GrowIn 4.0, VIA University College, Ideation Camp.

Commercial Name

VIA University College, Ideation Camp

Target audience

Mainly persons related to project development at Small and Medium size Enterprises SME's

Description of the tool

VIA University College Ideation camp has been developed and tested in the GrowIn 4.0 project and it covers business-, technological and change management aspects in an Industry 4.0 project.
It is a three phase project model (before, during and after) The Ideation Camp method describes 14 steps in a formalised way of working in projects. The method has proven to be very successful in SMEs' work with implementation of Industry 4.0 tools. A revised edition is used for students at Engineering Bachelor projects.

Before starting a project it is important to set the best possible project team This is made by an assessment and ensures that the project targets is aligned to the SME's knowledge level/gabs (digital maturity) and company expectations to the project. We recommend to use the Belbin tool, see app. A

To run the Ideation, camp the SME's need an experienced facilitator, who will be the catalyst of the 3 phases process above s. The facilitator's role is to make the process easier for the project members. In team work, the facilitator works with a group of people to help them have a constructive conversation and make the three 3 phases (See Fig. 1).
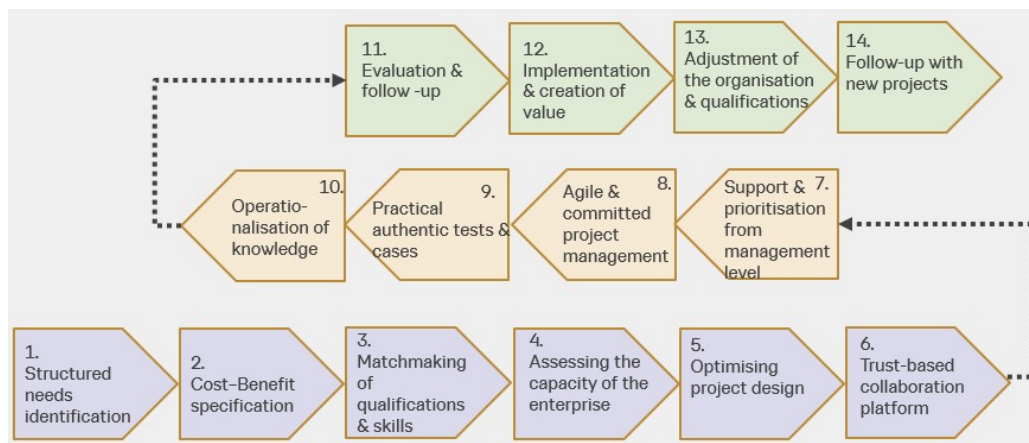

Fig. 1 The 3 phases model of Ideation camp:

2. Before – During – After

In general, VIA University College found that it is useful viewing projects and other collaboration activities from a "before-during-after" perspective. The above figure, called "the three-phase model of Ideation Camp", shows 14 critical points in a knowledge collaboration. The 14 points are not equally important in all projects. However, the overview is a great checklist and may serve as a supporting tool during the process in most projects.

Often, the processes of preparing and follow-up is just as important as the project itself. The value for the companies might be limited, if not all phases are handled in a competent and conscious matter. The project is recommended to be run in an agile way (e.g. Waterfall model, Scrum, or Agile Unified Processes).

2.1. Before:

As preparation for the actual project uses the following elements/tools. Further the following documents has to be developed/and approved:
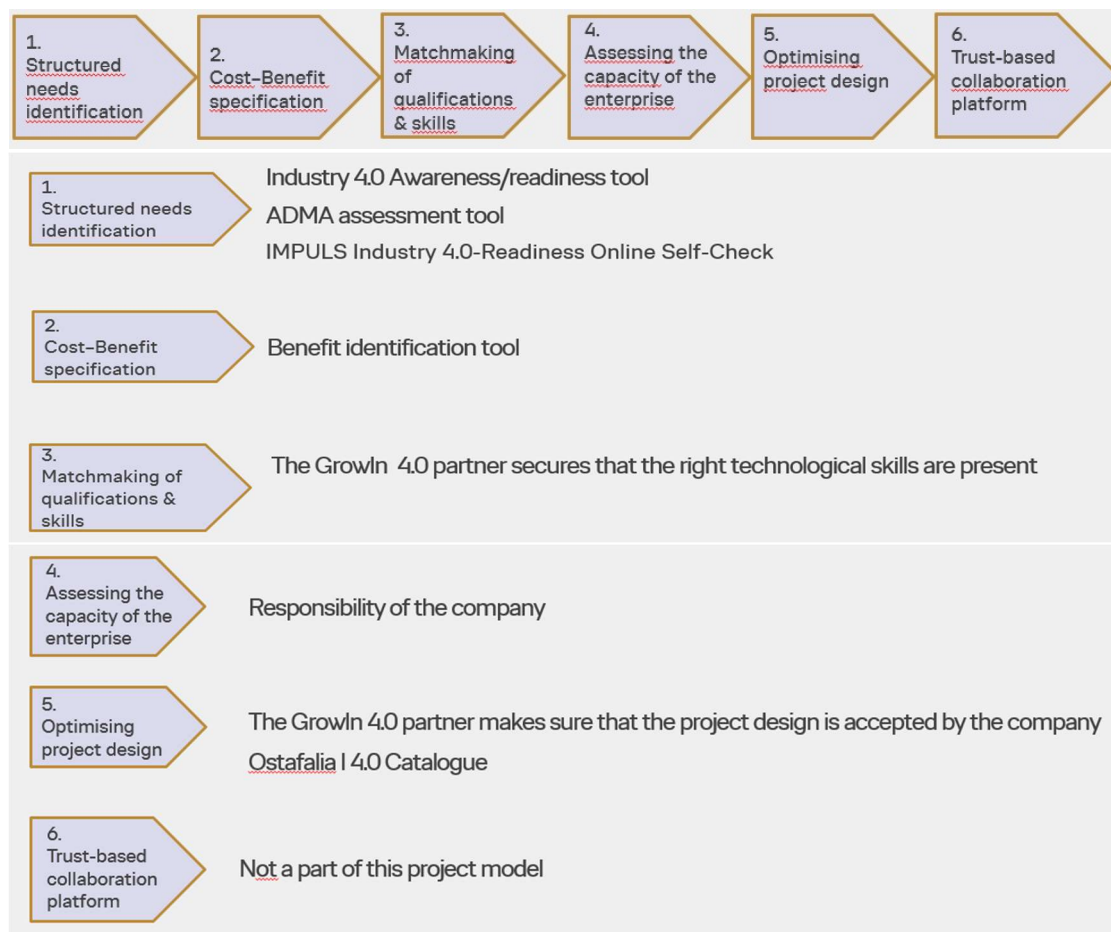
Idea description, Project description

Fig. 2. Phase 1: "Before" of the Ideation camp

Further tools for inspiration

In appendix B to E we have listed further tools which can be used during the three phase model. The tools are

- The SWOT analysis, see app. B
- Brainstorming see app. C
- Six thinking hats, see app. D
- Project description, see app. E

During:

In a facilitated workshop with the purpose to find project proposals for implementations of new technology in the company, the following project elements are created:

- project proposals,
- roadmap of digital implementation
- and agreement of project (pre project requirements and project plan).
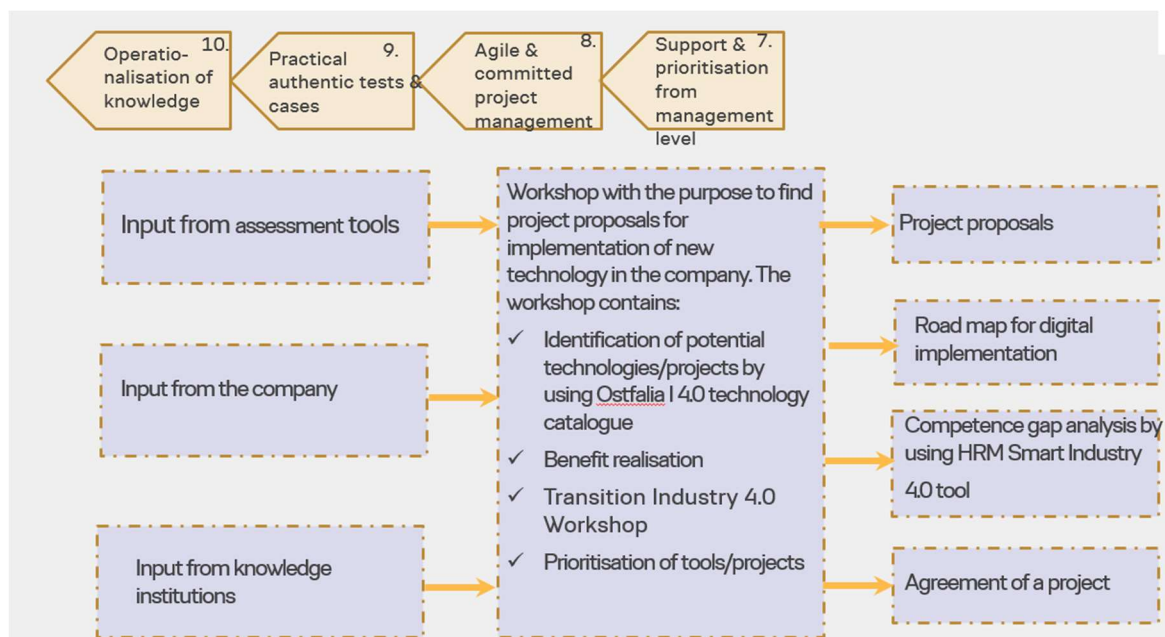- requirement specification

Fig. 3. Phase 2 "Named: During" of the Ideation camp

After:

In the retrospective project analyse the following documents must be developed and accepted:

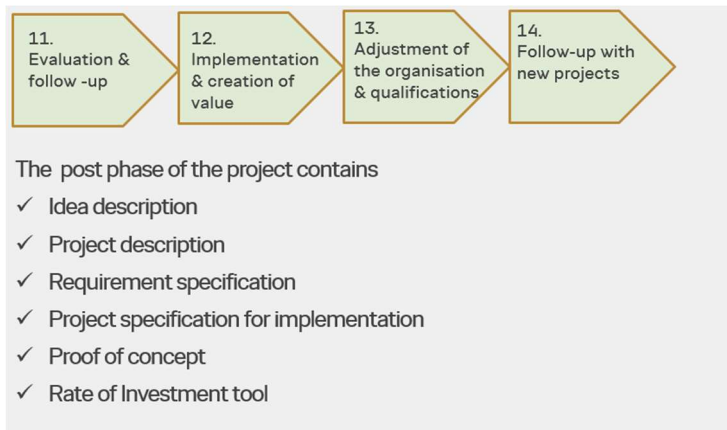project specification for implementation and proof of concept.

Fig. 4. Phase 3 "Named: After" of the Ideation camp

Topics for dialogue on successful development

- What kind of project development model does the SME have right now, and is it durable in the future? Can we improve the development model? Who are the competitors of the SME? What are the strengths and weaknesses in relation to the competitors? How does the SME stand out?
- How advanced is the SME regarding technological uptake? Is there a need for identification of technical (software or hardware) solutions to the SME? How does the SME manage technology use, adaption, optimisation, processes etc.? Are the key products of the SME competitive? Could they be strengthened, e.g. through implementation of new technology?
- What kind of competences does the SME processes? Is there a need for identification of completely new skills or an upgrade of the existing work force? Does the SME have the relevant qualifications, skills, and knowledge on new innovative methods?
- How does the SME collaborate with its customers? How does the SME manage innovation and development? How are users included?

Further tools for inspiration

In appendix A to E we have listed further tools which can be used during the three phase model. The tools are:

- Team assessment (The Belbin model), see app A
- The SWOT analysis, see app. B
- Brainstorming see app. C
- Six thinking hats, see app. D
- Project description, see app. E

Appendix A: Team assessment (Belbin)

Understanding the Roles People Play on Teams

Belbin (1981) have described eight personality types that needed to be present (and balanced) among members of a team for the team to function optimally. Belbin's work is among the best-known theories of how diversity impacts teams. He believed that these personality types emerged naturally, meaning the roles cannot be learned or sufficiently cultivated. So, they are a critical consideration when picking people to form a team. Here are Belbin's roles (including the ninth he added in 1991):

- **The completer-finisher -** Deadline driven and conscientious; takes pains to ensure quality.
- **The coordinator -** Natural organizer who excels at delegation and facilitating decision making.
- **The implementer -** Practical thinker who brings ideas off the page and into the real world.
- **The monitor-evaluator -** Known for logical and thorough judgment — and for healthy skepticism.
- **The plant -** Out-of-the-box thinker whom people rely on for creative solutions to tough problems.
- **The resource investigator -** Extrovert who excels at developing vital contacts outside the team.
- **The shaper -** Thrives under pressure, a clear role model for the team when things go wrong.
- **The specialist -** Highly knowledgeable in a particular field, or possesses a specific skillset.
- **The team worker -** Diplomatic, perceptive figure who reduces friction between team members.

Belbin's theory focused on naturally emerging personalities, but alternative theories focus on other characteristics.

If you want to learn more about Belbin please look at https://www.smartsheet.com/all-about-team-assessments

Appendix B: SWOT – Strength, Weakness, Opportunities and Threats

How to Do a SWOT Analysis

Analysts present a SWOT analysis as a square segmented into four quadrants, each dedicated to an element of SWOT. This visual arrangement provides a quick overview of the company's position. Although not all the points under a particular heading may be of equal importance, they all should represent key insights into the balance of opportunities and threats, advantages and disadvantages, and so forth.

Strengths
Strengths describe what an organization excels at and [what separates it from the competition](#): a strong brand, loyal customer base, a strong balance sheet, unique technology, and so on. For example, a hedge fund may have developed a proprietary trading strategy that returns market-beating results. It must then decide how to use those results to attract new investors.

Weaknesses
Weaknesses stop an organization from performing at its optimum level. They are areas where the business needs to improve to remain competitive: a weak brand, higher-than-average turnover, high levels of debt, an inadequate supply chain, or lack of capital.

Opportunities
Opportunities refer to favorable external factors that could give an organization a competitive advantage. For example, if a country cuts tariffs, a car manufacturer can export its cars into a new market, increasing sales and [market share.](#)

Threats

Threats refer to factors that have the potential to harm an organization. For example, a drought is a threat to a wheat-producing company, as it may destroy or reduce the crop yield. Other common threats include things like rising costs for materials, increasing competition, tight labor supply. and so on.

SWOT Table

Strengths	**Weaknesses**
1. What is our competitive advantage?	1. Where can we improve?
2. What resources do we have?	2. What products are underperforming?
3. What products are performing well?	3. Where are we lacking resources?
Threats	**Opportunities**
1. What new regulations threaten operations?	1. What technology can we use to improve operations?
2. What do our competitors do well?	2. Can we expand our core operations?
3. What consumer trends threaten business?	3. What new market segments can we explore?

If you want to learn more about SWOT please look at https://www.investopedia.com/terms/s/swot.asp

Appendix C: Brainstorming

Brainstorming is an activity that will help you generate more innovative ideas. It is one of many methods of ideation—the process of coming up with new ideas—and it is core to the design thinking process. IDEO has honed this process over 40 years to help teams and organizations come up with new-to-the-world solutions rooted in customer needs. It is a skill that you can build within your team and organization to help bring new ideas to life.

The Creative Process consists of cycles of divergent and convergent thinking.

- The Creative Process contains multiple cycles of iteration—with each phase, you move closer to a refined solution.

- In Divergence—teams go wide to find insights and generate new ideas.

- In Convergence—teams narrow their focus by refining ideas and synthesizing information.

Why Brainstorming

We cannot get to new places by only doing what has worked in the past. To come up with innovative ideas, it is important to go beyond your comfort zone. In order to do that, you have to start with an abundance of options—including some wild ideas—that you can build on and test.

Brainstorming is an effective way to:

- Produce a large number of ideas
- Generate ideas quickly
- Expand your portfolio of alternatives
- Get people unstuck
- Inject insights from a broader group
- Build enthusiasm
- Solve tricky problems
- Improve team collaboration

If you want to learn more about brainstorm, please look at Brainstorming – IDEO U

Appendix D: Six thinking hats

What is the Six Thinking Hats technique

The Six Thinking Hats is a role-playing model developed by Edward de Bono in 1986. Each hat represents a different lens or perspective on a particular issue and is an insightful activity that prevents narrow thinking. It serves as a team-based problem solving and brainstorming technique which explore problems through various perspectives in order to uncover options that might otherwise be overlooked.

The basic premise behind the Six Thinking Hats is that most people think and reason in a specific way based on their personality type. This means that a more emotional person may generate ideas differently than a more analytical person, and vice-versa. Similarly, a pessimist will approach a situation very differently than an optimist.

An example of the benefit of running the thinking hats techniques is therefore to encourage different perspectives to be shared, seen and discussed as part of the decision making process.

 The six types of "Thinking Hats" are:

- **White Hat:** Similar to the calm and pure emotions associated with the color white, this type of thinking focuses on analytical, objective thinking, with an emphasis on facts and feasibility.
- **Red Hat:** We often associate the color red with anger and heat and hence this represents emotional thinking, subjective feelings, perception, and opinion.
- **Black Hat:** The color black links with doom and gloom and so this forms a type of thinking that is critical, skeptical, focused on risks, and identifying problems.
- **Yellow Hat:** Often symbolizing sunshine and happiness, the yellow hat is about thinking optimistic, speculative, best-case scenarios.

- **Blue Hat:** Blue being the color of the sky and high above creates a sense of structured thinking, high-level overview of the situation, the big picture.
- **Green Hat:** Associated with the color of trees and nature, the green hat is about creative, associative thinking, new ideas, brainstorming, out-of-the-box.

If you want to learn more about brainstorming please look at https://www.groupmap.com/map-templates/six-thinking-hats/

Appendix E: Project description

Background description:

The background description is a description of the background and context of the problem as well as an explanation of how the problem has arisen. Explain in general terms the context of the problem that you are addressing as well as the overall problem itself. The background description should clarify, why it is relevant to address this problem.

Problem statement

Make a problem statement, where you state the purpose(s)/objetive(s) of your project. Be precise and brief. One or at maximum a few sentences should suffice.

Problem formulation

The problem formulation must describe problems and questions that cannot easily be solved/answered. In other words, this is where you "unfold" the problem statement.

Make sure that problems and questions are inferred from the background description and problem statement.

Put questions in a bulleted list in the problem formulation. This will make it easier for the prohjectmemebers to overview theproject and will thus help to control your project.

When you stipulate the problems to be addressed, try to see and define the problems from the customer's and/or primary stakeholder's point of view. A good problem definition is a problem that when solved provides *value* to the customer/stakeholder. *Value* can be measured from many perspectives: safety, economy, time to market, user friendliness, etc.

The problem formulation also includes key questions to be answered in the project. Naturally, especially for larger projects, the problem definition will contain questions and challenges you do not yet possess the knowledge to address.

Consider defining requirements and criteria for the solution.

Scoping & delimitation

Based on your problem formulation, you must carefully think about which of the problems you expect to address in your project. You must divide the problem formulation into problems/solutions that are *in* scope of your project, and problems/solutoions that are *out of scope* of your project.

To make this analysis and proiritisation, a recommended method is the **MoSCoW** method

1. Consider what you **M**UST implement in order to fulfill the minimum requirements in terms of functionality, tests, etc.
2. Consider what you **S**HOULD/**C**OULD implement, if the project phases go as planned
3. Consider what you **W**OULD implement if you had all the time in the world

As a consequence, you end up with a list of problems that you plan to address in your project, but also those that are definitely out of scope (your delimitation), and those problems that, depending on the course of the project, may or may not fall into or out of scope.

One key factor in the prioritisation is the *value* of each of the problems seen from the stakeholder's point of view. In any case, the delimitation criteria should be accounted for in relation to the problem(s) you have chosen to solve.

You might also start to do a risk analysis at this point of your project, as it may help you to categorise problems as in or out of scope. However, be aware that at this point you may not have all necessary information to do a proper risk analysis.

Choice of project method

The choice of project method(s) for your project must be carried out on the basis of the problem formulation, and hence your background description. Some project methods may be well suited for problems arisen from some professional domains, some project methods are better suited for other types of problems.

In other words, you must carefully consider which method is best suited to carry out your project. Some examples are

- RUP/AUP (Rational/Agil - Unified processes)
- SCRUM
- Waterfall (V-model)

You must also consider and describe the chosen test strategy planned to be used in your project.

You may use the below table to help identify key problems, the reason for solving them and which theory you have chosen to use to increase your understanding of the problem.
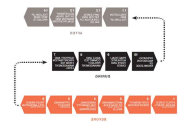
Economical considerations

In the projectdescrioption it is important to consider the econoniomical aspects of the project. You have to carry through a preliminary cost/benefit analysis and look into the rate of investment (ROI tool).

Time schedule:

Based on the problem formulation and the choice of method, a milestone plan including main activities, part activities and milestones has to be developed.

Useful tools for establishing the milestone plan could be:

- Work Break-Down Structure (WBS)

- Gantt charts
- Sprint overview