

Design Thinking

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ENT 621
Master of Entrepreneurship

Lecture 3



In The Previous Lecture: Design Thinking

- Detailed Convergent Vs Divergent Thinking in DT
- Tips to get the most out of divergent & convergent exercises
- The Meaning of Co-design
- Unilever Case Study
- ☐ **Facilitate Design Thinking in Your Team**

Process

Problem Space

Solution Space

- ❑ Principles of Design Thinking
- ❑ The process of Design Thinking
 - The Problem space- The solution space
 - The Design Thinking phases
 - How to plan a Design Thinking project
 - Examples of Design solutions using DT

Process

Problem Space

Solution Space

① Leave titles at the door!

There is no hierarchy during a Design Thinking workshop. Chef and other rolls are hung on the coat hook.

② Encourage wild ideas!

Let your imagination run wild. Any (supposedly) crazy idea and every idea should be treated equally.

③ Go for quantity!

Quantity before quality. Selected, analyzed and evaluated later.

④ Build on Ideas of others!

There is no copyright. Ideas from others should be taken up, supplemented or changed.

⑤ Think human centered!

Design Thinking is first and foremost thinking about people and not about technology or business goals.

Principles of Design Thinking

⑥ Be visual and make it tangible!

Use drawings, illustrations, photos, videos, prototypes, etc.

⑦ Avoid criticism!

Idea generation and evaluation must be strictly separated.

⑧ Fail early and often!

Failure means learning. Often failure means that you have learned a lot.

⑨ Stay focused!

Set yourself limits, stick to the concrete tasks in the Design Thinking process**.

⑩ Let`s have fun!

Developing new ideas in a team should be fun. Creativity needs this fun.

2-

DESIGN THINKING FRAMEWORK



IMPLEMENT

Put the vision
into effect



TEST

Return to
your users
for feedback



PROTOTYPE

Build real, tactile
representations
for a range of your ideas



EMPATHISE

Conduct research
to develop an
understanding of
your users



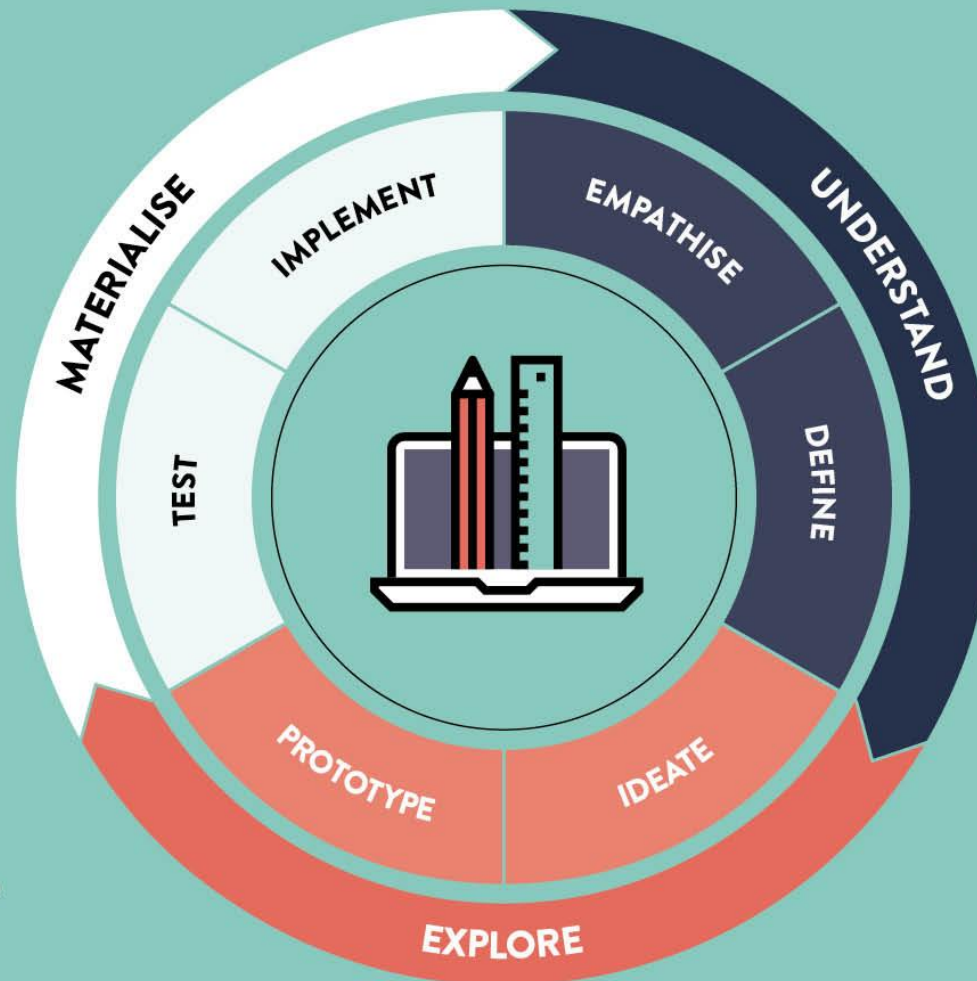
DEFINE

Combine all your
research and
observe where your users' problems exist



IDEATE

Generate a
range of crazy,
creative ideas



Source: Nielsen Norman Group

2-

The Process of Design Thinking

Even if the following process representation is shown **sequentially**, the process is **strongly iterative**, i.e.

there are numerous feedbacks to the previous phases in each phase.

The individual process steps should be completed quickly in order to learn fast through iteration loops according to the **"fail early and often"** principle or, if necessary, to be able to terminate the process completely.

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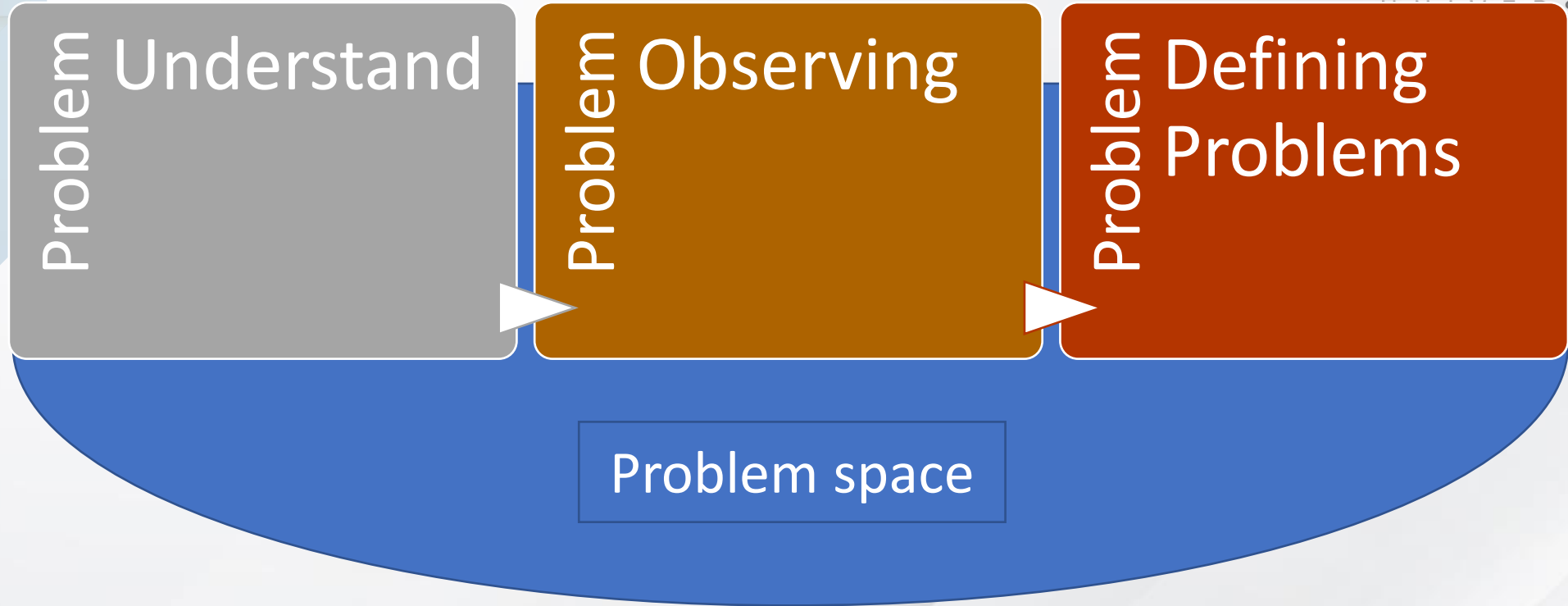
It is helpful to define **concrete time budgets** for the individual phases (in agile project management, this is referred to as **Timeboxing**)



Problem Understand

Problem Observing

Problem Defining Problems

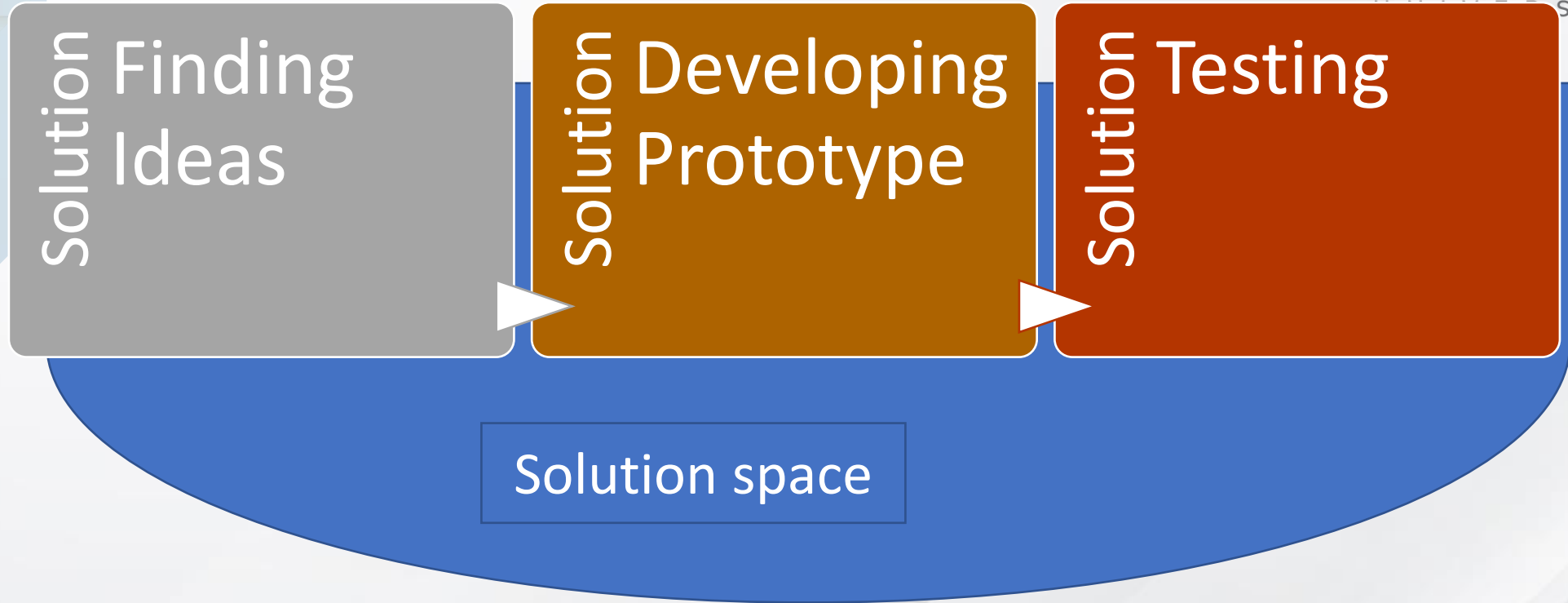


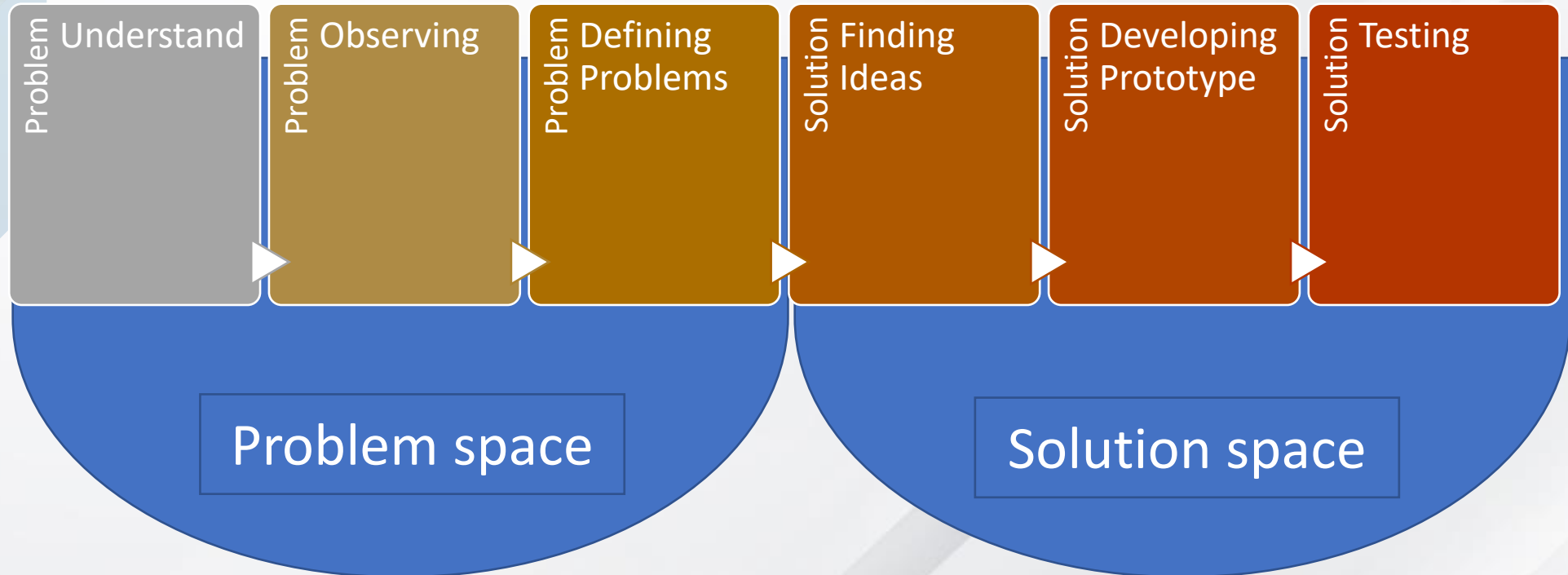


Solution Finding
Ideas

Solution Developing
Prototype

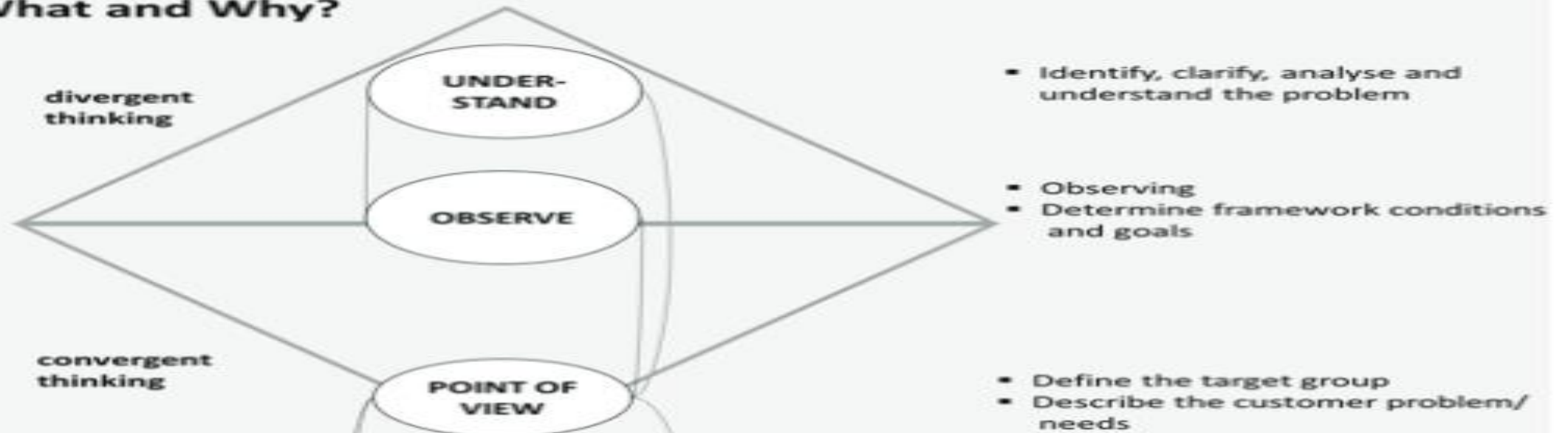
Solution Testing





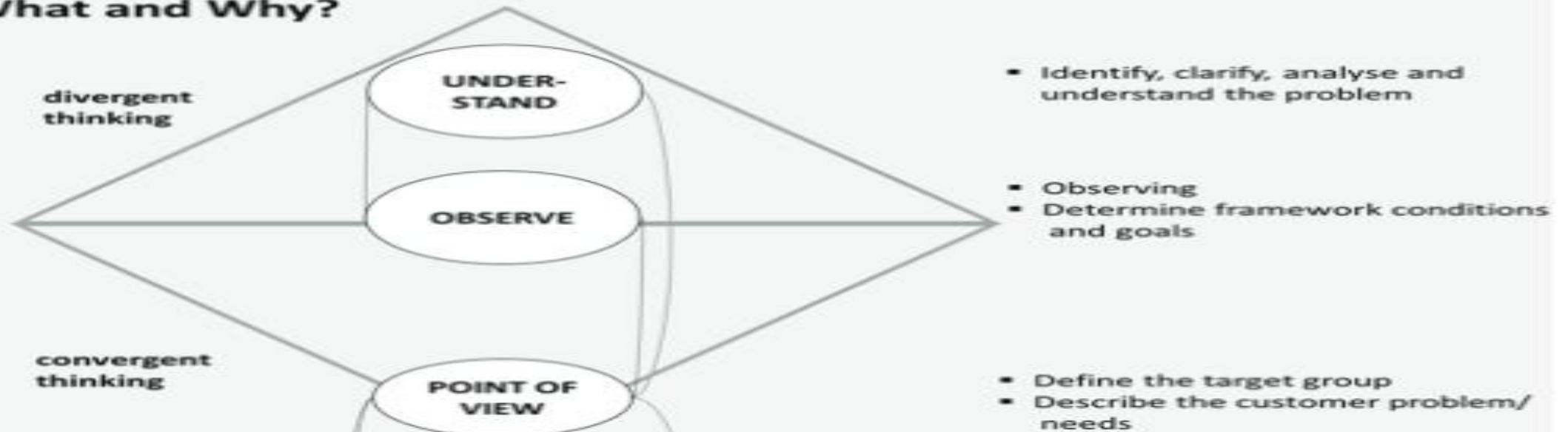
problem space:

➔ What and Why?



problem space:

➔ What and Why?



solution space

➔ How?



Design Thinking Phases

Phase 1 “Understand“ (Understanding the Problem):

In the first phase it is first about developing an understanding for the challenge/the problem/the need or the requirement (problem understanding). It must be clarified who must be integrated into the process and which technical perspective (process organization) is necessary. Finally, it must be clarified how the question can best be formulated so that the customer need/problem is defined in concrete terms.

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Phase 2 “Observe“:

In this phase, detailed research and on-site observations are carried out on the customer's need/problem. Numerous methods can be used for this, such as interviews, written surveys, observations with recordings through photos or even videos. The results are the clarification of the general conditions, the exact definition of the target group and a comprehensive understanding of the customer and his needs and behaviors.

Phase 3 “Point-of-View“ (Define the problem):

After the observations, the findings should next be condensed to a single prototypical user whose problem/need is to be summarized in a clearly defined question.

Phase 4 “Ideate“ (Finding and selecting ideas):

It is only in this phase that the actual brainstorming process takes place. Here the creativity techniques can be used. Strictly separated from this, the ideas can then be analyzed in a customer-oriented manner in order to identify weak points, and a selection decision can be made on the basis of an idea evaluation.

Design Thinking Phases

Phase 5 „Prototype“ (Develop the prototype):

In this very important phase, ideas should be visualized as quickly as possible, made tangible, sketched, designed, modelled/simulated, etc. Following the technical field one can speak here of "**Rapid Prototyping**", whereby the prototype development applies decidedly not only to products, but also to services. A variety of methods for prototype development are available for this purpose.

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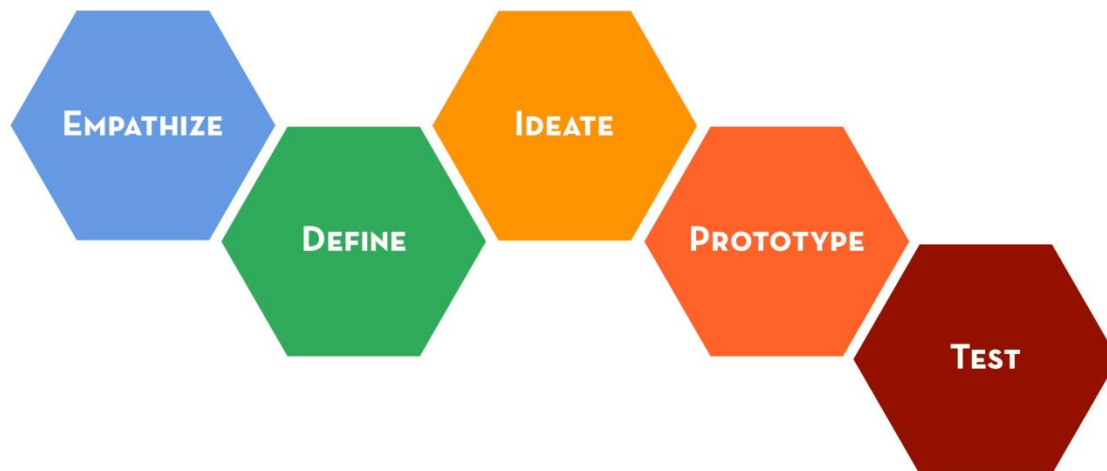
Phase 6 “Test“:

In this final phase, the ideas are to be further developed and tested through further experiments and customer feedback. In addition, important development, production and market issues have to be clarified.

In the process flow presented here, the actual implementation phase with the development of the idea to a marketable product/service would only follow afterwards.

The design thinking process

- The design thinking process basically involves five steps



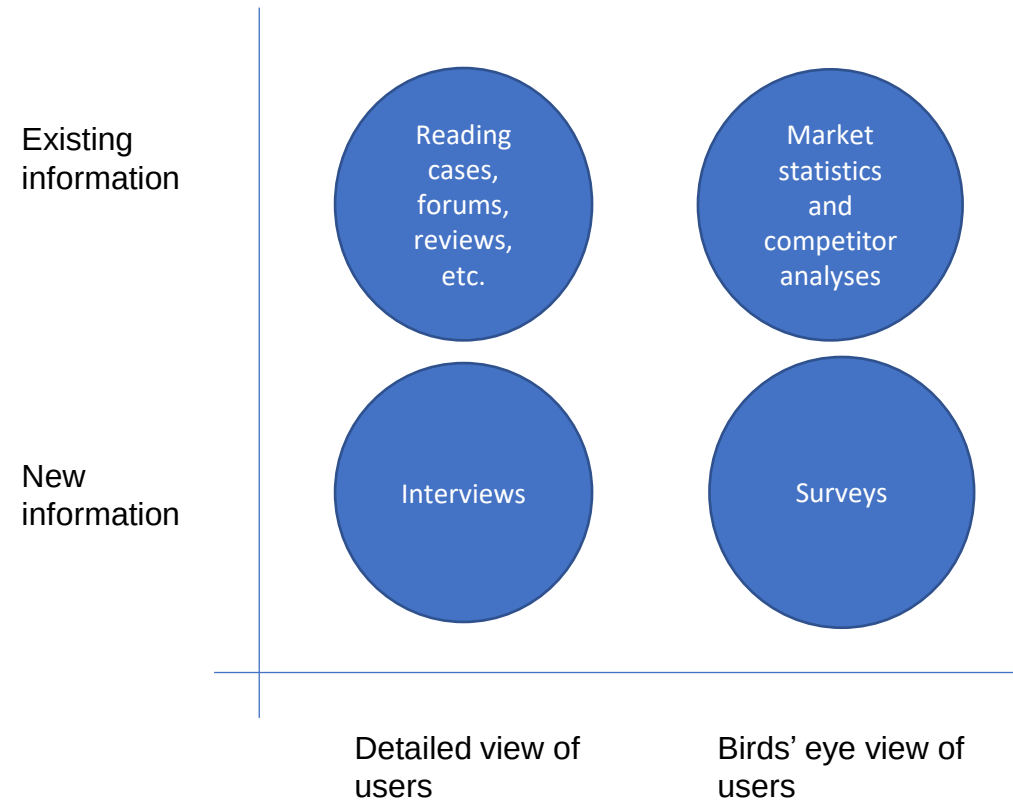
- Note: this is not a 'waterfall' model – this is an iterative and parallel process

Empathising

- In order to empathise, we need to understand our users
 - We need to research our market
- Some of this can be done through web research, e.g. scaling the problem, gaining a foothold understanding of how users operate
- However the real empathising starts in the context of ongoing dialogue with potential users
 - 'Why-bombing'
- The ideal outcomes from this stage are surprises

Empathising

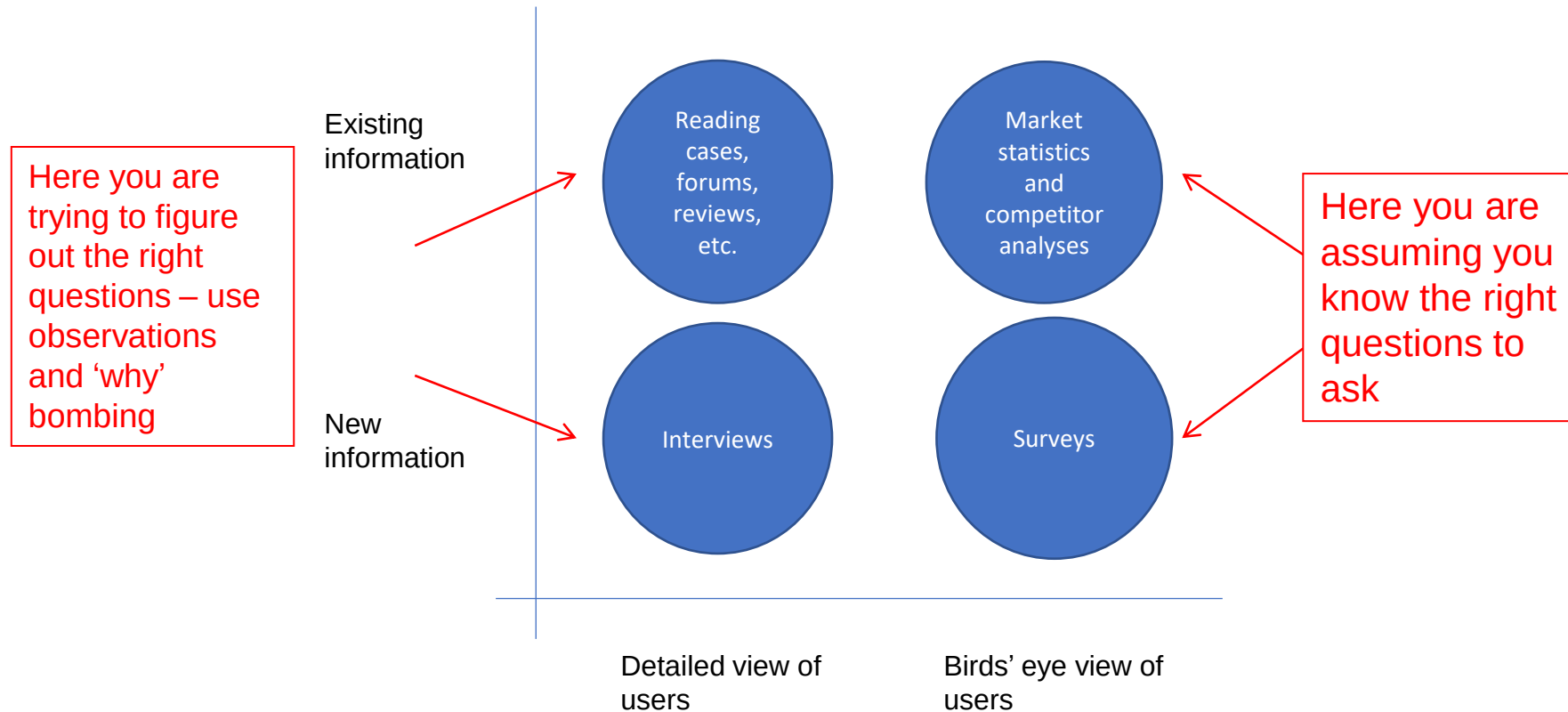
- This leaves us with two key dimensions



- These are complimentary (most projects will include them all)

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Defining

- List pain points, i.e. things that users complain about
- List workarounds and awkward **behaviours**
- Formalise these into a problem statement.
 - This statement should:
 - Make it clear whom the user is
 - Aggregate smaller concerns into one larger issue
 - This statement should **NOT**:
 - Narrow the problem down in a way that lends itself towards specific solutions

Ideating

- This stage is where your opportunity to flex your creative muscles comes in
- Quantity is your friend! If you are struggling to come up with 20-30 ideas, then your problem statement was too restrictive
- Abandon judgement – no idea is a bad idea as long as it fits with the needs identified in your problem statement

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- Quantity is your friend! If you are struggling to come up with 20-30 ideas, then your problem statement was too restrictive
- Abandon judgement – no idea is a bad idea as long as it fits with the needs identified in your problem statement
- Visualise things! Get a pen and paper out (or whatever medium you find comfortable) and draw pictures, bubble-diagrams, etc.
 - You can be surprised what jumps out when you can see what you're thinking

Prototyping

- Prototypes consist of anything from paper-based representations to fully functional websites
- It allows three things
 - You can figure out if and how your idea can be implemented
 - It gives you a way of discussing things with users in a shared language, i.e. “is this what you meant?”
 - Ideas can be tested with users
- Types of Prototyping
 - Low-Fidelity Prototyping
 - High-Fidelity Prototyping

Testing

- Testing serves two purposes
 - To evaluate ideas
 - To generate new ideas from users
- With this in mind, a few tips:
 - Test with users that are representative and appropriately critical
 - Try to minimise users' nerves/sense that they are being observed
 - Prioritise key tasks (you can't test everything)
 - Present your task instructions in as natural a way as possible (but take care not to prompt people with these instructions)
 - If users can't do something, remind them it's not their fault and that this is valuable to you
 - Other than that, stay quiet!

How to plan a Design Thinking project

- ❑ First, the goals for the Design Thinking project are to be defined derived from the company/innovation strategy and the expectations of all participants are to be clarified:
 - Should new ideas be found? If so, for what or for which search field
 - Should concrete customer needs and/or certain patterns or trends be found among the customers in a specific subject area?
 - Which goal is to be achieved by when?
 - Which priorities are to be set in terms of content and time for the achievement of the goal?

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 - Which goal is to be achieved by when?
 - Which priorities are to be set in terms of content and time for the achievement of the goal?
 - Which employees or which external participants (experts from practice and research, customers, suppliers, external parties from outside the industry) are to be involved from which areas/disciplines?
 - Who will be responsible for project management or moderation?
 - Where are the interfaces between the required disciplines?
 - Which project budget is available for Design Thinking?

How to plan a Design Thinking project

Design Thinking is carried out as a project that involves **internal staff** as well as **external participants** from different disciplines.

The project team should consist of six to a maximum of nine representatives from different areas (R&D, production, marketing and sales) or disciplines who contribute at least 50% of their working time (and are open to external ideas).

Different experience horizons and characters are also helpful to get the diversity necessary for Design Thinking

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The support can be seen concretely in the following activities:

1. Adequate resources for the project
2. If applicable, taking over patronage for the Design Thinking project
3. Desire for continuous reporting on the progress of the project
4. permanent internal and external communication about the strategic importance of DT
5. Member of the steering committee, if any
6. Personal participation in workshops
7. Recognition of the employees involved

Example 1: An MRI for Children

- Designers at GE had designed a MRI machine for internally scanning patients for tissue damage, tumours, etc.
- Some of these machines were for paediatrics wards (children)
- Children found the machines terrifying, yet the scan only works if you hold completely still inside them
 - Up to 80% of children had to be sedated
- The designers adopted a design thinking approach to try and understand the children's journey, their feelings, and how they were building negative feelings
 - Huge drop in sedation, huge increase in satisfaction

Example 1: An MRI for Children



Images from <http://blog2.architech.ca/h/i/124542383-ge-transforms-mri-experience-with-design-thinking>

Example 2: Radically Low-Cost Incubation



Image from <http://leadershiplearning.org/blog/natalia-castaneda/2010-11-30/learning-and-having-fun-design-thinking>

Conclusion:

problem-solving isn't "one size fits all"

Overall, Design Thinking is a very comprehensive, user-oriented approach that systematically applies methods for observation, questioning and brainstorming as well as other moderation techniques in the individual phases in a process with numerous iteration loops

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Thank You