

Transferable Skills 1 – *Design Thinking* Module

Lesson 1

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universidade de aveiro
theoria poiesis praxis

Lesson 1 Contents

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Evaluation

Utopian Vision
Design Fiction

1.2

Design Thinking Expectations

Question(ning)s...

1.3

Design Thinking Models

E6² Model

1.1

Evaluation

- Participation of each student in the final presentation is mandatory

- Utopian Vision Work (groups of 5 students each)
- Evaluation at 15th november
 - Utopian Vision Presentation [30%]*
 - Classic power point presentation and/or:
 - Demonstrating, promotional video
 - TV, newspaper reports
 - Live demonstration
 - Users interviews
 - Others
 - 5 minutes presentation (1 minute/each student)
 - Essay describing Utopian Vision Work process and results [30%]
 - Maximum 1000 words
 - Interconnection between work description and classes content is valued
 - Supporting Utopian Vision Work artefacts [40%]
 - Maps, photos, graphs, physical/virtual prototypes, ...
 - Upload through Moodle until midnight 15th november

**1.1
Evaluation**

- Design Fiction Work must ‘gravitate around’ challenges related with:
 - BAUHAUS AND/OR NEW EUROPEAN BAUHAUS
 - 17 UNITED NATIONS SUSTAINABLE GOALS
- +
 - Technologies involved in students engineering degrees (optional but recommended)
 - Multidisciplinary working groups, involving students from different engineering are welcome

TRANSFERABLE SKILLS 1 – DESIGN THINKING MODULE

1.1 Design Fiction

House of the future
1965 - Fred McNabb



the deliberate use of diegetic prototypes to suspend disbelief about change

Sterling, 2012

a conflation [fusion] of design, science fact and science fiction

Bleecker, 2009

not to show how things will be but to open us space for discussion

Dunne & Raby, 2013

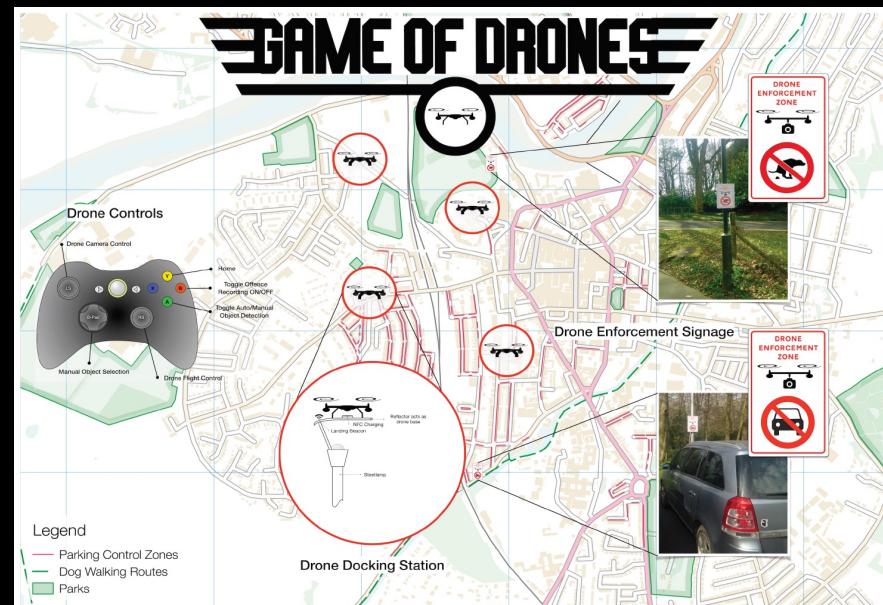
a way of envisioning, a communication tool, and a way of building inspiration and motivation

Lindley, 2015

1.1
Design
Fiction

Ex. 1 GAME OF DRONES

- Gamified drone-based system for civic enforcement
- Premised upon a supposed legislation change (allowing drones to help local government)
- Recruits retired members of police/army to act as remote drone pilots
- Parking offences and dog fouling
- Game-like interface, points rewarded for catching other citizens infringing upon the rules

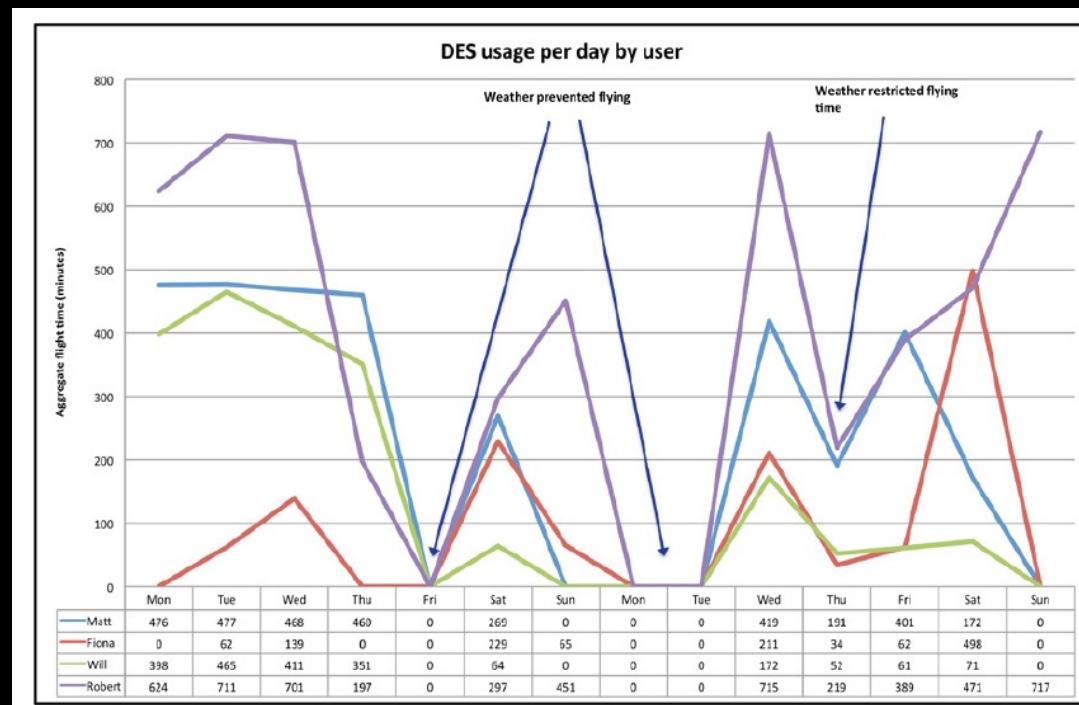


Coulton et al., 2017

1.1 Design Fiction

Ex. 1 GAME OF DRONES

- City map
- Hardware required specifications
- ‘Drone enforcement zone’ signage design
- Game-like interface
- 5 minute demonstration video recorded from a drone
- Participants trial and data collection and protection policies



1.1
Design
Fiction

Ex. 2 THE EMPATHY GAME

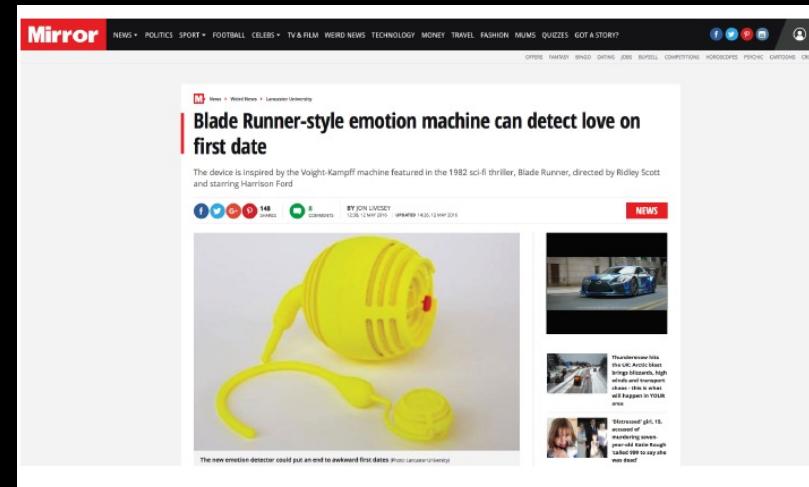
- Algorithms for detecting empathy within digital communications in situations such as: disambiguation of text –based chat, weaving emotions into telemedicine, smart devices such as cars modifying their behaviour based on users' emotional states
- Smart phone accessories, wearable devices



1.1
Design
Fiction

Ex. 2 THE EMPATHY ENGINE

- Software development kit
- Crowdfunding campaign video
- Prototypes (3D models & prints)
- Comic strip depicting a particular application of the technology
- Media report



1

YET ANOTHER UNSUCCESSFUL INTERNET DATE ...

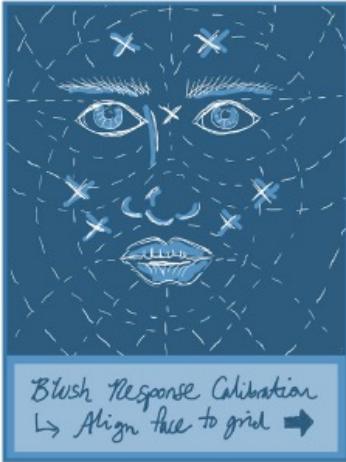
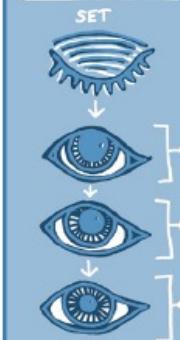
in the not too distant future, the minefield of internet dating remains as tricky as it ever was



2



VK Camera Calibration



Blush Response Calibration
→ Align face to grid →



3



4



**1.2
Design
Thinking
Expectations**

QUESTION 1 of 4: A ‘real life’ engineering problem should be initially approached by:

- Strictly adhering to a ‘recipe’ that has already proven to work on similar situations
- Dividing the problem and then solving parts of it
- Writing down all the ‘input data’
- Clearly establishing the boundaries of the problem
- Complexifying it, acknowledging all the issues gravitating around the problem’s situation
- Getting rid of complexity by considering approximations and/or simplifications
- Other

VOTE!!! Go to www.menti.com and use the code 3181 3624

**1.2
Design
Thinking
Expectations**

QUESTION 2 of 4: When solving a ‘real life’ engineering problem it is important to...

- Stick with our ‘first idea’, because it is usually the ‘right one’
- Stick with our ‘first idea’ to have more time to develop it
- Stick with our ‘first idea’ because, coming from our intuition, it is usually the most original one
- Explore numerous ideas until we find the ‘right one’
- Explore numerous ideas because it improves the chances to find an original one
- Other

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1.2
Design
Thinking
Expectations

- Complexifying it, acknowledging all the issues gravitating around the problem situation

*Much of the academic and commercial work that seeks to innovate around technology ... **solves problems that don't exist or ignores the complexity of personal, political or environmental issues.***

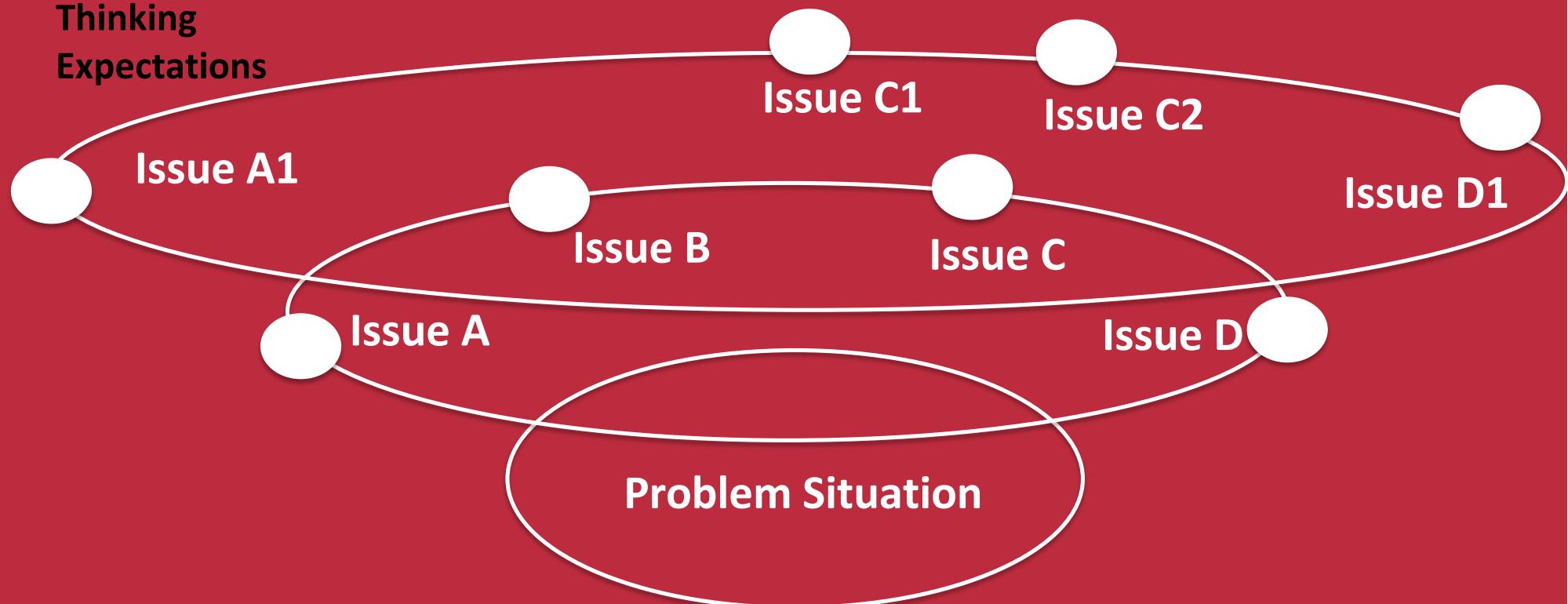
*“solution-driven design” generally reaches for answers **before questions have been asked fully***

*history... is littered with failed solutions that **presume problems rather than investigate them**”*

Blythe et al, 2016

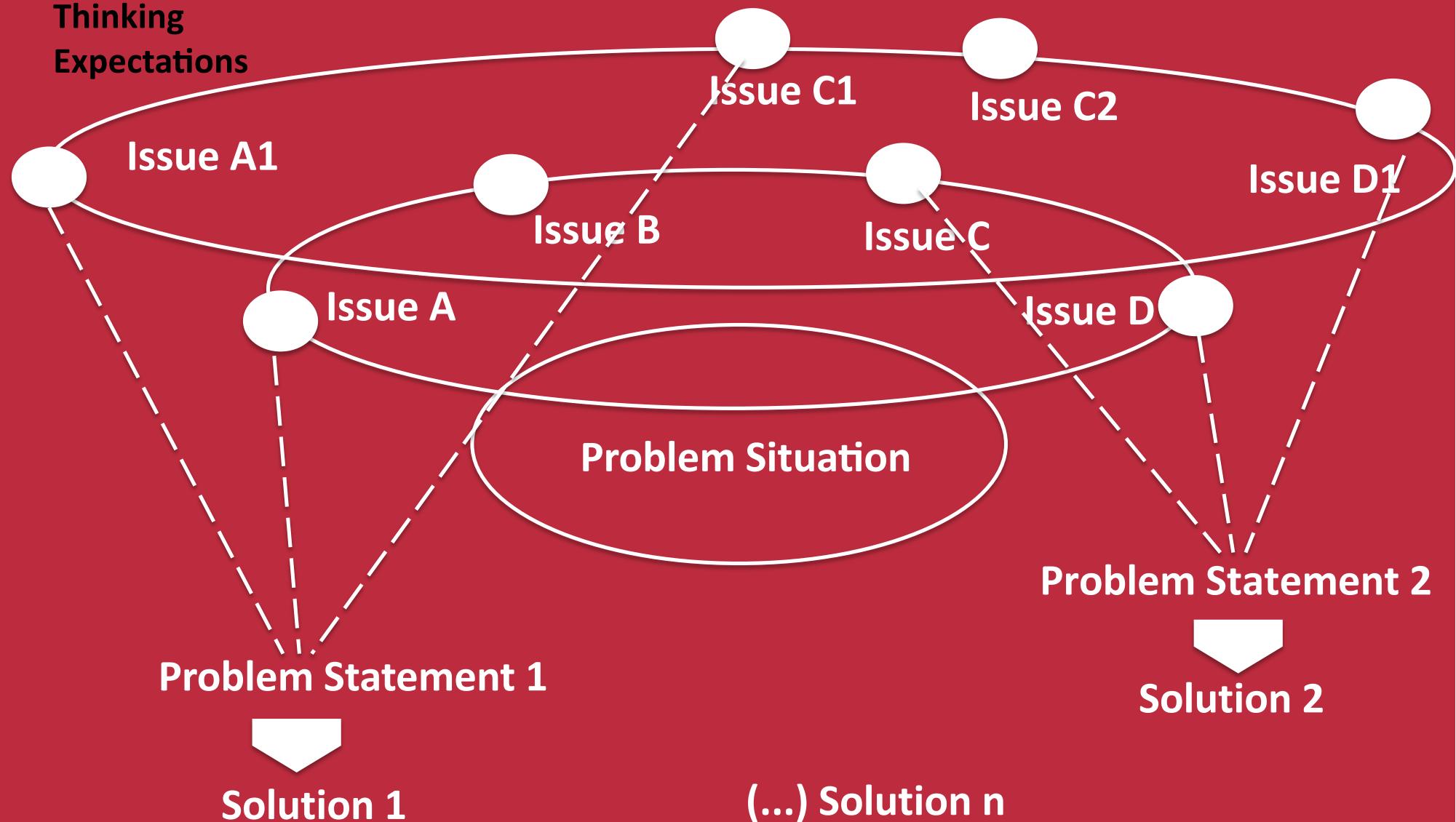
**1.2
Design
Thinking
Expectations**

- Complexifying it, acknowledging all the issues gravitating around the problem situation



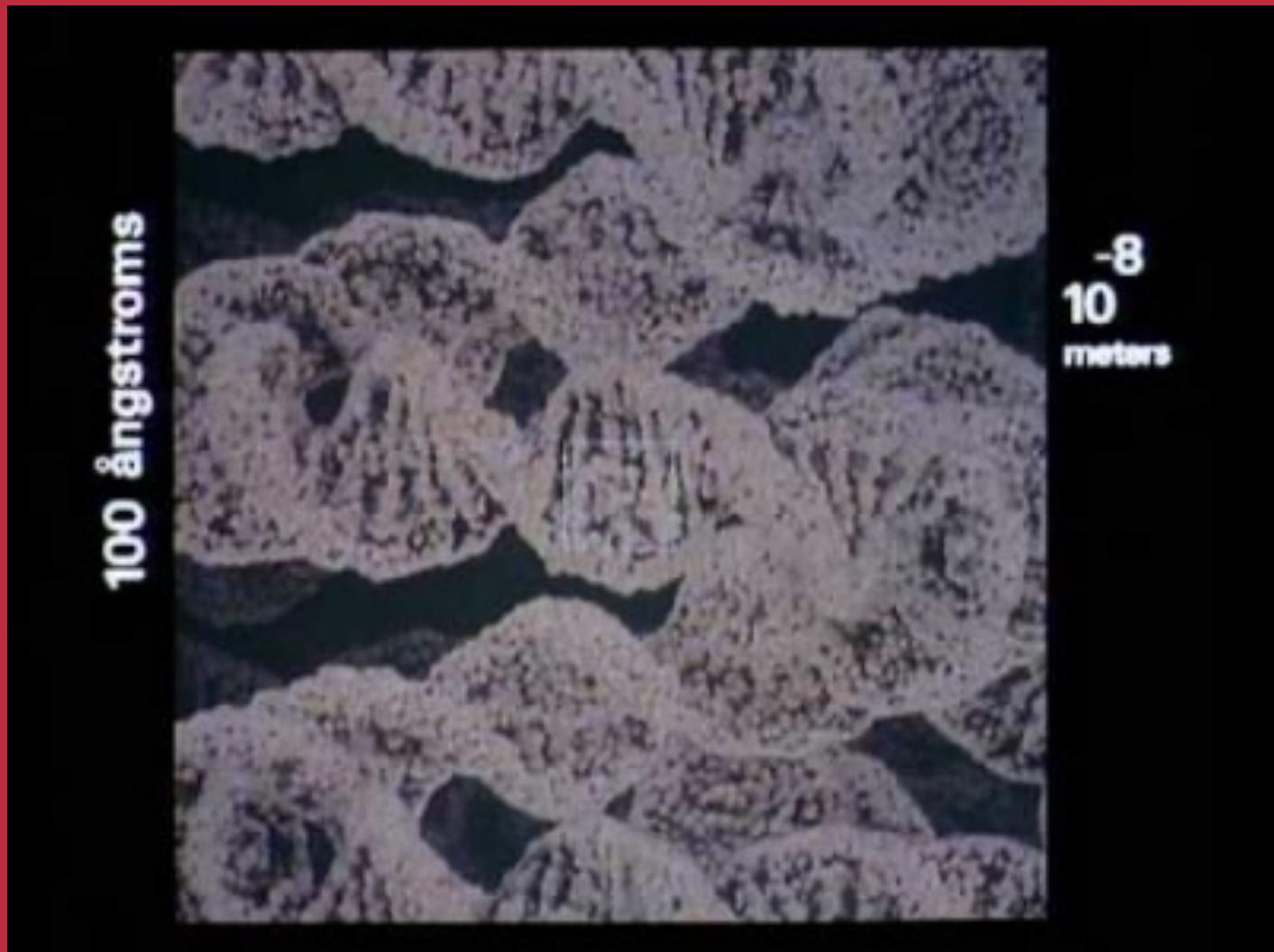
**1.2
Design
Thinking
Expectations**

- Complexifying it, acknowledging all the issues gravitating around the problem situation



**1.2
Design
Thinking
Expectations**

- Complexifying it, acknowledging all the issues gravitating around the problem situation



**1.2
Design
Thinking
Expectations**

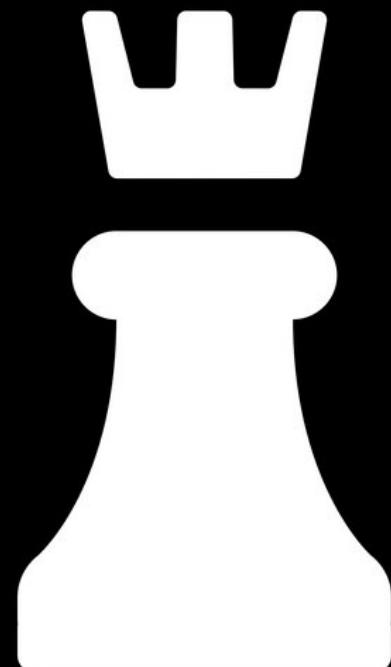
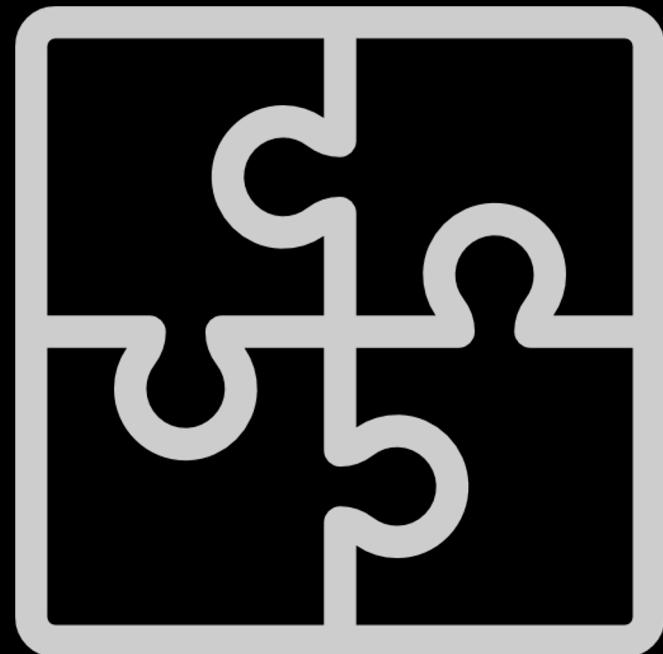
Explore numerous ideas because it improves the chances to find an original one

*It is vital to think of possibilities at all scales, to sketch or write them down to share in the process, but **not to fall in love** with them as “The Solution”*

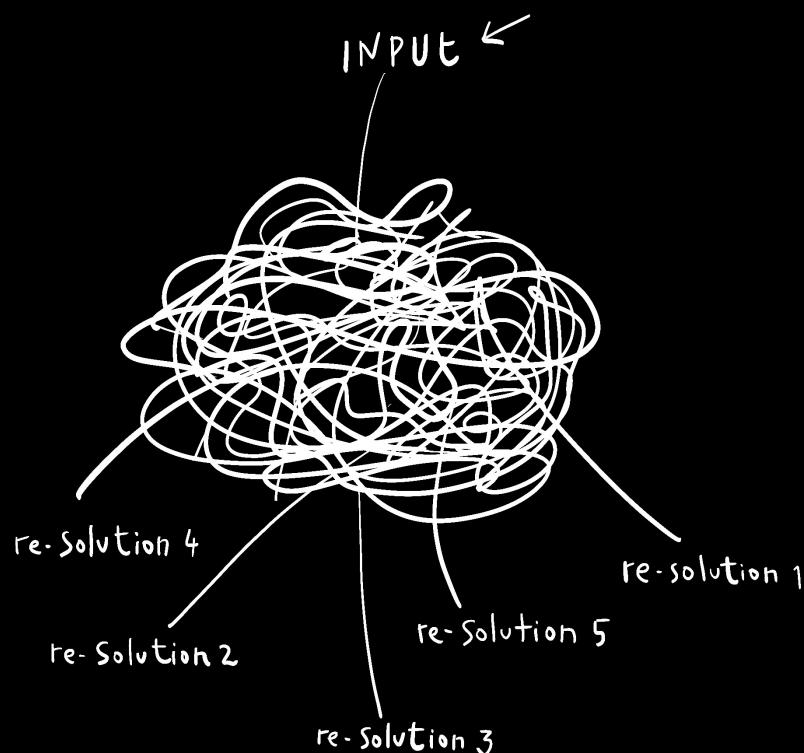
Blythe et al, 2016

1.2
Design
Thinking
Expectations

Problems suited for Design Thinking approach



1.2
**Design
Thinking
Expectations**



Problems suited for Design Thinking approach

Open

Admit more than one
'right answer'

Unstructured

Can't be solved
following a 'recipe'

Complex

Several parts,
interconnected
sometimes opposing
each other

Undefined

Usually there is no
starting question
neither ready input
data

Dynamic

Changing with time
**Problem evolves with
the solution**

**1.2
Design
Thinking
Expectations**

QUESTION 3 of 4: Design Thinking contribution to solve 'real life' engineering problems is mostly related with:

- Finding the problem
- Understanding the problem
- Ideating solutions
- Evaluating solutions
- Detailing solutions
- Communicating solutions
- Other

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**1.2
Design
Thinking
Expectations**

QUESTION 4 of 4: Some of the Design Thinking tools potentially useful when solving real life engineering problems that I know and able to apply are:

- Brainstorming
- Storytelling
- Empathy map
- Analogies
- Role playing
- Mind map
- Other

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TRANSFERABLE SKILLS 1 – DESIGN THINKING MODULE

1.3 Design Thinking Models

PHASES

1

DISCOVERY



I have a challenge.
How do I approach it?

2

INTERPRETATION



I learned something.
How do I interpret it?

3

IDEATION



I see an opportunity.
What do I create?

4

EXPERIMENTATION



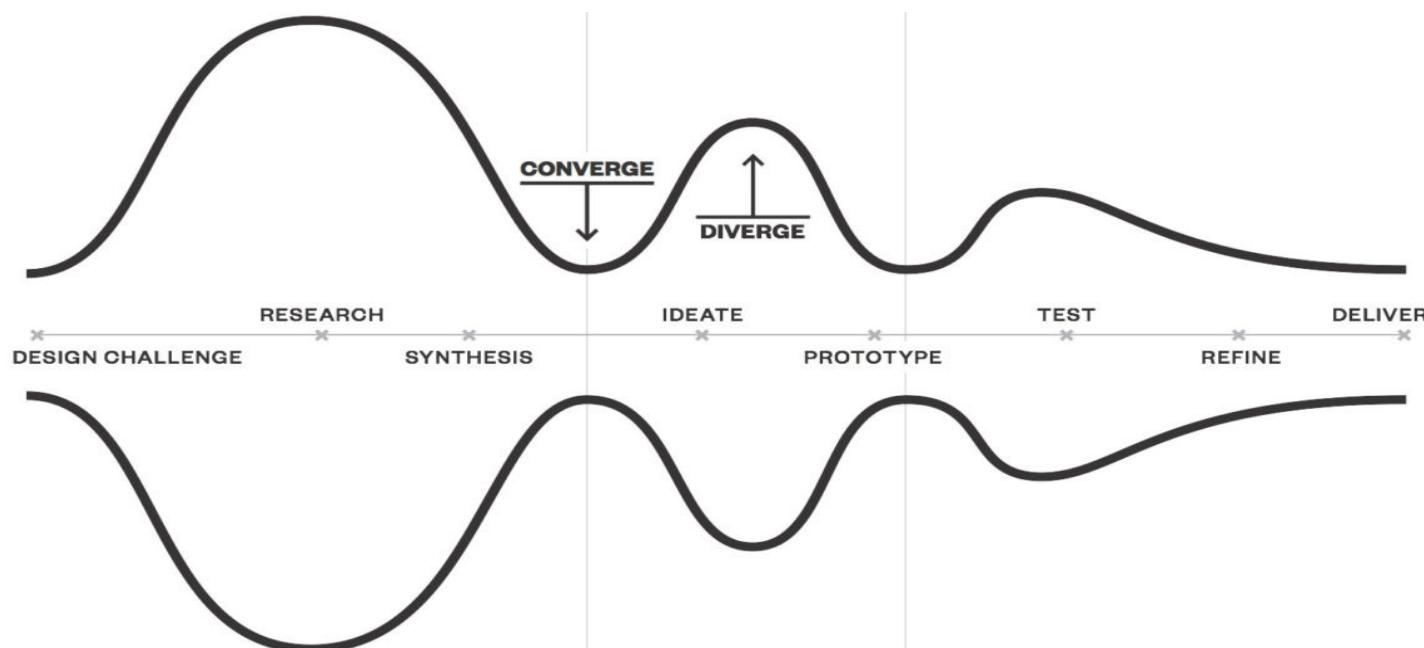
I have an idea.
How do I build it?

5

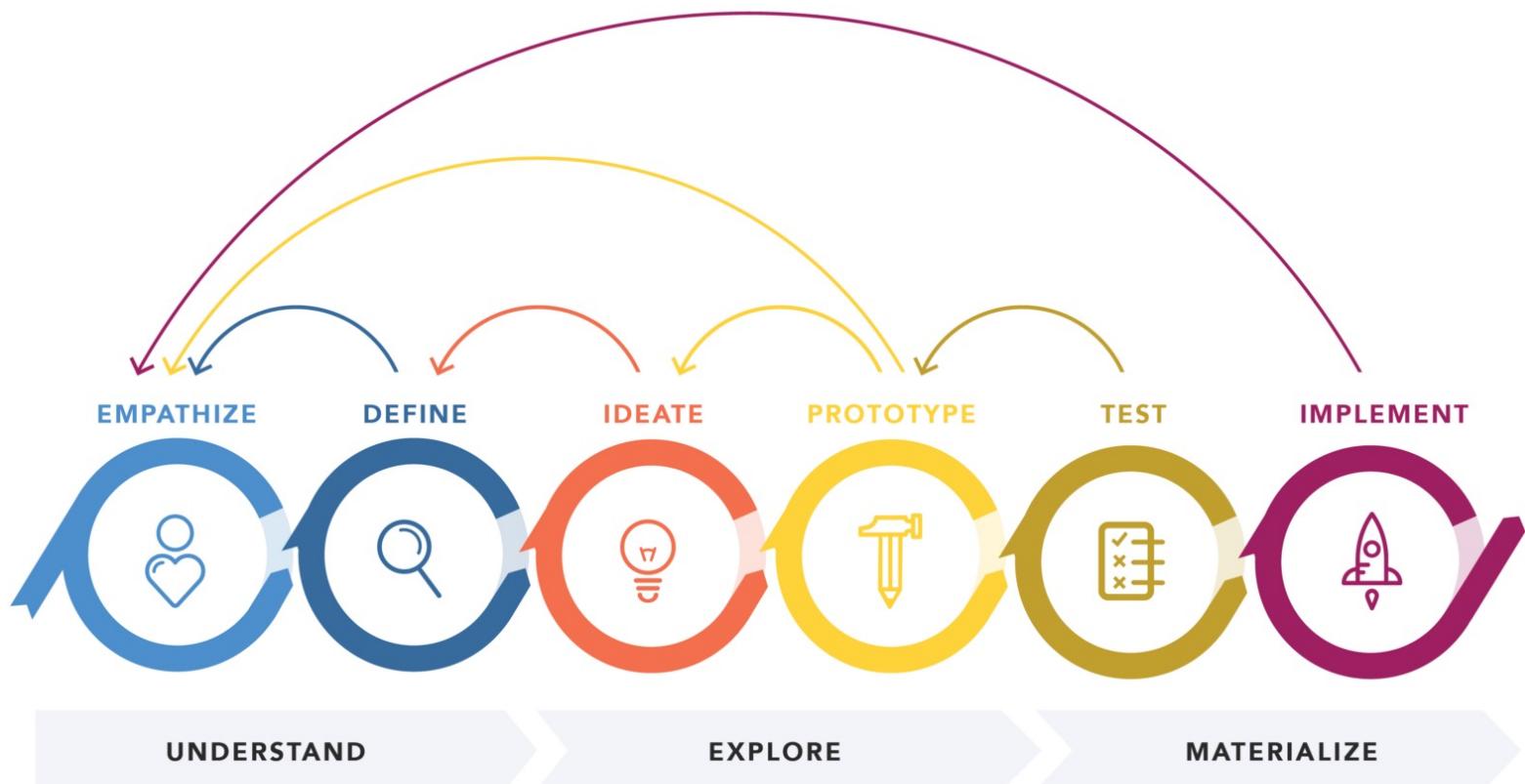
EVOLUTION



I tried something new.
How do I evolve it?



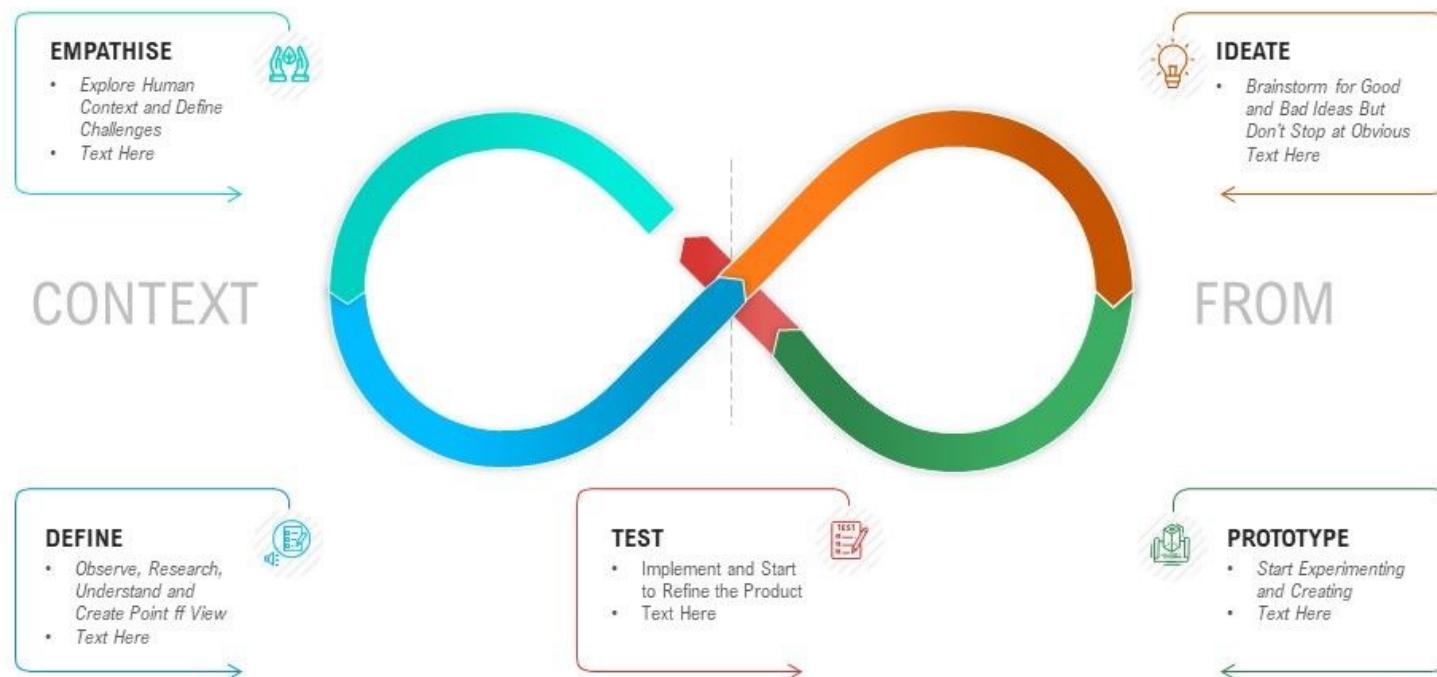
1.3 Design Thinking Models



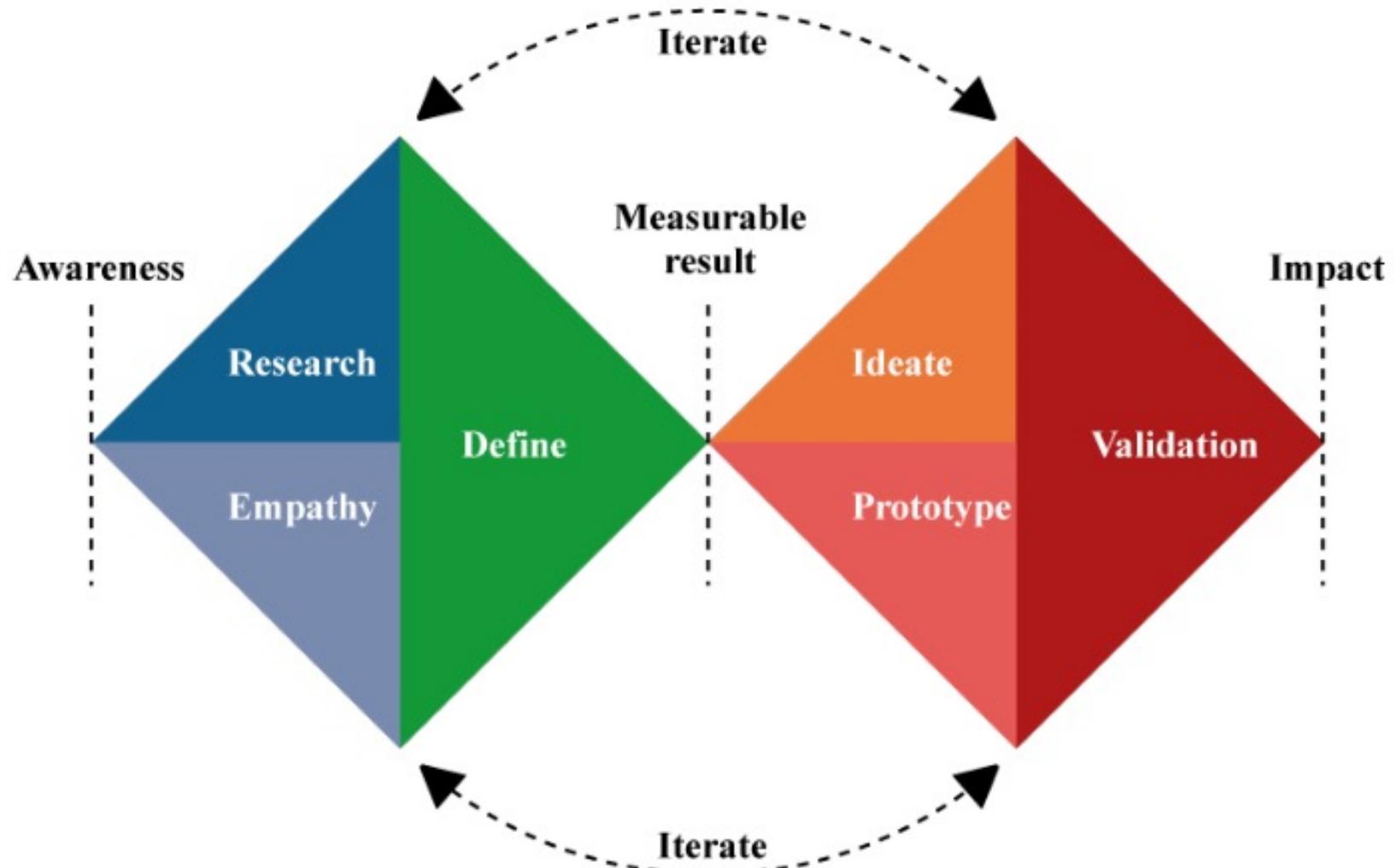
1.3 Design Thinking Models

Design Thinking Innovation Framework

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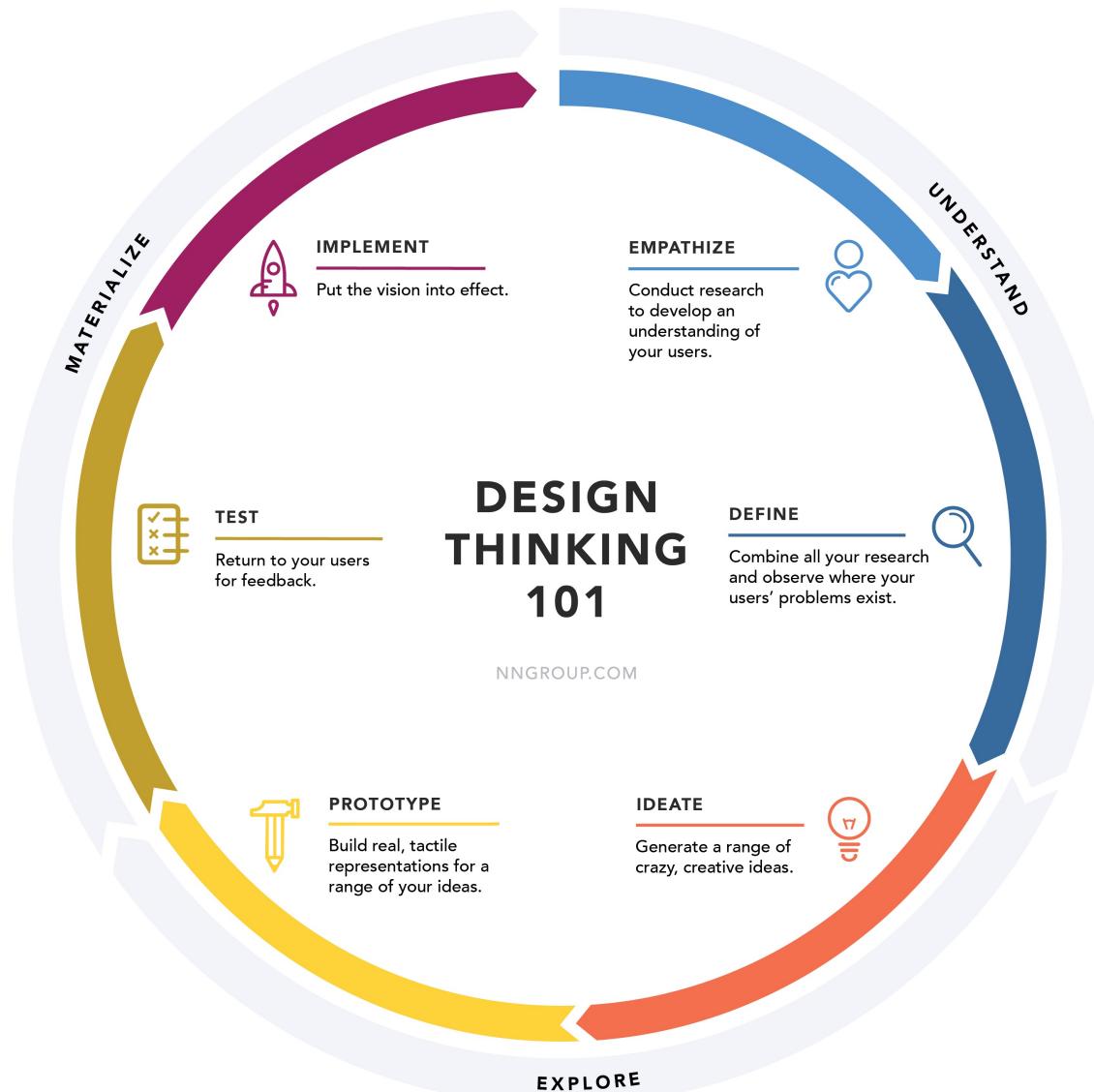


1.3 Design Thinking Models



TRANSFERABLE SKILLS 1 – DESIGN THINKING MODULE

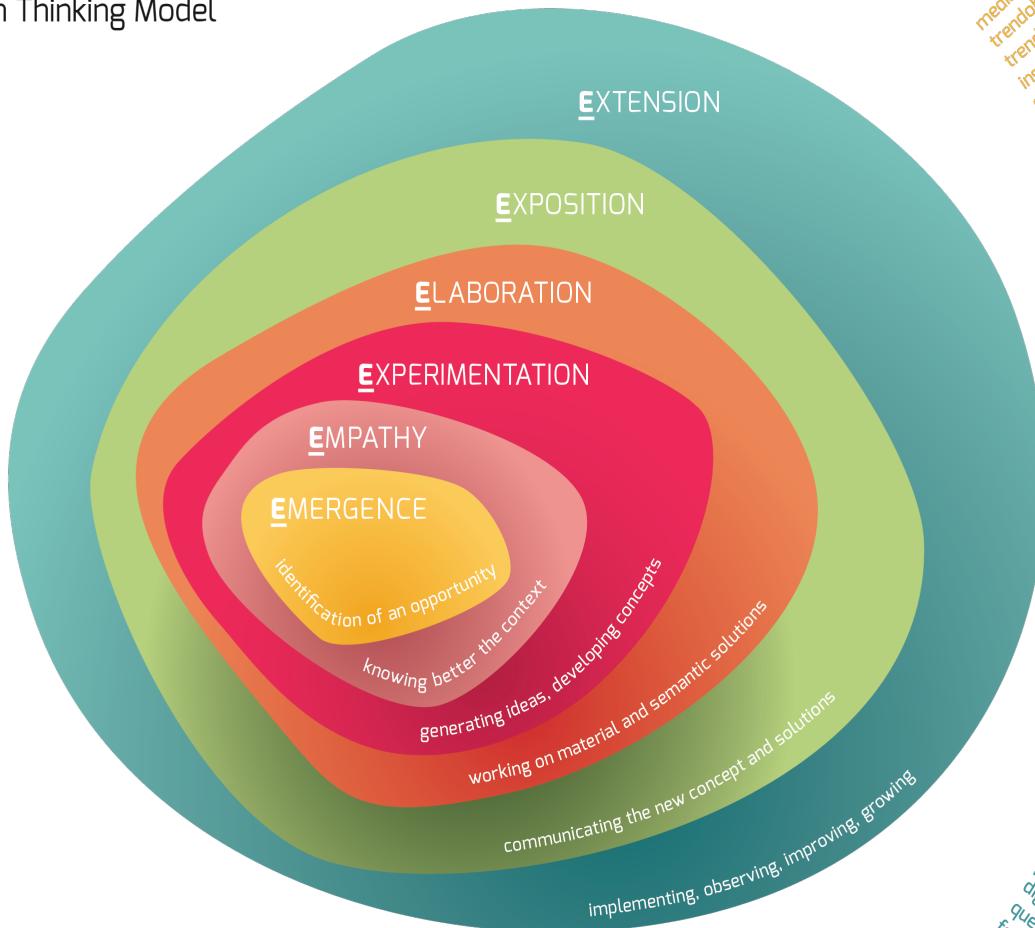
1.3 Design Thinking Models



1.3 Design Thinking Models

EVOLUTION 6²

Mindshake Design Thinking Model



- media research
- trendobservation
- trendmatrix
- inspiration board
- opportunity mind map
- intent statement
- stakeholder map
- image interview
- persona map and cards
- empathy map
- moodboard
- user journey map

- brainwriting
- insight clustering
- experiential drawing
- semantic confrontations
- analogies
- desktop walkthrough

- role play
- proposition drawing
- rapid prototyping
- evaluation matrix
- service blueprint
- pilot testing

- solution storyboard
- concept illustration
- vision statement
- solution prototype
- presentation prototype
- visual business model
- implementation map
- print media
- digital media
- questionnaire
- roadmap

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1.3 Design Thinking Models

