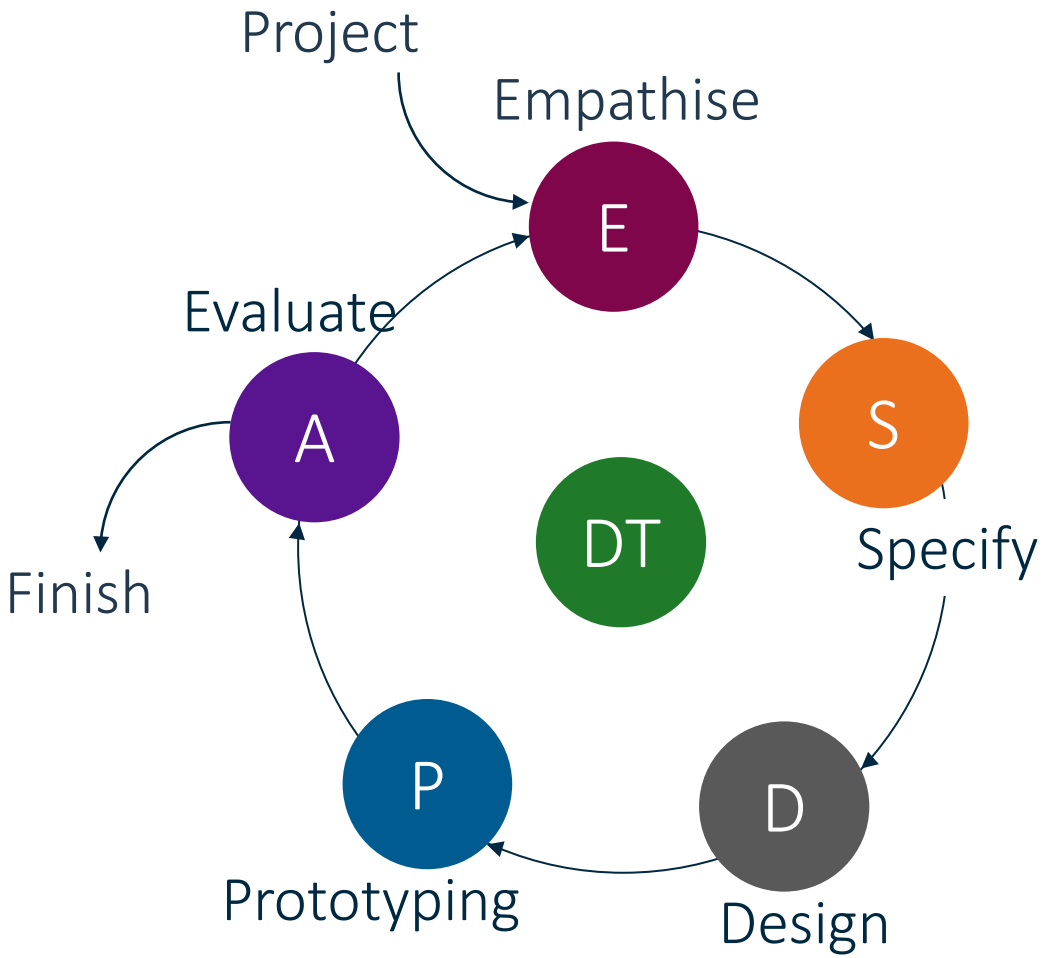
Design Thinking

Tim Brown

Design Thinking

Design Thinking

It have to make several iterations in the design.



Design Thinking

- Project
- Empathise
- Specify
- Design
- Prototyping
- Evaluate
- Finish

User-Centered Design & Emotional Design

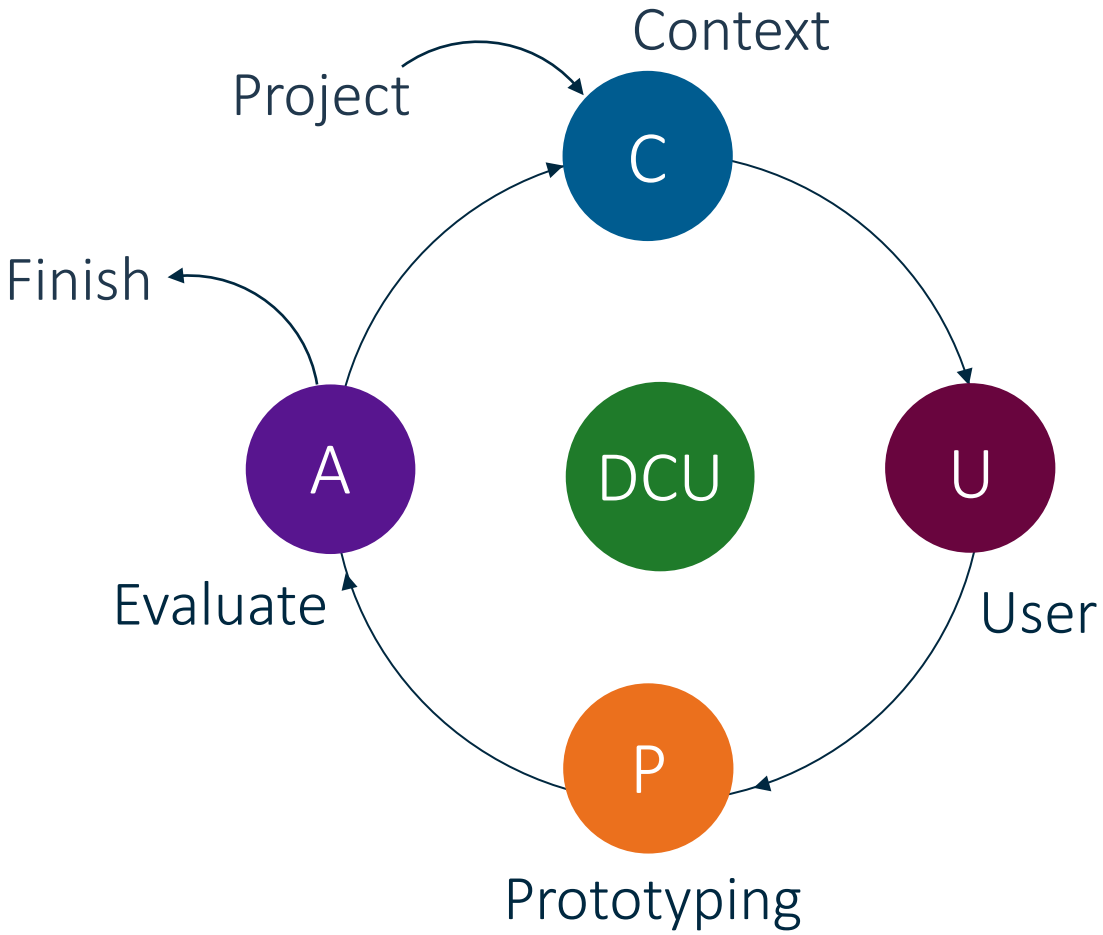
Donald Norman

User-Centered Design

Emotional Design

User-Centered Design

User is incorporated in every step



Design Thinking

- Project
- Context
- User
- Prototyping
- Evaluate
- Finish

http://mpiua.invid.udl.cat/dcu/dcu-iso13407/

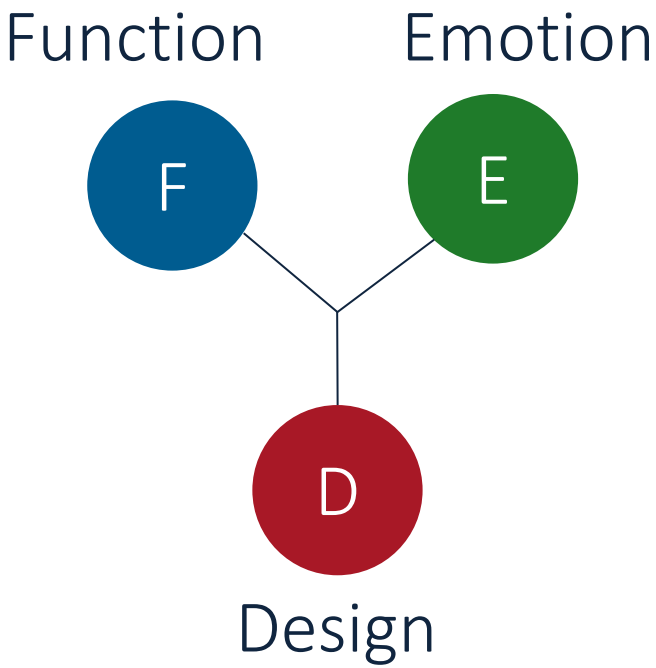
User-Centered Design

User-Centered Design

Keys

- Users actively participate.
- Iterative method.
- Multidisciplinary teams.

Emotional Design



Design of environments, products or services that take into account the emotional response generated when the user interacts.

If it's likeable, it's more usable.

Emotional Design

Process

Perception Thought

Components

Cognitive:

Thoughts

Provides Meaning

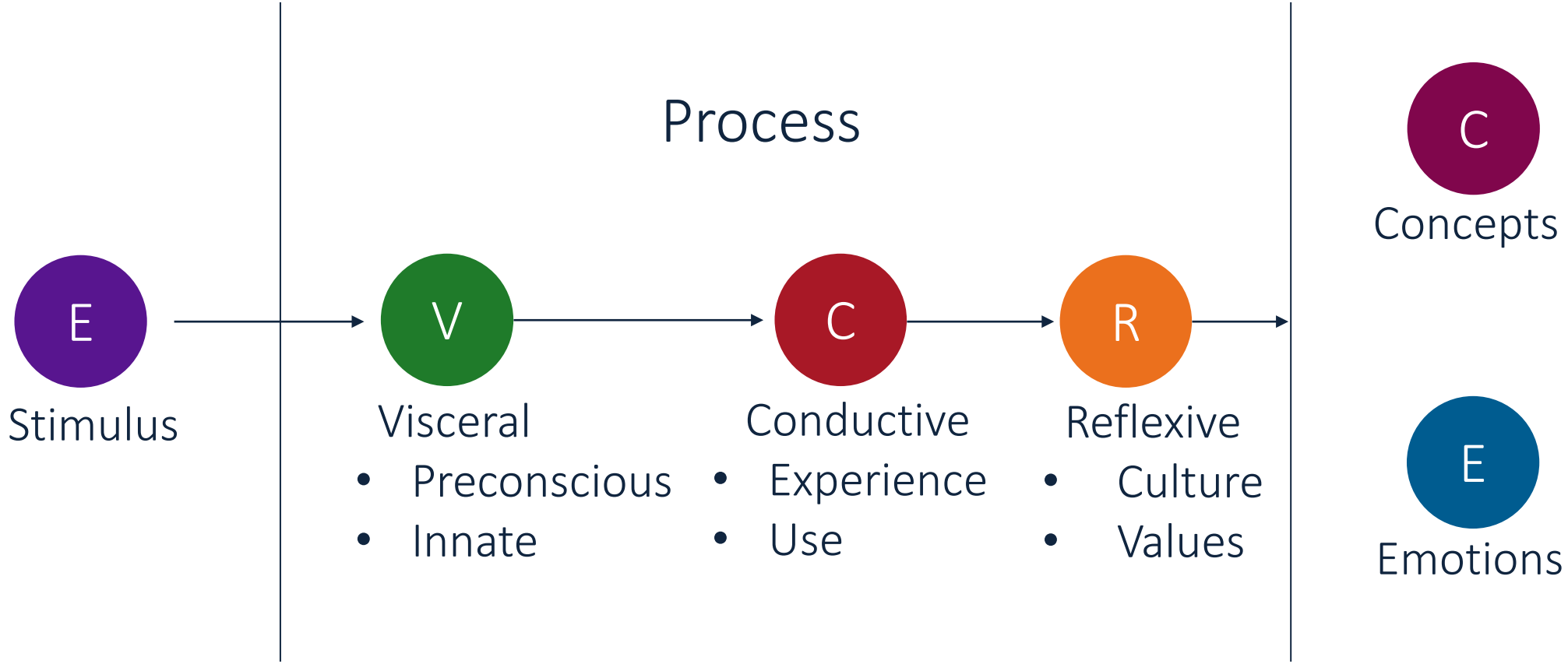
Affective:

Emotions

Provides Value

Emotional Design

How we process information



User Experience

Jakob Nielsen &
Donald Norman

User Experience

User Experience

It is the total perceptions and responses of a person that result from the use, and / or the foreseeable use of, a product, environment or service.

ISO DIS 9241-210:2008. Ergonomics of human system interaction – Part 210: Human-centred design for interactive systems (formerly known as 13407). International Standardization Organization (ISO). Switzerland.

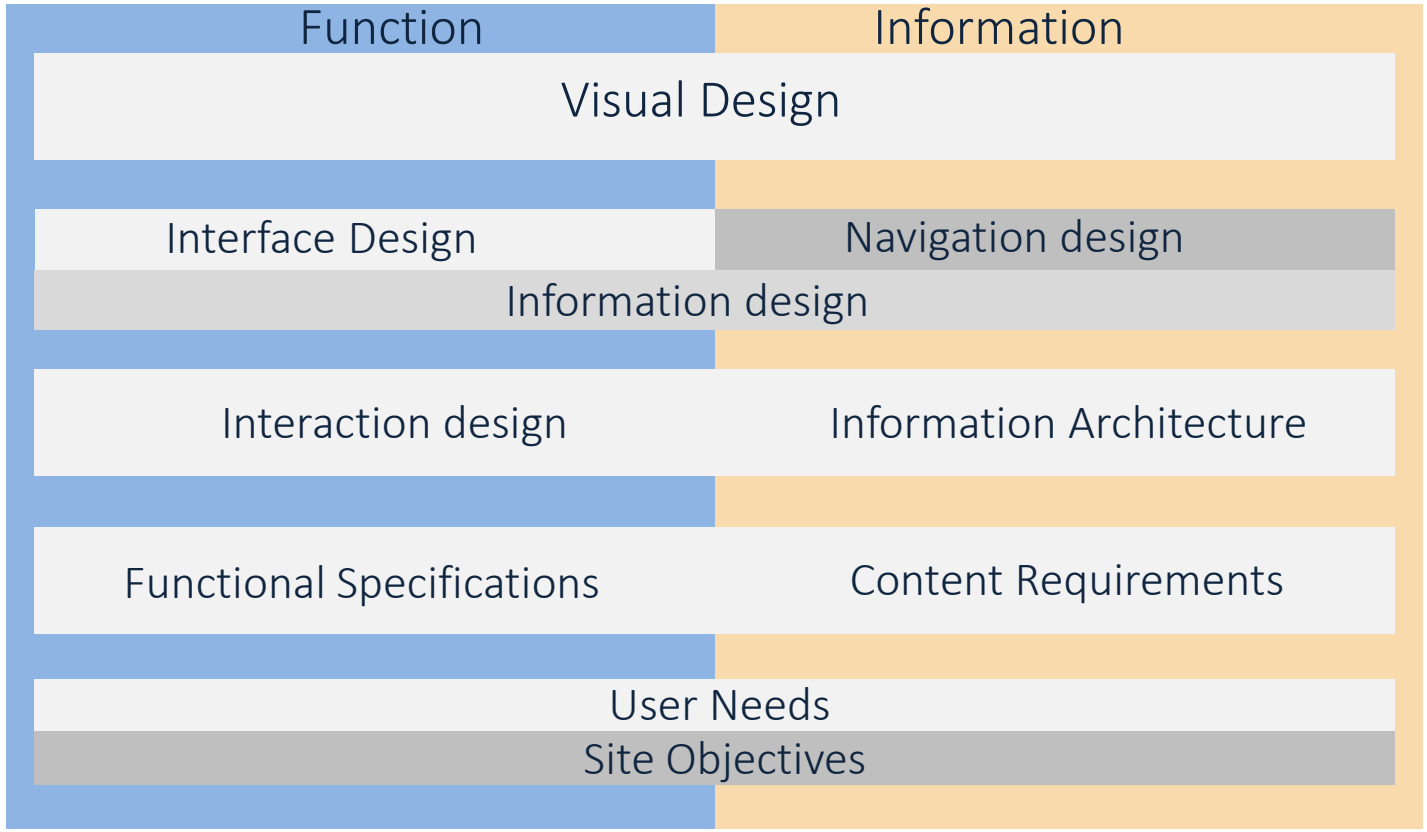
User Experience

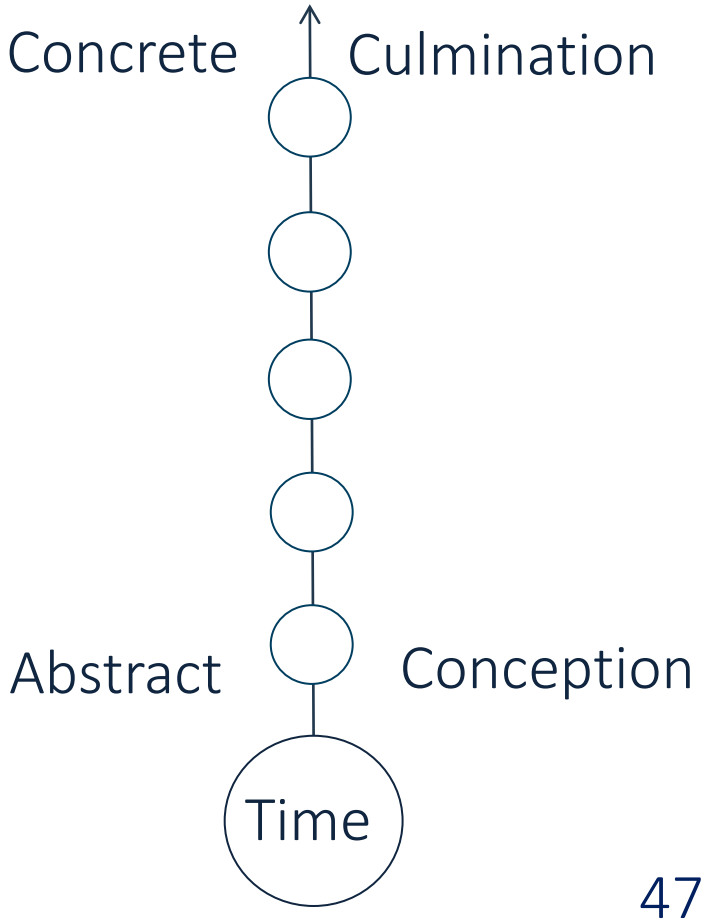
Jesse James Garrett

The Elements of
User Experience

User Experience

Use case. The elements of the User Experience (web)





Jessee James Garrett , 2000 http://www.jjg.net/elements/pdf/elements.pdf

User Experience

Use case. The elements of the User Experience (web)

Interface design: The design of the interface elements for the user to use the functions.

Information Design: design of the presentation of information for the user to understand.

Interaction design: design as the user interacts with the functionality.

Functional specifications: functionality that it needs the user.

Navigation design: design elements of the user interface to facilitate the Movement through the information architecture.

Information Architecture: structural design information for the user to access content.

Content Requirements: content elements that are necessary for the user.

User needs: really what the user wants

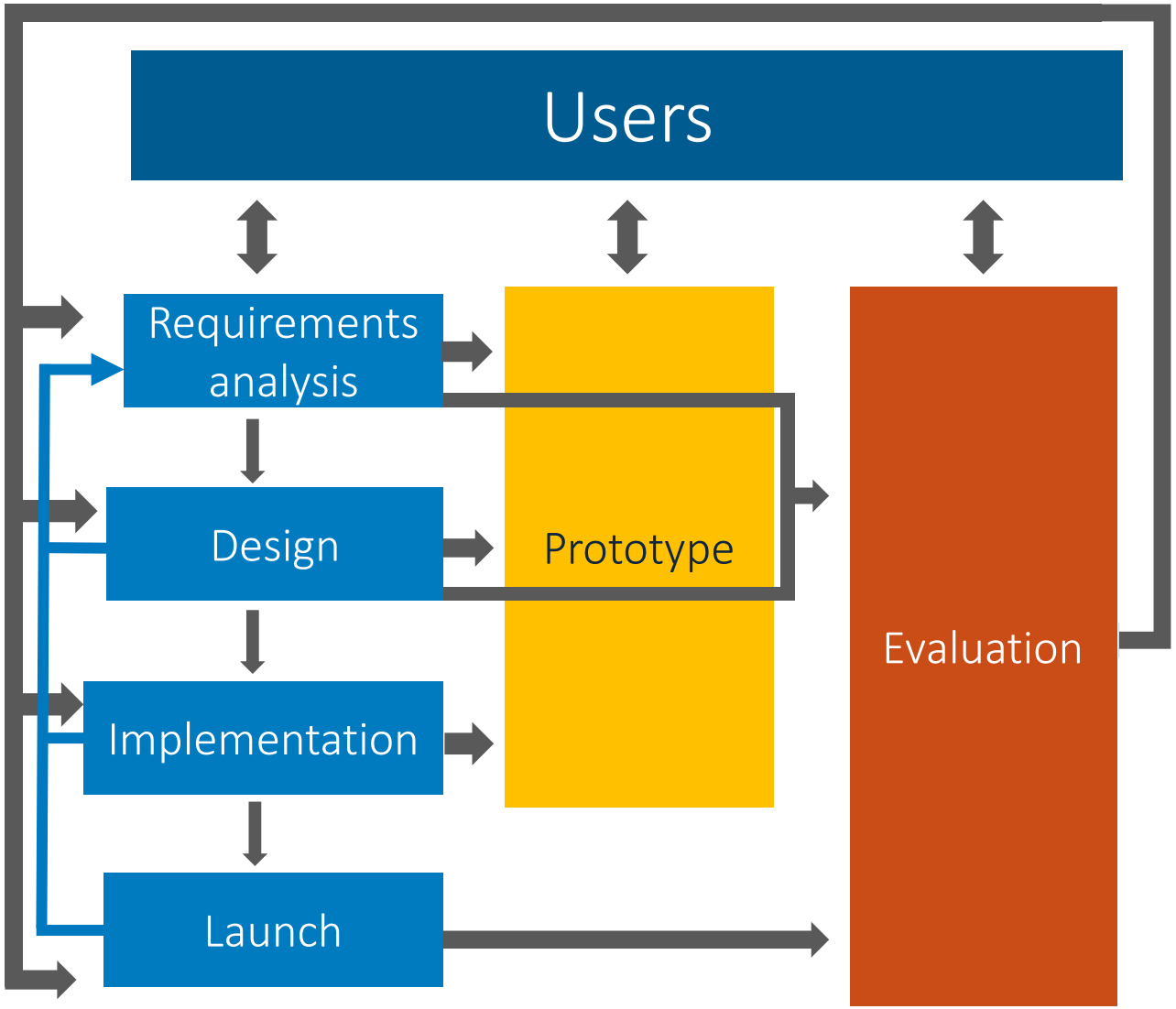
Objectives of the application: purpose of the application (business, leisure, etc.).

MPIu+a

Toni Granollers

Engineering Process Model of usability and accessibility

MPIu+a



Engineering Process Model of usability and accessibility.

MPIu + a is an interactive system development methodology that follows the principles of user-centered design.

Toni Granollers; http://mpiua.invid.udl.cat/fases-mpiua/

Participative Design

Erling Björgvinsson,
Elizabeth B.-N. Sanders &
Ezio Manzini

Participatory Design

Participative Design

Design Process

Facilitator Figure

All users are co-creators

Participatory design is an approach in which all user groups of interest are involved in the design process.

http://participateindesign.org/approach/what

Tools

Mind Map

Tony Buzan

Mind Map

Mind Map

Mind Map

Diagram, with an arboreal structure, which represents ideas, tasks, concepts, related and organized in the vicinity of a central idea.

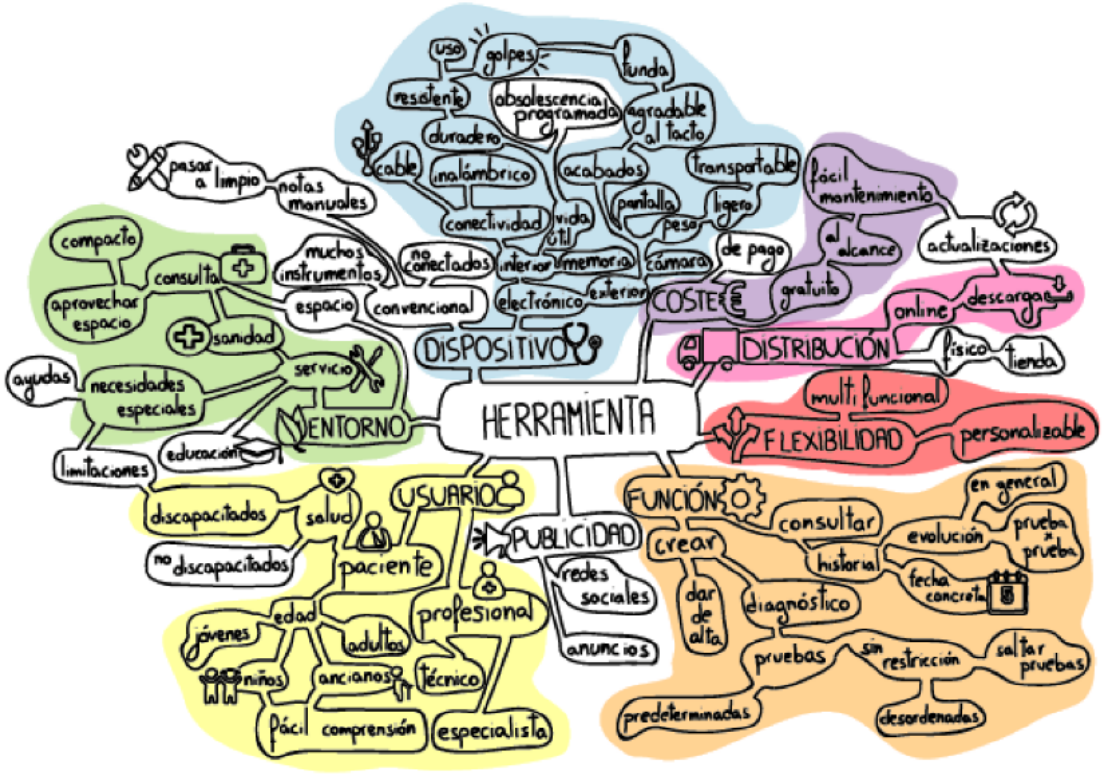
Developed by Tony Buzan based on associative thinking and visual thought.

https://www.kemp.es/metodologia/que-es-el-mind-mapping-o-mapas-mentales/

Mind Map

MM

Mind Map



User Journey

Jan Carlzon

User Journey

User Journey

User journey

Representation of the series of steps that represent a scenario in which the user can interact with what is being designed.

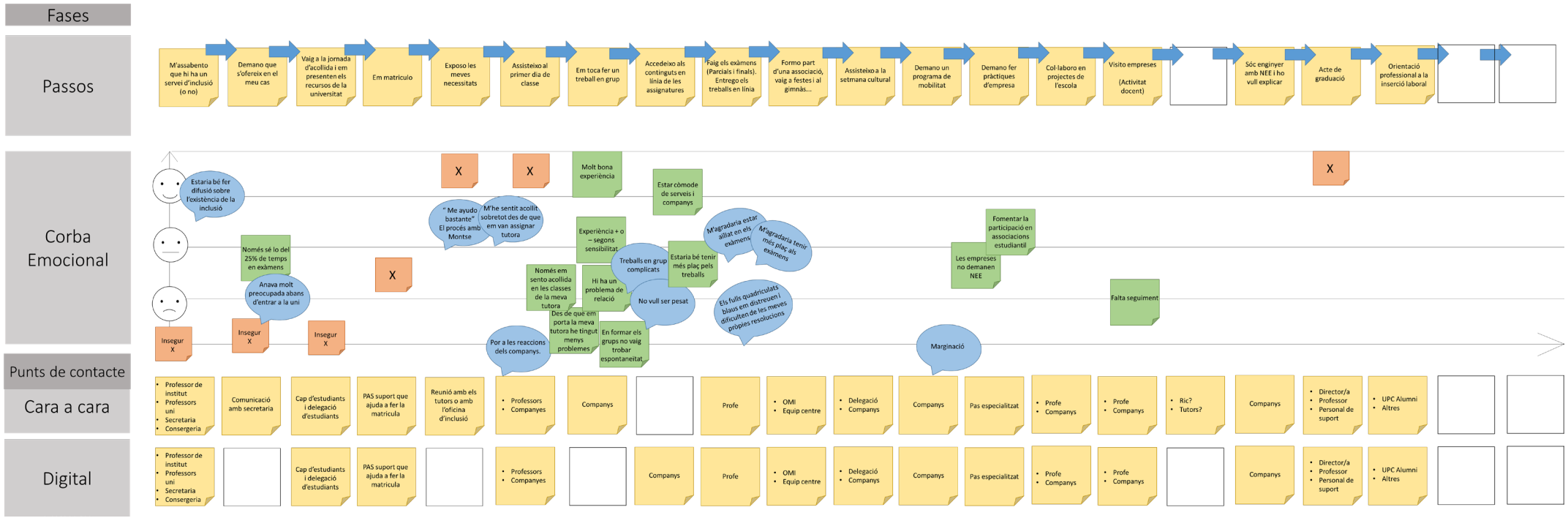
It allows to demonstrate the current interaction of the user on the stage; as well as show design proposals.

https://theuxreview.co.uk/user-journeys-beginners-guide/

User Journey

Key components:

- Steps
- Contact Points
- Emotional Curve



Gap Model

A. Parasuraman,
Valarie Zeithaml &
Leonard L. Berry

Gap Model

Gap Model

Gap Model

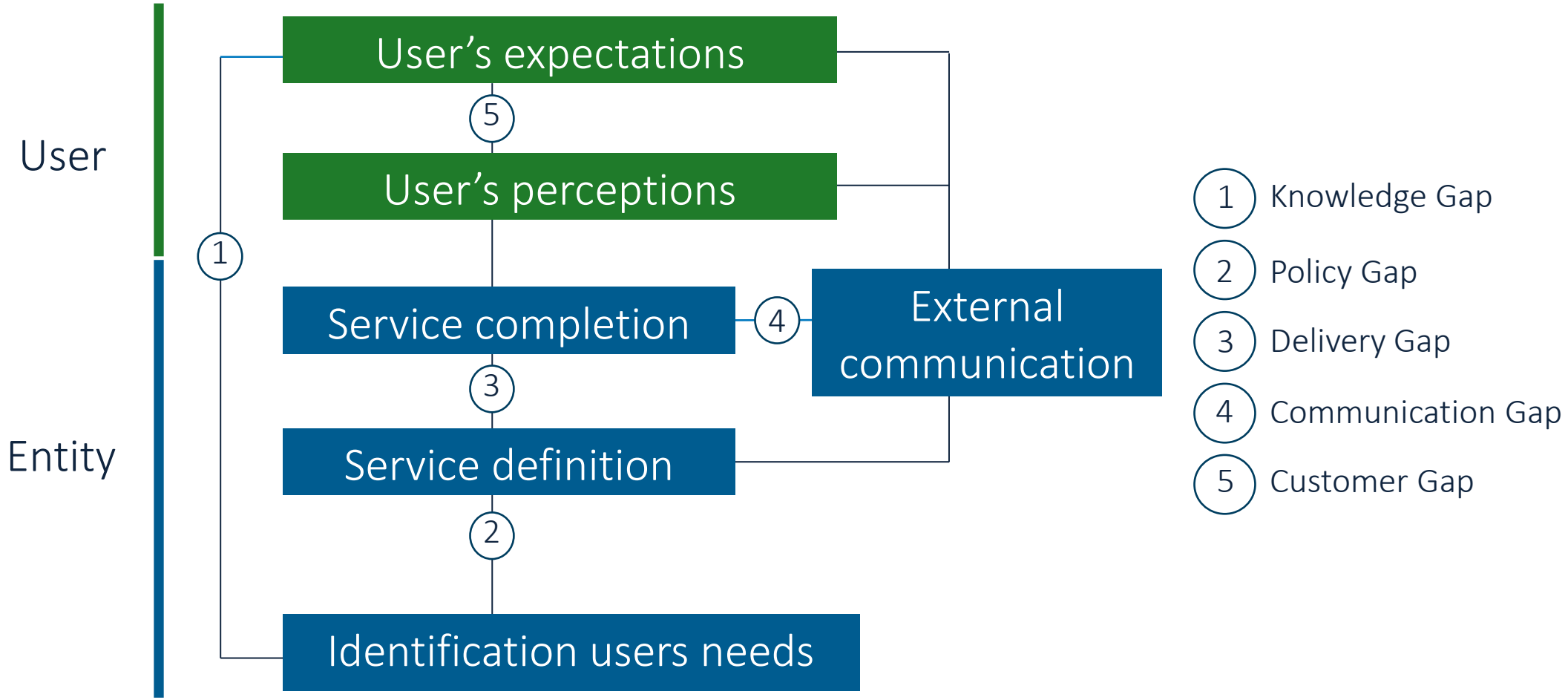
Representation of user satisfaction has service based on the perception it has.

The “gaps" are the problems that limit the quality of the service.

https://expertprogrammanagement.com/2018/03/gap-model-service-quality/

Gap Model

5 Key factors (Gap)



Affinity Map

Dr. Kawakita Jiro

Affinity Map

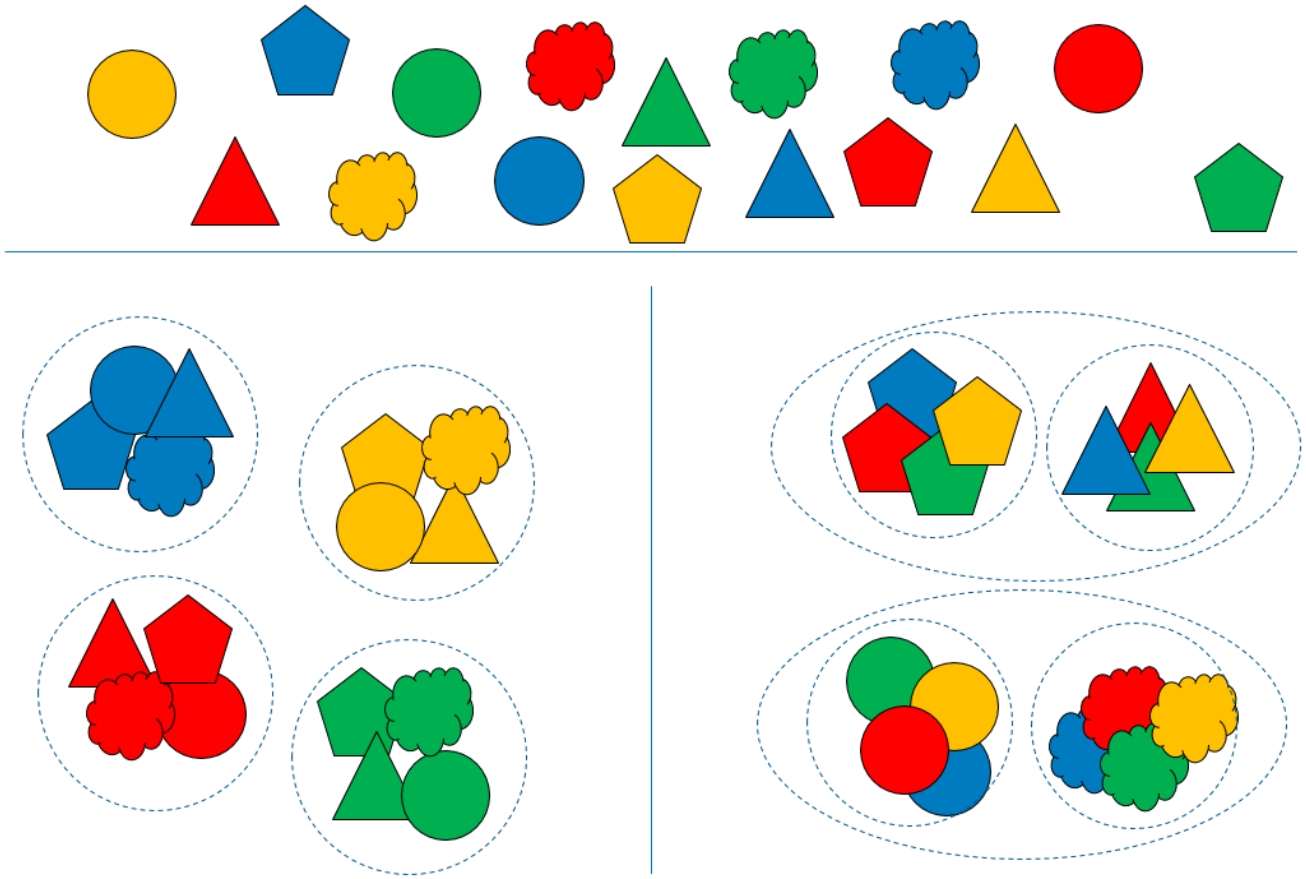
Affinity Map

Affinity Map

Create by Dr. Kawakita Jiro in 1980.

Diagram to manage and organize a set of ideas, grouping them according to their affinity or resemblance.

Affinity Map



colour

form | vertex

Find categories within an idea group and what are the most common within the group.

criteria

UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH

Accessibility Chair of UPC

Architecture, design and technology for all

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