

Design thinking and innovation planning

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February 23th 2022



What do you expect from this module?



How often do you deal with issues related to innovation in your professional life?



How would you assess your creativity on a scale from 1 to 10?

Our agenda for the module

February 25th
2022

- What is innovation and how can it be planned?
- Design thinking workshop

Follow-up
activity

- Design thinking self study module
- (3 hours)

March 10th
2022

- Team activity presentation

Questions?



How can I innovate? Decisions and implementation



Innovation is a novel: proposition
Innovation is continuous change: learning to collaborate
Innovation generates payback



Do we have to innovate?

- The Entrepreneurial Process Consists of Four Steps
 - Step 1: Deciding to start something new.
 - Step 2: Developing successful ideas
 - Step 3: Moving from an idea to an entrepreneurial firm.
 - Step 4: **Managing and developing** your activity as the entrepreneurial firm.



YES!!

NEW PRODUCTS
NEW INDUSTRIES
NEW MARKETS
But how?

Do we have to innovate?

- «Innovation management is really just a form of **looking into the future**, being creative and imaginative so that you can carve out a new niche before your competitors.»
- «Business must **look ahead**, not behind. It's not just the big companies that need to do this. Every business must innovate to compete.»
- «Innovation Management is about more than just planning new products, services, brand extensions, or technology inventions. It's about **imagining, mobilizing** and competing in new ways.»
- «Innovative companies **attracts and keeps better management talent**»
- «Innovative companies are traded at a premium price»
- «Major competitors in important markets are investing heavily in innovation. We need to react to them.»



2

What is innovation?



What is innovation?

Innovation is...

- ...doing something better than before.
 - ...doing something differently than before.
 - ...doing something that has never been done before.
- ...find new solution to new needs.



Ability to:

- see connections between «things»;
- identify new spaces;
- anticipate changes;
- take advantage from opportunities.

What is innovation?

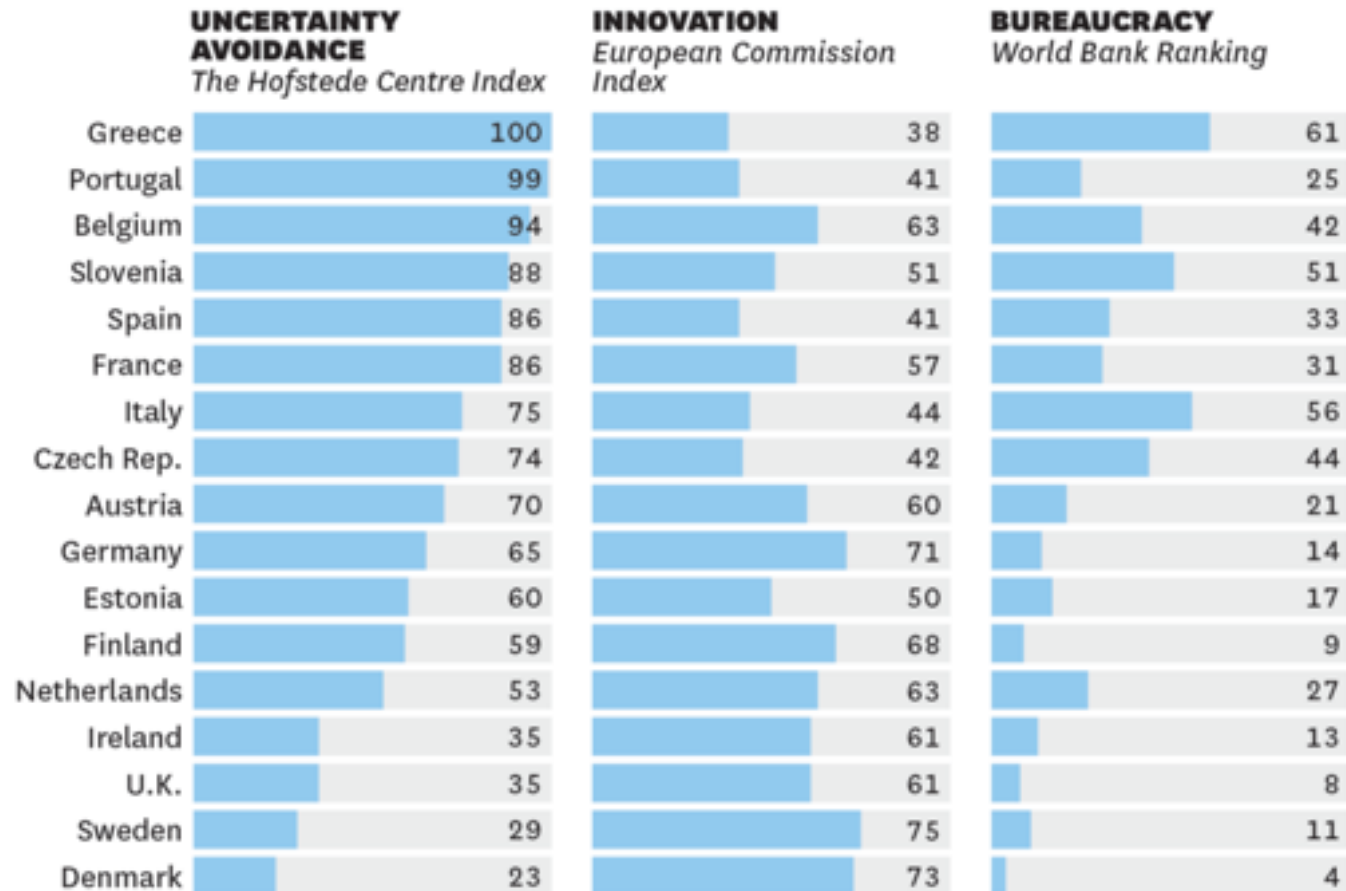
- To be considered an innovation, a process or an outcome must meet **three criteria**:
 - novelty
 - improvement
 - usefulness
- Four distinct **elements of innovation**:
 1. process of innovating
 2. product or invention itself
 3. diffusion or adoption of the innovation
 4. value created by the innovation

} GENERATION

} EXPLOITATION

COUNTRIES THAT AVOID UNCERTAINTY ARE LESS INNOVATIVE AND HAVE MORE BUREAUCRACY

Comparing national scores on indices and rankings of innovation, bureaucracy, and culture.



SOURCES THE HOFSTEDE CENTRE CULTURE COMPASS, EUROPEAN COMMISSION INNOVATION UNION SCOREBOARD, WORLD BANK EASE OF DOING BUSINESS RANKING

HBR.ORG

Innovation is not...

- ...necessarily revolutionary.



- But can be disruptive....



2

What is innovation? Different concepts of innovation

Low Novelty

High Novelty

**Incremental
innovation**

doing what we do, but better

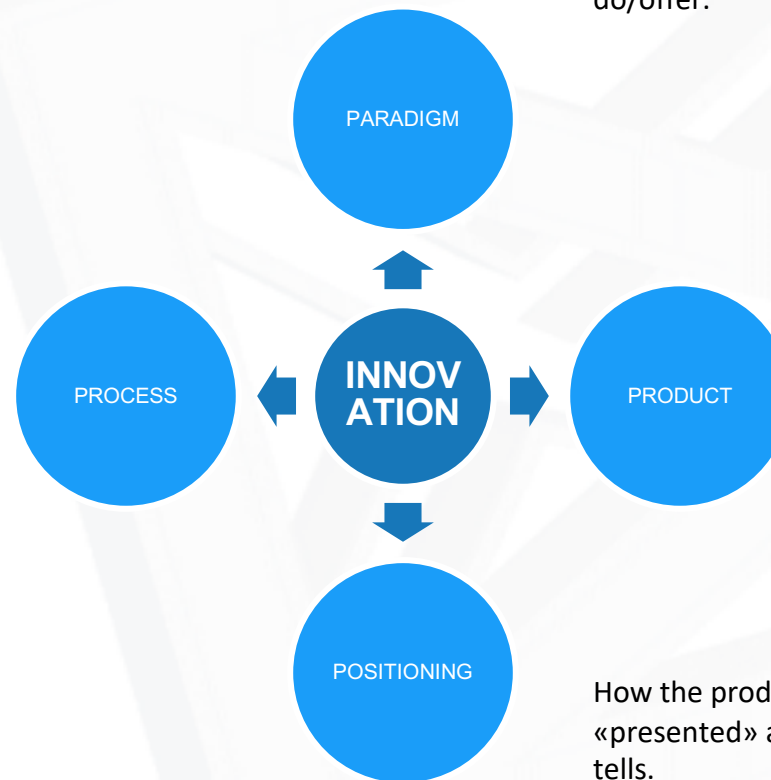
**Radical
Innovation**

doing something differently

2

What is innovation? Different types of innovation

How the product/service is created, produced and delivered.



Which structure supports what we do/offer.

Which product/service is offered to the market and with which features.

How the product/service is «presented» and which story tells.

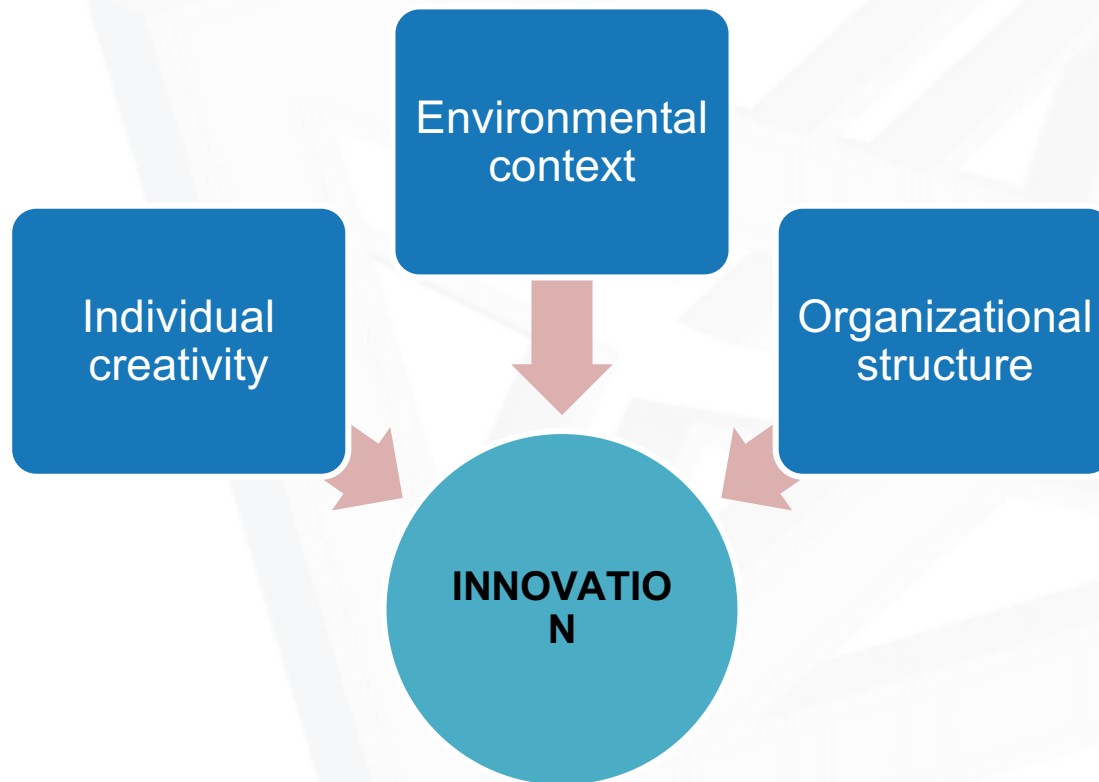


Is creativity/innovation innate or can it be nurtured?



3

What is innovation management? Innovation enabling factors



4

What is innovation management?

Innovation sources: creativity

Ability to produce new and useful ideas

From a PERSON depends on:

own principles and values;
intellectual abilities;
knowledge;
forma mentis;
personality;
motivations and inspirations;
environment;

From an ORGANIZATION depends on:

Creativity of its members;
Social processes that shape how members behave and:

Incentives for ideas
expression

Training

Organization culture

What is innovation management? Innovation from individuals

Inventors

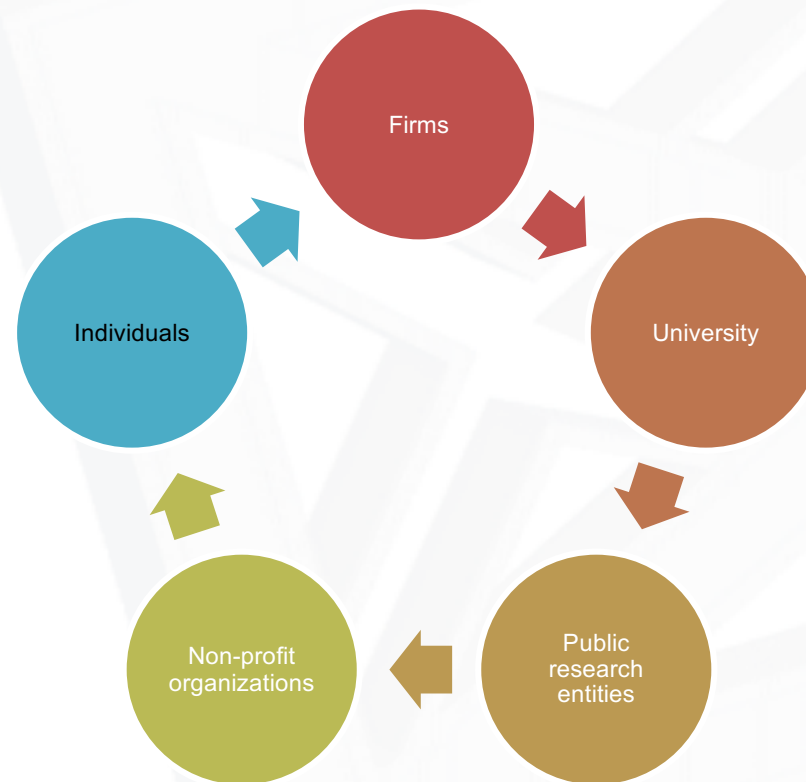
- Good knowledge of the sector where they operate
- Knowledge of multiple fields/sectors
- Curiosity and interest for problems (more than for solutions)
- Critics towards dominant thoughts
- Orientation to knowledge integration
- Search for global solutions, instead of particular solutions
- “Generalist” approach

Users

- Deep understanding of needs
- Direct involvement in the use of the good
- Strong incentive for improvement
- Wanted or casual proposal of alternative solutions that best answer to their needs

3

What is innovation management? Innovation sources: collaborations



Who are the three companies that you consider as most innovative?

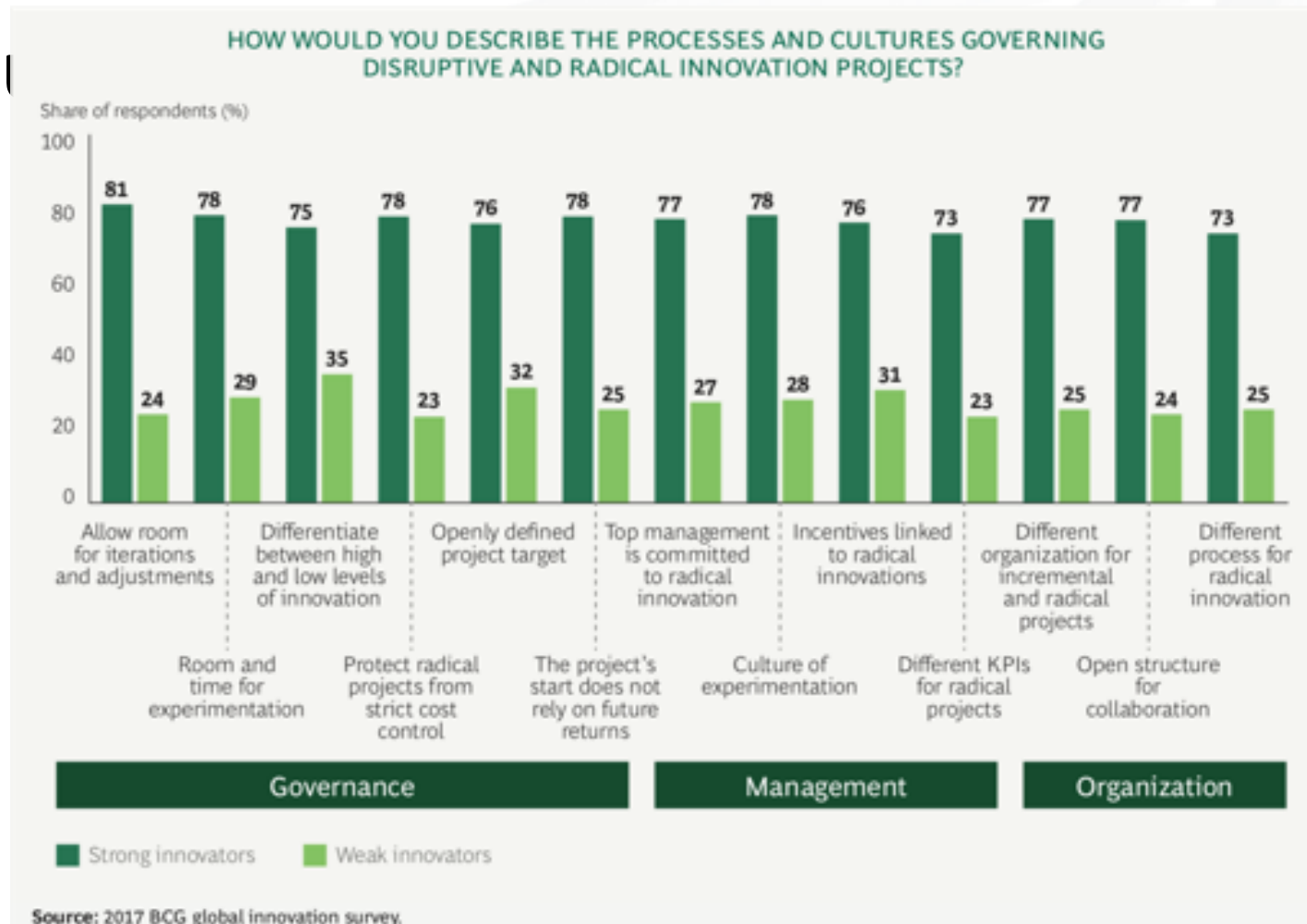


The most innovative companies of 2021

Rank: 1–10	Rank: 11–20	Rank: 21–30	Rank: 31–40	Rank: 41–50
1 Apple	11 Siemens	21 Toyota	31 Xiaomi	41 Inditex
2 Alphabet	12 LG	22 Salesforce	32 IKEA	42 Moderna
3 Amazon	13 Facebook	23 Walmart	33 Fast Retailing	43 Philips
4 Microsoft	14 Alibaba	24 Nike	34 Adidas	44 Disney
5 Tesla	15 Oracle	25 Lenovo	35 Merck & Co.	45 Mitsubishi
6 Samsung	16 Dell	26 Tencent	36 Novartis	46 Comcast
7 IBM	17 Cisco	27 Procter & Gamble	37 Ebay	47 GE
8 Huawei	18 Target	28 Coca-Cola	38 PepsiCo	48 Roche
9 Sony	19 HP	29 Abbott Labs	39 Hyundai	49 AstraZeneca
10 Pfizer	20 Johnson & Johnson	30 Bosch	40 SAP	50 Bayer

Source: BCG Global Innovation Survey 2020 and 2021.

3 Strong Innovators Are Much More Likely Than Weak Ones to Have Processes and Culture





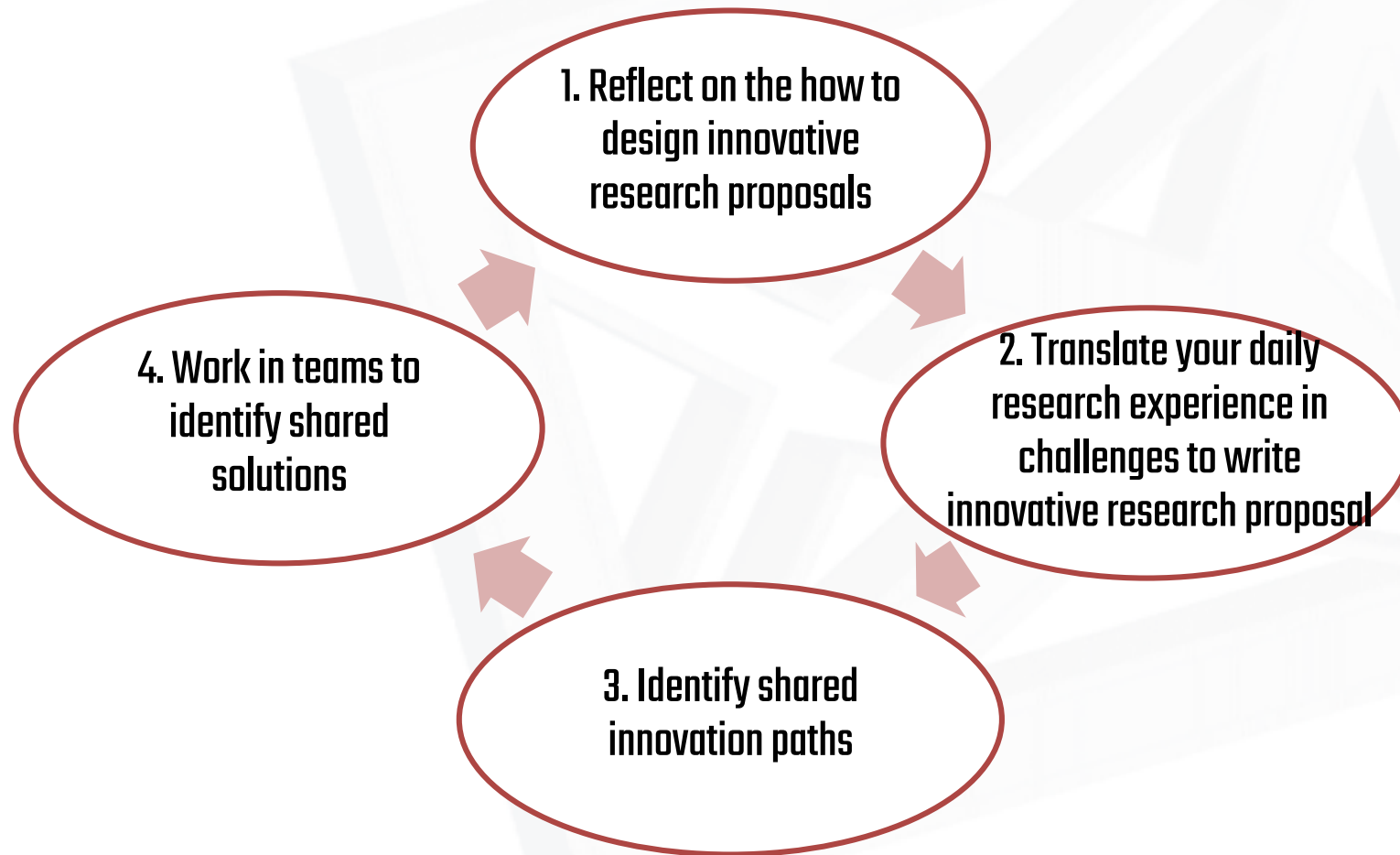
What you need



ICEBREAKER

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Goals of the workshop



What is design?

- “a drawing or set of drawings showing how a building or product is to be made and how it will work and look”
- “the art of making plans or drawings for something”
- “the art of making plans or drawings for so”mething

Cambridge Dictionary

- il designer è un progettista dotato di senso estetico, che lavora per la comunità/the designer is a personer with aesthetic sense, which works for the community

Bruno Munari



What is design?

UX v. CX v. SD

Product interactions

Users interact with product and the experience they receive from that interaction.

Experience perception

CX is the design, implementation, and management of interactions across the entire customer journey.

System approach

Service Design also focuses on the design of entire customer journey, but it also designs the behind-the-scenes activities that enable those experiences to be delivered as planned.



What is design?



«nobody knows everything, everyone knows something» Pierre Levy

What is Design Thinking



- Methodology developed in 2000 by Stanford University, to increase the capacity of organizations to make decisions
- Identify innovative directions, strategies and solutions to deal with complex problems
- Starts from the actor (user / client / operator) to detect needs and add value to both the organization and the end user ("user-centric" method).
- Get to the result through a structured 5-step method.
- Work in a team and develop ideas through collaboration.
- Main benefits:
 - » Improves the ability to make decisions,
 - » Create a culture of innovation,
 - » Create a positive and proactive environment



Examples of Design Thinking application



Diagnostic Equipment Manufacturer - Product Design

Transformation of the machinery for the diagnostic examination (CAT) to make the experience more pleasant for children



CASI project (European Commission) - Citizens 'Visions for a Sustainable Future

Identification of research objectives for sustainable development, included in the Strategic Programming of the European Commission (2020-2040)



SMARTUP Master - Assessment of future entrepreneurs

Ideation and development of business ideas and evaluation of candidates in the selection phase



ATS Bergamo - Innovation of services

Redesign of services through the enhancement of new digital technologies and the adoption of new organizational approaches

Where we start from



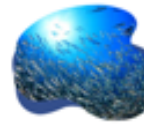
The calls for Missions represent an excellent opportunity for all teachers and researchers from the various areas of our University to create or participate in international, competitive and multidisciplinary networks ... G.Cavaletti e S.Torrisi



In particolare, la **Mission 'Adaptation to climate change'**, nel 2022 si concentrerà sul coordinamento del portafoglio di innovazioni a favore dell'adattamento climatico e per identificare le lacune rimanenti in queste aree. Fornirà conoscenze e dati all'avanguardia sugli impatti climatici e sui rischi connessi; supporterà lo sviluppo e la sperimentazione di soluzioni in grado di affrontare uno o più dei sistemi identificati come chiave per la costruzione della resilienza climatica e dimostrare soluzioni, tra cui sostenere le aree costiere nel percorso verso la neutralità e la resilienza climatica, proteggendo contestualmente le acque.



La **Mission 'Cancer'** intende unire gli sforzi di tutti i Paesi europei mirando alla prevenzione: a quella primaria, cercando di cambiare gli stili di vita individuali, a quella secondaria, cercando di educare i cittadini agli screening e a quella primordiale, cercando di ridurre al minimo i potenziali fattori di rischio per la salute. Tutto questo per ridurre i malati di cancro, anticipare le diagnosi, migliorare la qualità della vita dei malati e sostenere gli stessi malati anche dopo le terapie. L'obiettivo audace e stimolante della Mission Cancer sta tutto nel suo slogan **"Cancer, mission possible"**, cioè di salvare 2 milioni di vite entro il 2027. La Commissione prevede inoltre azioni a sostegno della creazione di una rete di infrastrutture dedicate alla prevenzione e cura del Cancro con un focus sull'integrazione dei dati della ricerca. Nel campo della qualità della vita, la Commissione vuole sostenere la creazione dell'European Cancer Patient Digital Center; è prevista la creazione di un National Cancer Mission Hub per supportare il monitoraggio dell'attuazione della Mission, con il coinvolgimento anche dei cittadini tramite iniziative di comunicazione e informazione.



La **Mission 'Restore our Ocean, seas and waters by 2030'**, nella prima fase di "sviluppo e pilotaggio" (2022-2025), prevede attività di ricerca e innovazione per gettare le basi per l'attuazione dei suoi tre obiettivi principali: i) Proteggere e ripristinare gli ecosistemi marini, d'acqua dolce e la biodiversità, in linea con la Strategia dell'UE sulla biodiversità 2030; ii) Prevenire ed eliminare l'inquinamento dei nostri oceani, mari e acque, in linea con l'azione dell'UE che mira ad azzerare

l'inquinamento per aria, acqua e suolo; iii) Rendere l'economia blu sostenibile e carbon neutral, nonché circolare, in linea con la proposta di legge europea sul clima e la visione olistica racchiusa nella Comunicazione per una Blue Economy Sostenibile. Attività di ricerca e innovazione sosterranno soluzioni trasformatrici e innovative da testare e convalidare, al fine di generare nuova conoscenza e osservazioni. Nella fase successiva invece di "sviluppo e upscaling" (2026-2030), le soluzioni saranno ulteriormente sviluppate, ampliate e poste in essere.



La **Mission 'Climate neutral and smart cities'** prevede topic dedicati a "Sostenere la transizione verso la neutralità climatica all'interno delle città" che mirino a rafforzare i servizi e a sostenere la creazione di reti nazionali e internazionali che promuovano modelli collaborativi di governance locale. Altri topic sono dedicati a "Ricerca e Azioni di innovazione a sostegno dell'attuazione delle Città Intelligenti e Climaticamente Neutrali", che supportano approcci innovativi alla pianificazione urbana integrata e alla progettazione, con dimostrazioni su larga scala di distretti a energia pulita positiva, rafforzando l'innovazione e l'inclusività del trasporto pubblico e della mobilità urbana, nonché creando piattaforme per coordinare la dimensione internazionale della Mission.

Le azioni finanziate favoriranno anche il coinvolgimento di cittadini, autorità nazionali, regionali e locali e altri stakeholder delle città, oltre che l'integrazione dell'innovazione sociale e dei servizi digitali, sicuri e di facile utilizzo.



Infine la **Mission 'Soil health and food'** richiede che tutti gli stakeholder e le parti sociali nel loro insieme lungo tutta la catena del valore, compresi gli agricoltori, i gestori del territorio, le industrie, i consumatori e la società in generale riconoscano l'ampio valore sociale ed ecologico dei suoli e contribuiscano attivamente all'utilizzo di pratiche rispettose del suolo, anche attraverso le scelte dei consumatori. Molte delle azioni che mirano alla salute del suolo hanno un impatto diretto sugli obiettivi di tutte le altre missioni: per esempio la presenza del carbonio nel suolo è importante per la mitigazione del clima (Mission di adattamento climatico), la gestione

Where we start from

- https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe_en
https://ec.europa.eu/commission/presscorner/detail/en/IP_21_4747

Inspiration from your life as a researcher

- What are the areas of research where you can innovate?
- Which are your favourite research topics/research projects you are responsible for/working on and which do you believe could be eligible for 5 missions?
- Which contribution, which impact should they generate?
- Which challenges to be addressed and possible solutions to develop your research as an internationally funded proposal?

Define your challenge

- Think about your last experiences in designing a research proposal:
 - What is the main challenge you face in managing innovative research proposals?
 - What are emerging needs and desires?
 - What are the main problems to be solved based on your experience?
- Think about a challenge you would like to face within one of the 5 Horizon Europe Missions and write it on a post-it on our padlet (remember to add your name to it) (max 5 minutes):
 - https://padlet.com/elisabetta_marafioti/DesignThinking

Choose ideas/challenges

1. Present the challenge hang it on the Padlet in 30 seconds

2. Vote the challenges you would like to work on today.
You only have two likes!

3. Let's choose the challenges that have aroused the greatest interest together.

Let's split up into groups and get to work! :)

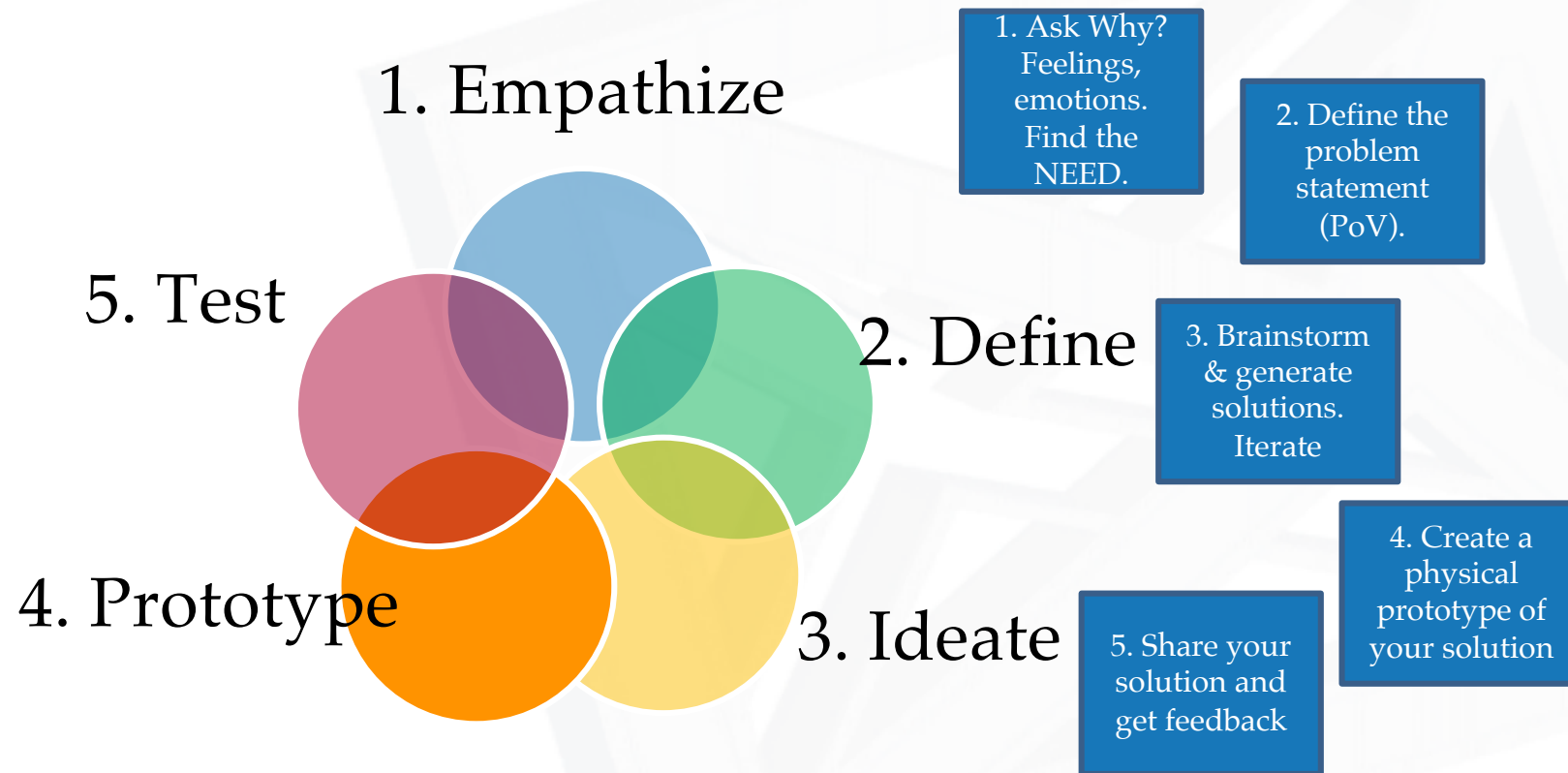
What you need



SHARE AND VOTE

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Design thinking in a nutshell



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Empathize and define

Empathize

Observe



Picture: Peter Mason Taxi Getty Images

Engage



Picture: robertspaceindustries.com

Immerse



Interview
users/researchers.

Utilize provided tools
and forms.

Capture stories,
feelings & emotions.

Ask WHY?

Facilitators will keep
the time and guides
you through this
phase.



Empathise: Interviews

1a. First interview

4 minutes

Notes from the first interview

...change interviewers

Change roles and repeat

1b. Second interview

4 minutes

Notes from the second interview

Change roles and repeat



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Empathise: Interviews

1c. Third interview

4 minutes

Notes from the third interview

...change interviewers

Change roles and repeat

1d. Fourth interview

4 minutes

Notes from the fourth interview

Change roles and repeat



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Define: Reframe the problem

Problem = Point of View

- should be juicy and actionable
- should be worth tackling

Try to capture your learning into few needs.

Needs should be verbs.

Insights are discoveries that you might be able to leverage when creating solutions.

Picture: <https://shannonjamescoaching.com/deal-difficult-situation/>

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Define

Reframe the problem with the help of steps

2 Capture findings individually

3 Define problem statement in teams

Facilitator will keep the time and guides you through this phase.



Define

2. Capture findings

4 minutes

needs: things they are trying to do
(use verbs)

insights: new learnings about your
partner's feelings /worldview to leverage
in your design

(make inferences from what you heard)

3. Define problem statement

5 minutes



(User name)

Needs a way to _____

(user's need)

Unexpectedly, in his/her world

(Insight)



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Define: Synthesize needs & insights



Define

2. Capture findings

4 minutes

needs: things they are trying to do
(use verbs)

insights: new learnings about your
partner's feelings /worldview to leverage
in your design

(make inferences from what you heard)

3. Define problem statement

5 minutes



(User name)

Needs a way to _____

(user's need)

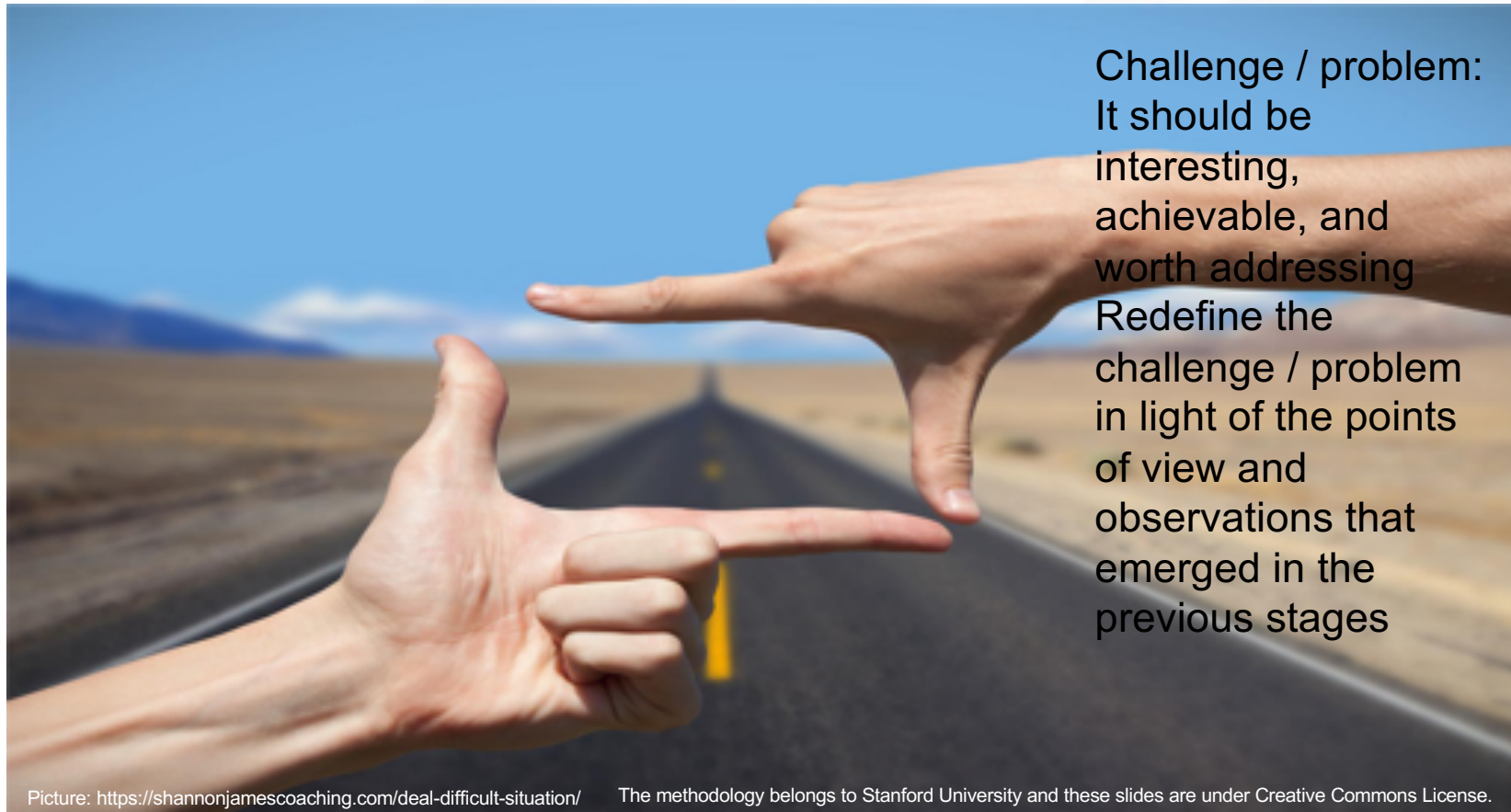
Unexpectedly, in his/her world

(Insight)



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Define: Reframe the problem



Challenge / problem:
It should be
interesting,
achievable, and
worth addressing
Redefine the
challenge / problem
in light of the points
of view and
observations that
emerged in the
previous stages

Picture: <https://shannonjamescoaching.com/deal-difficult-situation/>

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Riformulate the initial challenge

4. The new challenge
(5 minutes)

«

»



In teams




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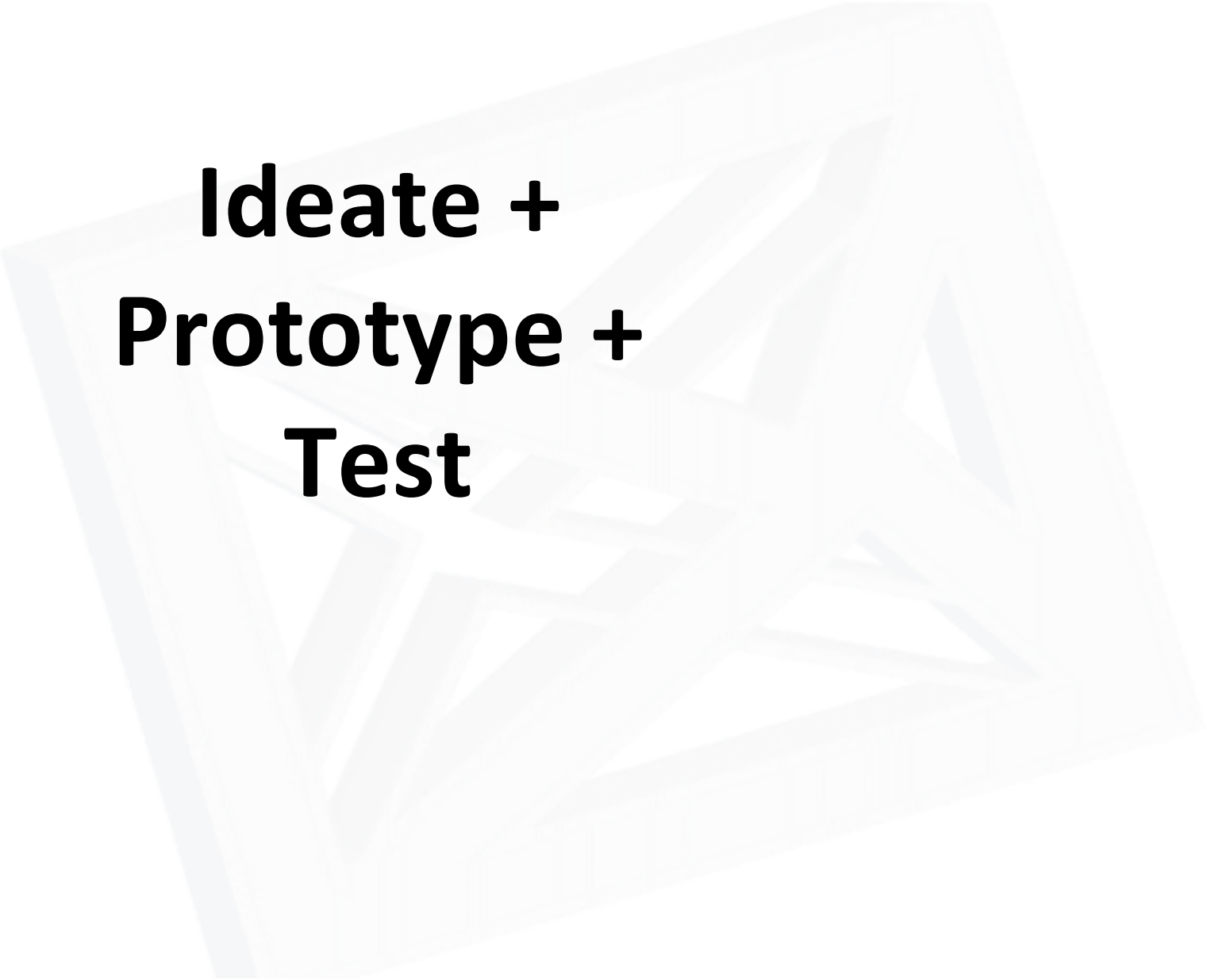
Define: Write your POV

- Present your challenge and collect feedbacks
- 3 minutes for team presentation + 2 minutes for discussion





**Ideate +
Prototype +
Test**



Ideate

What kind of solutions
you can develop to
meet your user's need?

Brainstorm!
Utilize e.g.
post-its, etc.

Fail early and
cheaply! Failing
is a great
opportunity to
learn.

Develop
multiple
options!



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Ideate

Generate alternatives and iterate with the help of steps

5 Sketch radical ways to meet your user's need.

6 Share your solutions with and capture feedback from other team members.

7 Reflect and generate a new solutions in teams.



Ideate: generate alternatives to test

5. Sketch 3-5 radical ways to meet your user's needs.

15 minutes



(write your problem statement above)

--	--	--	--	--

6. Share your solutions & capture feedback 20 minutes

--



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Ideate: Sketch five solutions



Ideate: generate alternatives to test

5. Sketch 3-5 radical ways to meet your user's needs.

15 minutes



(write your problem statement above)

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6. Share your solutions & capture feedback 20 minutes

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Test – Team members share and gives feedback on sketches



Iterate based on feedback

7. Reflect & generate a new solution

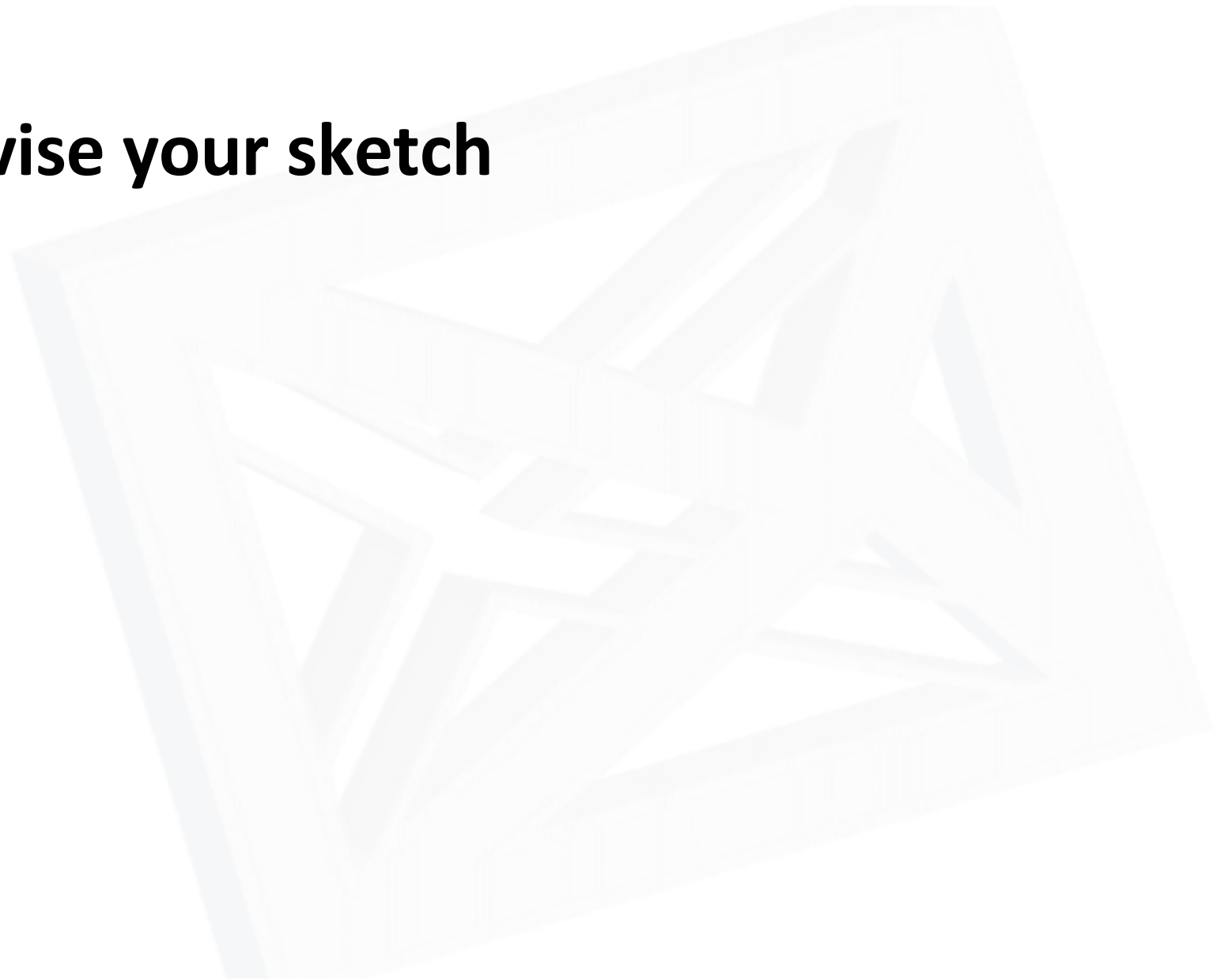
5 minutes

Sketch your big idea, note details if necessary

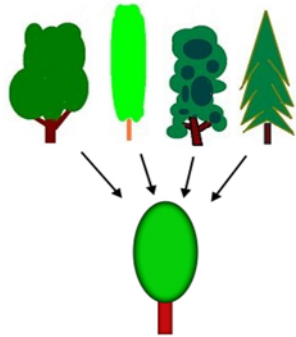


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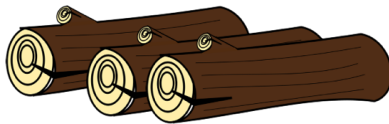
Iterate: revise your sketch



Prototype & test



1. Build prototype of your solution. Use provided materials.
2. Test it. Collect real feedback from potential end-users for your prototype. Go outside the campus!
3. Iterate & refine your PoV and prototype based on the feedback.



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Prototype and test

Generate alternatives and iterate with the help of steps
8 Build your solution in teams.

9 Share your solution and get feedback (outside the
classroom) in teams.

Facilitator will keep the time and guides you through this
phase.



Build and Test

8. Build your solution

30 minutes

Make something your partner can interact with!

9. Share your solution and get feedback

40 minutes (5 sessions x 8 minutes (3+5))

+ What worked

- What could be improved

? Questions

Ideas



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Prototype: Build your solution



Design Thinking Canvas

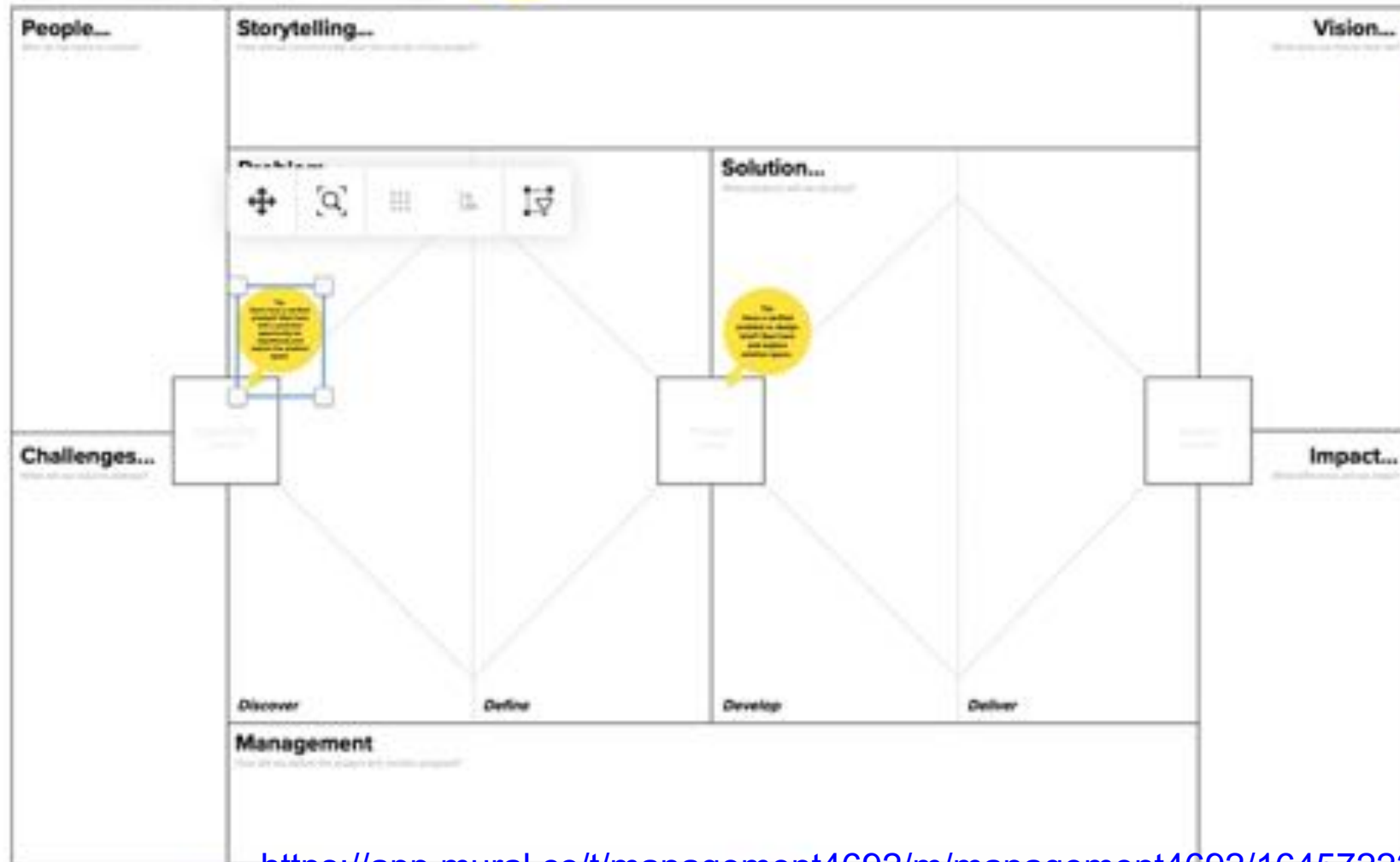
Develop an innovative design-led strategy with a structured vision

for:

Your project title

Created:

Date and context of solution



Share your feedback

<https://app.mural.co/t/management4692/m/management4692/1645722283985/231bddccd3d5aae85f0e22c1eea9541ba2c5a9dc?sender=elisabettamarafioti2123>

Build and test

8. Build your solution

40 minutes

Make something your partner can interact with!

(not here)

9. Share your solution and get feedback

40 minutes (5 sessions x 8 minutes (3+5))

+ What worked

- What could be improved

? Questions

Ideas

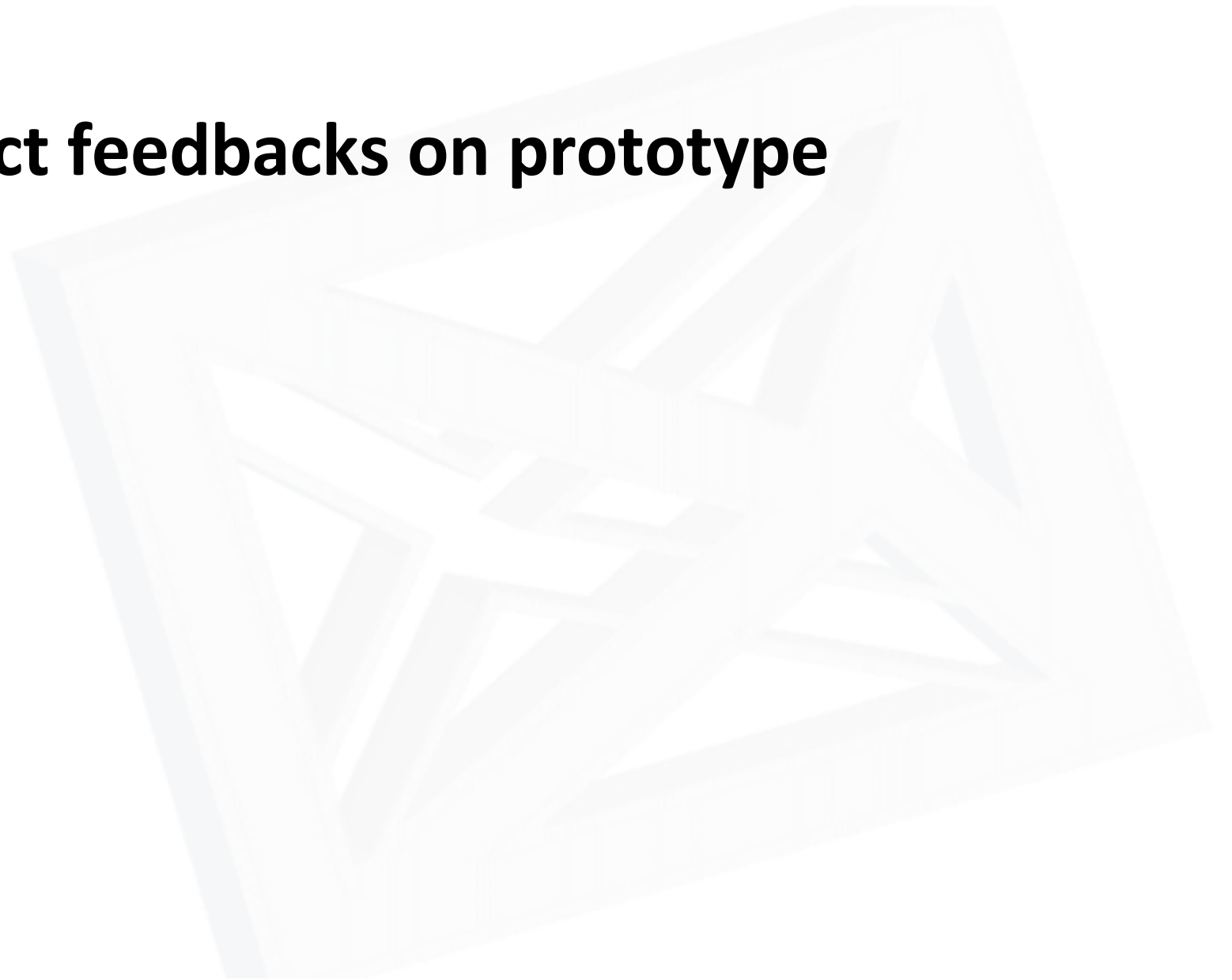


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Pitching solutions



Test: Collect feedbacks on prototype



Recap and closing

- Importance of wearing other people's shoes
- Once you have an idea/solution, it is fundamental to prototype it and share it
- Central role of collaboration: innovation is a team game
- Value of having a bias towards action

6

Organizational architecture as conditions for Creativity: “Operating” and “Innovating” Organizations

	<i>Operating organization</i>	<i>Innovating organization</i>
Structure	Bureaucratic. Specialization and division of labor. Hierarchical control. Defined organizational boundaries.	Flat organization without hierarchical control. Task-oriented project teams. Fuzzy organizational boundaries.
Processes	Emphasis on eliminating variation (e.g. six-sigma). Top-down control. Tight financial controls.	Emphasis on enhancing variation. Loose controls to foster idea generation. Flexible strategic planning and financial control.
Reward systems	Financial compensation, promotion up the hierarchy, power, and status symbols.	Autonomy, recognition, equity participation in new ventures.

Organizational architecture: IDEO

- <https://www.youtube.com/watch?v=GYkb6vfKMI4>
- <https://www.youtube.com/watch?v=16p9YRF0I-g>
- <https://www.youtube.com/watch?v=ASvd2toIA6s>
- <https://www.youtube.com/watch?v=M66ZU2PClCM>

SHOPPING CART PROJECT

Take-home messages

- **Innovation is a process that can be stimulated and managed**
- There are **different types of innovation**: product, process, positioning and paradigm but also incremental vs radical vs disruptive
- There are **different sources of innovation**: internal (creativity, organizational structure) and external (environment, competitors and partners)
- The main facilitator of innovation is **culture**
- Effective tool to design and implement innovation are «Design thinking» and «Business model Canvass» that allows to map the actual situation of a company as well as identify areas of incremental as well as radical innovation

Take-home messages

- You can introduce business model innovation starting from value proposition and revising other business model canvas elements accordingly.
- **Collaborations** and partnerships are one of the main enablers of innovation and requires governance.
- Collaborations can support also public innovation creation and implementation
- **Storytelling** is a powerful tool of change and innovation since it helps you in effectively communicating your culture and value proposition both internally and externally