

UNIVERSITA' CARLO CATTANEO

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FACOLTA' DI INGEGNERIA

# INDUSTRIAL DESIGN (NEW PRODUCT DEVELOPMENT)

Docente: I. Tagliavini

- ❑ Design Thinking Concept & Evolution
  - ✓ Human Centered Approach
  - ✓ DT to drive digital transformation
  - ✓ The evolution phases
  
- ❑ DT process & Tools
  - ✓ DT process
  - ✓ Inspiration, ideation and Implementation Tools
  - ✓ Empathy Map Exercise
  
- ❑ Brainstorming Concept & Rules
  - ✓ Brainstorming
  - ✓ Hackaton
  
- ❑ Case Studies

**DESIGN THINKING**

Design Thinking can be defined as

“a **human-centered** approach to innovation that draws from the designer’s toolkit to integrate the needs of **people**, the possibilities of **technology**, and the requirements for **business success**”.

*Tim Brown (2009).*

*“Change by Design – How Design Thinking Transforms Organizations and Inspires Innovation.”*

*Harper Collins Publishers, New York*

Design has become central in our world.

A key source of value for people and society.

And Design Thinking, its declination in terms of innovation processes and leadership, has become a major point of interest for any business. From an accessory suited only to niche consumer firms, to a necessary factor in any industry and organization.

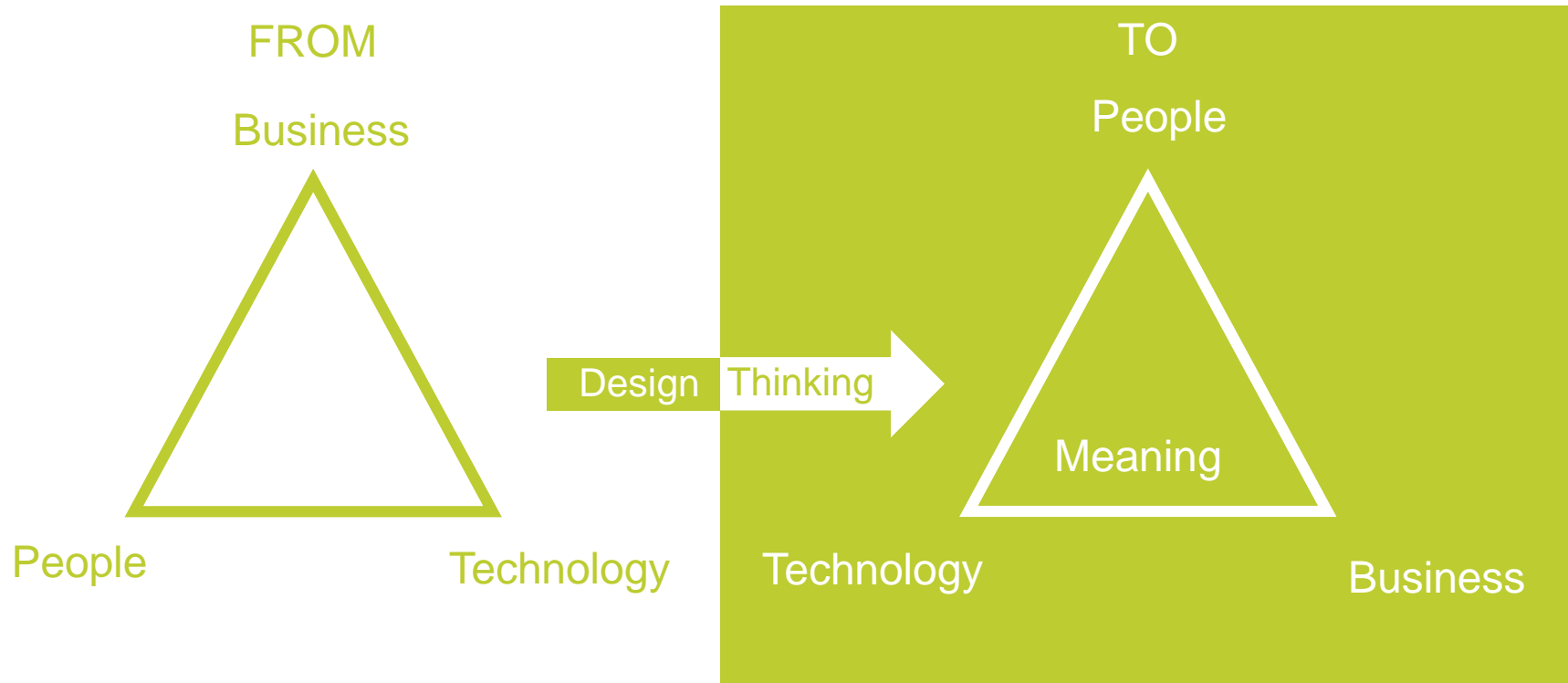
# Why?

Design Thinking is key in our world transformed by technologies, because:

1. It is needed for **value creation**, to turn this wealth of technologies and information into real value for customers;
2. It is needed for **organizational transformation**, to engage people in a widespread process of change.

**TECHNOLOGY DRIVEN PERSPECTIVE****BUSINESS DRIVEN PERSPECTIVE**

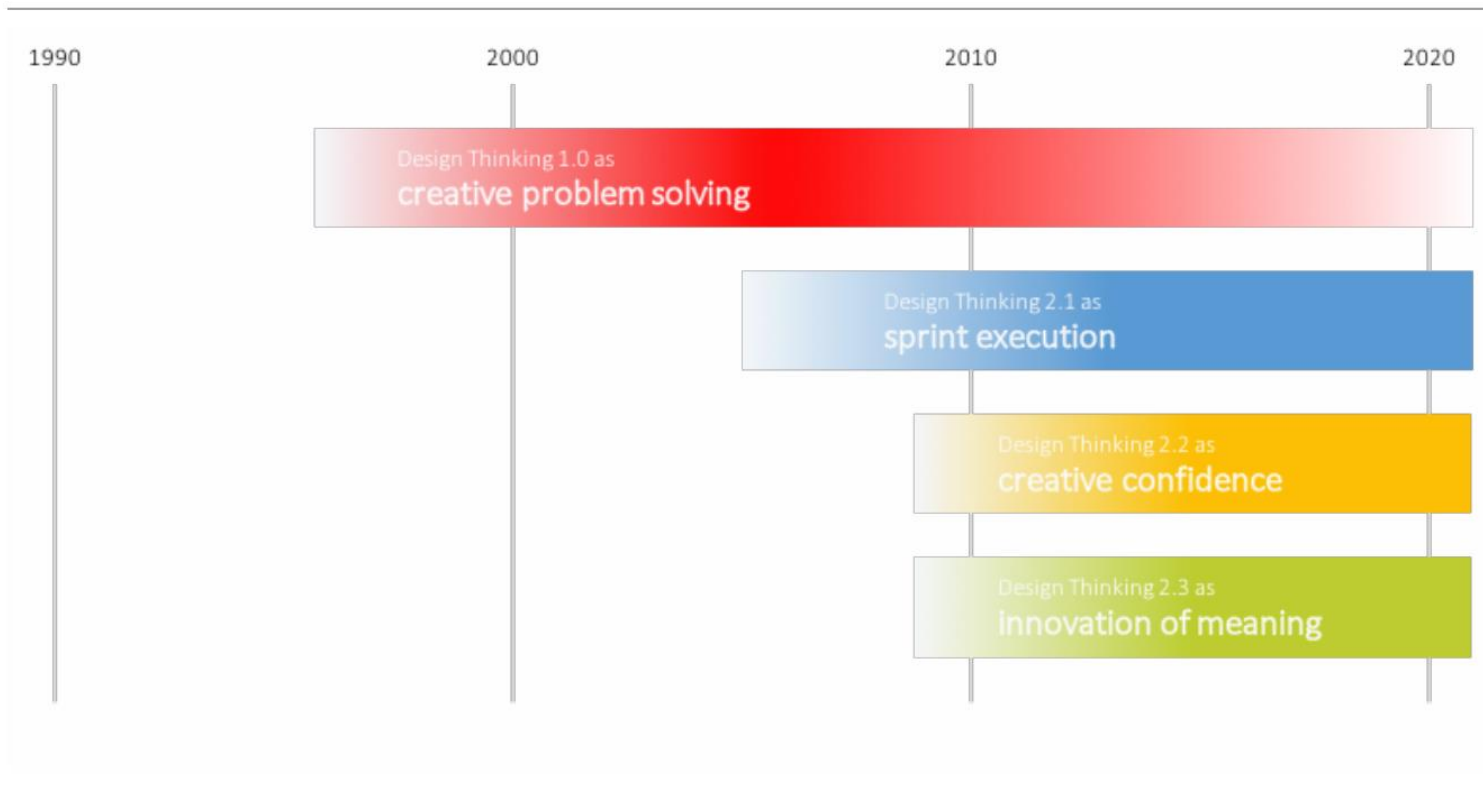
**A design driven perspective starts from people.**



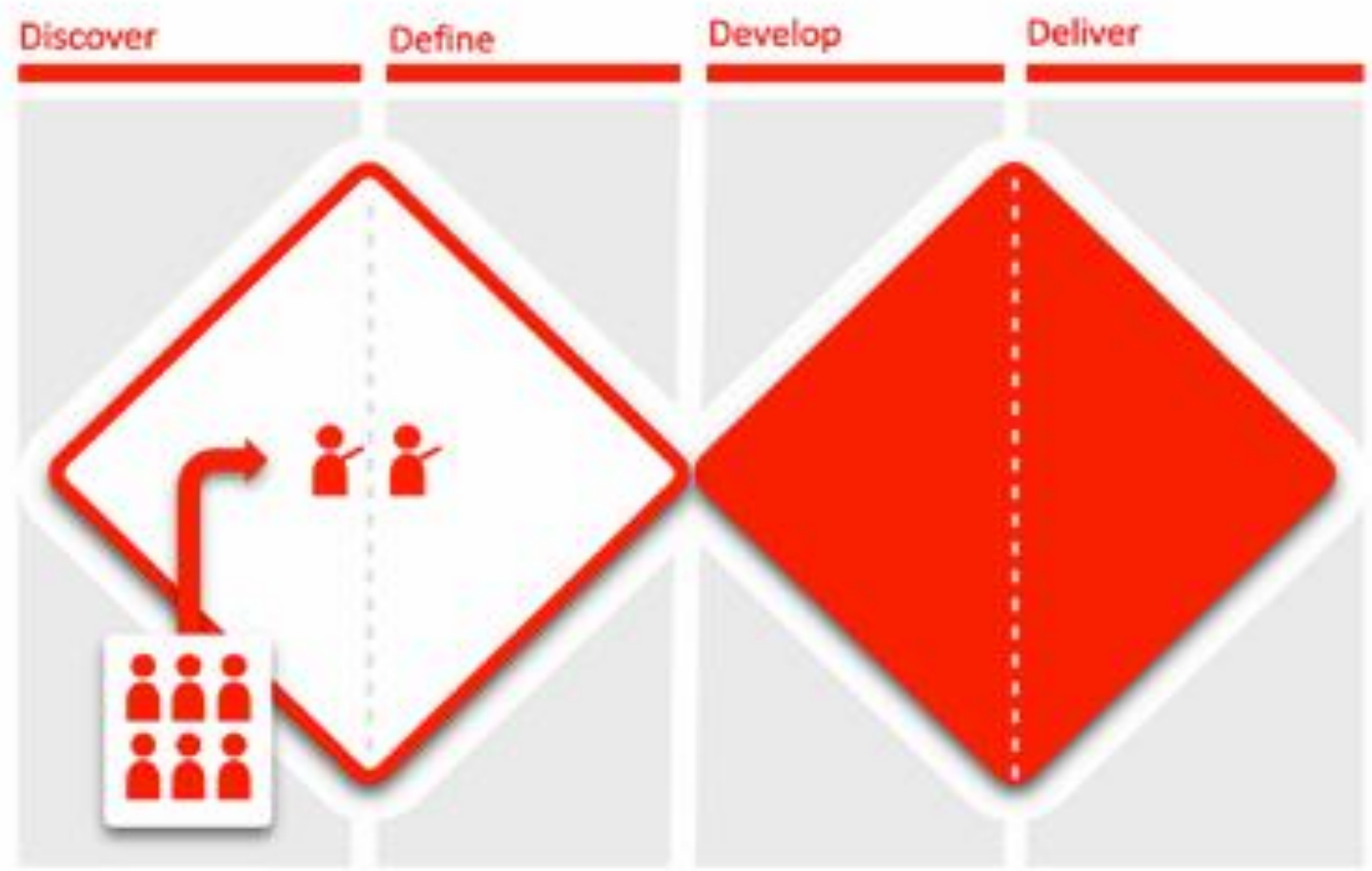


## DESIGN THINKING Evolution

INDUSTRIAL DESIGN



Source: Osservatorio Design Thinking for Business



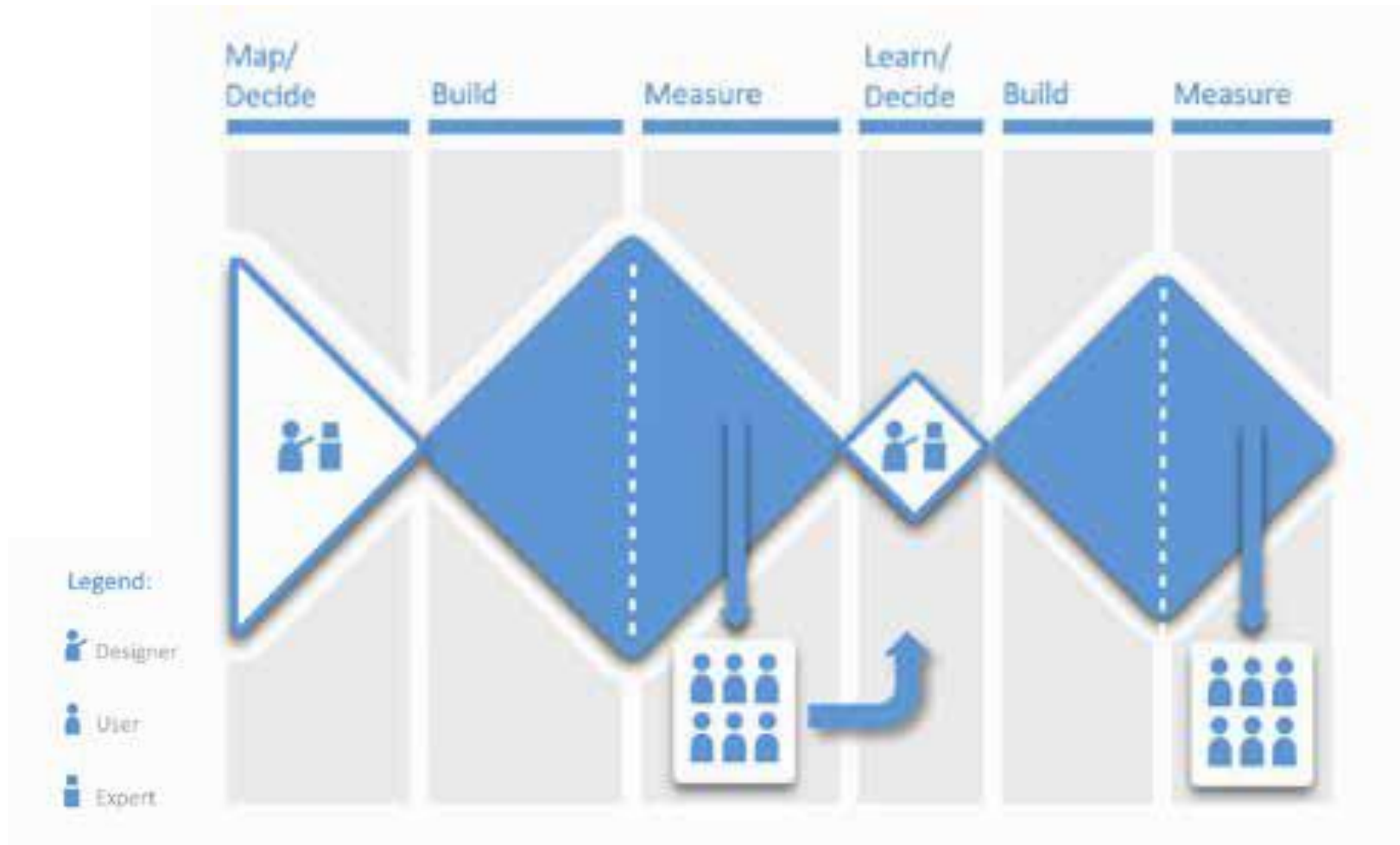
Legend:

-  Designer
-  User

Source: Osservatorio Design Thinking for Business

## DESIGN THINKING 2.0: Sprint Execution

INDUSTRIAL DESIGN

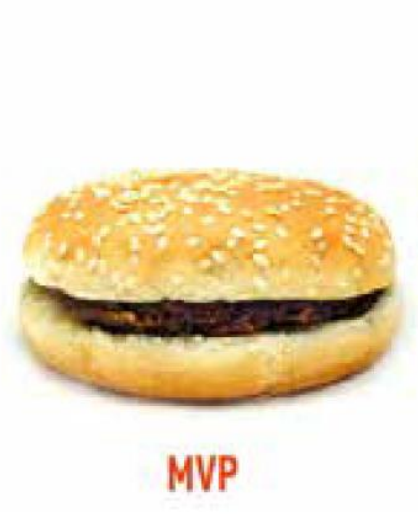


Source: Osservatorio Design Thinking for Business

Conceiving



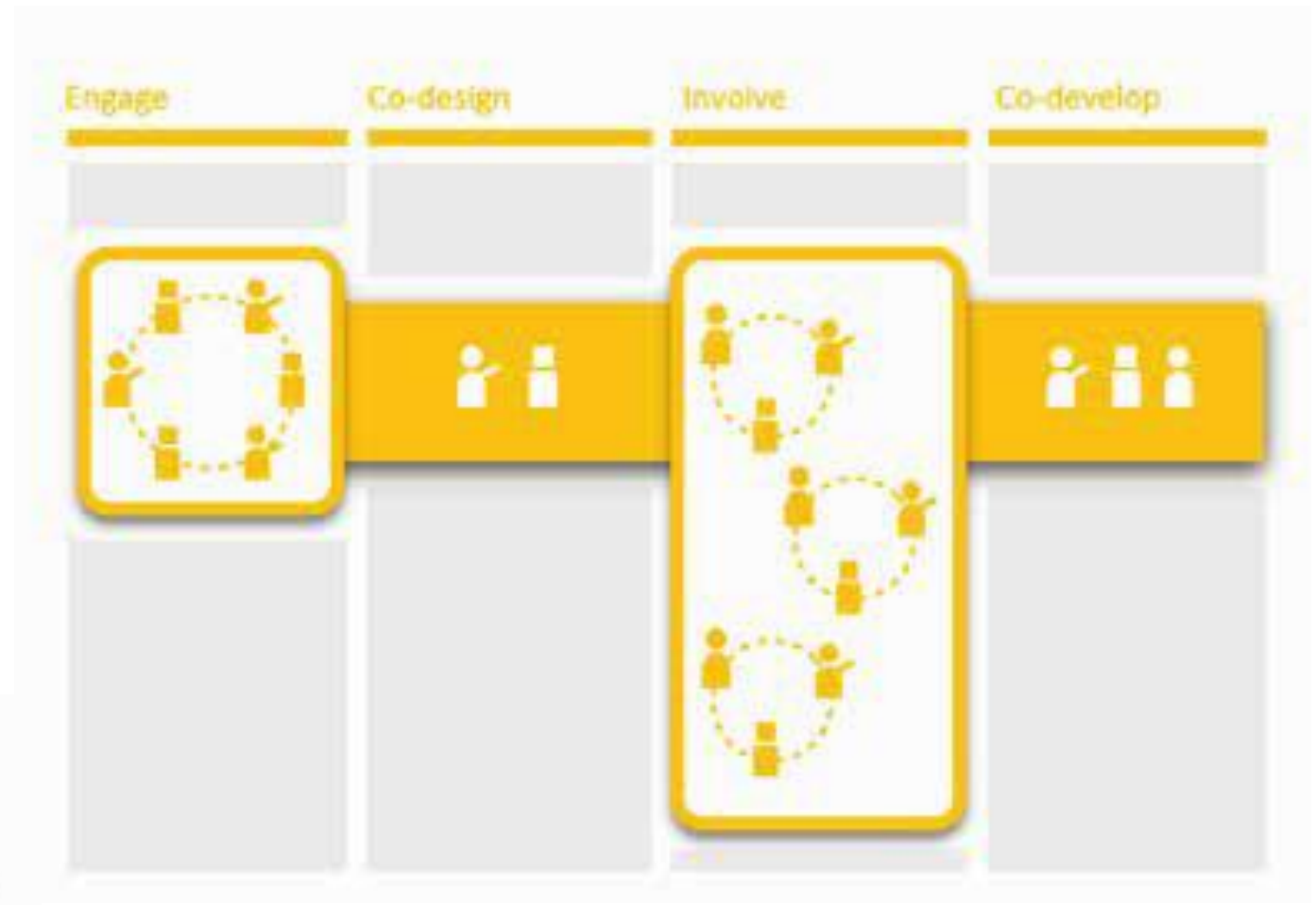
Executing



Design Thinking is increasingly adopted not only to innovate products and services, but also with the aim of **reshaping the organizational culture** and **enabling digital transformations**.

Humancenteredness and deep empathy have always constituted the core elements of Design Thinking and are even more relevant in projects that aim to change the organizational culture and mentality.

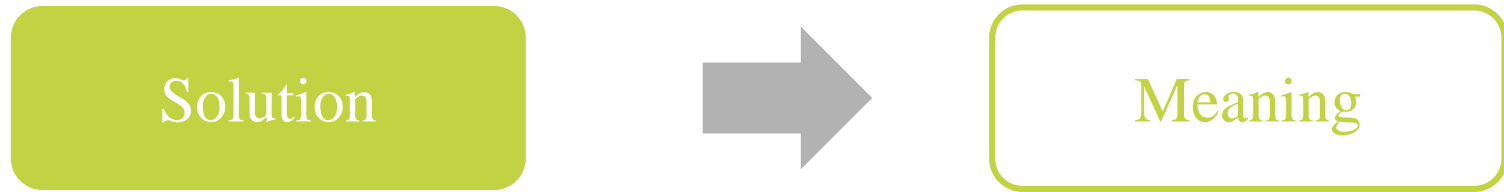
- **Engage:** In the initial phase, it is crucial to engage key stakeholders who can become intrapreneurs in driving the change;
- **Co-design:** Using the information collected in the first phase, identify the strongest cultural barrier that is holding back innovation in the organization;
- **Involve and Co-develop:** In the last phases, the involvement of larger portions of the organization and the identification of “small wins” are fundamental practices to successfully drive the change.



**Legend:**

- Designer
- User (employee)
- Expert (internal stakeholder)

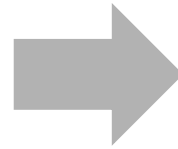
Source: Osservatorio Design Thinking for Business



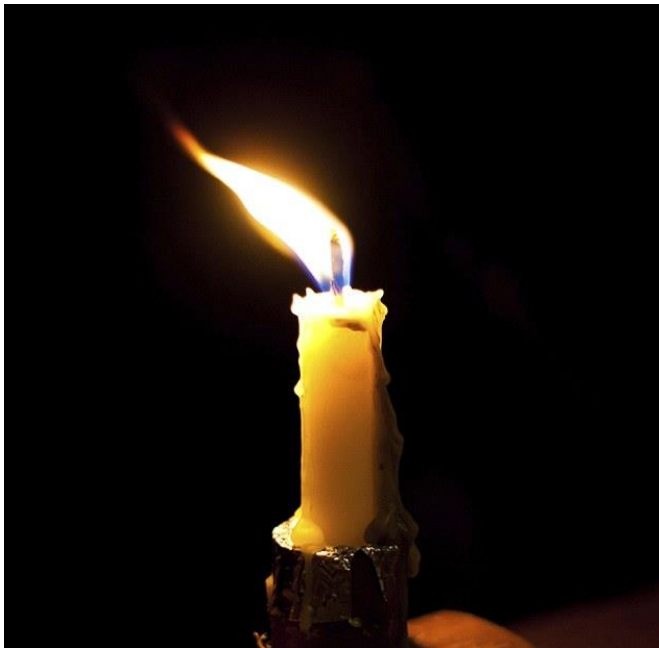
“In a world overcrowded by ideas, finding solutions is quite easy, but finding new meaningful directions is much more complicated. Innovating the meaning of things (products, services, business models, etc.) is the emerging challenge for the established Design Thinking.”

*Roberto Verganti*

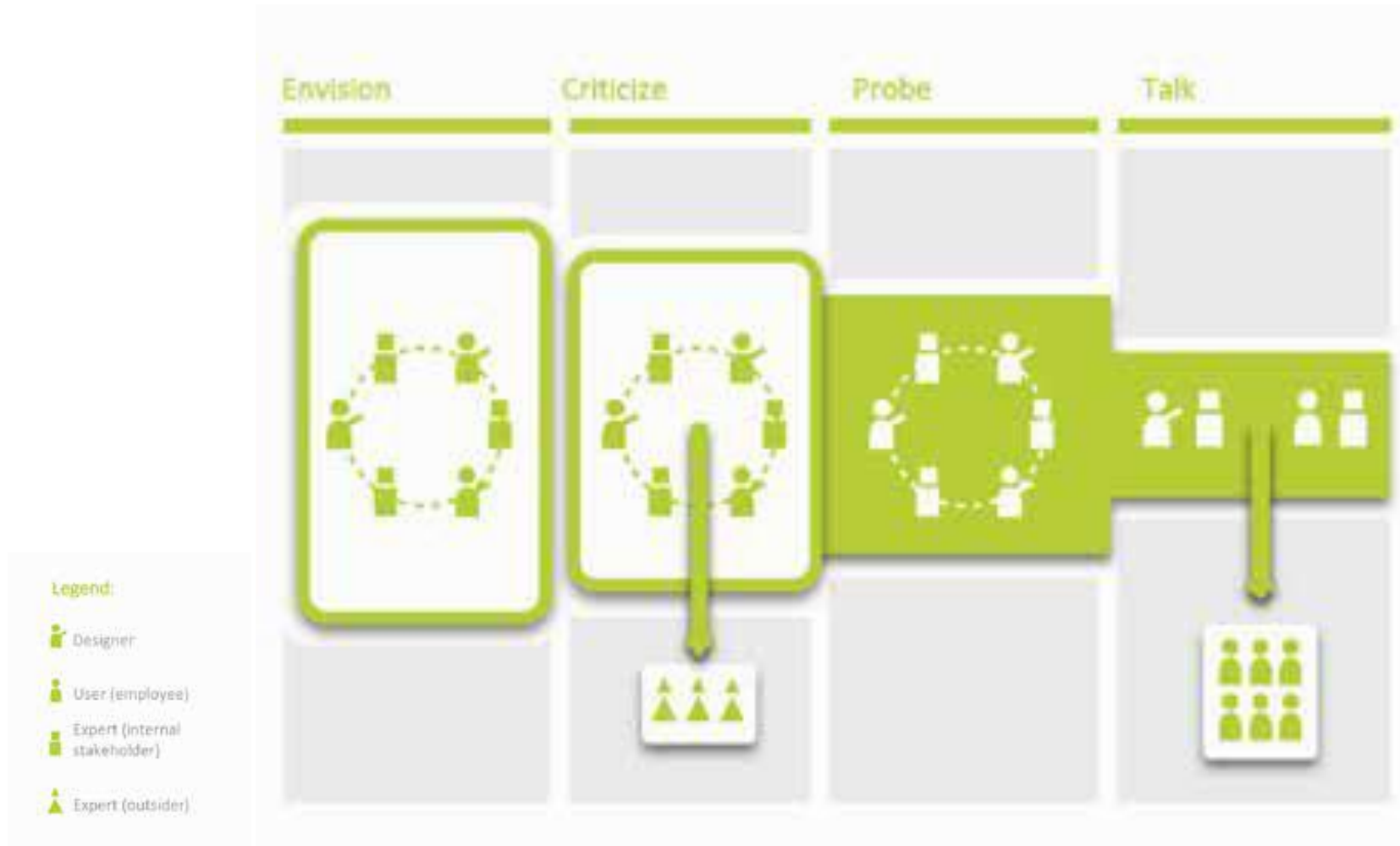
Solution



Meaning







# DESIGN THINKING: a must for digital transformation

## INDUSTRIAL DESIGN

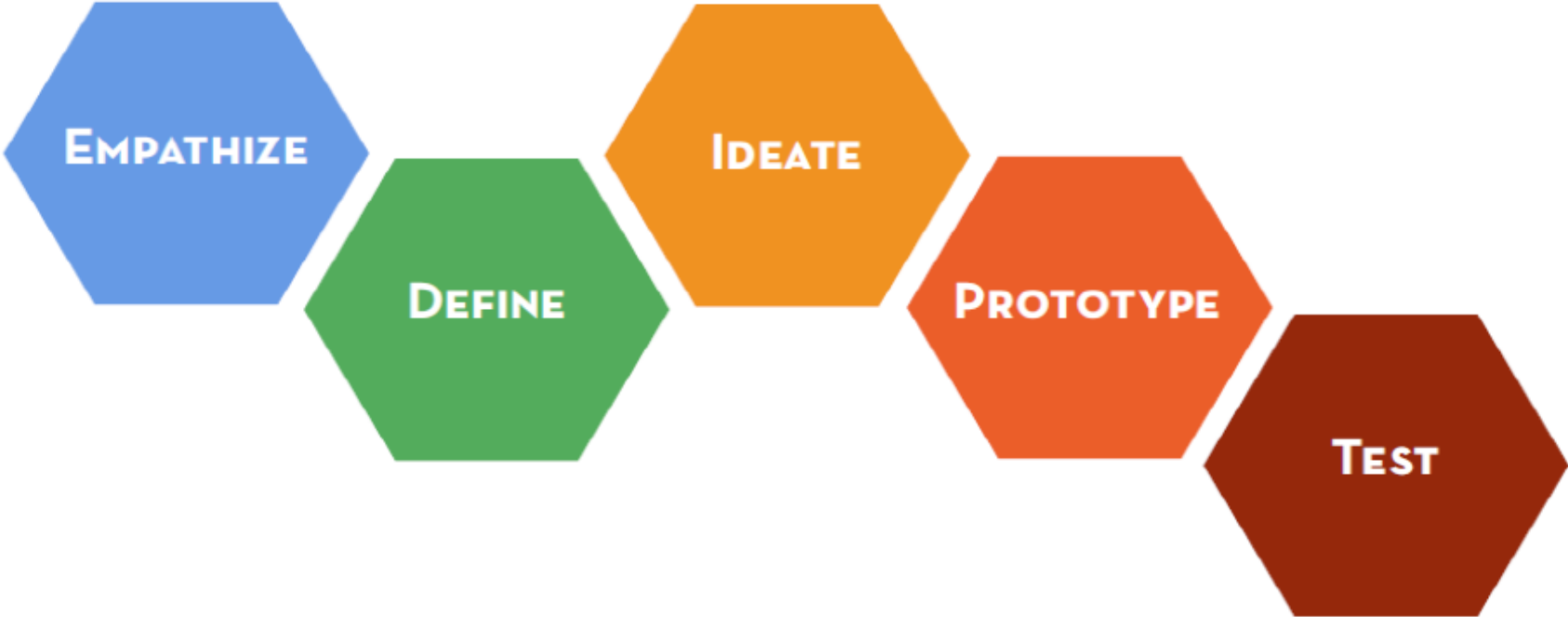
**DESIGN STUDIOS**

**DIGITAL AGENCIES**

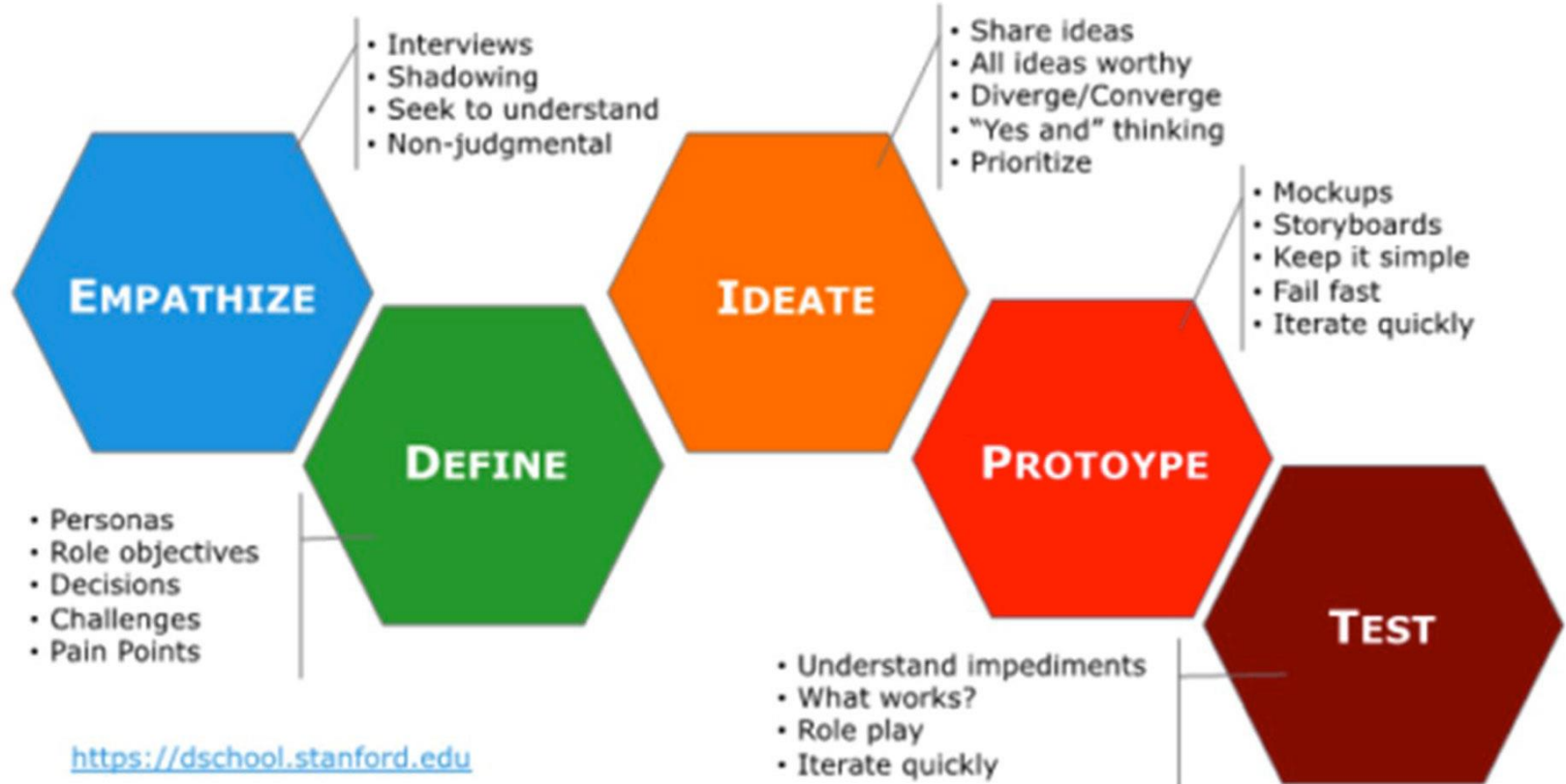
**STRATEGIC CONSULTANTS**

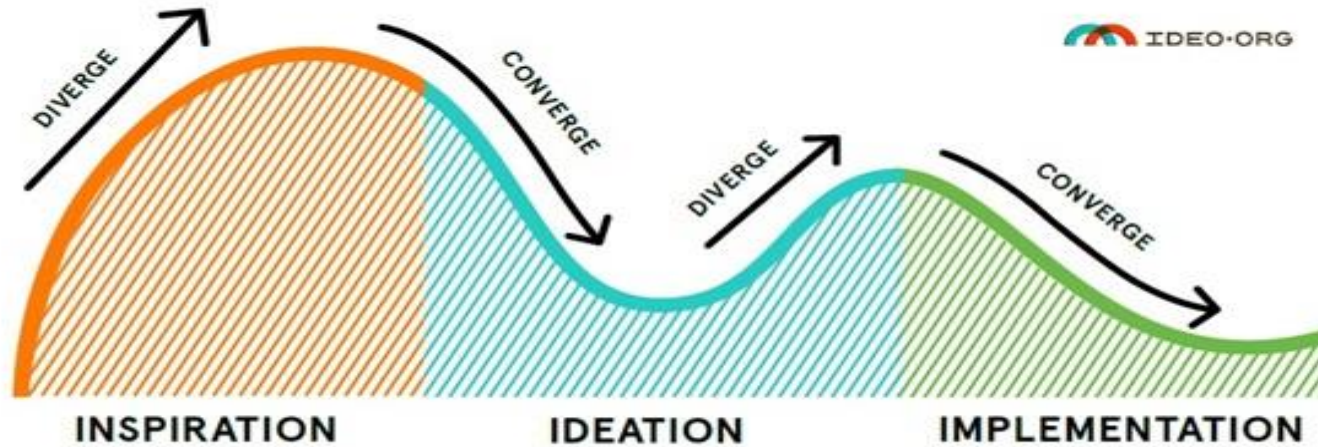
**TECHNOLOGY DEVELOPERS**

Source: Osservatorio Design Thinking for Business



## Stanford d.school Design Thinking Process





### INSPIRATION

In this phase, you'll learn how to better understand people. You'll observe their lives, hear their hopes and desires, and get smart on your challenge.

### IDEATION

Here you'll make sense of everything that you've heard, generate tons of ideas, identify opportunities for design, and test and refine your solutions.

### IMPLEMENTATION

Now is your chance to bring your solution to life. You'll figure out how to get your idea to market and how to maximize its impact in the world.

### INSPIRATION

- Exploratory Research
- Desk Research
- Interviews
- Diaries
  
- Conceptual Maps
- Personas
- Empathy map
- User's Journey

### IDEATION

- Brainstorming
- Creativity Techniques

### IMPLEMENTATION

- Storyboard
- Paper Prototyping
- Prototyping
- Storytelling
- Learning Experiences

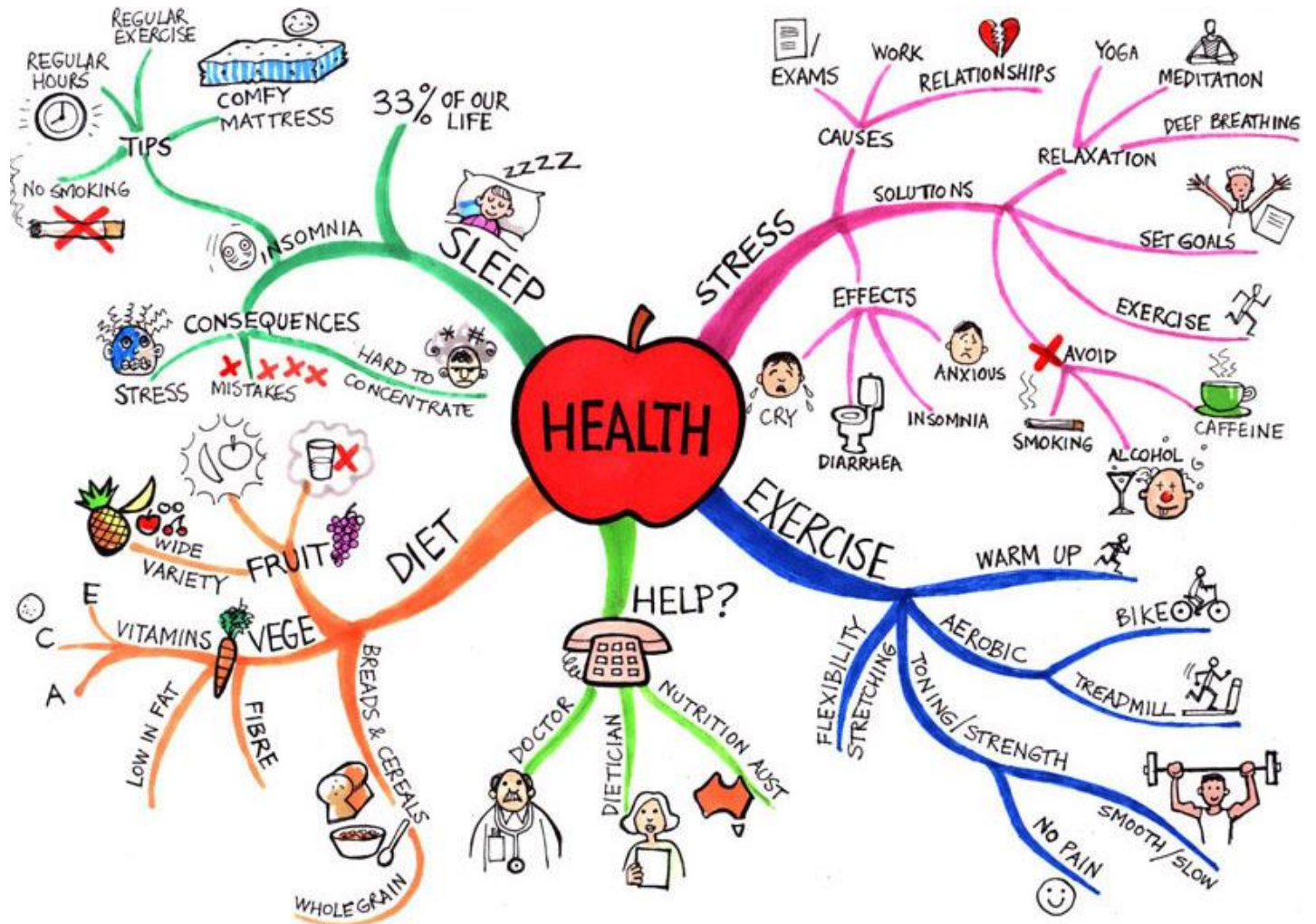
### INSPIRATION

- ❑ Definition: A concept map or conceptual diagram is a **diagram that depicts suggested relationships between concepts**. It is a graphical tool that instructional designers, engineers, technical writers, and others use to organize and structure knowledge.
- ❑ Visual structure: A concept map typically **represents ideas and information** as boxes or circles, which it connects with labeled arrows in a downward-branching hierarchical structure. The relationship between concepts can be articulated in linking phrases such as causes, requires, or contributes to.



## Concept Map

## INSPIRATION





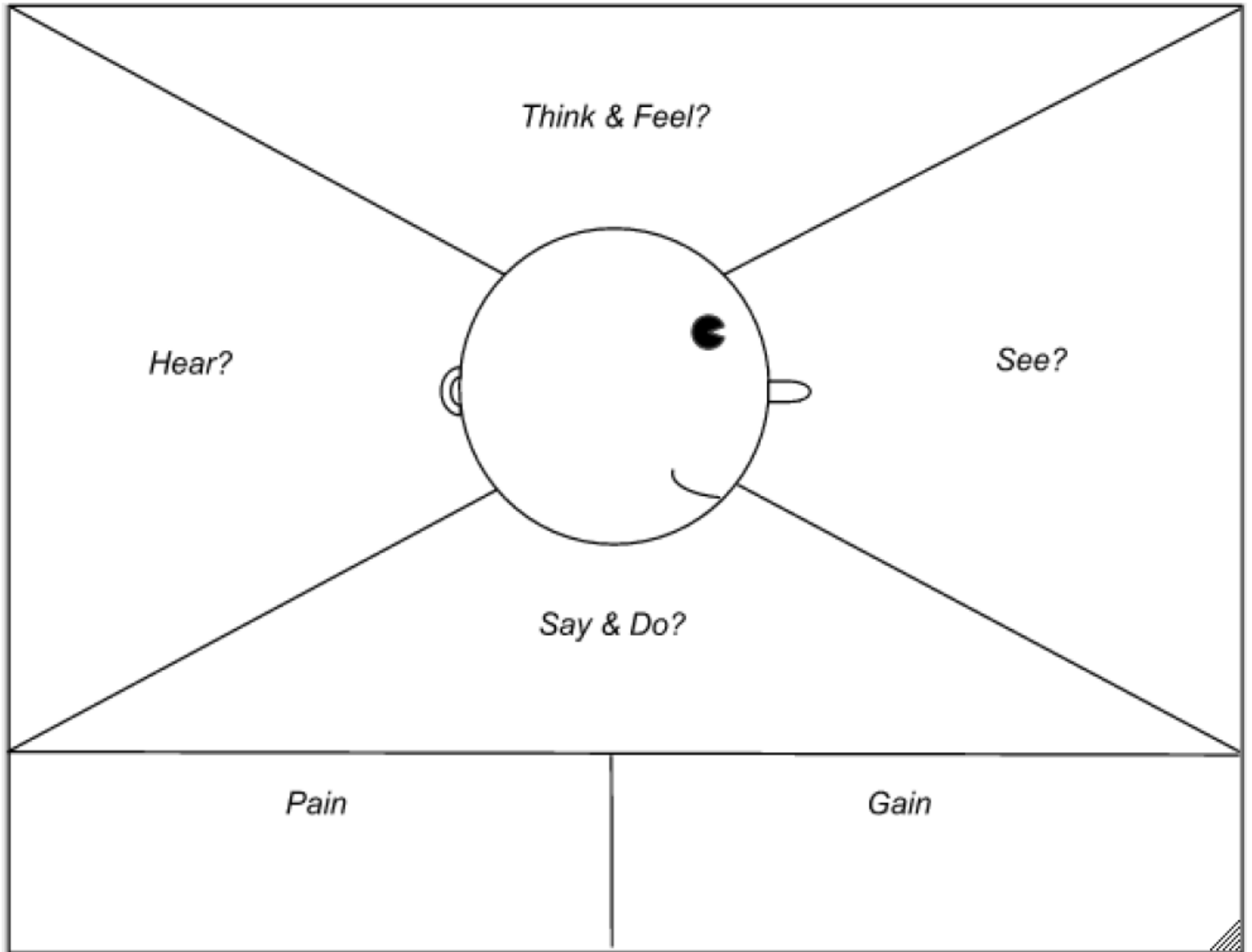
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### INSPIRATION

- ❑ An Empathy map will help you **understand your user's needs** while you develop a deeper understanding of the persons you are designing for. There are many techniques you can use to develop this kind of empathy.
- ❑ An Empathy Map is just one tool that can help you empathise and synthesise your observations from the research phase, and draw out **unexpected insights** about your user's needs.
- ❑ The map provides major areas in which to focus our attention on, thus providing an overview of a **person's experience**.
- ❑ Empathy maps are also great as a background for the construction of the **"user personas"** that you would want to create later.

# Empathy Map

INDUSTRIAL DESIGN



# THINK & FEEL?

Don't want to blow the budget

My home is feeling bland and boring!

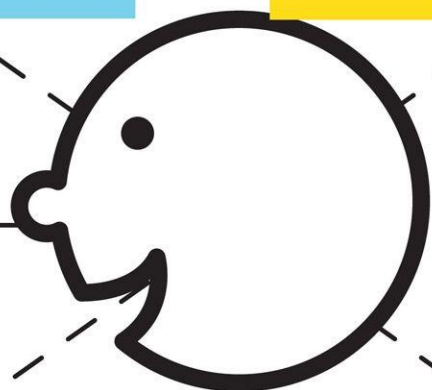
So many cool things in the glossy mags!

Will it look like it does in the photos?

I want to stand out a bit!

My friends house is so beautiful!

Confused by the choice!



I got the same thing cheaper from...

# HEAR?

Why would you trust them?

Shop around for the best deal

We need to buy this now, I need it tomorrow

# SAY & DO?

I spend wisely and do my research

I respect craftsmen and quality

I value good design

customer's name *Peter*

background *Retired business leader, currently updating kitchen*

### INSPIRATION

- ❑ A persona is a **fictional description of a target user** of the product. It is not an human, is a archetype, described as if they were a real persona.
- ❑ The description should include details about persona's **needs, concerns and goals**. Also include background information such us age, gender, behaviors and occupation. A persona does not need to cover every aspect of a real person's life, but rather should focus on those things that will impact in design.
- ❑ We need all the team to emphasize with this personas to create more successful products.

# Clark Andrews

Friendly

Clever

Go-Getter

Age: 32

Work: Software Developer

Family: Single

Location: San Jose, CA

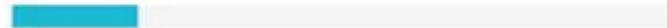
Character: The Computer Nerd



*"I feel like there's a smarter way for me to transition into a healthier lifestyle."*

## Motivations

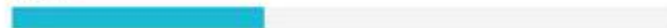
Fear



Power



Social



## Goals

- To cut down on unhealthy eating and drinking habits
- To measure multiple aspects of life more scientifically
- To set goals and see and make positive impacts on his life

## Frustrations

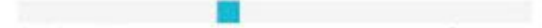
- Unfamiliar with wearable technology
- Saturated tracking market
- Manual tracking is too time consuming

## Bio

Clark is a systems software developer, a "data junkie" and for the past couple years, has been very interested in tracking aspects of his health and performance. Clark wants to track his mood, happiness, sleep quality and how his eating and exercise habits affects his well being. Although he only drinks occasionally with friends on the weekend, he would like to cut down on alcohol intake.

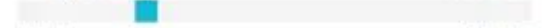
## Personality

Introvert



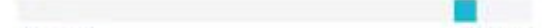
Extrovert

Analytical



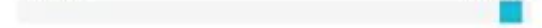
Creative

Loyal



Fickle

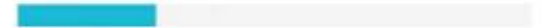
Passive



Active

## Preferred Channels

Social Media



Mobile



Email



Traditional Ads



## Brands



## **Esercitazione pratica: EMPATHY MAP**

**Customer: Adele**

**Background : 70 anni, pensionata. Ha qualche acciaccio, ma è ancora indipendente; vive sola nel suo appartamento in città. Dovrebbe proprio trovare una soluzione per il caldo estivo soffocante, ma non sa che fare.....**

Invented in the US in the '30s by Alex Osborn, founder of the Advertising Agency Batten.

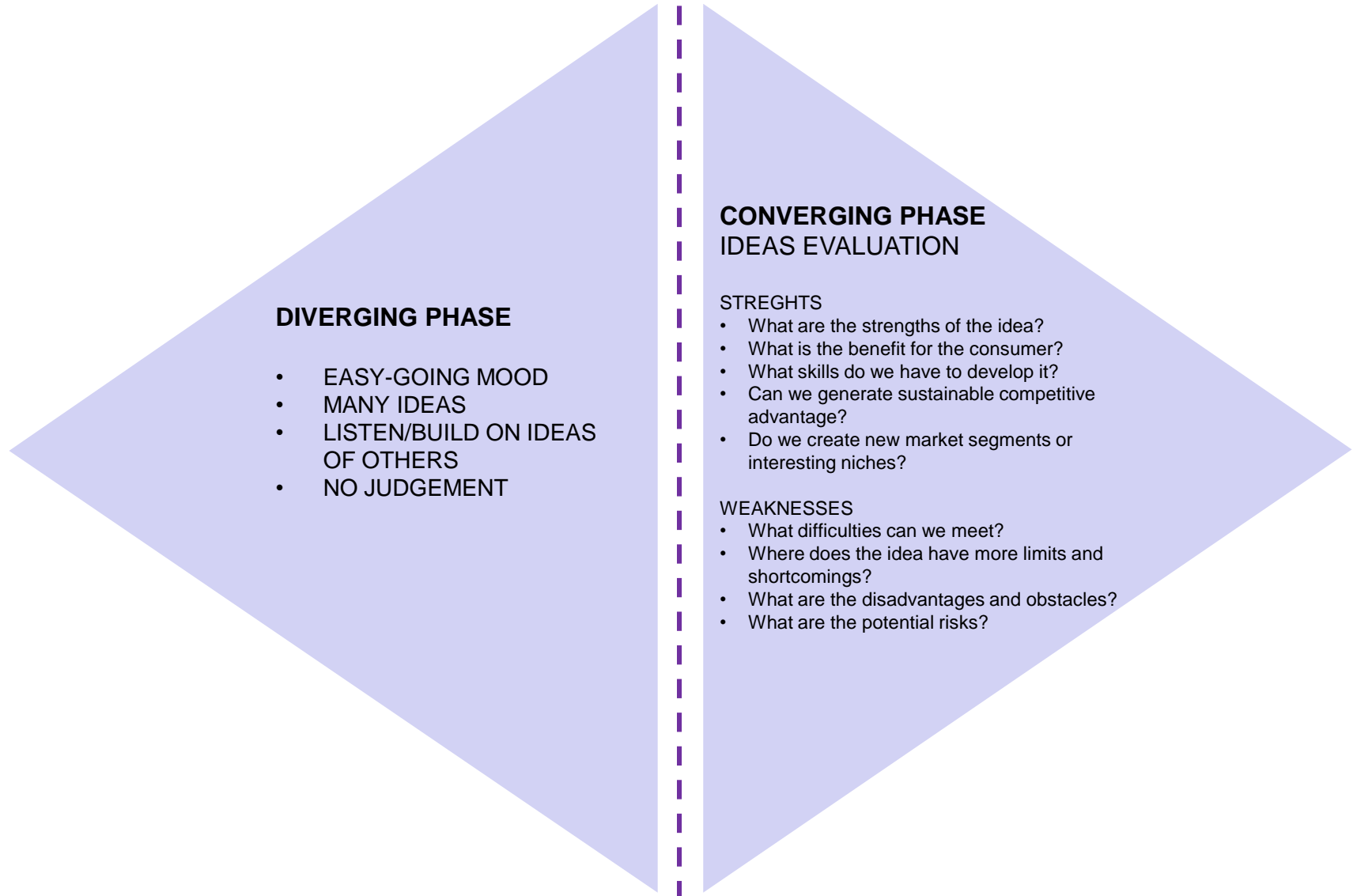
Brainstorming is a situation where a group of people meet to generate new ideas and solutions around a specific domain of interest by removing inhibitions.

#### Key Rules:

1. Go for quantity
2. Withhold criticism
3. Welcome wild ideas
4. Combine and improve



A brainstorming session in New York at the end of the 1950s. The fundamental rules were posted on the right wall, and below the stenotypist who recorded the ideas produced





**VIDEO IDEO BRAINSTORMING**

<https://www.youtube.com/watch?v=M66ZU2PClcm&t=7s>



*“The “hackathon” has become one of the latest vogue terms in business. Typically used in reference to innovation jams like those seen at Rails Rumble or TechCrunch Disrupt, it describes an **event that pools eager entrepreneurs and software developers** into a confined space **for a day or two** and **challenges** them to create a cool killer app.”*

*“They are less about designing new products and more about “hacking” away at old processes and ways of working. By giving management and others the ability to kick the tires of collaborative design practices, 24-hour hackathons can show that **big organizations** are capable of **delivering breakthrough innovation at start-up speed**”*

McKinsey&Company, Digital McKinsey Magazine Article

### Centered on the Customer

- A hackathon is **focused** on a single customer process or journey and supports a **clear business target**—for example, speed, revenue growth, or a breakthrough customer experience.

### Deeply Cross-Functional

- This is not just for the IT crowd. Hackathons bring together people from across the business to force different ways of working a problem.

### Starting from scratch

- Participants go in knowing that **everything can and should be challenged**. That's liberating. The goal is to toss aside traditional notions of how things are done and reimagine the richest, most efficient way to improve the customer experience.

### Concrete and focused on output

- A 24-hour hackathon typically concludes with an **experiential presentation to senior leaders**. This management showcase includes a real-life demonstration of the new prototype and a roadmap of IT and other capabilities needed to bring the final version to market in under 12 weeks.

### Iterative and continuous

- When hackathons end, there is usually a surge of enthusiasm and energy. But that energy can dissipate unless management puts in place new processes to **sustain the momentum**.

**VIDEO HACKATON LUXOTTICA**

<https://www.youtube.com/watch?v=TCHakFODCR4&list=PL1ASo2JY6AHnVO9M2799Opspy-MfJHnew>

■ **BRAINSTORMING PRACTICAL EXERCISE (Lunedì 11 marzo)**  
Each Group should bring:



**MARKERS**



**POST-IT**



**BIG WHITE PAPER SHEETS**