Intro

[Start Here]

Welcome to the DTU Skylab Sprint Kit

You hold in your hands a deck of cards with a variety of tools you can use on your collaborative team journey. You will be guided step by step through a set of methods and approaches from which you can structure a sprint. The Sprint Kit can light the way, but only you can choose where the journey leads. This is not a training exercise. The Sprint Kit is about doing it for real.

Starting now.

To begin, turn this card over.

→

Get started

The sprint kit contains five development phases, each with objectives called actions. Complete the actions to continue to next phase. Once you begin, the sprint can only be exited by succeeding or by giving up.

[Begin.]

Introduction	**1**

Understand the frame and condition of your sprint. Get familiar with the rules and guidelines or make new ones.

Inception	**2**

This is the deep dive to understand and unfold the challenge. Empathize and gather insight.

Ideate	**3**

Idea generation by brainstorming and conceptualization techniques. Go for quantity not quality.

Improve	**4**

Select, describe, and build. Test your concept or its hypothesis to be able to improve it. Iterate.

Infiltrate	**5**

Finalize the solution by designing the business model and its roll-out and implementation plan. Pitch it.

[Stop. Rest.]   **Change the world**

Navigation

You can choose to follow the methods one by one. You can also design your own process with inspiration from the methods presented, or from tools, methods, and approaches you are familiar with or search to find during the sprint.

Time Boxing is a strong tool for structuring any development task. Define a set of activities and state the time frames for each activity.

Use the Time Boxing Poster 🔧

[*Every time the above icon appears, you can download a PDF template online—it is also provided for you in the kit*].

What you should do in each development phase:

☐ Flick through the cards presented in the phase. Present other methods you know and find useful to your team.

☐ Use the Time Boxing Poster each time you plan your activities. Follow the instructions on the poster.

☐ Prioritize and select the methods and approaches you want to use.

Intro

Team Canvas

 Get your team on the same page!

Team Canvas is a dialogue tool to boost alignment and create a highly collaborative environment. Use it to avoid conflicts and build a productive culture fast.

Use the Team Canvas Poster

Do the following:

Fill in the canvas. Spend min. 20 min. on this activity.

Revisit the canvas from time to time, if needed.

If you like, boost your collaboration by stating the teams' collaborative quality. Use a Collaboration Barometer

Activity types

Shift and navigate between activity types.

A collaborative sprint demands active decision-making on which activities to carry out, and who does what. Be aware that you navigate between:

1. Joint and individual tasks and activities.
2. Controlled (using a method) and non-controlled activities (no method—abstracting).
3. Converging and diverging activities. Navigating between expanding and narrowing the solution space.
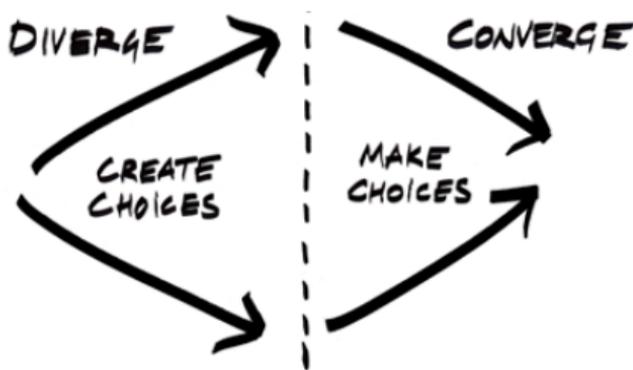
To-do:

Reflect and plan the navigation between the different types of activities when using the Time Framing Poster.

LEVEL
1

Elephant in the room

Talk about it!

This metaphorical idiom refers to a sudden change of the atmosphere in your team space, where the vibrant and active collaboration shifted to a silent or negative approach. Everyone is aware of the state of mind, but no one wants to challenge the condition of the group thinking or discuss the obvious problem.

**Perform one of following two actions—>
if/when you have registered an Elephant:**

☐ Place the card on the table—> put it into words. Describe the elephant in your room. Take turns (60 sec. each)

☐ Do a team activity where you break down the elephant into pieces. Describe four main reasons for its appearance + four ways to make it leave.

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The joker

Team behaviour

Go through the list! During idea generation sessions and brainstorms, use the below list of preferred behaviour.

1. One idea at the time. One conversation at a time.
2. Encourage "wild" or strange ideas.
3. the ideas belong to a group not an individual.
4. Go for quantity. Don't worry about duplicates.
5. Be visual, record everything.
6. headline. Give each idea a name
7. Build on others' ideas "yes, and...". Do not use "buts".
8. Don't judge ideas as they are being generated.
9. Offer ideas and solutions, not problems or barriers.
10. Do not allow criticism or debate, no analysis of ideas
11. Stay focused on the topic.
12. Honour time limits.
13. Have fun.

Perform one of following two actions:

☐ Go through the list get familiar with the behaviour listed!

☐ Place the joker on the table—> In case of a teammate behaviour brake.

Mindmap

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Mindmap

Unfold the challenge

Use a cluster technique to take a deep dive into the challenge. You unpack data, facts, findings, thoughts and experiences into tangible and visual pieces of information that you surround yourself with to inform and inspire the team. Bring anything to the table you know or have found that can unfold the challenge. Bringing an unanswered question to the table is also useful.

Group the different pieces of information to explore what themes and patterns emerge. Regroup until you have a platform from which you can start problem solving.

Use the groupings/categories to verify any assumptions you have had.

Conduct following two actions:

☐ Use post-its in a team setting. Keep adding until the flow stops. (minimum 15 min.)

☐ Do an internet search or use the experts available. Add to the previously found pieces of information (validation) or add new pieces.

Go external

Mentor and expert dialogue

Take a deep dive into the challenge using mentors and experts. Despite which approach you select, be a good listener and make sure to prepare as much as possible. Structure the mentor dialogue—set a goal and select an approach below:

1. 7 whys: Present a statement to your mentor, ask the mentor to rephrase the statement. When done, ask for an answer to the statement. After each answer, ask why.
2. Create a dialogue around a flow-charting exercise. Sketch the flow of activities around the challenge together.
3. Interview / dialogue: Prepare a set of questions. During the interview use, e.g., 'can you tell me about...' and use 'what, how, when and where...' also use direct questions: 'have you ever thought about...'

Complete these two actions

☐ Select and conduct one of the three activities. Or use an approach of your own.

☐ Talk about how you can involve company experts in your coming activities

Inception
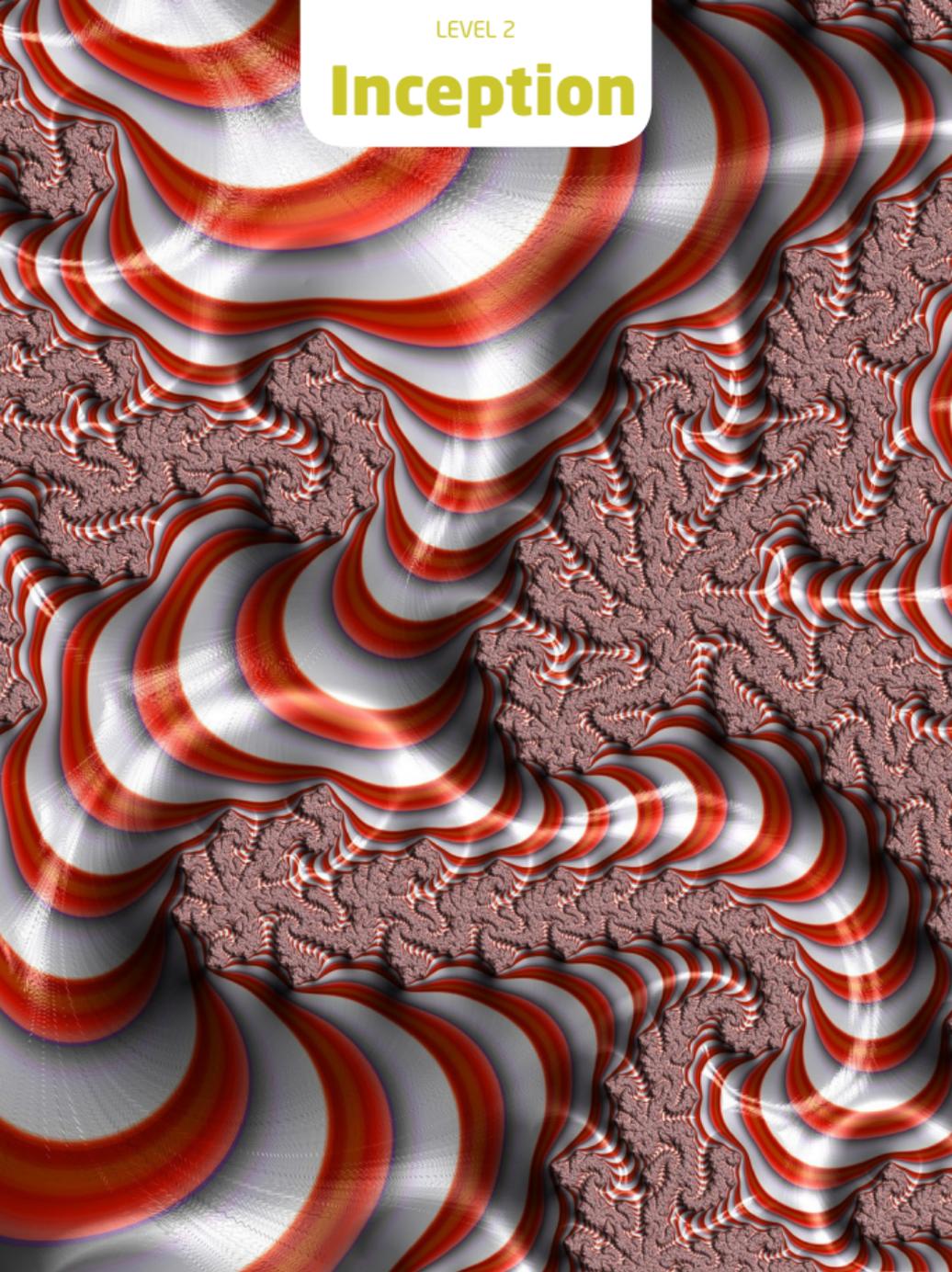
Ask differently

Thought-provoking questions

Great answers come from good questions. Innovators are insatiably curious about the world around them. Interrogate what you observe by asking deep questions.

Encourage your curiosity beyond products and technologies to people, problems, and businesses. Nurture your passion for understanding how things work and why they don't. Use external experts/mentors as good sources of intriguing questions. Call a "Question Storming" meeting. Instead of answers, focus on generating thought-provoking questions.

"Why is it this way instead of another way?"
"How could it be different?"
"What would 'perfect' look like?"
"What is the one question no one has ever asked about this?"

Complete this action

Prepare a set of provoking questions and invite a mentor or expert to a "Question Storming".

Inception

Divergent thinking

Open up the solutions space!

The ability to shift perspectives is crucial to insight: Here is a framework that can be useful. Experiment with applying different transforms to what you are observing and questioning.

- **Deconstruct:** Can you deconstruct it into component elements? Can those elements be recombined in different ways?

- **Scale:** what happens if it is bigger or smaller, from nano to macro? What if far things become near and near things become far?

- **Scope:** What changes when here becomes everywhere, when one thing becomes everything, when that which was local becomes global and what was global is local.

- **Sequence:** What occurs when that which was first becomes last, before happens after and easy becomes complex?

- **Time** How does it change if right now is forever, if faster is slower, sorter is longer, the frequent becomes rare or the random becomes regular?

- **Value** What if good is bad or best is now worst? What if the perfect becomes average, the free becomes priceless or the important fades to trivial.

Complete this action

☐ Select three of above and use them to generate new insight on the challenge.

Draw the challenge

Sketch and illustrate!

Converting something complex into a set of visualizations
Not only does it generate a platform for great discussion
and dialogue, it also spurs creativity. Using your hands
bringing form to an abstract idea, problem, technology
or technical detail, can increase our understanding and
comprehension of problems and help creativity.

1. Do a sketch together on a whiteboard or large poster.
2. Sketch individually and take turn to present to the team.
3. Involve an expert to elaborate on a topic by visualizing it on a large poster.
4. Involve an expert to visualize an experience, or 'a Day in the Life' by detailing a set of activities around a topic.

Complete one of above actions.

Select and perform one of the four activities.

Inception

Existing solutions

Get a hold on what's out there.

Identify state-of-the-art within your paradigm and list current or past relevant technological and social trends. Researching existing products, services and systems help to prompt requirements, and to generate alternative designs.

Examples of activities:

1. **Secondary research**: Review documents, journals, papers to get insight into suggested approaches to take, or to existing products and systems.

2. **Market survey:** Search for existing solutions, collect these, compare them, and evaluate the relevance of their functions.

Complete one of the below actions.

☐ Select and conduct one of two actions listed above.

☐ Ask experts to present similar activities. Are they aware of documents or papers? Make them reflect on your findings.

Inception

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Stakeholder mapping

Identify important stakeholders

Conduct a stakeholder analysis by mapping organizations, companies, legislative entities, etc. that comprise the ecosystem surrounding your existing system and sub systems or wherein your solution must be implemented.

1. **Identify stakeholders**: give the stakeholders names and group them if necessary.
2. **State their roles**: Define how they act in the network and what their drivers are.
3. **Link the stakeholders together:** What flows between the stakeholders; information, money, products etc.
4. **Sequence**: Discuss the network by sequencing different scenarios. Describe a scenario, number the stakeholders, and describe the activity they perform.

Complete one of the below actions.

☐ Map the ecosystem on a poster. As a team activity or in sub groups, compare your findings.

☐ Ask experts to: comment on your mapping, and/or conduct one themselves by focusing on main stakeholders.

Bad is good

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LEVEL
3
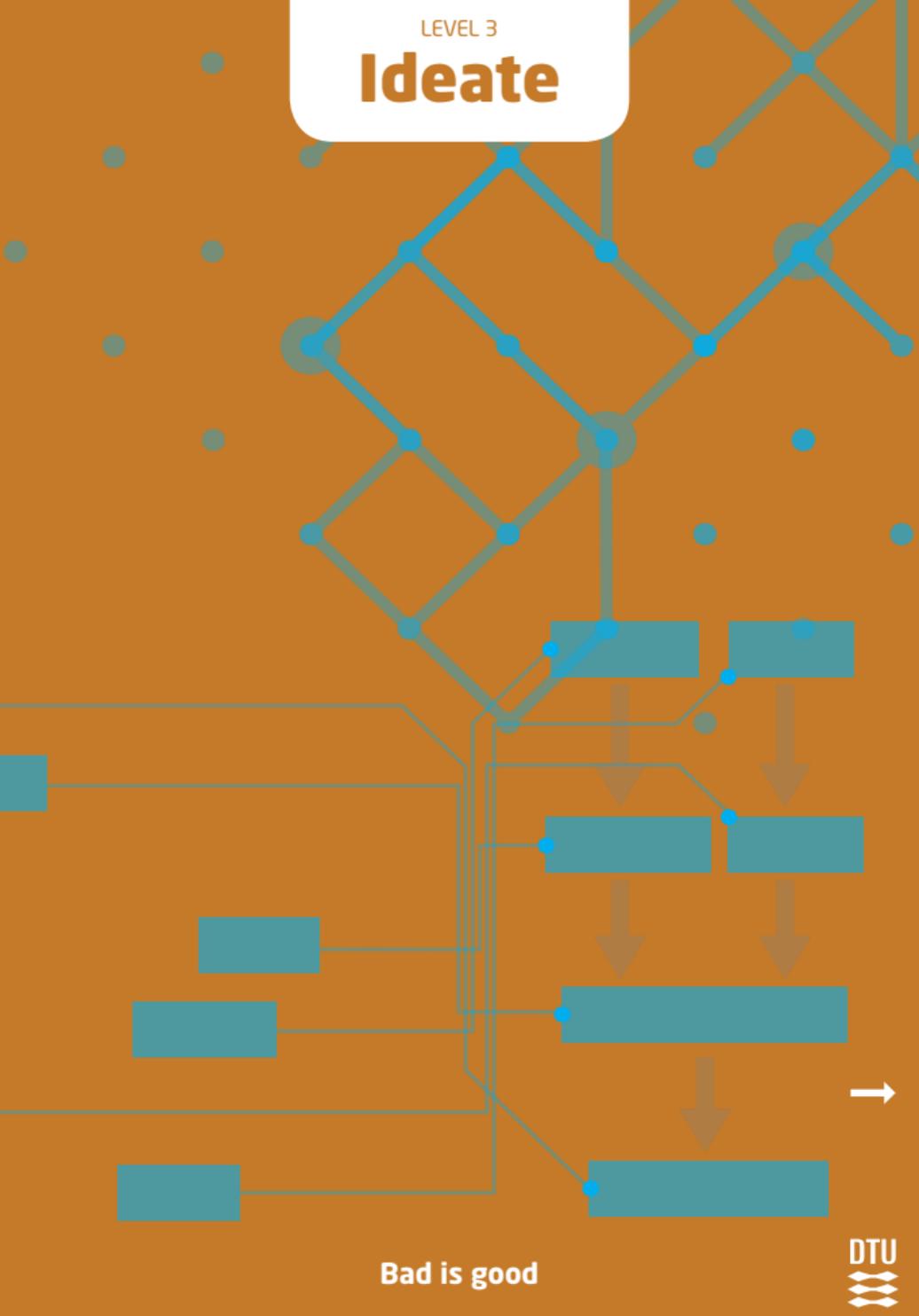
Bad is good

Your objective is to generate bad ideas

Creativity is not mysterious. While the brain chemistry that sparks neurons into creative connections is not well understood, we can follow steps likely to trigger the kind of creativity we're after. In this phase, you will be presented with a few methods to guide such steps.

1. Generate bad ideas, lots of bad ideas. Most great ideas begin life looking like bad ideas, not good ideas. (*at this first ideation phase, they are the same*). That is why the kit contains a Notebook for Bad Ideas.

2. We are less judgemental if we label our raw ideas "Bad" in advance. Keep that notebook handy. Once you begin ideation, ideas can land at any time.

3. During ideation activities (*and in general during the sprint*), if any unrelated thoughts encroach, like "Don't forget to call Bernie", queue it on a Post-it . Also try to minimize usage of none related activities on social media. If absolutely necessary: dedicate time for this.

LEVEL
3

Brainstorm

Idea generation sessions

Block 45 minutes for a formal ideation session.
Hang a "Do not disturb" sign on your door. Set the timer
to 20 minutes. Find your Bad Idea Book 🔧 pens and the
post-its. No interruptions allowed! Use your insight from the
inception phase as jumping off point. Brainstorm Jot down
interesting thoughts. Jot down craze thoughts. Set the timer
to 25 minutes. Share your findings in a joint brainstorm
session. State ideas on post-its place them on the wall.
Take turn. Try to categorize during the exercise, in circles,
clusters or lines. Other methods you can use:

1. Silent brainstorm: Write ideas on an A4 paper using
   30 seconds per round, rotate the paper, continue with
   each other's ideas, for minimum 10 min. (The same
   activity can be performed using "braindrawing")
2. Negative brainstorm: a) Design the worst possible
   solutions to the challenge b) transform each of these
   into good solutions. Minimum 20 min.

Complete the following actions:

☐ Conduct the described brainstorm session. Select and conduct one of
the two alternative brainstorm sessions.
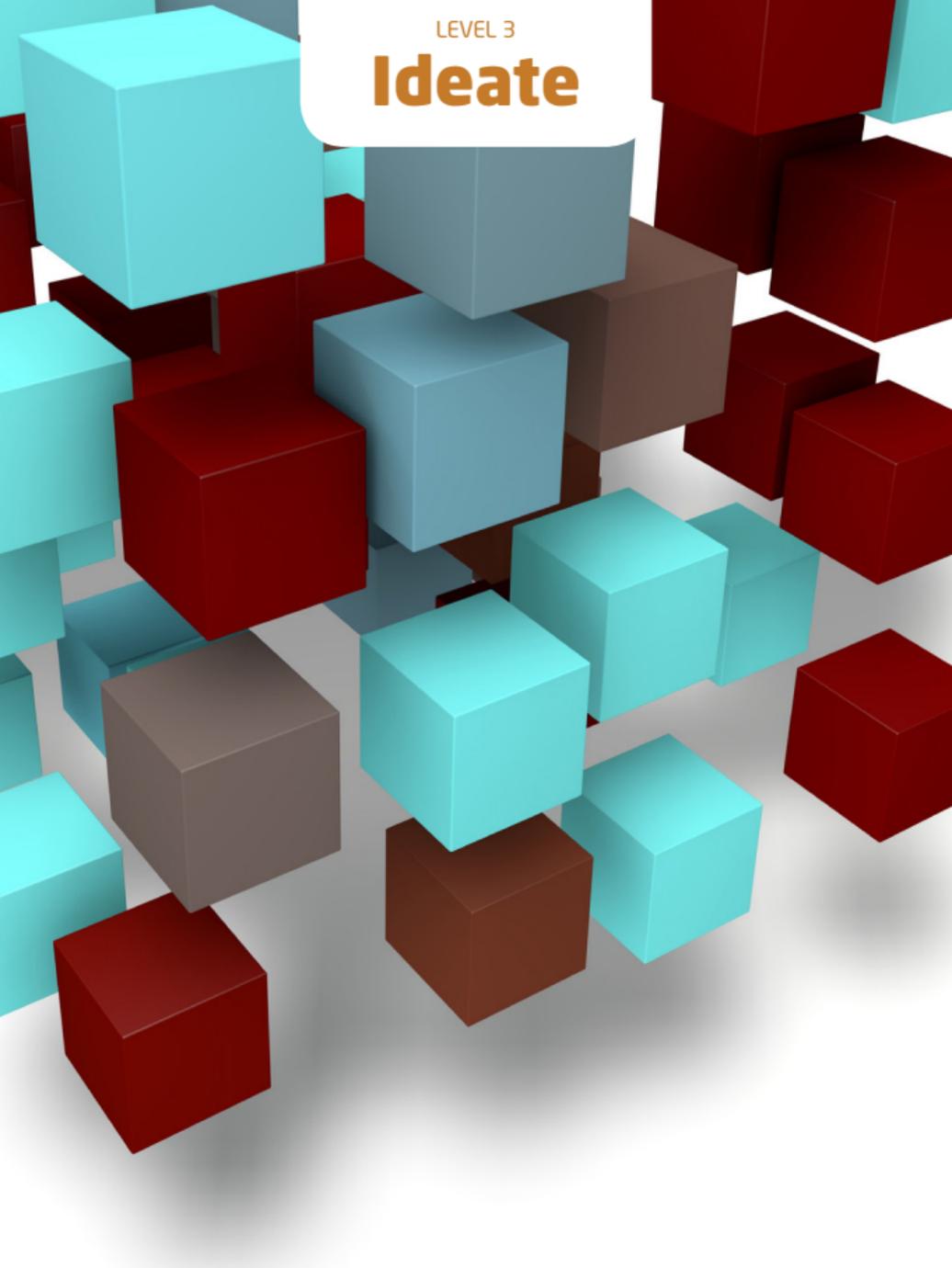
Affinity

Cluster your ideas + generate new ones

1. **Categorize** your ideas based on similarity, dependence and the proximity they have to each other. Use the ideas from another brainstorm. Add new if they appear during the exercise.

2. **2X2 matrix**: Place your ideas on a 2X2 matrix. E.g. Expensive vs. Cheap + Technology readiness: High vs. Low. The discussions are most important. The actual matrix can be used to visually communicate a relationship you would like to convey.

3. **Card sort**: For each idea, state multiple features and functions on new post-its and (ask an external party to the team to) categorize these, think out loud while doing the exercise. Allow for new features and functions to be added.

Complete the following actions:

☐ Perform one or two of above activities.

☐ Use other methods you know for a synthesis process.

Ideate

LEVEL
3

Establish functions

Idea generation for sub functions

Based on your inception phase, conduct a function analysis (new brainstorm session or find ideas from previous exercises). By stating the functions, your solutions should hold. This allows you in an abstract manner to define what your final solution should be able to do or cover, without defining the solution itself.

1. Describe the main function the solution should hold. Such description should always contain a verb and an object.
2. Unfold each function by stating sub-functions, you can use a Process Tree for this.
3. You can also create a List of Requirements.

Complete any of the below actions:

Conduct the function analysis as described above.

Apply the Function Analysis described in the Delft Design Guide

LEVEL 3
Ideate

DTU

LEVEL
3

Design the performance

State the outcome of your system

Instead of focusing on the actual product and the physical features, state the overall outcome that your solution should produce. See your solution as a system, that guarantees performance. What could this look like?

This can be the final value proposition of your system. Be inspired by these companies and their change in business models:

- IBM: Computer and hardware—> Business and software consulting
- Rolls Royce: Aircraft engines—> Power-by-the-hour
- Xerox: Photocopying machines—> Document services
- MAN Truck & Bus: Trucks and busses—> Transport Solutions

"... We sell a value proposition based on a Total Cost of Ownership approach—we do not just sell a product... we sell a guaranteed cost per km..."
[MAN Truck & Bus]

Complete any of the below actions:

☐ Generate multiple possible value propositions. Cluster and reformulate the propositions. Which quote could you formulate?

☐ Be inspired by concepts that have similarities with your solution space. What are they promising? What are the sales parameters?

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LEVEL
3

Morphological method

Systematically develop multiple concepts

1. Define a set of functions for your solution, base these on your function analysis session. (try to combine these to contain, e.g., 8 different functions).
2. Develop a set of solutions for these. Do a brainstorm session for each function.
3. Categorize the solutions principles and select max. 10 solution principles for each function.
4. Place the functions vertically in a matrix and its corresponding solution principles horizontally.
5. This overview can support concept generation by combining solutions from each function to a holistic concept (principal solution) from which alternatives designs can be made.

See the example in the Delft Design Guide 🔧 and PRO-TEUS project 🔧.

Complete the two actions below:

☐ Follow the activity as described above.

☐ Describe the concepts, and make them sufficiently detailed for evaluation of the alternative solutions.

DTU

Prototype

Make your solution ready for feedback

Two main ways of conducting a prototype. A: To communicate and evaluate the solutions against each other and continue idea generation (1-3) and B: To create proof of feasibility and gain real user feedback (4-5).

1. **Visual prototype**: Using paper, sketch the solution to be able to distinguish between them.

2. **Rapid prototype**: Using any materials make a feedback possible. Using cardboard, paper etc.. Bringing your solution from pure text into something tangible makes it easier to get feedback.

3. **Build the box**: Turn your solution into a box. On the box describe and sell your solution. Be inspired by a classic product in the super market, e.g. A carton of milk.

4. **Experience prototype**: Holds enough of the appearance and functions to allow user research.

5. **Proof-of-principle prototype**: If possible, develop parts of your solution into testable elements, in a one-to-one function. Allow for validation of technology readiness.

Complete the following actions:

During the sprint, use as many as possible of items 1-3 above.

Improve

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Evaluate and select

One step closer.

To select the best solution to continue for further development into a Final Solution, you need to evaluate your ideas.

1.   vALUE method: For each idea, state its: Advantages, limitations and unique elements. These descriptions make it easier to compare early ideas against each other.
2.   Use a Value Canvas, Spider Diagram 🔧 or Scorecard 🔧 , mapping the concepts against each other. It is not the final score that states which concept to continue with, it is merely a tool for discussion.

Complete below actions.

☐ Select one of the evaluation methods and perform the activity.

☐ Conduct a small idea generation session after the evaluation to gather any ideas this session sparked.

☐ Continue evaluation and ideating until an idea results in a "wow!" moment (unexpected burst of delight).

Offering life cycle

Design it!

Focusing on the solution, state the activities needed prior, during, and post usage. Concepts like Service blue printing and Customer activity cycles are origins of the Offering life cycle method 🔴 .

The Offering life cycle connects to the Circular economy and compared to the other methods takes into account that your systems are defined as a 'service' or a guaranteed performance and not a physical product. State which kind of service activities could support a whole Offering life cycle of your system (pre-, during and post-use). E.g. training of crew members, take-back systems, retrofit solutions, financial solutions etc. Make sure to reflect on which stakeholders are needed for the different activities to take place.

Find a whole list 🔴 of maritime services to be inspired by.

Complete the below action:

Visualize the offering life cycle. Sketch multiple possible offering life cycles.

Improve

14 LIFE BELOW WATER

D JOBS AND NOMIC GROWTH

2 NO HUNGER

15 LIFE ON LAND

9 INNOVATION AND INFRASTRUCTURE

3 GOOD HEALTH

16 PEACE AND JUSTICE

10 REDUCED INEQUALITIES

4 QUALITY EDUCATION

17 PARTNERSHIPS FOR THE GOALS

11 SUSTAINABLE CITIES AND COMMUNITIES

5 GENDER EQUALITY

Impact

DTU

LEVEL
4

Impact.

Relate your solution to the SDGs

The 17 United Nations Sustainable Development Goals
🧭 can be used to navigate your idea pool and strengthen
the communication of your final solution.

Complete the below three actions:

☐ Discuss in the team the importance of the Sustainable Development
Goals.

☐ Discuss in the team how the Sustainable Development Goals relate to
the overall challenge.

☐ Select the top five Sustainability goals that your solution can support,
and describe why in two bullets per goal.

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Infiltrate

Pitch

Pitch

Practice, practice, practice.

Presenting your solution in a short and concise manner requires preparation and a carefully designed pitch.

Use a Pitch guideline 🔧 as inspiration for content in your pitch. Practice your pitch—test timing and message. Start by creating a pitch deck document and state in bullets content for each slide. One by one finalize the deck.

A few guidelines for your presentation and pitch:

- Be confident and trustworthy.
- Use your body language and use the stage.
- Make your pitch stick—> memorable.
- Use strong visuals and design.
- Be precise and to the point.
- Be convincing—bring details, but not too many.

Complete below three actions:

☐ Follow above guidelines and make a 3-minute pitch

☐ Create a one-liner (a catch line for your solution).

☐ Prepare a 30-second elevator pitch of your solution.

Infiltrate

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A scenario

Create a strong narrative

To describe and communicate your solution, build a strong narrative. Asking how can you make your solution memorable—> how can you make the audience and receivers relate to what you have developed.

1. **Describe a strong scenario**. List a few activities and the stakeholders involved in a typical use context. Give the scenario a name.
2. **Build a narrative.** State important values that your solution is built upon. How you can make and impact and why is this important?

Complete the below two actions:

☐ Perform both activities stated above. Do it on a large poster in a joint team exercise.

☐ Convert the results from the above into a presentation format (visualization), ready for use in a pitch session.
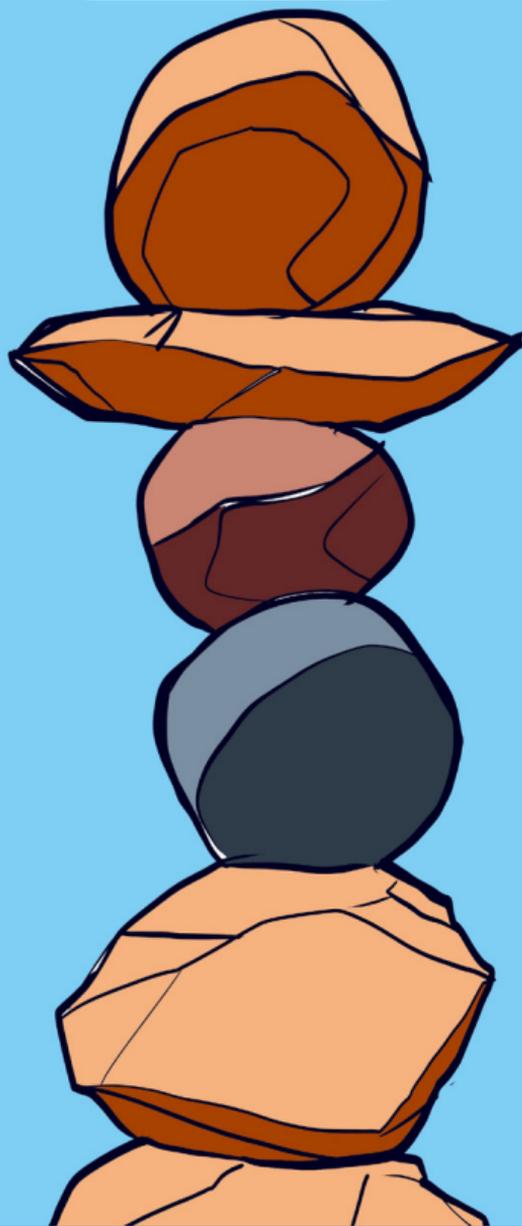
Business model canvas

Design the key elements

A Business model canvas 🔍 defines the key elements of your value proposition. It can be absorbed in seconds yet highlights the critical elements of an opportunity. You will likely make changes to the canvas after you begin. Review the canvas with experts/mentors. Is it clear to them? Does it make sense? Is it compelling?

Complete the below two actions:

☐ Start with a Solution Statement, see Card #27.

☐ Complete a business model canvas for your solution. If possible, review it with experts/mentors.

Infiltrate

Solution statement

Express ideas in one sentence

It is helpful to express each idea in a consistent product statement. Boiling a product and a service down to one sentence can be hard, it requires deciding what *really* matters and can sharpen the idea in powerful ways.

For your final solution, it is a requirement that you have a strong solution statement.

"A <product/service description> for <target customers> that <key value> enabling <primary benefits> unlike <existing alternatives>."

"A portable music player for audiophile music lovers that plays music files from lossless formats enabling improved quality and more enjoyable music unlike iPods and other compressed file music players."

Perform the two actions below:

☐ Create an idea statement for your early ideas. Use these in evaluation of the ideas.

☐ Create an idea statement for your final solution.

Minimal viable product

Build-Measure-Learn Feedback Loop

Conduct the first steps to create a feedback loop to allow external stakeholders to give feedback. The Minimal Viable Product (MVP) "*The minimum viable product is the version of a new product a team uses to collect the maximum amount of validated learning about customers with the least effort.*" (Eric Rise 2009). Build it, measure it, and learn from the loop to prepare for iteration and further development.

Complete one of below two actions:

☐ Describe how you could make an MVP. Which customers or stakeholders should be involved in the feedback loop?

☐ If possible, make a MVP or parts hereof.

creative commons

Share and adapt

License and acknowledgements

The Sprint Kit is developed to support large development workshops and sprints, where key to these activities is cross disciplinary team collaboration and mentoring by experts from industry.

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Shared alike: Text on cards #: 1,9, 10, 14, 15, 27. Plus the development phases and their illustrations. Adapted: Back card layout.

Pictures: All pictures are open source from Pixabay.com

We would love to hear your reactions to this kit.
Write to: skylabsprintkit@DTU.dk

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