"GHEORGHE ASACHI"
TECHNICAL UNIVERSITY OF IAȘI

The Design Thinking Process

Trainer: Adriana BUJOR

BEST Course in Summer, 10-21 July 2023, Iasi

Project CNFIS-FDI-2023-F-0457: iAGILE
(Noi convergențe de internaționalizare la TUIASI - iAGILE)
http://www.international.tuiasi.ro/

The Design Thinking Process

Adriana BUJOR

“Gheorghe Asachi” Technical University of Iași

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Day 1

- INTRODUCTION
  - *ICBREAKER*:
    - Who am I?
    - Who are you?
- INTRO TO INNOVATION
  - Definition
  - Types
  - Examples

INTRODUCTION

- WHO AM I?

  ADRIANA BUJOR

  - PhD Lecturer at the Faculty of Industrial Design and Business Management, Engineering and Management Department since February 2020

INTRODUCTION

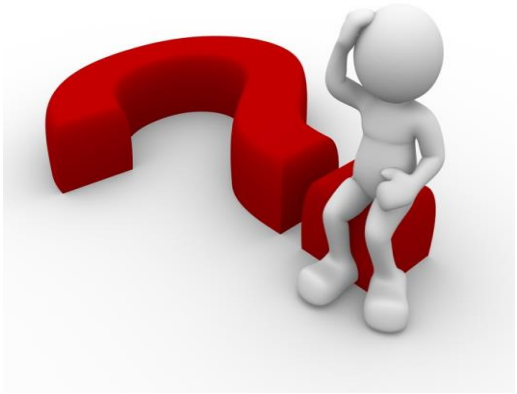
- WHO ARE YOU?

  Name & few personal details if possible

  - Where are you from ...
  - Studies ….
  - Expectations ….

INNOVATION (MANAGEMENT)

What are the first 3 words/phrases that come to mind when you hear innovation?



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INNOVATION

- the ways to **increase the performance of a business**;
- the main determinant of **long-term** economic performance and prosperity, as well as an essential influence on the operation and performance of individual firms and markets;
- intentional and focused **effort to bring change** in the economic or social potential of an organization;
- the means by which entrepreneurs constantly seek **new** sources of innovation (Drucker);
- the implementation of **new** production method combinations (Schumpeter)

INNOVATION

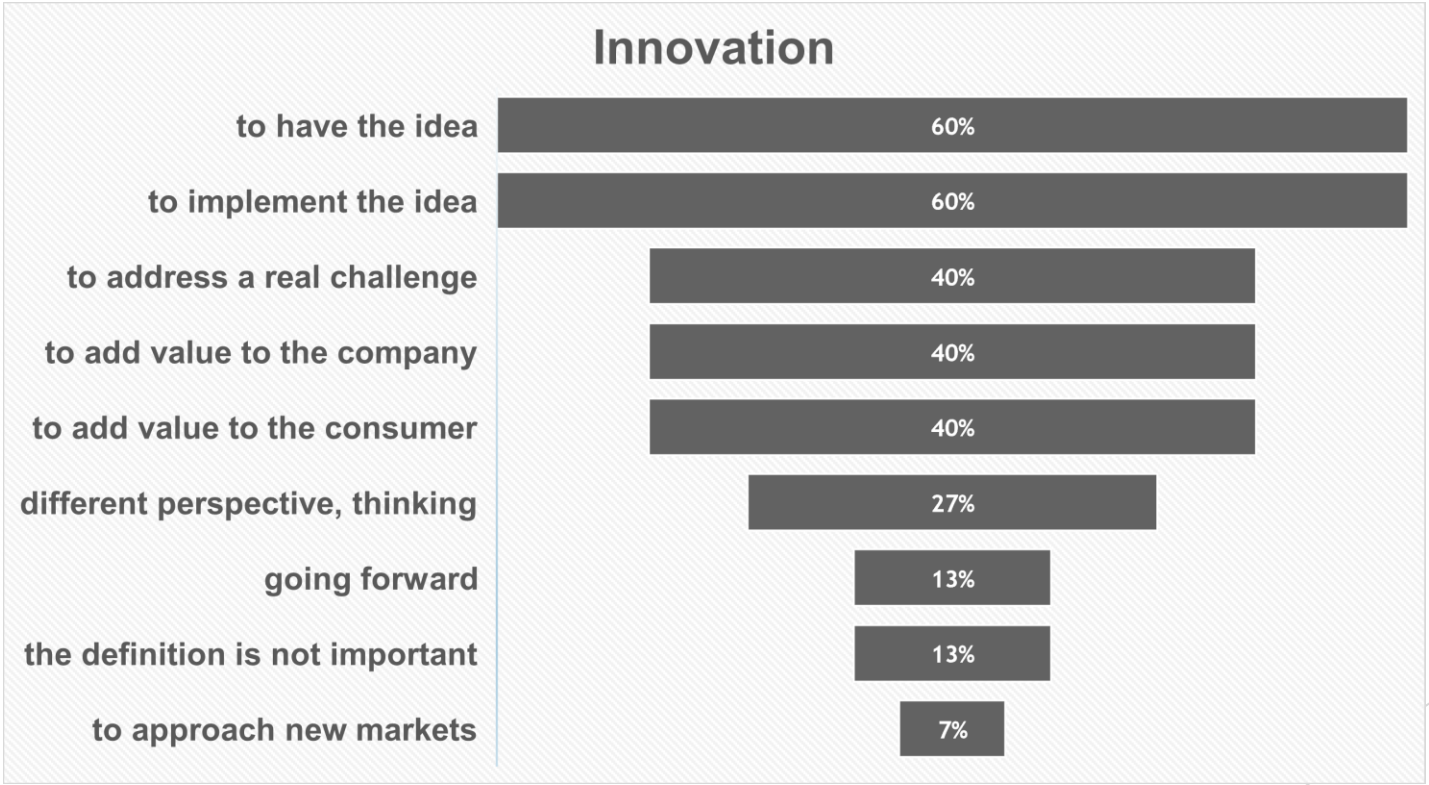
Innovation ≠ *invention*

using a better and implicitly newer idea or method

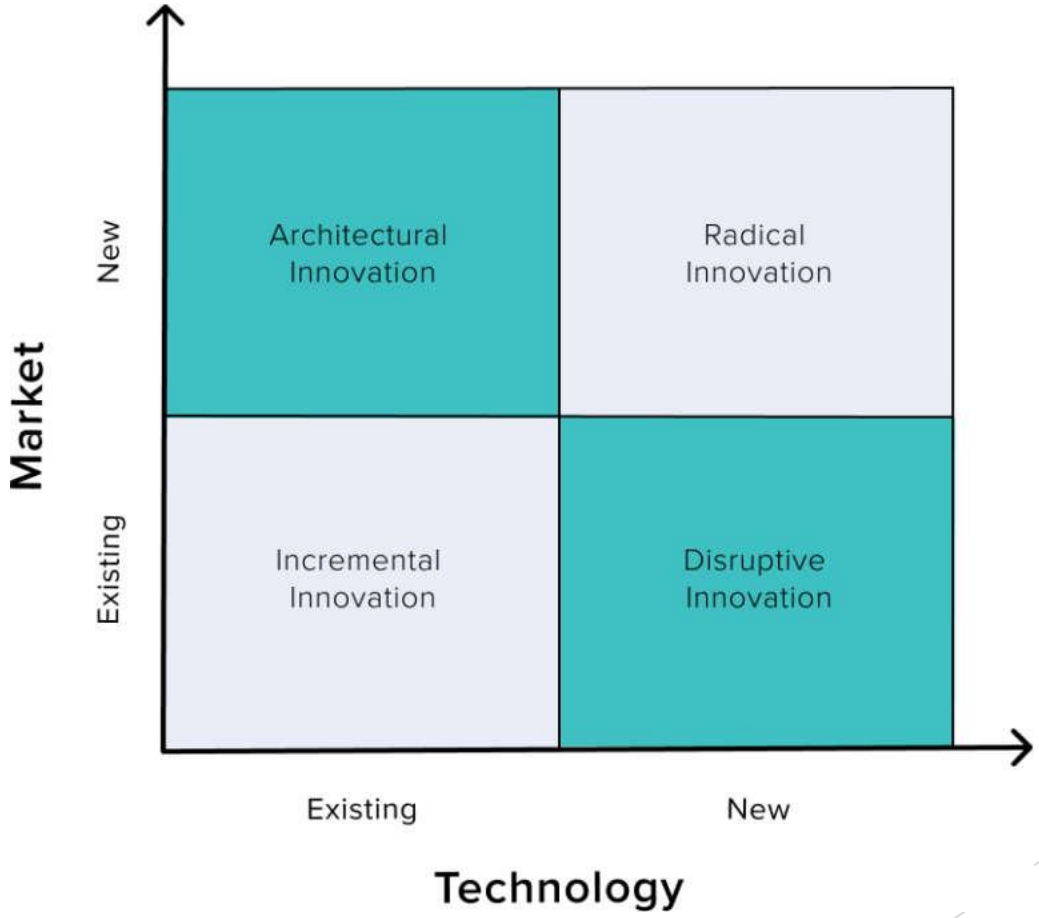
the creation of the idea or method itself

Innovation ≠ change, design or creativity

INNOVATION


Innovation
to have the idea
60%
to implement the idea
60%
to address a real challenge
40%
to add value to the company
40%
to add value to the consumer
40%
different perspective, thinking
27%
going forward
13%
the definition is not important
13%
to approach new markets
7%

The Matrix of Innovation



Incremental Innovation vs. Radical Innovation

- ✓ the most common form of innovation
- ✓ consists of an improvement, optimization of an existing thing (product/ service/ process);
- ✓ uses existing technology
- ✓ increases customer value in the existing market;
- ✓ the purpose and benefits are to optimize customer benefits, reduce costs, reposition, adapt to introduce new markets or adapt to new circumstances such as new laws and standards.

- ✓ find a whole new way of doing something;
- ✓ giving birth to new industries;
- ✓ it involves the creation of revolutionary technologies and even the creation of new markets.

Incremental Innovation vs. Radical Innovation

Example:
If a company had made glasses in the 1950s, then plastic lenses instead of glass lenses would have been an **incremental innovation**. Contact lenses or laser eye surgery would have been **radical innovation.**

Please, think of and give more such examples!

Disruptive Innovation vs. Architectural Innovation

- a term of art;
- describes a process by which a product or service initially takes root in simple applications at the base of a market and then moves relentlessly through the market, eventually substituting established competitors;
- refers to when **an innovation creates a fundamentally new value network.**

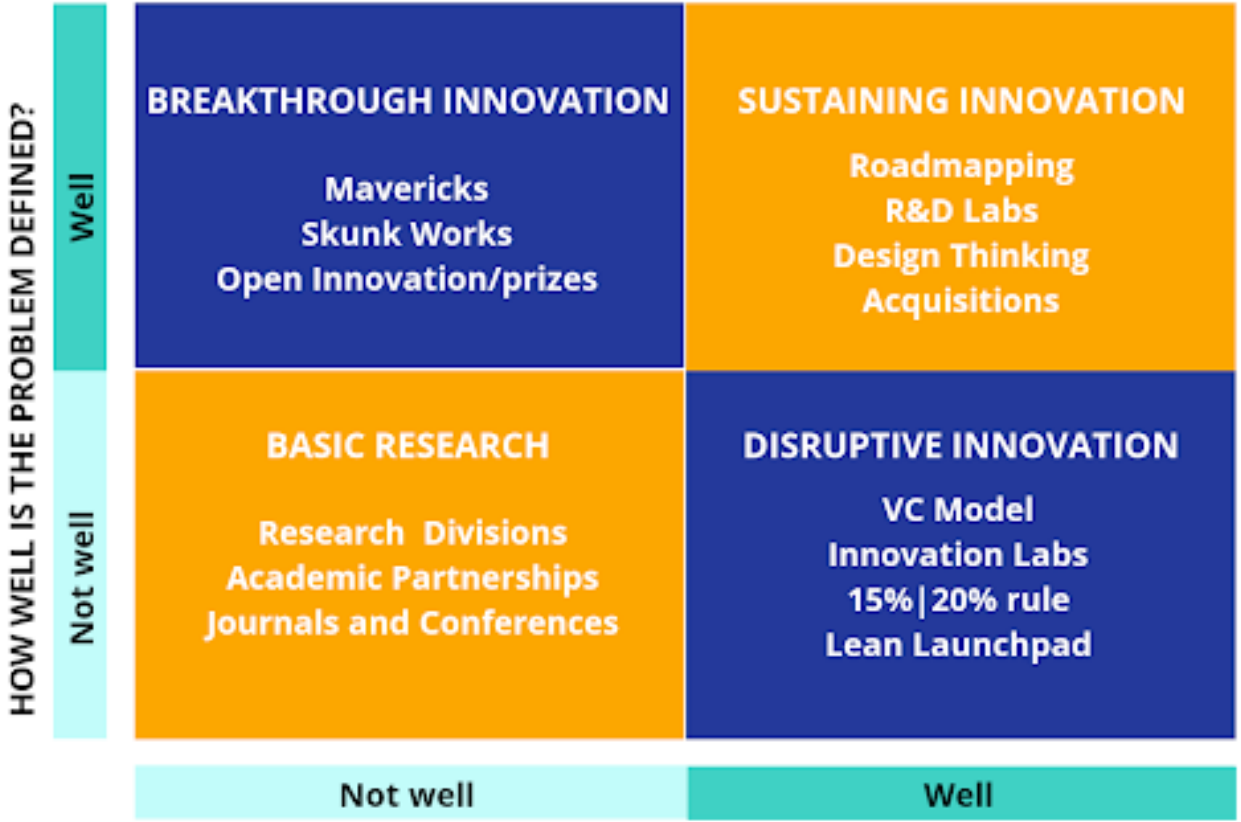
- ✓ developing and bringing new technologies to market through research and development (R&D) or production and sales activities;
- ✓ **you've got a new invention on your hands and you go looking for a market.**

Disruptive Innovation vs. Architectural Innovation

- ***Apple iTunes:*** By integrating the Internet into the music curation process, Apple used disruptive innovation to change the very foundations of the way consumers listened to music. As a result, Walkmans, CDs, MP3 players and record stores are generally considered ancient artefacts in today's market.

- ***Uber app:*** Ride-sharing, geolocation and freelance workers were nothing new. Combined, however, they became a game-changing innovation that served as a standout example of the sharing economy – so much so that the term 'uberisation' has become a term in and of itself.

The Matrix of Innovation



The Matrix of Innovation

- Most innovations happen in this quadrant, because most of the time they are looking to improve something that already exists, be it a product, a service, ...
- It wants to improve existing capabilities in existing markets and starts from a fairly clear idea of the problems to be solved and what skill areas are needed to solve them.

Example: *Apple is a superior sustaining innovator. Apple did not invent the digital music player, the smartphone or the tablet. However, they were constantly improved over the previous models so that they seemed to be something completely new every time. In the same sense, Toyota makes cars just like any other car maker, except they make them good.*

The Matrix of Innovation

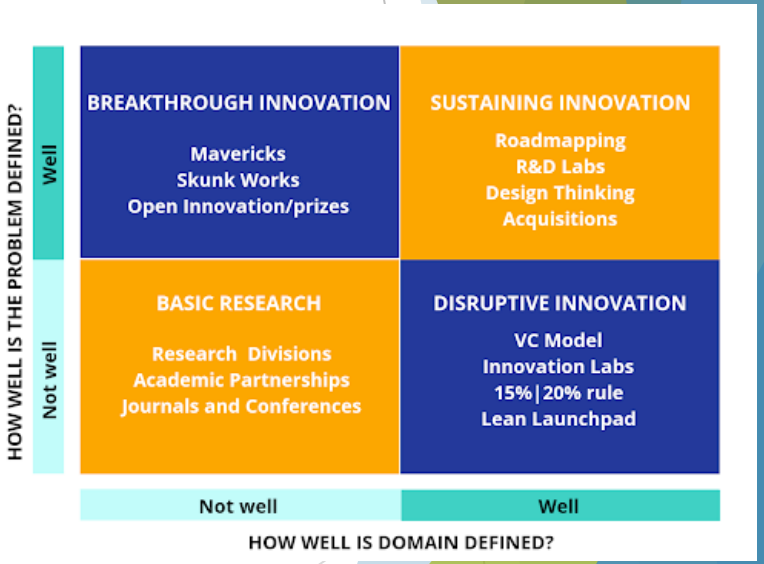
- When the basis of competition changes, due to technological changes or other changes in the market, companies may find themselves becoming better and better at things that people want less and less.
- When this happens, the firm's product innovation is no longer useful, so business model innovation must take place.

Example: While every new **Apple** product manages to turn heads, when Google comes out with something most people don't even understand what it is. From Google Maps to self-driving cars, they're meeting needs customers didn't even know they had. **3M**, the company that pioneered scotch tape and post-it notes, is another example.

The Matrix of Innovation

- Sometimes companies face a well-defined problem that is just hard to solve. In such cases, non-conventional skill areas must be explored. **Open innovation** strategies can be extremely effective in this regard because they help expose the problem to various skill areas.

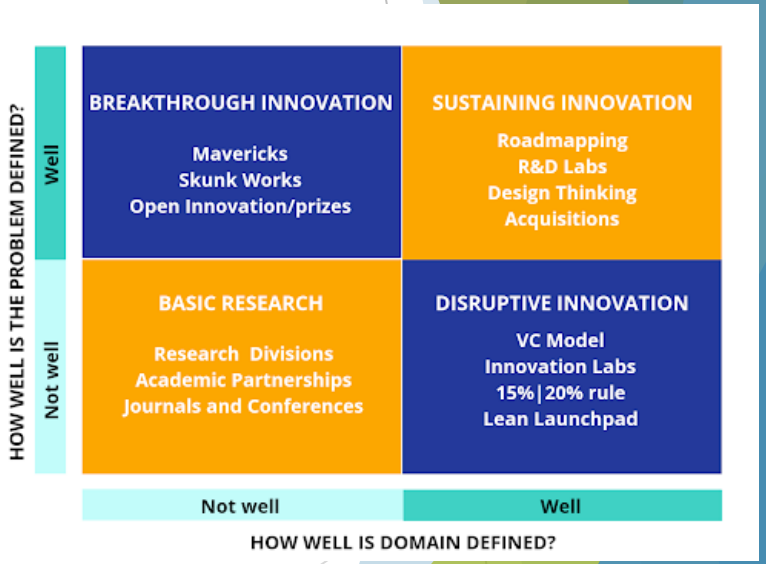
Example: The need to find the structure of DNA was a very well-defined problem, but the answer eluded even the most talented chemists. Typically, these types of problems are solved by synthesizing domains, so Watson and Crick solved the DNA problem by combining insights from chemistry, biology, and X-ray crystallography.



The Matrix of Innovation

- Innovations never arrive in a complete format, always starting with the discovery of a new phenomenon. No one could have guessed how Einstein's discoveries would shape the world or that Alan Turing's universal computer might one day become a real thing.

Example: While most basic research takes place in academic institutions, some businesses can also excel in this area. In 1993, IBM research achieved the first quantum teleportation, a technology that "won't lead to a product until after 2020". They continue to lead in patents. Basic research requires a long time horizon to be worthwhile and therefore needs to be combined with other methods, either in-house or through partnerships.



”Market pull” vs. ”Technology push” Innovations

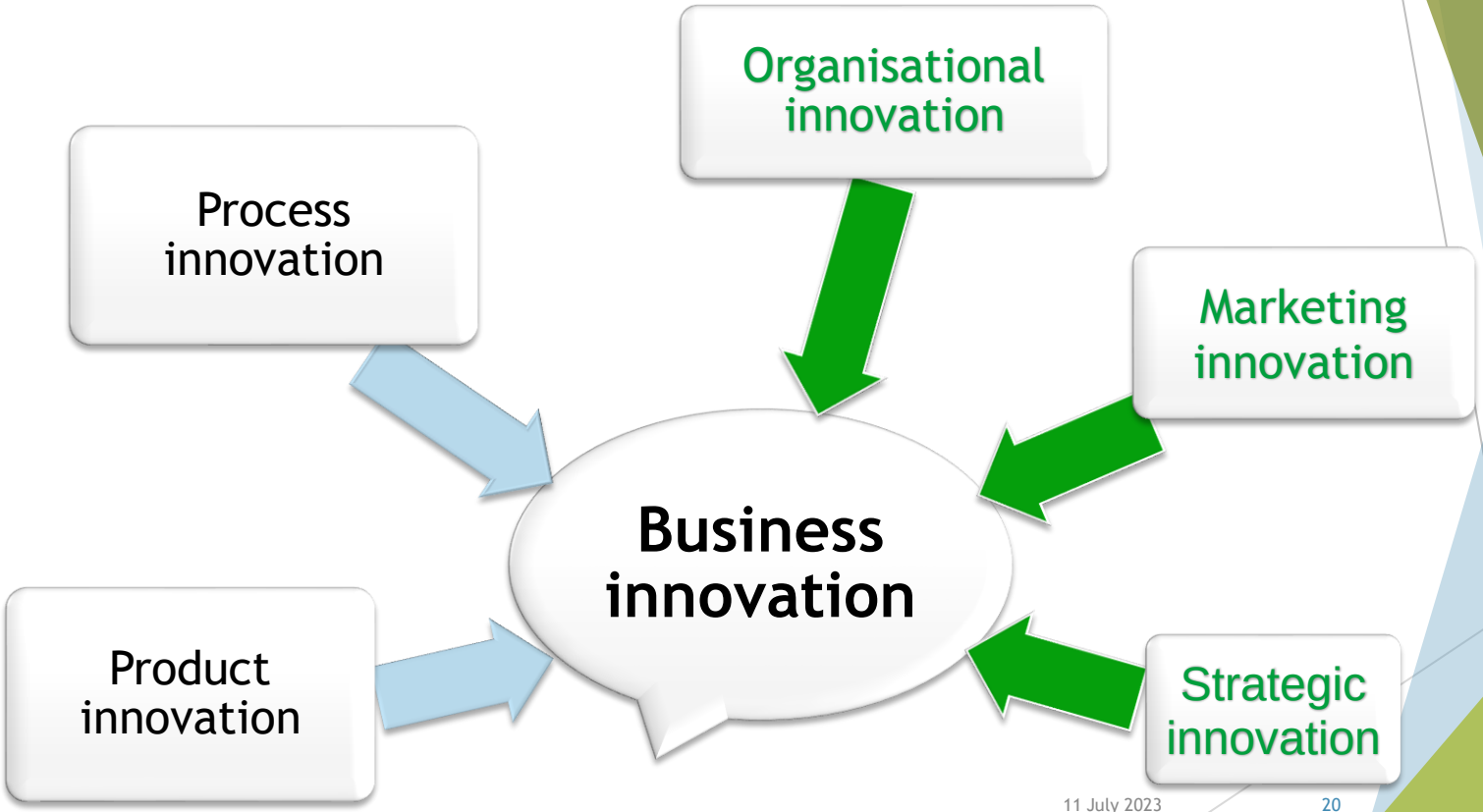
- ✓ when a new innovative product comes from a need identified within a market;
- ✓ **are initiated by specific customer requests.**

- ✓ developing and bringing new technologies to market through research and development (R&D) or production and sales activities;
- ✓ **you've got a new invention on your hands and you go looking for a market.**

Please, give some examples .....

Technological Innovations

Non-technological Innovations

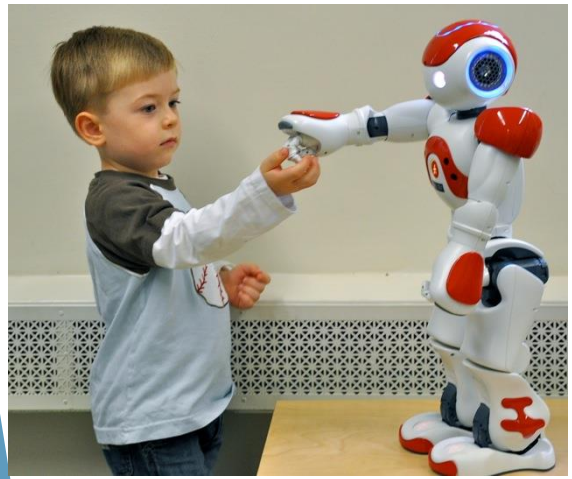


Product Innovation

- when people think of innovation, they often think of product innovation;
- is generally visible to the customer and should lead to greater demand for a product
- product innovation can come in three different forms:
  - *developing a new product*, such as Fitbit or Amazon Kindle;
  - *an improvement in the performance of an existing product*, such as an increase in the resolution of the digital camera of the iPhone 11;
  - *a new feature of an existing product*, such as electric windows in a car.

Product Innovation

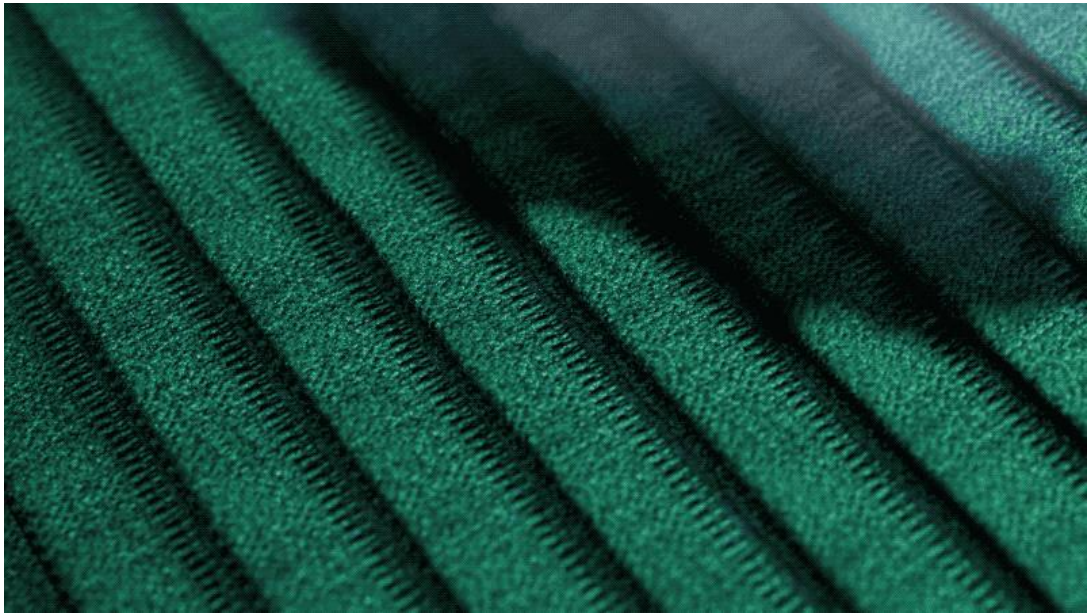
- Examples of new products or significantly improved services:
  - 3D printer
  - driverless cars
  - ...



Product Innovation

7. A mug that stops coffee from running all of the way down to the countertop

Product Innovation



Nike AeroAdapt: the new fabric design reimagines how air flows around the body.

Product Innovation

Think of an idea to improve this product (3 min)

Product Innovation

1. • Efficient use of space
2. • Easy organization of accessories
3. • Simple to implement
4. • Easy to keeping clean

Process Innovation

- it is usually seen and appreciated internally;
- with the lowest risk;
- can include:
  - ***changes in equipment and technology*** used in production (including software used in product design and development),
  - ***improving the tools, techniques and software solutions*** used to assist in the supply chain and delivery system,
  - ***changes in the tools used to sell and maintain a good***, and the methods used for accounting and customer service.

Process Innovation

The cars were assembled individually and by hand

1913

Mass production of cars

Process Innovation. FORD assembly line

The Most Innovative Companies in 2023

Rank	Company	Industry	Change in Rank (+ or -)
1	Apple	Technology	-
2	Tesla	Transportation & energy	+3
3	Amazon	Technology	-
4	Alphabet	Technology	-
5	Microsoft	Technology	-3
6	Moderna	Healthcare	+1
7	Samsung	Technology	-1
8	Huawei	Technology	-
9	BYD Company	Transportation & energy	Returned
10	Siemens	Technology	+10
11	Pfizer	Healthcare	+7
12	Johnson & Johnson	Healthcare	+15
13	SpaceX	Transportation & energy	Returned
14	Nvidia	Technology	+1
15	ExxonMobil	Transportation & energy	Returned

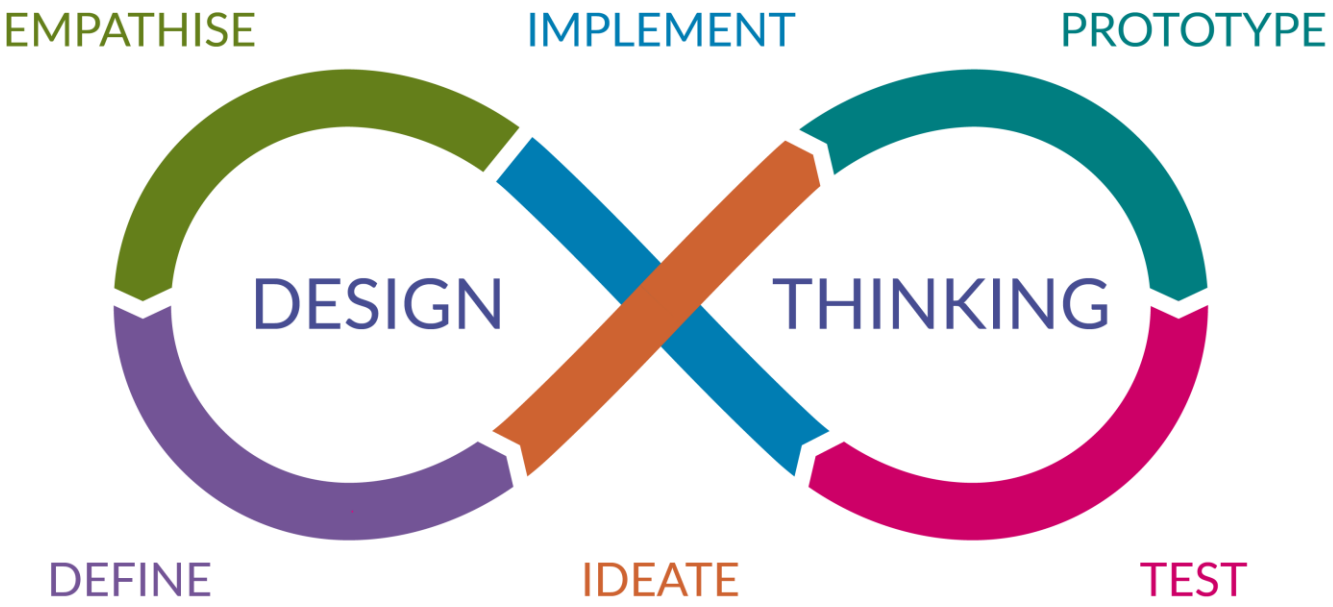
LET'S TEAM-UP!!!!

- https://www.truity.com/test/type-finder-personality-test-short
- https://www.traitlab.com/16-personality-types-test

See you tomorrow!

Day 2

- The Design Thinking Process
  - Definition
  - Stages

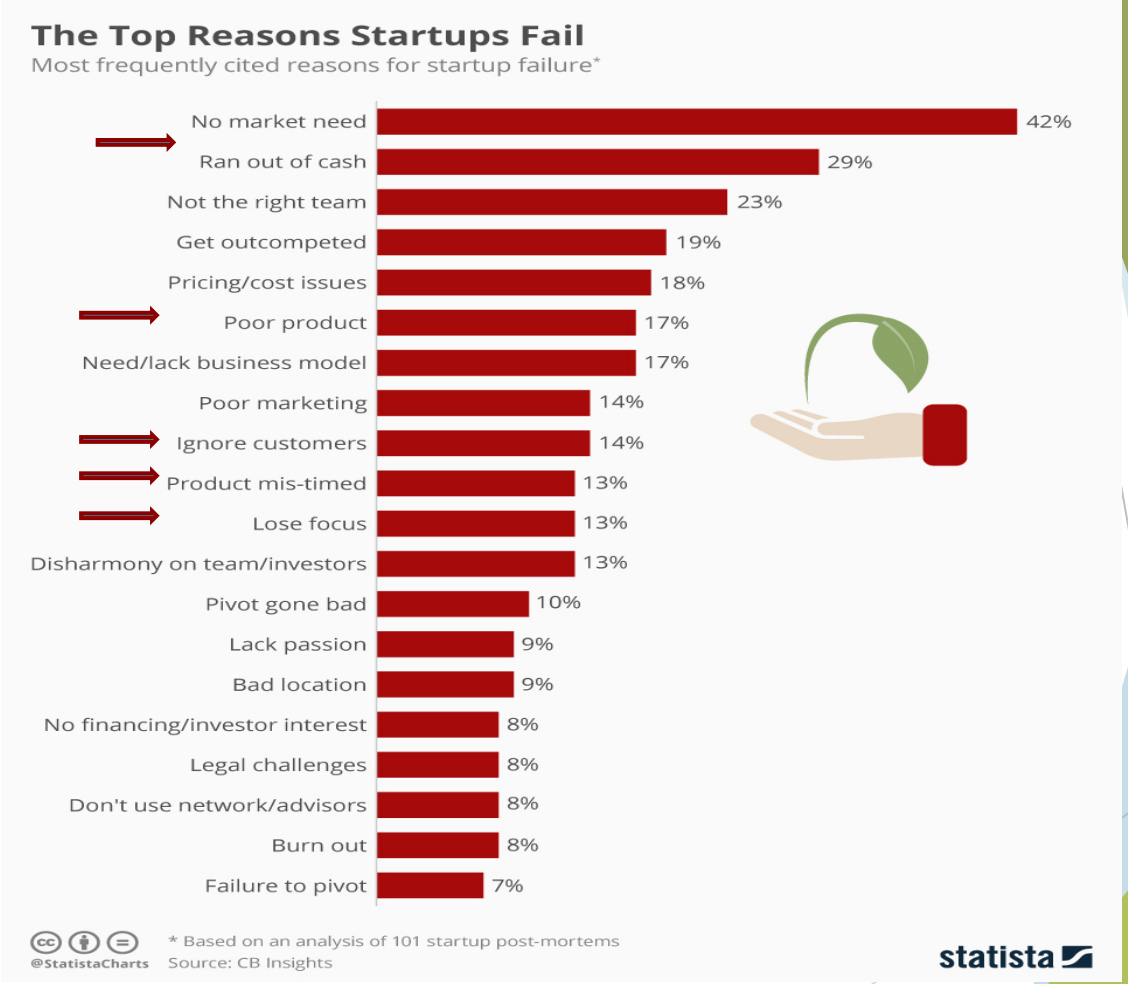


DESIGN THINKING

Why Design Thinking?

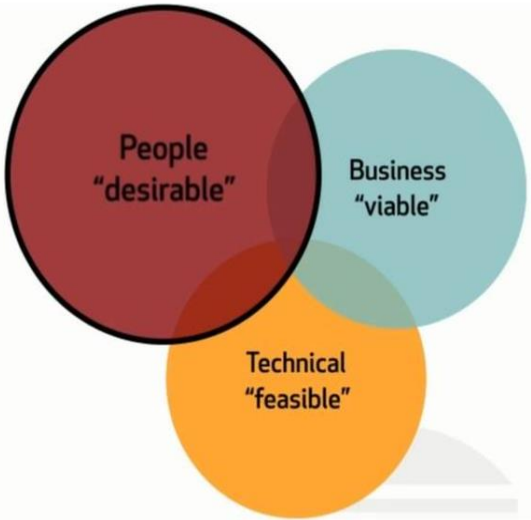
72% of all new products and services fail!!!

Why Design Thinking?



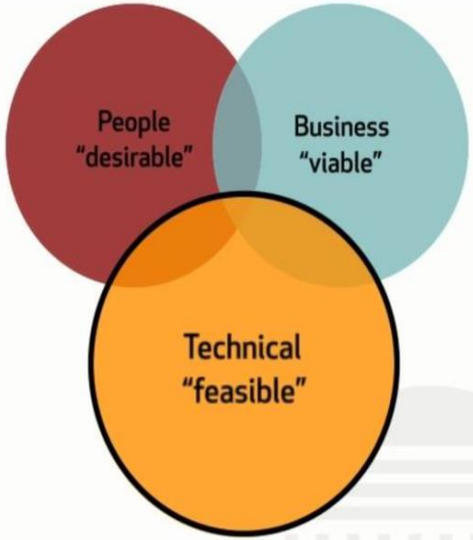
Three Innovation Challenges

- Involves customers who have a problem and willing to pay to solve it
- Requires the product or solution to be desirable
- Requires people to recognize their need



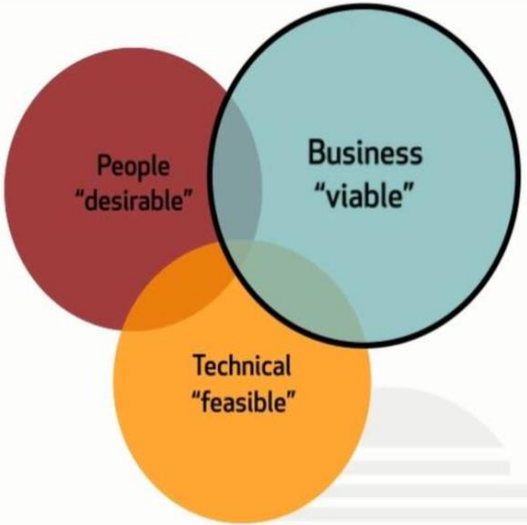
Three Innovation Challenges

- Solve the problem in a technically feasible way
- Some are difficult to do and have resource constraints



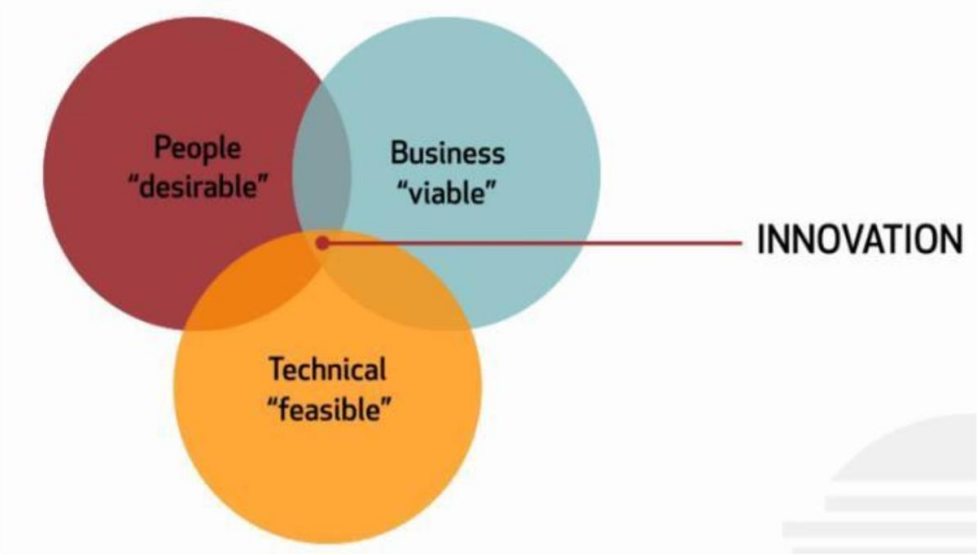
Three Innovation Challenges

- Requires a viable, sustainable business around it
- Requires profit to pay back all of the investment
- Requires a business model



Three Innovation Challenges

These are the three dimensions or challenges that make products and services successful, if they are truly innovative

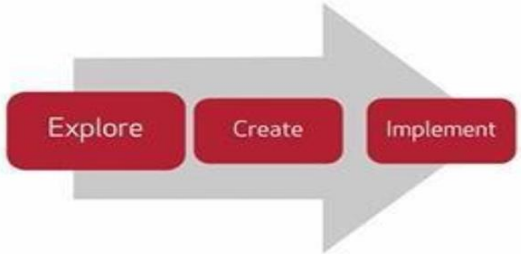


Design Thinking: Definition and Process

What is Design Thinking?

The process of creating solutions using creative problem solving techniques

What are the Three Phases of a Generic Design Thinking Process

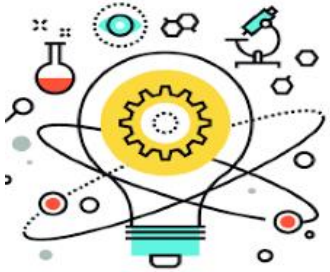


The Design Thinking Process – Key Principles

Human- Centered

Collaborative Teamwork

Learning by Doing

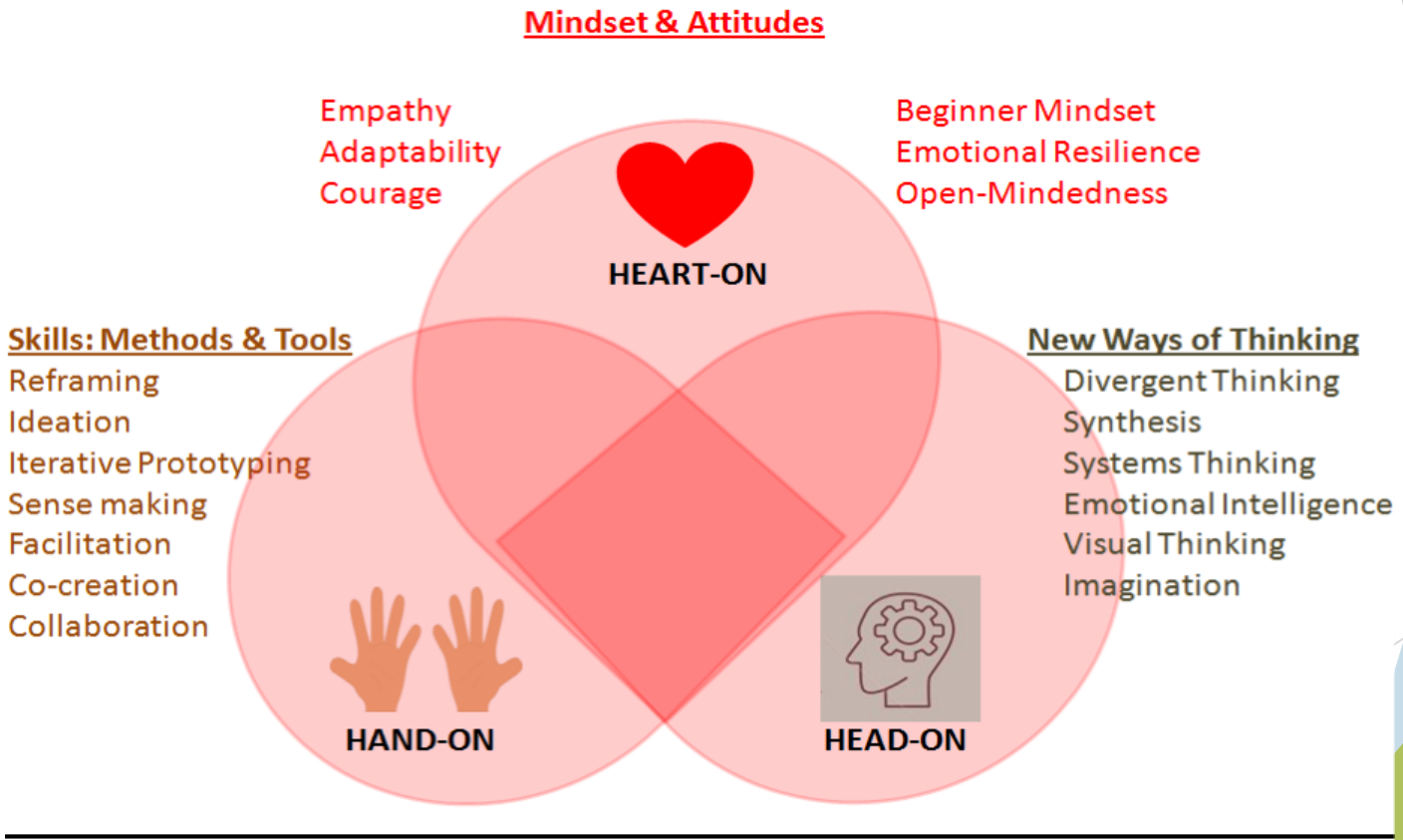


Embrace Experimentation

Understand Patterns, Relationships & System

Visualize & Show

The Design Thinking Process – Mindset



Explore

The explore phase will help you:

- **Synthesis the STEEP trends analysis to gain insights on the implications and context of your design challenge.**
- Foster multiple perspectives to explore your design challenge.
- Map the organization's activity system/ecosystem as the foundation model to leverage for your new idea delivery.
- Map key stakeholders to appreciate the key people who determine the success of your design challenge
- Frame project (design challenge) into design opportunity
- Identify, select and invite your target stakeholders for the interview
- Plan your design challenge project management.

Explore


Process:
STEEP Analysis
Strategic Priorities
Activity System
Stakeholder Map
Opportunity Framing
Methods & Tools:
STEEP Analysis
Strategic Priorities
Activity System
Stakeholder Map
Opportunity Framing
Mindsets & Attitudes:
Beginner Mindset
Divergent Thinking
System Thinking
Open Mindset
Visual Thinking
Systhesis

STEEP Analysis

Why STEEP analysis?

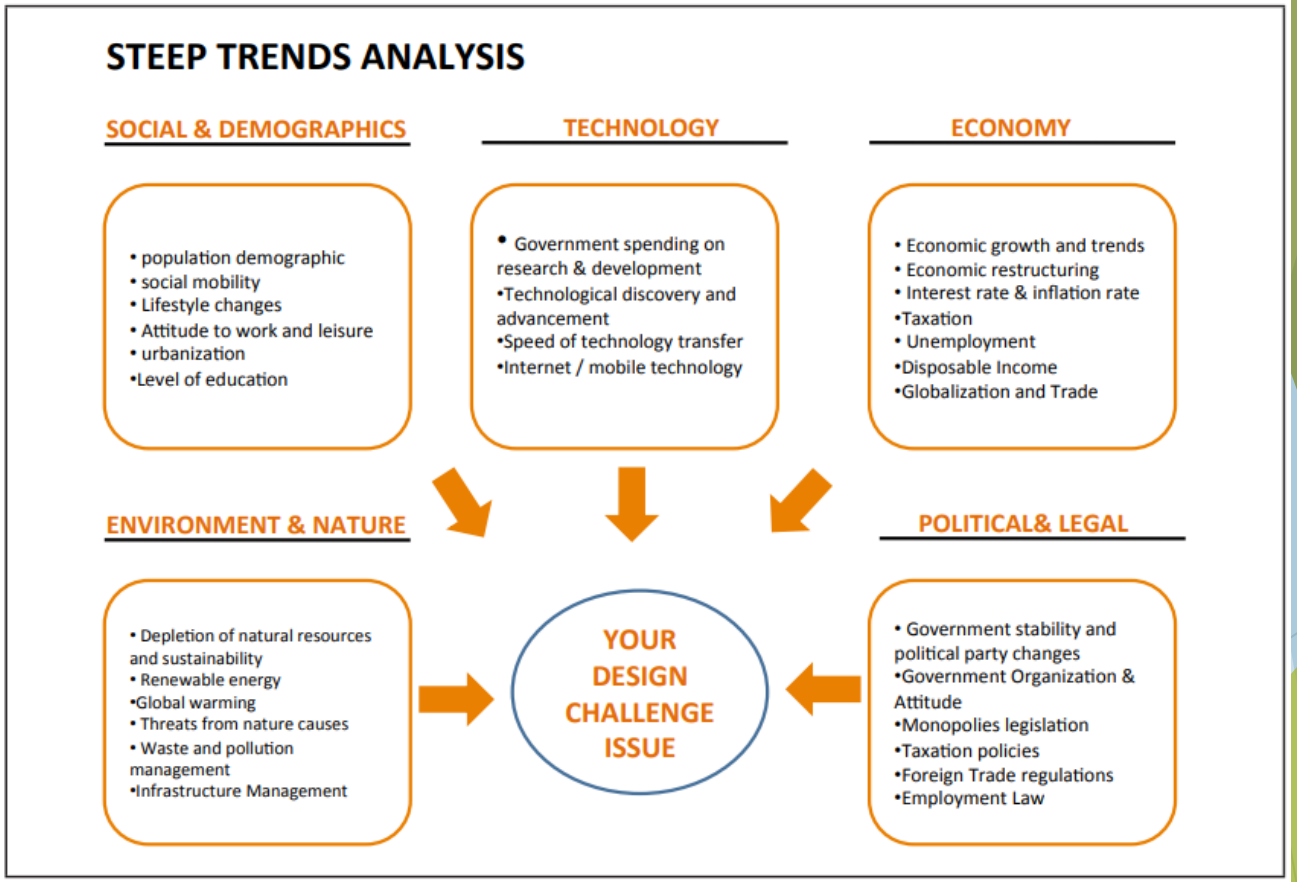
- To understand the future opportunities and challenges;
- To keep an aye on the future while focusing on the possibilities of the current as new services, processes, administrations and public policies may have to be developed in response to those trends.
- To cultivate thinking which leads to future implications of the present chages.

How to conduct STEEP Analysis

Step 1	• Reframe the design challenge title and understand the design challenge statement in depth
Step 2	• identify the relevant trends affecting the design challenge by studying secondary data to back up the analysis
Step 3	• Compile the trends based on impact and (un)certainty of its occurrence for each trend and evaluate them as **Opportunities** or **Challenges**
Step 4	• Review the entire analysis to ensure that trends and implications identified are relevant to the design challenge

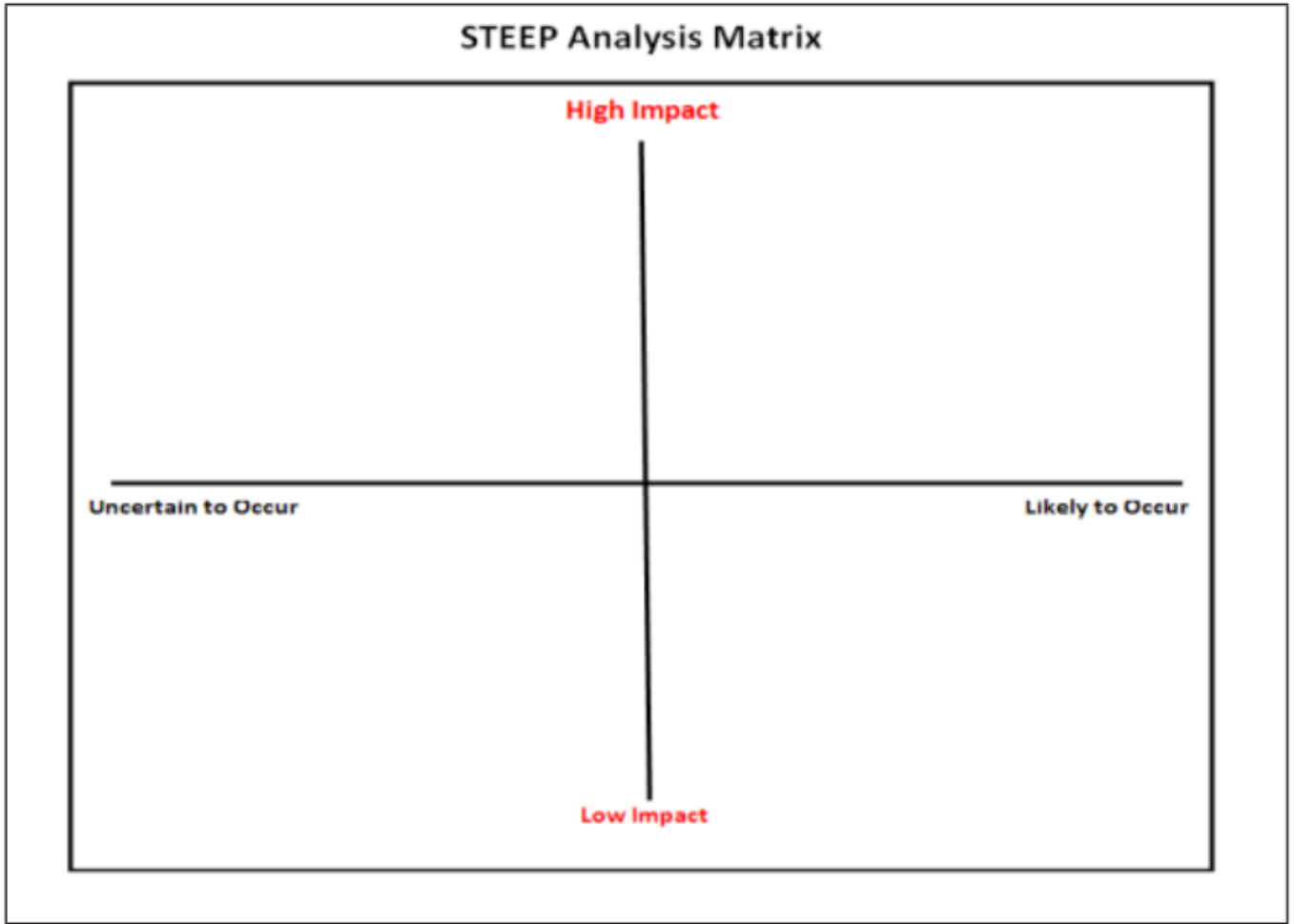
STEEP trends analysis template

List down trends under each category and label them as opportunities and challenges (30 min)



STEEP analysis matrix

Sort the trends based on its impact and (un)certainty of its occurrence. (15 min)



After mapping the trends in the matrix, filter few trends using this template. (15 min)

STEEP Analysis Prioritization

Discuss 2 key trends from the High Impact-Likely to Occur quadrant:

1.

2.

Discuss 2 trends from the High Impact-Uncertain to Occur quadrant

1.

2.

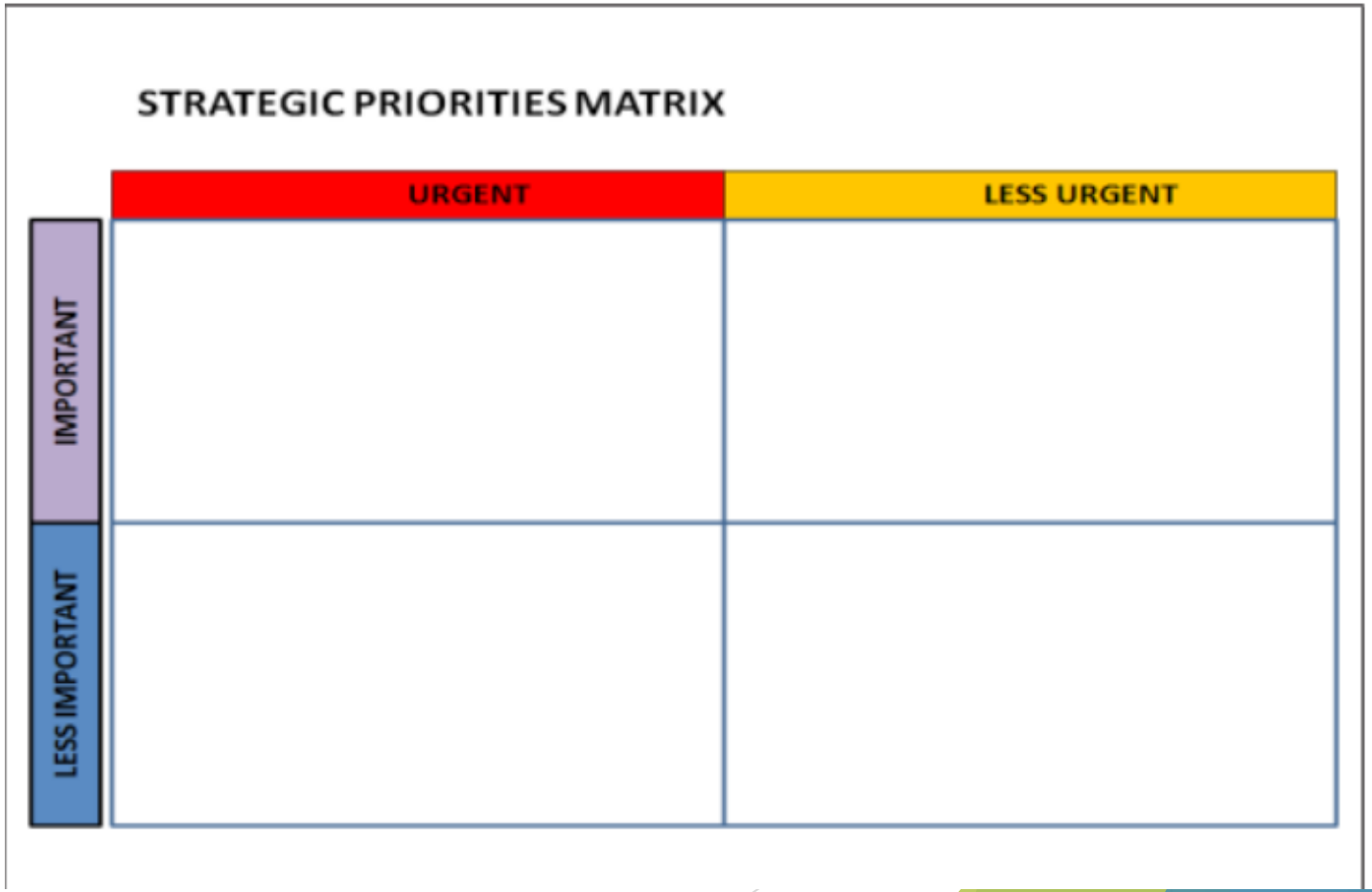
Strategic priorities

How to use the Strategic Priorities

Step 1	• Revisit the filtered STEEP trends and look for patterns, links, relationships, cause and effects and correlation amoung the research findings leading to new insights and fresh perspectives of your design challenge
Step 2	• Understand the reality that focuses on the relationships amongst the parts of the system and the dynamics those relationships produce
Step 3	• List what challenges need immediate attention going forward for your design challenge and why?
Step 4	• Identify which trends are more important than others
Step 5	• Synthesize the trends and trategic priorities based on importance of the relationships amoung the trends, opportunities and challenges that demand immediate attention for key stakeholders

Strategic priorities

From the STEEP Analysis Matrix prioritization Template, filter and the trends using this template



Strategic priorities

SYNTHESIS: MAKING SENSE OF STEEP ANALYSIS & STRATEGIC PRIORITIES TEMPLATE

SYNTHESIS: MAKING SENSE OF STEEP ANALYSIS AND STRATEGIC PRIORITIES

Assessment Questions	Synthesis: Sense Making
What relationships among the trends do you perceive? How are they related? Why are these relationships important?	
What opportunities and/or challenges need immediate attention going forward for your design challenge? And why?	
What would it take to create positive change on this issue relating to your design challenge?	
Who else wouold be interested in this issue? Why should they care? What conversations would you have with them?	


EMPATHIZE
DEFINE
IDEATE
PROTOTYPE
TEST
DESIGN THINKING

Empathize

- Empathize is a mechanism to understand and share the feelings of your users to foster deep user understanding and be able to uncover the deep user insights and needs.
- **Purpose:**
  - to foster empathy and deep understanding of the users in terms of their life, needs, aspirations and challenges;
  - appreciate others as human beings and understand and relate with their feelings;
  - see their world through their eyes and make emotional connection;
  - communicate understanding with others and share their world;
  - be in the shoes of your users, experience same and gain fresh insights and uncover their needs;
    - and
  - develop passion to act and help and inspire us to find new solutions.

Empathize


Process:
Observation
User Interviews
Needs Finding
Persona Development
Methods & Tools:
Field Observation (POEMS)
Deep User Interviews
Needs Finding (SAM & SPICE)
Persona Development
Mindsets & Attitudes:
Curiosity
Respect
Open-mindedness
Empathy
Presence
Observance
Emotional intelligence
Intuition
Systems thinking

Methods & tools

FIELD OBSERVATION

- Structured approach to observing people in their natural Environment to uncover user insights and fresh perspectives of people and their behaviors.

DEEP USER INTERVIEW

- An art of conversation to elicit stories and uncover deep user insights and needs – both latent and unmet needs.

NEEDS FINDING

- Human process of making sense & transforming your observations and deep user interviews into usable data cluster &meaningful insights to uncover the unmet needs of your users.

PERSONA DEVELOPMENT

- A process of humanizing your target users, giving voice and character and making them real.

Deep user interview

- Deep user interview is an art of conversation to elicit stories and to uncover deep users' insights and needs – both latent and unmet needs through understanding of the users';
  - Behaviour & feelings,
  - Goals,
  - Motivations,
  - Aspirations,
  - Values,
  - Beliefs,
  - Pains and challenges.

How to conduct Deep User Interviews?

1. **Pre-interview preparation**
   - Prepare interview questions
   - Plan and structure your interview
   - Identify interview team and assign roles
   - Conduct mock interview

How to conduct Deep User Interviews?

2. During the Interview

- Follow your interview structure – use of Type A (closed) and Type B (open) questions - and make it a natural and a casual chat.
- To begin the interview, use **Type A questions** relating to the demographics and habits to build rapport and make interviewee comfortable.
- To explore, elicit stories and deeper response and gather information on personal motivation such as aspirations, inspirations, motivations and pain points use **Type B questions**.
- Use Type A questions to gather information related to the project statement. These questions were prepared to be asked towards the end of the interview to wrap up.
- Avoid questions that lead to a dead end. Use interview tools and techniques to probe more and evoke stories and explore emotions.
- Be comfortable with silence and observe for non-verbal cues and emotions.
- Use ***User Interview Notes Template*** to record everything in verbatim.
- Do not interpret or analyse anything during the interview.

There are five main activities of conducting Deep User Interview:

- **Ask** - asking right questions (ask open-ended probing questions),
- **Listen** – listen for deeper meaning, listening with purpose (empathic listening – listening with all senses – and wonder why that is important),
- **Observe** – observing with all senses,
- **Sense** – make inference to gain clarity, and
- **Record** – record everything in verbatim.

How to conduct Deep User Interviews?

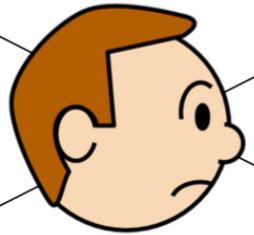
3. Post Interview

- Conduct post-interview debrief immediately after each interview sessions. Use Post ***Interview Discussion Template*** to summarize what you heard during the interview and develop a common understanding about the user interviewee.
- Conduct post-interview debriefs presentation to the team. Use post-interview ***De-brief Presentation Templates***.

GENERATE INTERVIEW QUESTIONS

- What does the user think & feel?
- What is really important to the user?
- What drives the user?
- What worries the user?
- What are user's aspirations

- What does user hear from others?
- What do friends and family say?
- Who influence the user and how?
- What communication channels are influential>



- What does user see?
- What does it look like?
- Who surrounds the user?
- Who are the user/s friends?
- What makes the user happy? Sad? Proud?
- What problem does the user encounter?

- What does the user say? Do?
- What is the user attitude?
- What could the user be telling others?
- Are there conflicts between what the user say/do and truly think & feel?

PAIN?		GAIN?	
	• What barrier and challenges does the user face? • What are the user's frustrations? • What obstacles are there? • What makes user feel indifferent?		• What makes user happy or satisfied? • What does the user truly want? • How does the user measure value? • What gives user passion/motivation?

Next

1. Using the empathy map as inspiration, design a list of questions for your deep user interview (20 minutes).
2. Conduct a mock interview: one student from each group (from TUIASI) will be the interviewee (40 minutes).
3. Use the User Interview Notes template during the interview.
4. Use the Post interview discussion template and the post interview debrief presentation to synthesis the interview results (30 minutes).
5. Use Persona Canvas to describe and sketch out the Persona details (30 min)

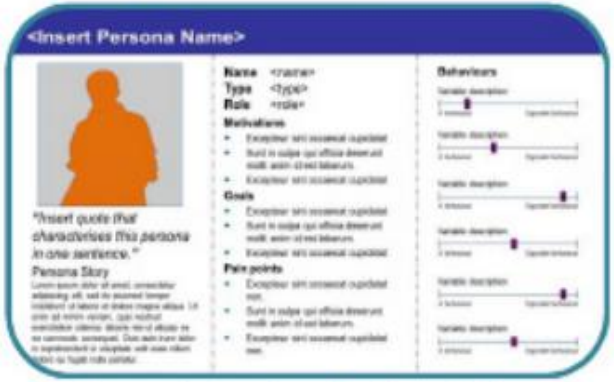
How to Develop Persona

User personas are distilled from your observations and deep user interviews. Personas are developed as follows:

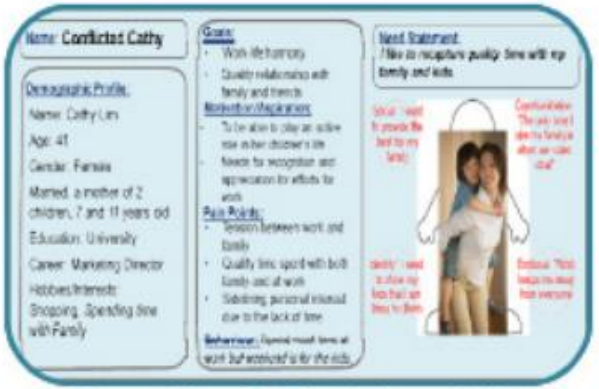
Step 1	• Review all your clusters, user insights and user needs from across your user interviews.
Step 2	• Distill those information relating to behavior patterns, goals, motivations, challenges, pain points, needs etc.
Step 3	• Add fictional personal details such as name to bring the persona life.
Step 4	• Add some narratives or story to reveal the persona's lifestyle, activities, choices and social context.

1 Review All Findings, Themes, Insights & Needs

2 Determine the Number of Personas to Create



4 Complete the Refined Persona using the Template



3 Describe & Sketch out the Persona Details

Anxious Andu

"I fear about getting stagnant in civil service"

Persona Story

Anxious Andu is a humble boy who has a simple dream to serve his parents and family and make them proud. He worked hard and got selected through BCSE to get into civil service. But he has to undergo one year of PGDPA course in RIM and not very sure why? He expected to get some real work skills and leadership skills from RIM to help him take on the work. However, practical learning is very limited with often inconsistent assessment. We are also unsure of why we undertake certain modules while some modules hone our skills. Quality of food in mess is terrible and he is just waiting to pass out from RIM as soon as possible.

Name: Anxious Andu
Age: 23
Gender: Female
Education: Social Science
Hobbies/ Interests: Outdoor Games, Art, Reading, Community Services, Movies, Music

Motivations

- To become a civil servant with highest caliber, honesty, integrity and serve the nation with humility and dedication.

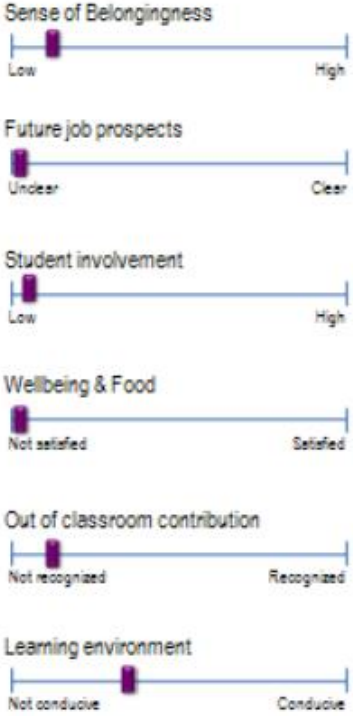
Goals

- To serve family/parents and the country
- To become competent to better serve in the civil service

Pain points

- Longs for family
- Low quality mess food
- Less practical learning
- Uncertain future work environment
- Dissatisfied with learning environment including academic and non academic course modules and delivery
- Disengagement with RCSC

Behaviours



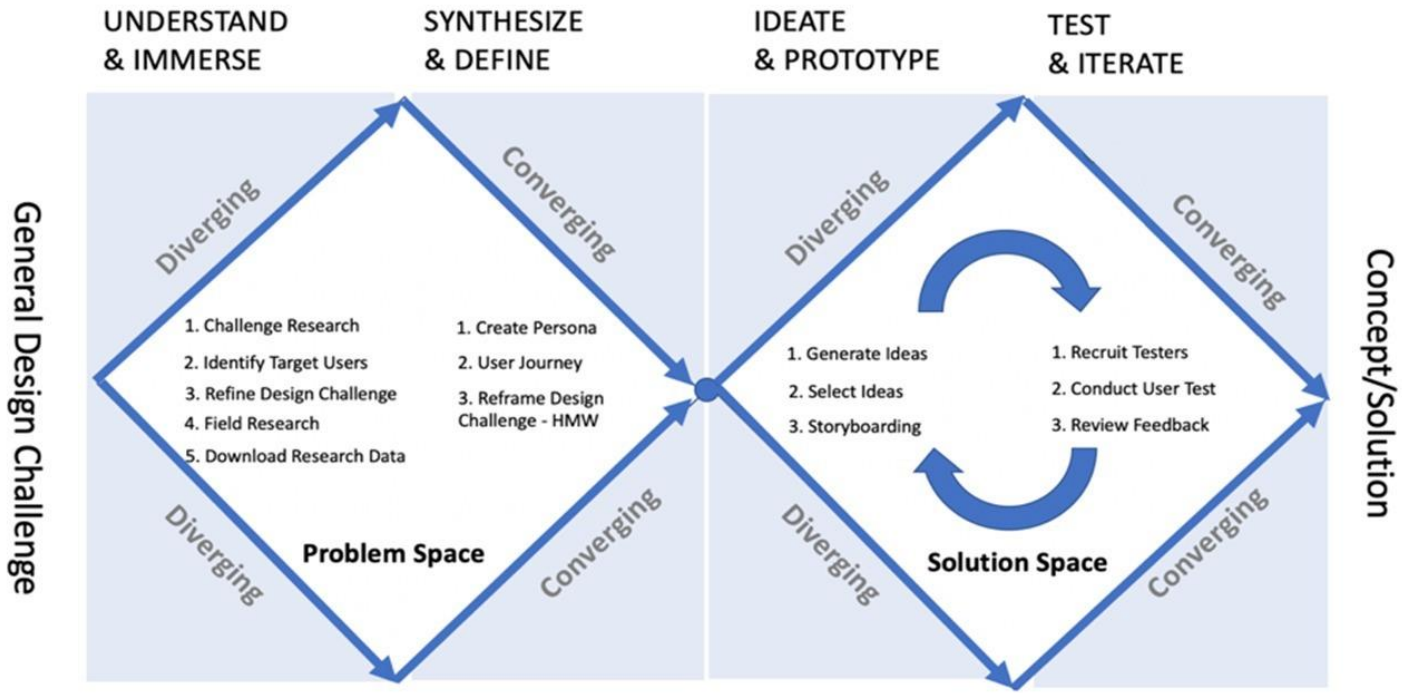
Sample Rapid Persona development Canvas(to describe and sketch out the Persona details)

PERSONA CANVAS	Persona Name:	
Demographic Profile: Age: Gender: Home: Family: Education Background:	Goals:	Deep Need Statement:
	Motivation/Aspiration:	Diversity of Needs: 
Hobbies/Likes/Dislikes:	Challenges/Pain Points:	
Social & Family Lifestyle:	Behavior:	

See you tomorrow!

Day 3

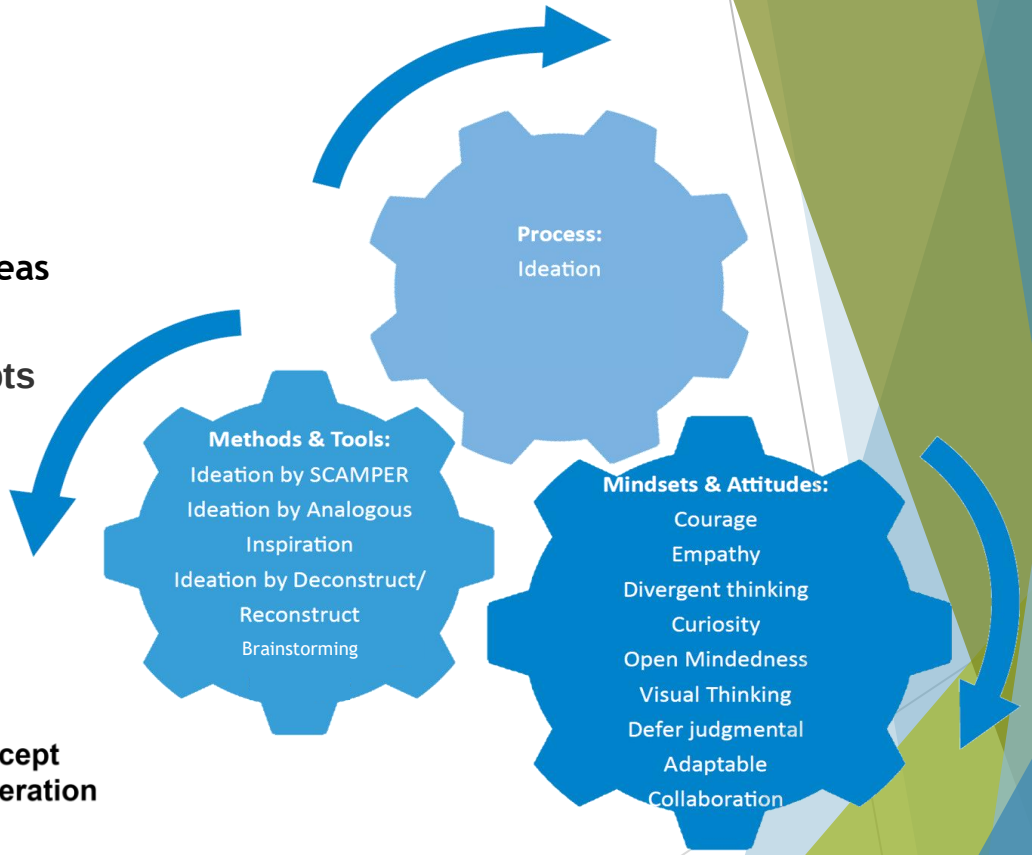
The Design Thinking Process



Ideate

The **ideate** phase aims at:

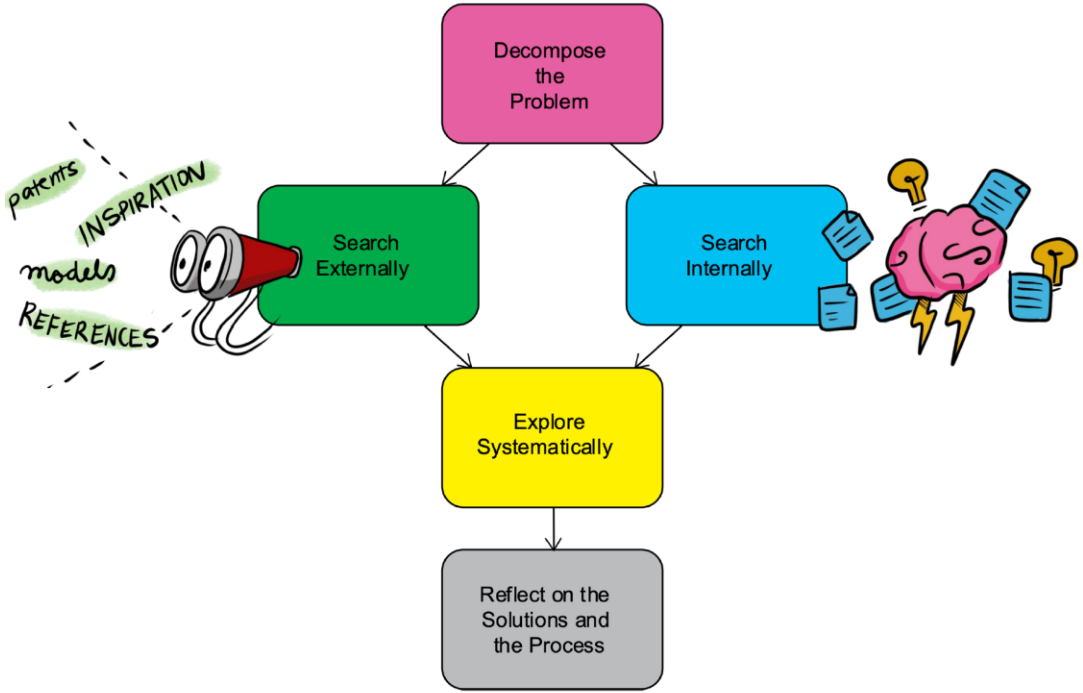
- Generating *quantity* and *variety* of **ideas** around user deep (sub-)**needs**
- Combine generated ideas into **concepts**



Concept Generation

* https://executive.mit.edu/course/mastering-design-thinking/a056g00000URaa4AAD.html
** Hwa, L. C. et al., 2017. Design Thinking. The Guidebook. [Online] Available at: https://www.rcsc.gov.bt/wp-content/uploads/2017/07/dt-guide-book-master-copy.pdf

A framework for concept generation



External vs. Internal Search

* https://executive.mit.edu/course/mastering-design-thinking/a056g00000URaa4AAD.html

Creative methods for internal search

	 Individuals	 Teams
 Divergent	**3.2 Divergent Methods for Individuals** • Lateral Thinking • Resolving Contradictions • Biomimicry Engineering • Visual Creativity (Three Methods)	**3.3 Divergent methods for teams** • Classic Brainstorming • Six Thinking Hats • SWOT Analysis • SCAMPER Analysis • Focus Groups
 Convergent	**3.4 Convergent methods for individuals** • PMI Analysis • Morphological Analysis • Decision Tree Analysis • Value Analysis/Value Engineering • Pareto Analysis	**3.5 Convergent methods for teams** • Delphi Method • SAST Analysis • Cause and Effect Diagram • Kano Model Analysis • Group Decision - Theoretical Background • Group Decision - Practical Methods

*** Engel, A., 2018. Practical Creativity and Innovation in Systems Engineering. Hoboken: John Wiley & Sons

Creative methods for internal search

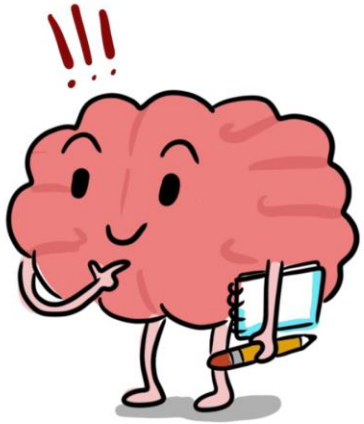
Mind map

HOW / WHY

Brainstorming

SCAMPER

How Might We...



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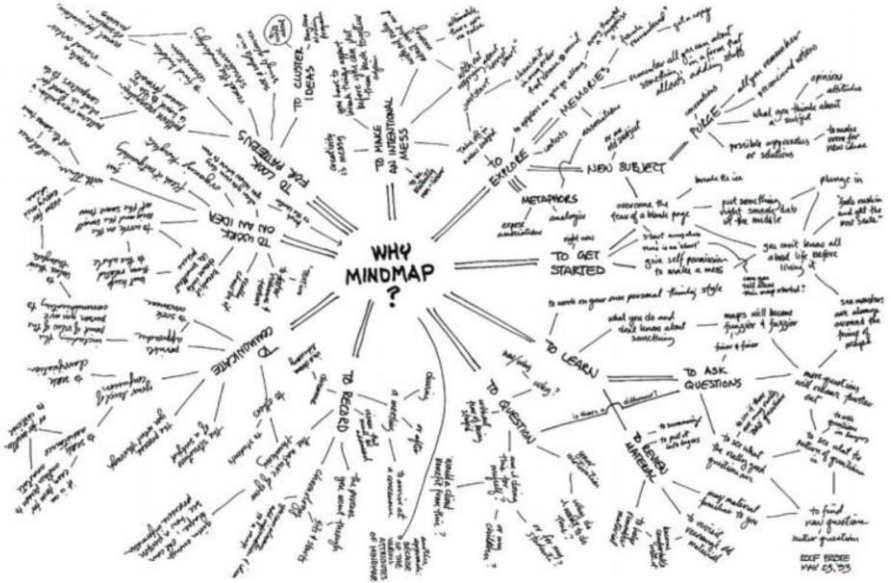
Mind map

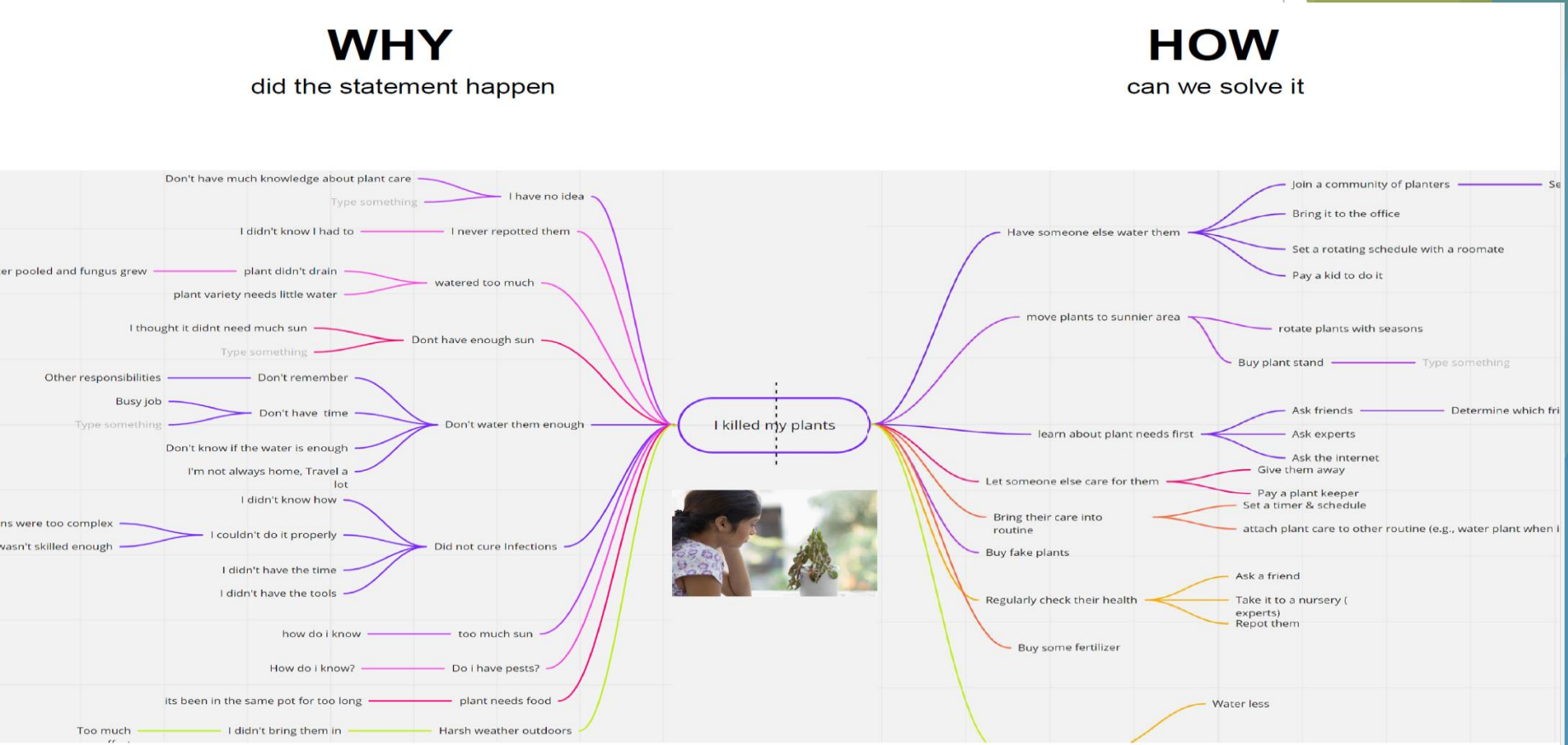


Non-linear Verbal/ graphic Show relationships

- ***main idea/ topic*** – goes at the center
- ***graphic*** – draw images as frequently as possible
- ***unconstrained*** – mind mapping has no boundaries
- ***multi person*** – like brainstorming it helps to have a group to generate ideas
- ***large paper*** – make it big – the larger the space, the further you can go with ideas (you can use Miro or Mural)
- ***find new patterns*** – fissions, fusion, some offshoots will break apart, others will be recombining
- ***why*** – flesh out complex issues, look for new tacks on what appears to be a simple issue, find areas taken for granted assumed overlooked

* https://executive.mit.edu/course/mastering-design-thinking/a056g00000URaa4AAD.html

Mind map


WHY
did the statement happen
HOW
can we solve it
I killed my plants
Don't have much knowledge about plant care
Type something
I have no idea
I didn't know I had to
I never repotted them
plant didn't drain
plant variety needs little water
watered too much
I thought it didnt need much sun
Type something
Dont have enough sun
Other responsibilities
Busy job
Type something
Don't remember
Don't have time
Don't know if the water is enough
I'm not always home, Travel a lot
Don't water them enough
I didn't know how
I couldn't do it properly
I didn't have the time
I didn't have the tools
Did not cure infections
how do i know
too much sun
How do i know?
Do i have pests?
its been in the same pot for too long
plant needs food
Too much
I didn't bring them in
Harsh weather outdoors
Have someone else water them
Join a community of planters
Bring it to the office
Set a rotating schedule with a roomate
Pay a kid to do it
move plants to sunnier area
rotate plants with seasons
Buy plant stand
Type something
learn about plant needs first
Ask friends
Ask experts
Ask the internet
Let someone else care for them
Give them away
Pay a plant keeper
Bring their care into routine
Set a timer & schedule
Buy fake plants
Regularly check their health
Ask a friend
Take it to a nursery (experts)
Repot them
Buy some fertilizer
Water less

SCAMPER

SCAMPER is a creative brainstorming technique that stretches the parameters of thinking to generate new ideas from different perspective. Given any object you can use SCAMPER to generate new ideas!

SCAMPER is a creative brainstorming technique that stretches the parameters of thinking to generate new ideas from different perspective. Given any object you use SCAMPER to generate new ideas.

S
- SUBSTITUTE: What might you substitute? Who else? What else? Where else? What parts/what materials?

C
- COMBINE: What might I combine this object with? Can I combine ideas, objects, function? What this also include or do?

A
- ADAPT: What might I change? What else is this like? What does this remind me of? What might I copy?

M
- MODIFY, MAGNIFY, MINIFY: How might I change it? Bigger, smaller. What might I increase or decrease? How can I enhance or diminish attributes such as color, texture, sound, taste, smell, speed?

P
- PUT TO OTHER USE: Are there other uses of this object? What happens if I change the context or function or purpose?

E
- ELIMINIATE: What can I do without? What can I take away or remove?

R
- REVERSE, REARRANGE: What if I turned it upside down? Backwards? Inside out? What if I rearrange any parts, function or objectives?

7 Rules of Idea Generation
- Stay focused on the topic
- Go for quantity
- Be visual
- One conservation at a time
- Encourage wild ideas
- Defer judgement
- Build on ideas of others

** Hwa, L. C. et al., 2017. Design Thinking. The

SCAMPER

SCAMPER is a creative brainstorming technique that stretches the parameters of thinking to generate new ideas from different perspective. Given any object you can use SCAMPER to generate new ideas!

How to use SCAMPER for Ideation

Step 1	• Each team to be given different objects
Step 2	• Generate the most idea using the SCAMPER canvas. There is no sequential flow while using SCAMPER.
Step 3	• As each team member has an idea, stick on the relevant column of the canvas. One idea per Post-its is used.
Step 4	• Compete to see which team generates the most ideas within the given time.
Step 5	• Within 10 minutes , 10 people are to generate 50 ideas
Step 6	• Cluster the ideas by themes

** Hwa, L. C. et al., 2017. Design Thinking. The Guidebook. [Online] Available at: https://www.rcsc.gov.bt/wp-content/uploads/2017/07/dt-guide-book-master-copy.pdf

How Might We...

"How might we" (HMW) questions are short questions that **launch ideation.** They're broad enough to include a wide range of solutions but narrow enough to impose helpful boundaries.

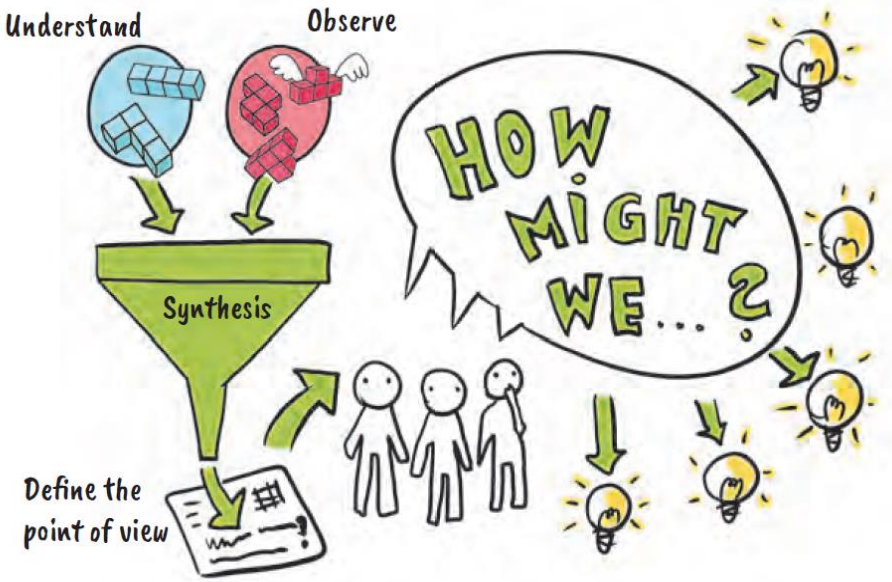
How might we...

KNOW	UNDERSTAND	APPLY	EVALUATE	CREATE
define	predict	solve	frame	create
identify	reflect	apply for	compare	develop
describe	demonstrate	construct	experiment	change
match	differentiate	choose	ask	paraphrase
recognize	discover	prepare	check	develop
select	research	produce	correlate	imagine
investigate	transform	show	separate	negotiate
tell	describe	judge	analyze	design
visualize	compare	transfer	compare	structure

* https://executive.mit.edu/course/mastering-design-thinking/a056g00000URaa4AAD.html
**** Larry J. Leifer, Michael Lewrick, and Patrick Link, "The Design Thinking Toolbox: A Guide t

I would like...

to formulate a question that makes it possible later, in the "ideate" phase, to work in a targeted manner.

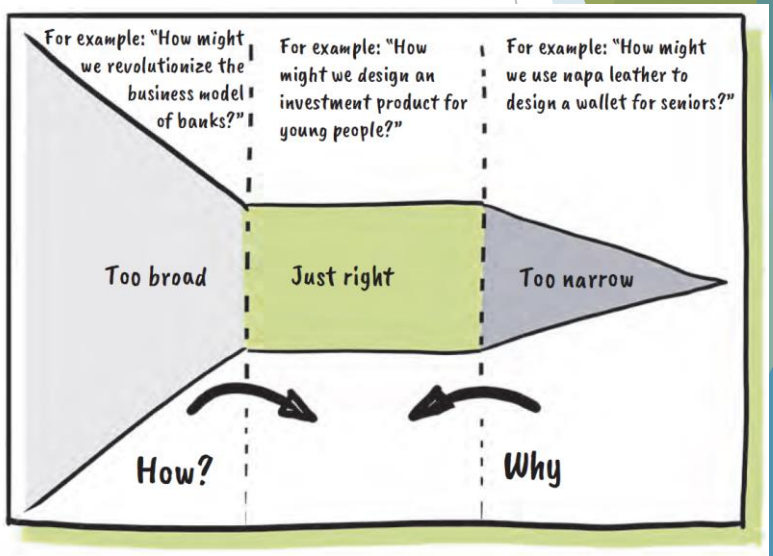


What you can do with the tool:

- Transform the needs identified into a real design challenge.
- Write down the goal of the later ideation and the goal of the design thinking team in a concrete sentence.
- Define the extent and scope of the ideation process.

How Might We…

We have to find the right balance



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**** Larry J. Leifer, Michael Lewrick, and Patrick Link, "The Design Thinking Toolbox: A Guide to Mastering the Most Popular and Valuable Innovation Methods", Wiley 2020

How Might We…

How to use it?

Break down the larger challenge into smaller actionable bits and ask questions that open up the solution space.

Challenge
Redesign the candy shop waiting time in the cinema

Point of View
A frenzied mother of three has to buy popcorn, sodas and candies for her children. The line is very long, the kids are bored and starting to get anxious.

How Might We
Explore the opposite: HMW make the wait the most exciting part of the cinema experience? Games? A show?
Question an assumption: HMW remove wait time altogether?
Create an analogy from need to context: HMW make the cinema a playground?

* https://executive.mit.edu/course/mastering-design-thinking/a056g00000URaa4AAD.html

How Might We…

… use an old tire!?

* https://executive.mit.edu/course/mastering-design-thinking/a056g00000URaa4AAD.html

Brainstorming

I would like...

to ideate quickly – quantity is more important than quality.

What you can do with the tool:

- Generate many ideas that the team spontaneously comes up with.
- Use the entire creativity potential of the design thinking team.
- Have a high number of variants at hand in a short period of time.
- Obtain an interdisciplinary perspective on a problem that represents different skills and knowledge.
- Collect ideas and viewpoints from a heterogeneous group.
- Inspire enthusiasm and generate momentum.

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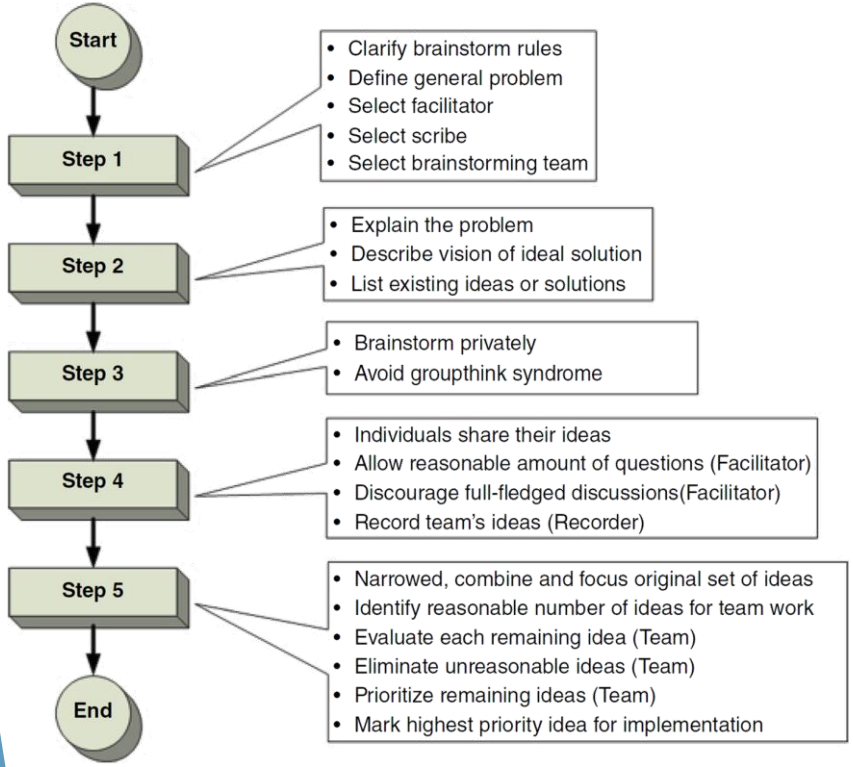
Brainstorming

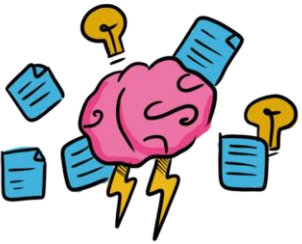


Variant: Structured brainstorming

- All participants write their ideas on a Post-it.
- After a certain period of time, one person begins to stick his own ideas on a flip chart and explain them. If there is already a similar Post-it, another one is glued next to it.
- During the explanations of the other team members, new ideas are generated (ideation) and written on new Post-its.
- The result is a clustered collection of ideas, which can be later evaluated.

**** Larry J. Leifer, Michael Lewrick, and Patrick Link, "The Design Thinking Toolbox: A Guide to Mastering the Most Popular and Valuable Innovation Methods", Wiley 2020
*** Engel, A., 2018. Practical Creativity and Innovation in Systems Engineering. Hoboken: John Wiley & Sons

Brainstorming



Rules and good practices

- ☑ Defer judgement
- ☑ Go for quantity
- ☑ Blue sky
- ☑ Set a time limit
- ☑ Set a purpose
- ☑ Appoint facilitator

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**** Larry J. Leifer, Michael Lewrick, and Patrick Link, “The Design Thinking Toolbox: A Guide to Mastering the Most Popular and Valuable Innovation Methods”, Wiley 2020

Creative methods for internal search

"The true sign of intelligence is not knowledge but imagination."
Albert Einstein (1879–1955)

Creativity is a muscle we exercise

We are diverging ideas. In this phase we are using the creative hat, not the critiquing hat.

Mistakes we should avoid in concept generation

- ☑ Using the first idea that pops up (falling in love with the first idea)
- ☑ Not doing an exhaustive competitive review
- ☑ Not including the entire team in this process
- ☑ Forgetting about the users' needs

* https://executive.mit.edu/course/mastering-design-thinking/a056g00000URaa4AAD.html
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Project:
Team:
Version & Date:

BRAINWRITING/6-3-5-METHOD

Brief instructions: Brainwriting with the 6-3-5 method enables structured idea generation and further development in all iterations and over the entire design cycle. After the problem has been defined in the first step, all participants work on three ideas in each round.

More tips & tricks for this template on book page: 163

Lewrick / Link / Leifer
The Design Thinking Toolbox
978-1-119-62919-1

1 Issue

Describe the problem to be solved or the defined point of view.

6-3-5 method

Perform the 6-3-5 method with the team.

2

Consolidation

The team members can now present their ideas.

3

Cluster

Cluster similar ideas and, for example, carry out a final evaluation round with dot-voting.

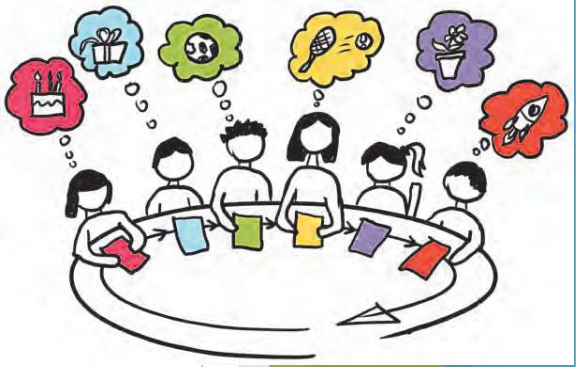
4

Evaluate

Record the best ideas and assign priorities.

5

LET'S BRAINSTORM!!!!



- Individual brainstorming (activity) – 20 minutes
  - in order to solve the design challenge think and propose your own concepts.
- Presentation & team brainstorming – 60 minutes
  - everyone presents their individual concepts to their peers
  - search on-line for existing solutions and compare to those derived
  - choose only one solution to solve the design challenge.
- Presentation of the product idea explaining why it was selected – 5 minutes team
- Feedback

See you next time!