

Workshop on
design thinking
Exploration and Evaluation



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Learning Objectives

Over the next hours, you should be able to:

- Understand the exploration (ideation) process and techniques of innovation development
- Demonstrate the ability to come up with innovative ideas
- Evolve ideas to concepts

Design Thinking Process

“Design thinking is 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.”

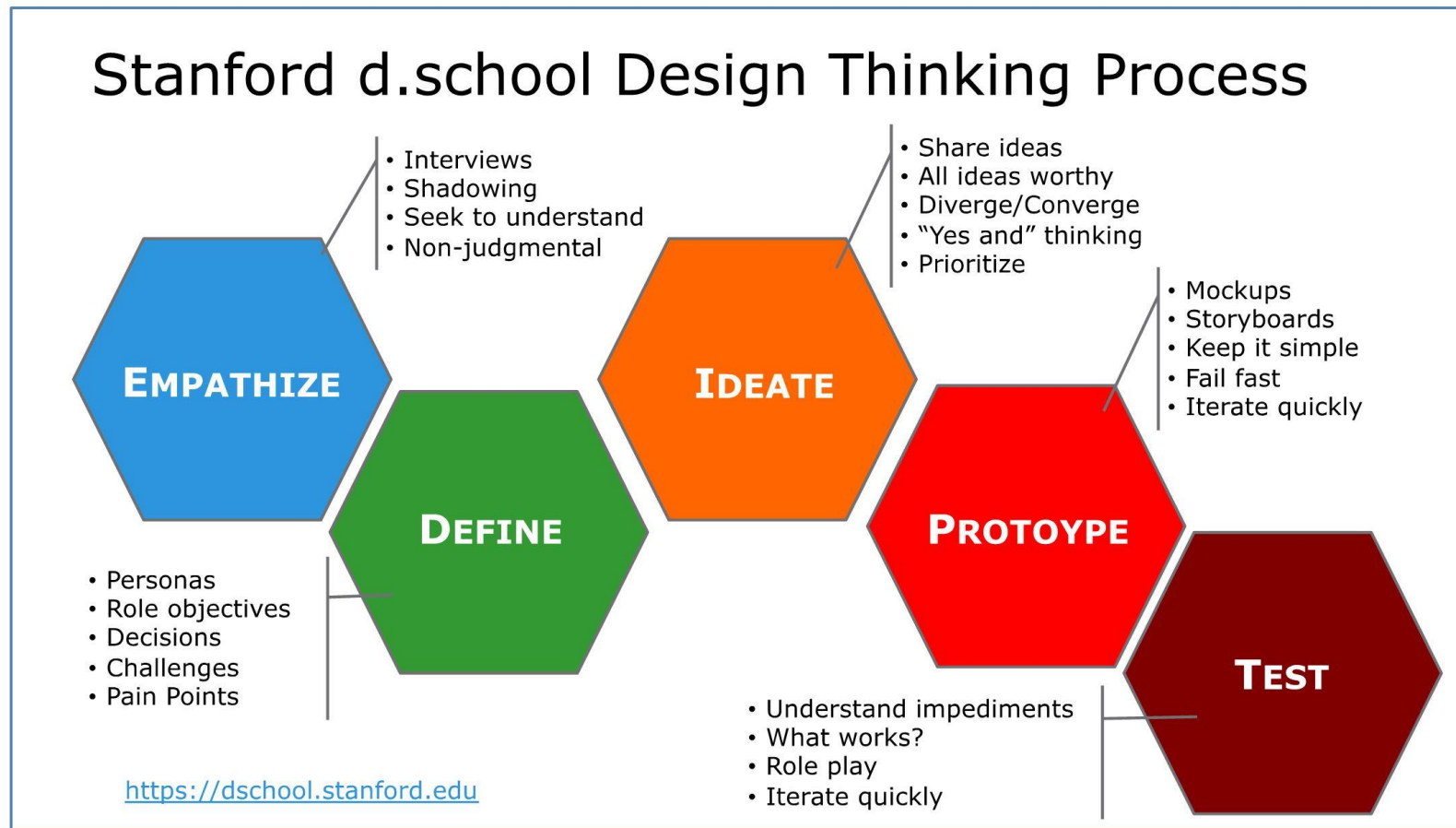
— *Tim Brown, CEO of IDEO*

- ‘Innovate’ or ‘die’
- Creative problem solving (for) End-users

“Simplicity is the ultimate sophistication” – Leonardo da Vinci

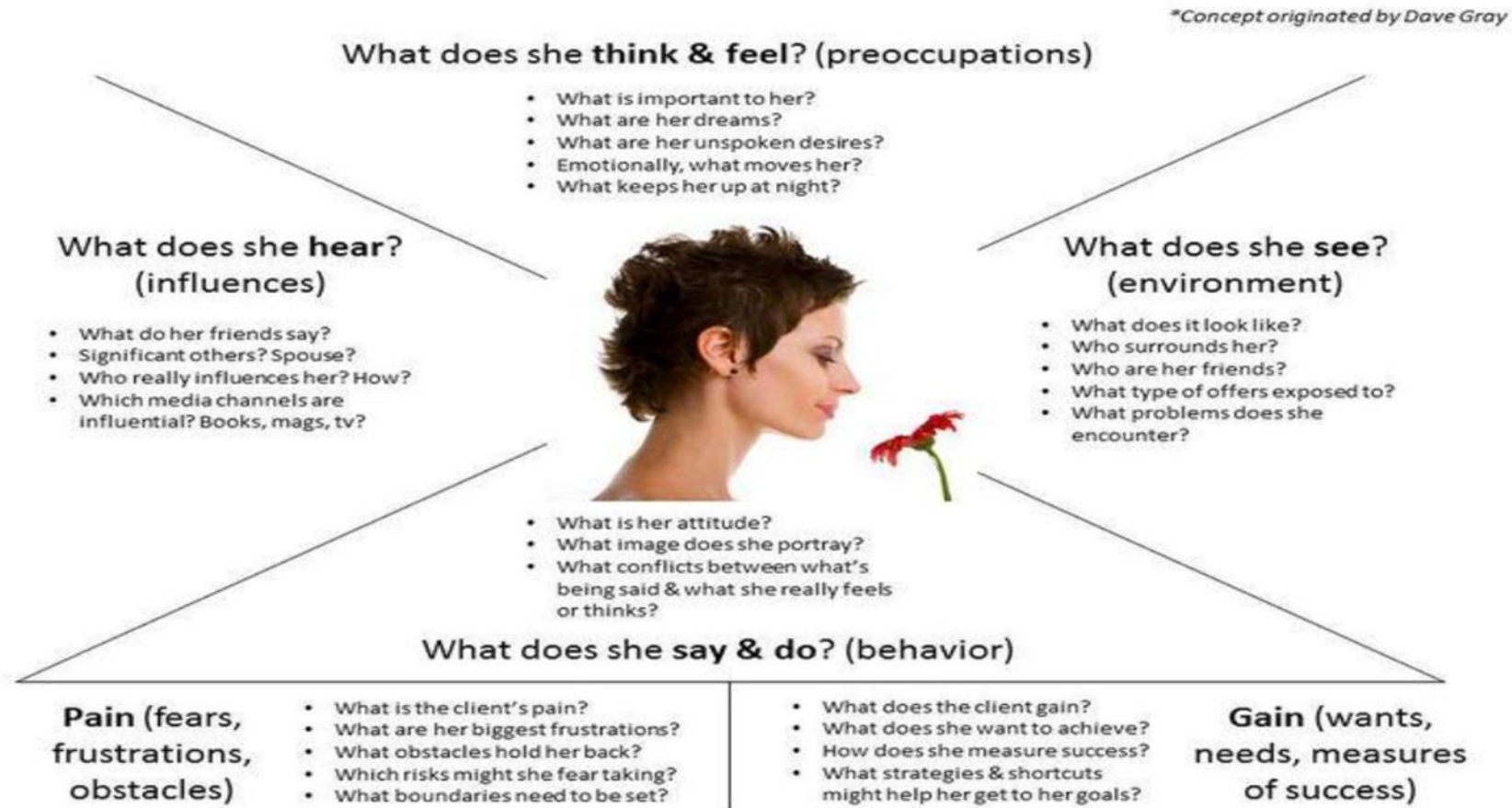
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Design Thinking Process



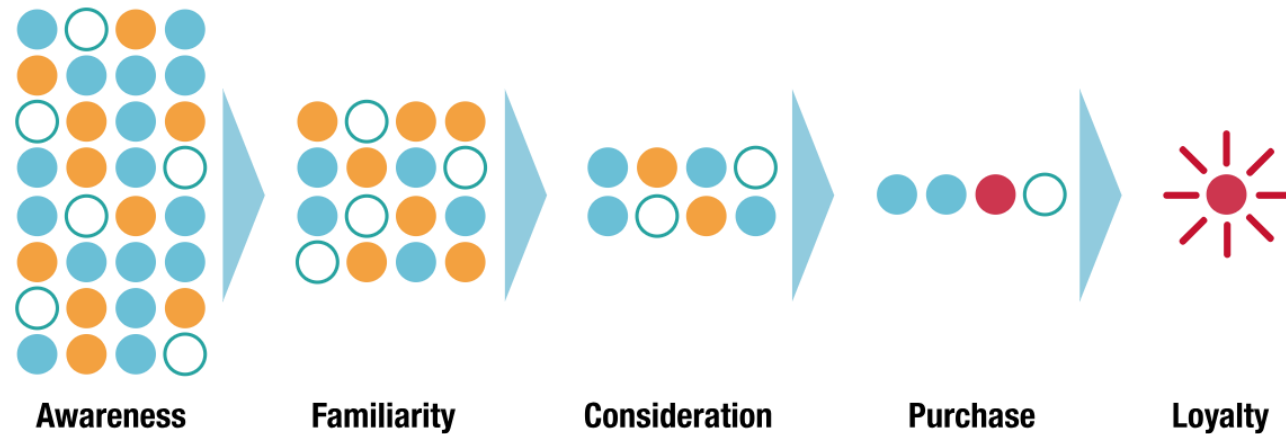
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Design Thinking Process (Exploration) – Consumer Persona



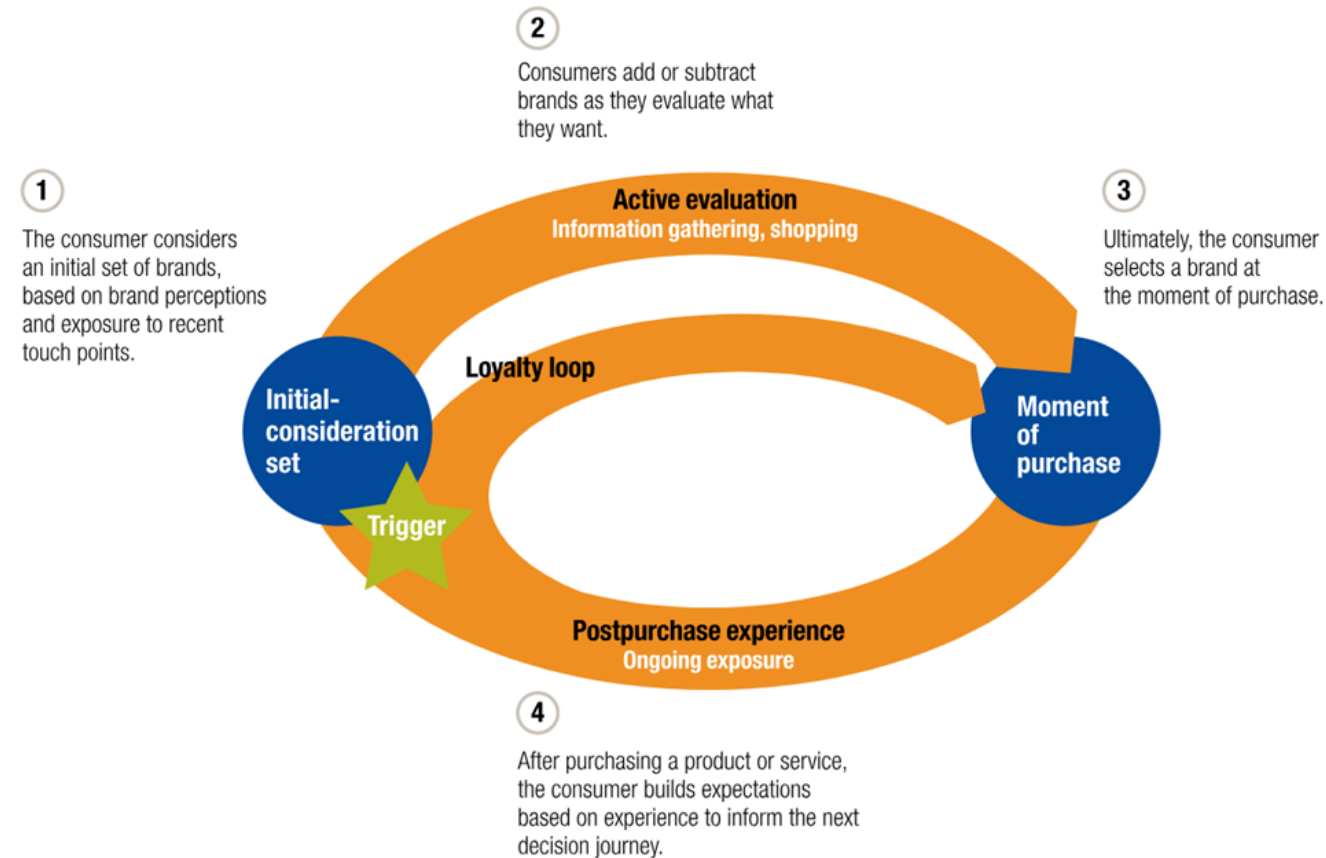
Design Thinking Process (Exploration)

customer decision journey



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Design Thinking Process (Exploration)



Design Thinking Process (Exploration)

- Ideation: process where you generate ideas and consider solutions to consumer/customer problems
- Divergent and convergent thinking: input for ideation comes from many sources
- Directed ideation employs a range of creative techniques

Design Thinking Process (Exploration)

Ideation Methods Covered— Cooper-Edgett Ideation Study

Voice-of-Customer (VOC)

- Ethnographic research
- Customer visit teams
- Customer focus groups for problem detection
- Lead user analysis
- Customer or user designs
- Customer brainstorming
- Customer advisory board or panel
- Community of enthusiasts

Open innovation

- Partners and vendors
- Soliciting the external scientific/technical community
- Scanning small business and business startups
- Invite external finished product designs
- External submission of ideas
- External idea contest

Other

- Peripheral vision
- Disruptive technologies
- Patent mapping
- Idea capture internally

Design Thinking Process (Exploration)

- **Idea Vs Concept**

- Idea:

- The first and unformed notion of something
- E.g. new innovation to prevent PM2.5

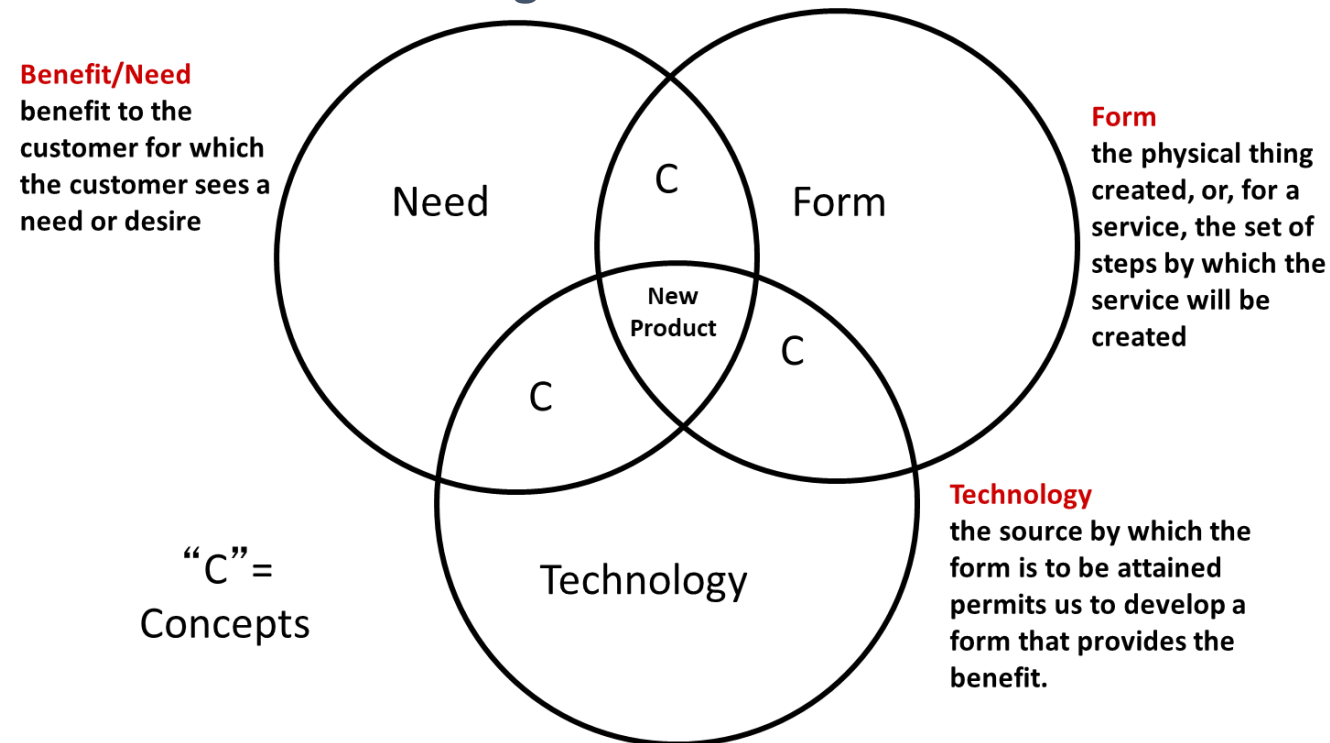
- Concept:

- An idea with structure and development
- Attributes/features, functions, benefits
- Incorporates *need, form and technology*

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Design Thinking Process (Exploration)

- **New Product Concept:** a statement of what is going to be changed and how the customer stands to gain or lose



Design Thinking Process (Exploration)

- Some ideation techniques
 - Problem based ideation
 - Attribute based ideation
 - Worst possible idea



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Design Thinking Process (Exploration)

- **Problem based ideation**
 - *Problems with using umbrellas?*

List of Problems	A. Frequency of occurrence 1= very low frequency...10 very frequent	B. Bothersomeness of problem 1= not at all bothersome frequency...10 very bothersome	AxB



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Design Thinking Process (Exploration)

- The “Bothersomeness” Technique of Scoring Problems

List of Problems	A. Frequency of occurrence	B. Bothersomeness of problem	AxB
Blows apart in the wind	9	2	18
My legs keep getting wet	7	7	49
Drips water everywhere after use	2	10	20
Cant use my phone when I’m using it and carrying a bag	4	6	24
Cant use it when I’m riding my bike	5	5	25



Creatively – how might we solve these problems?

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Design Thinking Process (Exploration)

<https://www.senz.com/en/>



<https://www.youtube.com/watch?v=hFzOwq5PldQ>



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Design Thinking Process (Exploration)

- **Attribute based ideation**
 - *Main attributes of a coffee maker?*



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Design Thinking Process (Exploration)

■ *Main attributes of a coffee maker?*

Dimensions				
Heating	Adding coffee	Filtering coffee	Keeping coffee warm	Pouring coffee
Element in pot	By spoon	Filter paper	Thermal insulation	Value under pot
Open flame under pot	With built in measuring cap	Porous ceramic filter	Warming unit in pot	Pump in lid of pot
Microwave unit	Automatic feed	Centrifuge method	External heat source	Espresso-like jets



How many ideas will this produce? $3 \times 3 \times 3 \times 3 \times 3 = 243$ combinations

Design Thinking Process (Exploration)

- **Worst Possible Idea**
- For instance, create a challenge statement around new product ideas for biologics and vaccines industry. Use that challenge statement to complete the three stages that follow.
- Stage 1 – In response to a chosen challenge, list the worst possible ideas that could be presented for this
- Stage 2 – As terrible as they are, which ideas could have some potential for the industry? Explain why.
- Stage 3 – Select the best of your worst ideas. Now consider the total opposite. How could this work as a new idea for the industry?

Design Thinking Process (Exploration)

- **Worst Possible Idea**

- A lot of bad ideas can turn into great ideas
 - To get a great idea, we often have to be willing to have a lot of bad ideas first.
 - A really awful, occasionally disgusting, sometimes repulsive idea.
- Analytically reject bad ideas quickly in search for good or great ideas
 - we often short circuit —bad initial ideas.... “That’s stupid...that would never work”
 - Paradoxically bad ideas can lead us to look at a problem in *a new or unconventional way*



Design Thinking Process (Evaluation)

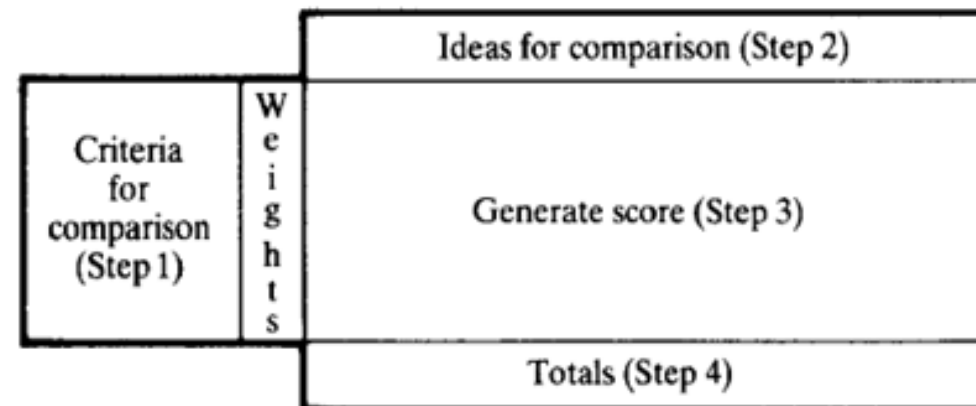
- Ideas that are often eliminated:
 1. Targeted at customers the firm has no close knowledge about or no focus on
 2. Offer too much (or too little) innovativeness
 3. Require technologies the firm does not have or wish to invest in
 4. Ideas wrong on other dimensions: likely high cost, too close to certain competitors, excessive cannibalization etc
- The remaining ideas then need to be formed into concepts for more detailed evaluation and testing

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Design Thinking Process (Evaluation)

Example: Screening method – Pugh Selection Method

- Ranking multidimensional options to eliminate ideas/concepts quickly
- [note: Technology must be ready]



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Design Thinking Process (Evaluation)

Criteria	Baseline	Alternative 1	Alternative 2	Alternative 3	Weight
Safe	0	-	-	0	1
Durable	0	+	0	-	1
Weight	0	-	-	+	1
Easy to Assemble	0	+	0	-	1
Reliable	0	-	-	-	1
Cost	0	+	0	+	1
Net Score		0	-3	-1	
Rank		1	3	2	
Continue?		Yes	No	No	

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Design Thinking Process (Evaluation)

Other examples: Screening Criteria

- Business fit
 - Congruence
 - Impact
- Probability of technical success
 - Technical gap
 - Project Complexity
 - Technology skill base
 - Availability of people and facilities
- Strategic leverage
 - Proprietary position (control)
 - Platform for growth
 - Durability (technical and marketing)
 - Synergy with corporate units
- Probability of Commercial Success
 - Market need
 - Market maturity
 - Competitive intensity
 - Commercial application skills
 - Commercial assumptions
 - Regulatory and political impact
- Reward
 - Contribution to profitability
 - Payback period
 - Time to commercial start-up

Design Thinking Process (Exploration and Evaluation)

Consumer issues with using ... in life science (biologics and vaccine industry)?

1. Using the post it notes, independently write down a consumer issue
2. In group, discuss to identify one central consumer issue to focus on, then discuss problems (pain points) that underlie this consumer issue [fill in PART:A]
3. Using the post it notes, independently write down at least 3 new ideas that could solve the identified problem
4. In group, discuss to identify 3 new ideas that could solve the identified problems [fill in PART: B]
5. In group, discuss to evaluate alternatives [fill in PART: C], and present the main concept statement [fill in PART: D]

Guest
Speaker:
Chula TH
21.1.19



Get Your Inspiration Within

THE COFFEE BREAK

*Workshop on Design
Thinking: Exploration and
Evaluation [end]*