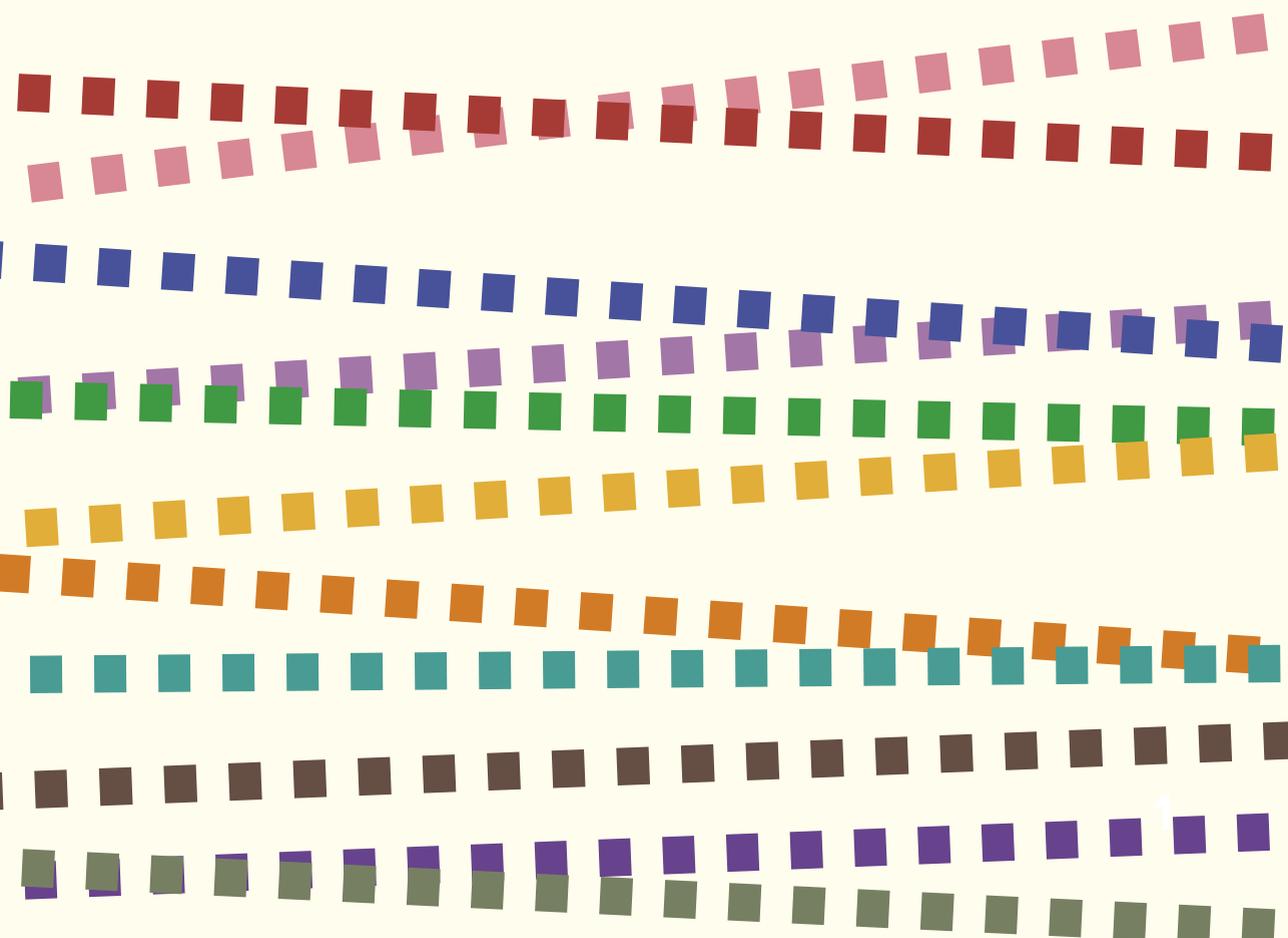


THE DOUBLE DIAMOND IN OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT

Your guide to solving OHS problems using
the Double Diamond process

Ole Broberg
Sisse Grøn





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*The Double Diamond in Occupational Health and Safety
Management: Your guide to solving OHS problems using the
Double Diamond process*
By Ole Broberg and Sisse Grøn

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This guide provides you with inspiration for finding and solving the right occupational health and safety problem in collaboration with the employees who are facing the problem. The approach is based on design thinking and is both a systematic and a creative way of solving problems.

The guide is primarily aimed at occupational safety and health professionals, whether they are company employees or consultants with an occupational health and safety adviser.

The guide is divided into two parts. In part one, we elaborate on what design thinking is, where the concept comes from, and how it can be used in occupational health and safety management. Here, you can read more about the Double Diamond process model and about how you can do a design sprint to solve a complex OHS problem. You can also read more about why it is useful to understand occupational health and safety issues in a system perspective if you want to apply design thinking as a method.

In part two, we present you with a range of auxiliary tools and methods that can be used in a design sprint. Here, you will also find an overview of templates that can be printed out and used in the workshops that make up a design sprint.

You can use the guide as a reference work which you do not have to read from start to end. However, it would be a good idea to start by reading through the first part. This will give you a basic understanding of the concept behind design thinking and present you with two cases that show how it can be applied in practice.

You can find an interactive version of the guide on the website www.designthinking.dtu.dk. This is also the page from which you can download and print out templates.

PREFACE

This guide is primarily aimed at OHS professionals. It is a result of the research project with the Danish title '*Designtænkning som virkemiddel i et adræt arbejdsmiljøarbejde*' (Design thinking as a means in agile OHS management). The project has been supported by the Danish Working Environment Research Fund and was performed in the period May 2019 to June 2021. The basic idea of the project was to examine and test how OHS professionals can use design thinking to work with complex OHS problems.

We did this by training six OHS professionals in design thinking and then letting them apply this approach to real ergonomic and psychosocial problems in four companies. We, as researchers, followed, observed, and interviewed them. This produced a number of insights into how design thinking can be adapted to OHS issues. The result is this guide.

We would like to thank a number of people who have helped make this guide possible:

- The six OHS professionals who took part in our experiment.
- Our bright student assistants: Astrid Kofod Trudslev, Björgvin Hjartarson, and Fanny Madsen.
- The project's stakeholder group with committed people from the Confederation of Danish Industry (DI), CO-industri (The Central Organisation of Industrial Employees in Denmark), FOA, Lederne (the Danish Association of Managers and Executives), BFA for Velfærd & Offentlig Administration (The Joint Industry Association for Welfare & Public Administration, ArbejdsmiljøNet (The Danish Occupational Health and Safety Network), and Arbejdsmiljørådgiverne (The Danish Association of Occupational Health and Safety Consultants).

- Five OHS consultants who participated in a meeting in the IDA Danish Occupational Safety and Health Professionals network and who offered to read an early version of the guide and present criticism, suggestions, and comments.

Joblife A/S has been a partner in the project, and we would like to thank the consultants Lotte Finsen and Mads Bendixen.

Special thanks to Nordic Ergonomics and Human Factors Society (NES) for generous funding of translating the guide into English language and editing the website.

We hope that you enjoy reading about and applying design thinking.

April 2022

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and Design

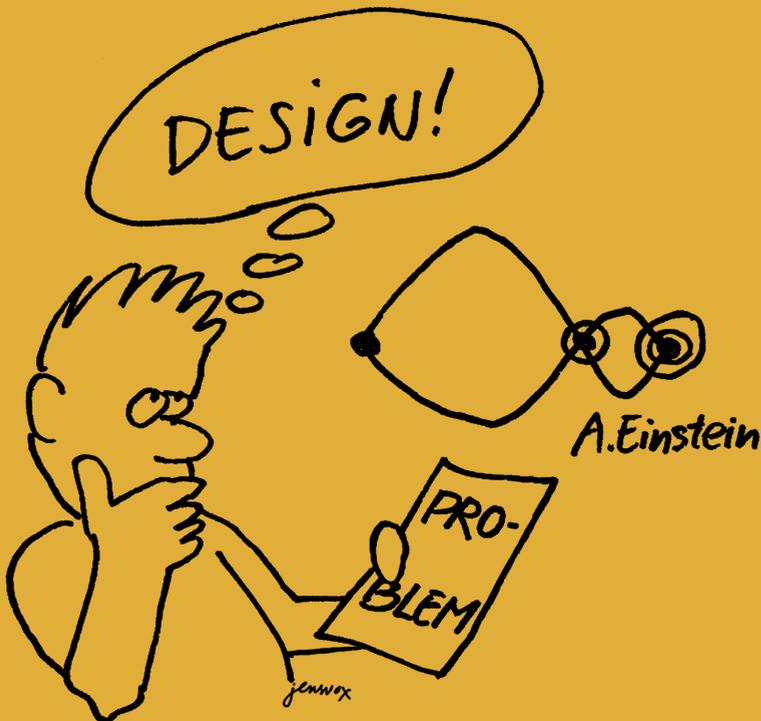


WHAT CAN I USE DESIGN THINKING FOR AS AN OHS PROFESSIONAL?

- The Double Diamond process model provides you with a systematic, but flexible, approach to handling complex OHS problems using creative tools.
- You can 'sell' the design sprint to your organization or customer as a unique way of understanding and solving complex OHS problems.
- You avoid the classic error of jumping straight to finding a solution. The Double Diamond process helps you first discover and understand the real problem.
- The design sprint is very well suited for involving the affected employees in solving the problem. The company thus also complies with the employee involvement requirements of the Danish Working Environment Act (*Arbejdsmiljøloven*).
- Many ideas for solutions are developed in the design sprint, and you can quickly test them via prototypes to find the best suited option.
- Is it worthwhile for the company? Yes, if the company regards it as important to solve the right problem and find solutions anchored in the employees' ideas, knowledge, and experiences. Yes, if the company lacks a good way to follow up on the WPA process.
- But how do I proceed? You must learn how to plan and perform a design sprint. You must try to be a facilitator of workshops with the participation of employees from the company. Read this guide first and then learn by doing. You may run a design sprint for your immediate colleagues before you really get started.

"If I had an hour to solve a problem I'd spend 55 minutes thinking about the problem and 5 minutes thinking about solutions."

Albert Einstein



CONTENTS

1 •	DESIGN THINKING IS A GOOD TOOL FOR COMPLEX OHS PROBLEMS	12
2 •	DESIGN THINKING AND THE DOUBLE DIAMOND	14
3 •	THE DOUBLE DIAMOND PROCESS	16
4 •	DESIGN SPRINT	20
5 •	CASE 1 POOR ERGONOMICS IN THE LABORATORY	22
6 •	CASE 2 PROBLEMS WITH THE PSYCHOLOGICAL WORKING ENVIRONMENT IN THE MUNICIPALITY	30
7 •	THE ROLE OF DESIGN SPRINT FACILITATOR	38
8 •	DESIGN THINKING WORKS BEST WHEN THE WORKING ENVIRON- MENT IS SEEN AS A SYSTEM	40

9 •	TOOLS 1	44
	PREPARATION OF DESIGN SPRINT	
	Workshops	46
	Workshop planner	48
	Script	50
	Master-apprentice interview	52
	Interview with key persons	54
	Observation	56
	Affinity diagram	58
	Photos	60
	Workbook	62
	Overview of stakeholders	64
10 •	TOOLS 2	66
	WARM-UP OF THE PARTICIPANTS	
11 •	TOOLS 3	70
	EXPLORING PROBLEMS	
	5 × why to find multiple causes	72
	5 × why to find a root cause	74
	Make the tree grow	76
	The SOFT model for problem exploration	78
	Work models	80
	Flow model	82
	Sequence model	84

	Physical model	86
	Artefact model	88
12 •	TOOLS 4	90
	FINDING PROBLEM FOCUS	
	Reframing the problem	92
	The SOFT model for mapping of the work and demarcation of a system	94
	Voting	96
	Priority games	98
	Problem focus	100
13 •	TOOLS 5	102
	FINDING SOLUTION IDEAS	
	Brainstorming	104
	Negative brainstorming	106
	Round of ideas	108
	The SOFT model for developing solution ideas	110

14 •	TOOLS 6 TESTING AND SELECTING SOLUTION PROPOSALS	112
	Rapid prototypes	114
	Scenario-based simulation	116
	Scenario-based simulation on site	120
	Storyboards	122
	Solution concepts	124
	spider web diagram	126
15 •	TOOLS 7 FOLLOW-UP	128
	The IGLO model	130
	Business case	132
16 •	LIST OF TEMPLATES	134
17 •	HERE YOU CAN READ MORE	135

1 DESIGN THINKING IS A GOOD TOOL FOR COMPLEX OHS PROBLEMS

A working environment contains many different problem types where an OHS professional will choose a specific approach to solving the problem in question. If it is a noise problem, this process may start by mapping sources of noise and making measurements. Proposals are then prepared for solutions, ranging from prevention to technical remedial action, for example by mounting noise-absorbing materials.

Where does design thinking fit into this equation? Design thinking is particularly well suited as an approach to working with complex OHS problems as opposed to problems that are reasonably well defined and have more or less obvious solutions.

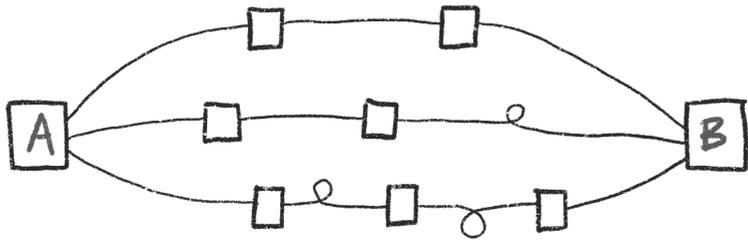
A complex occupational health and safety challenge is characterized by several interdependent factors playing a part in the problem. Several of these factors may be incompletely clarified and difficult to define. Think of psychosocial problems. If many employees in a department succumb to stress, two fundamental questions immediately arise: What is the reason for this? How can the problem be solved? But there is not one single answer to these questions. Stress will often have a number of interacting causes, and there are also several solution options. Complex problems are unique and do not have a well-defined number of possible solutions. There is always more than one explanation for the problem because explanations depend on who is doing the explaining.

Solving complex OHS problems requires an in-depth understanding of the problem and of the different stakeholders involved.

Well-defined problem

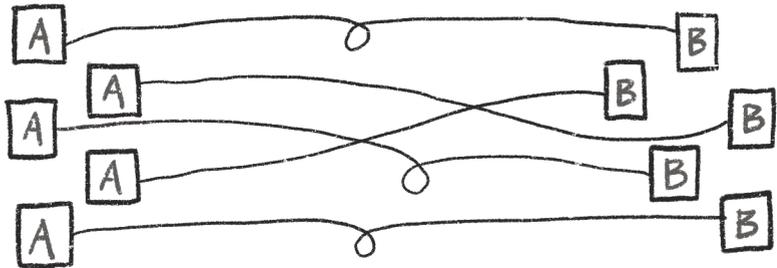
Clear problem –

different paths –
one solution



Complex problem

Unclear problem –
different paths –
different solutions



The iterative process of design thinking is well suited for working with complex OHS problems. Great importance is attached to using a lot of time on understanding and demarcating the problem, and many solution ideas are created using brainstorming and other tools. And, finally, it is a very practical approach where solutions can quickly be tested by means of prototypes.

Our experience is that design thinking is a good approach to a variety of OHS problem types. We have tested the approach on ergonomic problems in a broad sense and on those parts of the psychosocial working environment that concern the organization of the work and forms of cooperation. Design thinking can also be used to find out how your organization can become better at *preventing* OHS problems. In turn, the approach is less useful for resolving disputes in the workplace and other matters concerning the tone used among employees and personal affairs.

2 DESIGN THINKING AND THE DOUBLE DIAMOND

Design thinking comes from the world of design and is fundamentally a description of how designers conceivably work with a problem. This may be designing a new building or developing a product that meets new needs. In this guide, we focus on how an OHS professional can use design thinking to help solve an OHS problem. The approach can be described using a model called the Double Diamond.

The process of solving an OHS problem moves through the two diamonds. In the first diamond, the focus is on understanding and demarcating the problem. You are in the *problem space*. In the second diamond, the focus is on developing several solution proposals and testing these before selecting the best solution. You are in the *solution space*.

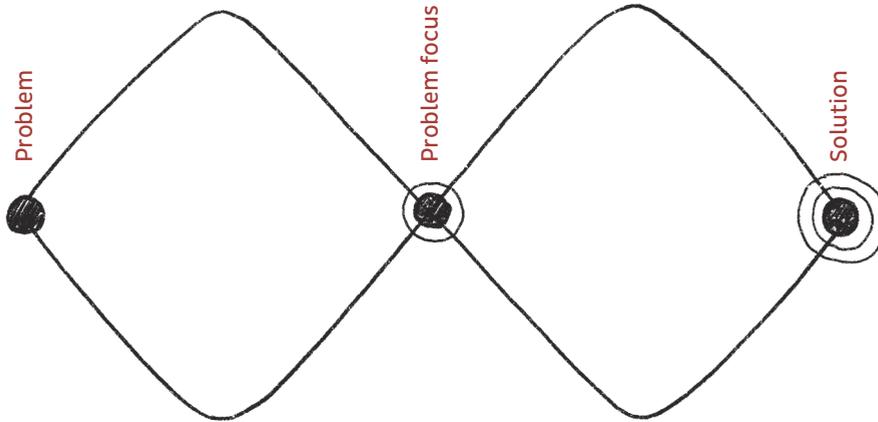
Both diamonds are characterized by a two-step process. First, work is done to discover and define the problem, which is referred to as the divergent phase. Next, work is being done to develop and deliver solutions to the problem, which is called the convergent phase. The process through the two diamonds is not an constantly progressing movement. On the contrary, the process is characterized by being *iterative* – you move back and forth in the diamonds. Just when you think that the problem has been defined, new questions arise that mean that you need to go back to the divergent phase. You may also have to jump back from the solution space to the problem space. This way of working requires a little getting used to, but it is valuable in the final analysis.

Discover
Insight into the
problem

Deliver
Focus on the
right problem

Define
Possible solu-
tions

Develop
The right solu-
tions



The Double Diamond shows the process from wanting to solve a complex OHS problem and until you have one or more proposals for a solution.

3 THE DOUBLE DIAMOND PROCESS

How do you approach the Double Diamond process model in practice if you need to use it to help a company solve a complex OHS problem? The figure shows the three main steps that you need to go through. First you need to prepare the design sprint, then implement it, and, finally, you need to ensure a follow-up.

1. Preparation

The nature and extent of the preparation depend on whether you are an internal OHS professional in a company or an external OHS adviser hired by the company. It is indirectly about how well you know the company and the OHS challenges it faces.

- You must ensure that the use of the Double Diamond process model is anchored in the company's organization, both in the occupational health and safety organization and management. There must be a problem owner who also has the competences to follow up on the result.
- Set up a meeting with the management and staff in the department that would like to have a complex OHS problem solved. Get an overview of the nature of the problem and how relevant employees understand it themselves. Agree what it to be focused on and tell them about the Double Diamond process and the design sprint.
- Make agreements about who will participate in the design sprint and the time frames for this. If necessary, agree where and when the individual workshops in the design sprint will be held. Agree how the design sprint results are to be followed up.

- Take some time to acquire closer insight into the work affected by the OHS problem. For example, by being allowed to walk around a little, observe, and ask the employees questions.
- Plan the workshop(s) included in the design sprint. Use a [script](#) to plan each individual workshop.

2. Design sprint

The design sprint is the activities performed when the participants in one or more workshops work their way through the four phases of the Double Diamond. The design sprint thus consists of one or more workshops depending on how many resources the company wants to allocate to this. Correspondingly, a workshop may vary in scope and last from 1 hour to 3-4 hours or more. In each of the four phases, you have found relevant tools to help the participants reach the goal for the phase. This guide contains a number of proposals for auxiliary tools that can be used in the various phases.

First diamond: the problem space

Discover

During this phase, you get the participants to work with acquiring an understanding of the problem and its possible causes. The phase is divergent, which means that it is about opening up for different interpretations and understandings of the problem.

Define

Here, you are to get the participants to work with narrowing down the understanding of the problem to arrive at a [problem focus](#), which is the point between the two diamonds. A clear problem focus is the starting point for moving in the other diamond, the solution space.

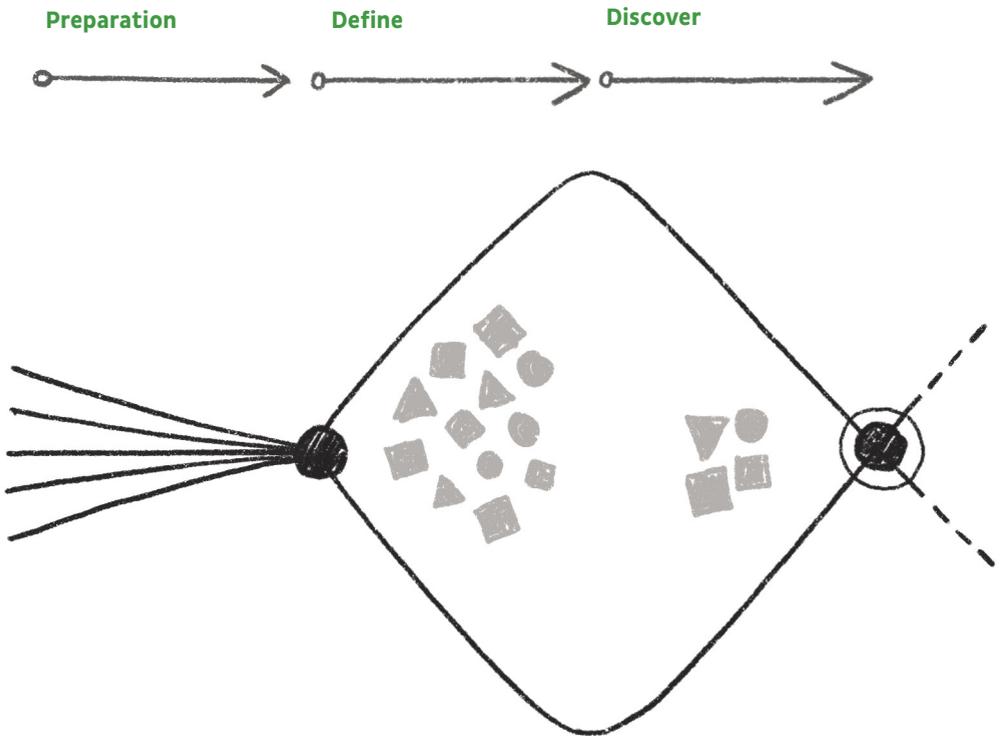
Second diamond: the solution space

Develop

Based on the problem focus, you now ask the participants to develop solution ideas, many solution ideas. The phase is again divergent. It is about opening up for all possible solution ideas, including the seemingly crazy ones. Again, you have chosen a number of tools to help the participants in this phase.

Deliver

To start the work with narrowing down the solution ideas, here you get the participants to test the ideas that they find the most promising. This is done using simple prototypes. The participants then assess the different solution ideas based on some criteria.

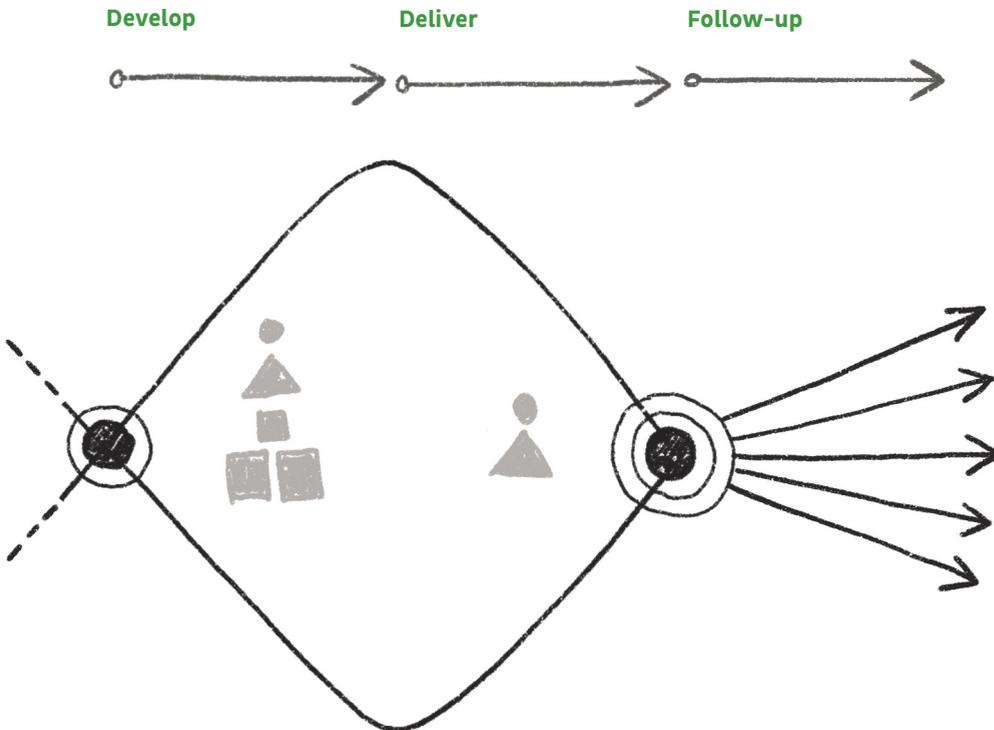


They may find a new solution by combining several solution ideas. Finally, the participants have come up with one or two solutions that they find to be the best ones.

3. Follow-up

This step consists in figuring out how the problem owner can proceed with the solutions developed in step 2. Parts of this activity may also be contained in the final phase of the diamond.

- Create a business case to assess the costs and benefits of implementing the solution.
- Establish and agree who is responsible for which tasks in the solution follow-up.



4

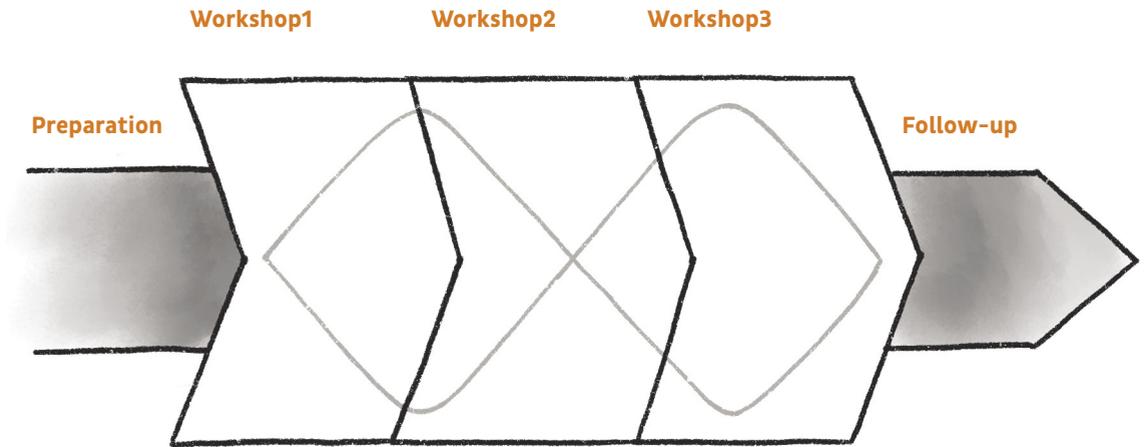
DESIGN SPRINT

Google was the first company to come up with a formula for how design thinking can be used to get from an idea to a tried and tested concept in just five days. This process is called a design sprint and is seen as an effective working method for achieving quick tangible results.

A design sprint can be seen as a compact and fast course through the two diamonds in the Double Diamond model. The figure shows an imagined example of a design sprint adapted to the field of occupational health and safety. It consists of three workshops of 3-4 hours' duration distributed on period of 2-3 months.

We do not use five days on the sprint. Unfortunately, we do not find it realistic that companies will allocate five full days for a number of people to work on solving an OHS problem. In turn, we think that it is a good idea to have a little time between the individual workshops. This time can be very useful for 'home-work assignments'. This may, for example, be the collection of more information about a problem or contacting other persons in the company.

The participants in the three workshops may vary. Representatives of the employees who experience the OHS problem should be participants in all three sprints. Other relevant participants may be managers or technicians who may participate in a single workshop or just parts of a workshop. It is up to the project manager and the OHS professional to find the relevant persons for the first workshop.



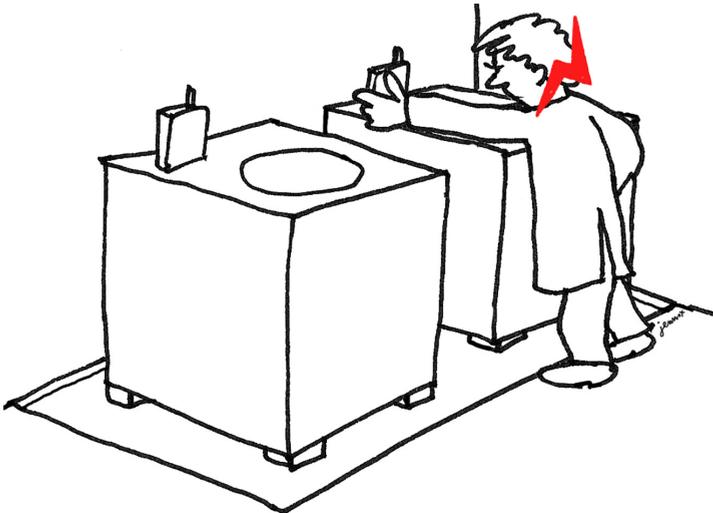
A design sprint consists of one or more work-shops. Some preparation is required before the design sprint. After the sprint, there is follow-up on implementing the solution in practice.

5

CASE 1 POOR ERGONOMICS IN THE LABORATORY

Based on its workplace assessment (WPA), a pharmaceutical company could see that some employees developed musculoskeletal pain from their work in the laboratory. For example, some of them had problems with shoulder pain. The laboratory was built some years ago with standard solutions, and the number of users of the premises has increased since then. The department's OHS group was not surprised by the development, but could not immediately see either how they could remedy the problems.

The company's two OHS consultants were involved, and it was decided to perform a design sprint. The sprint was organized as a project with one of the OHS consultants as project manager.



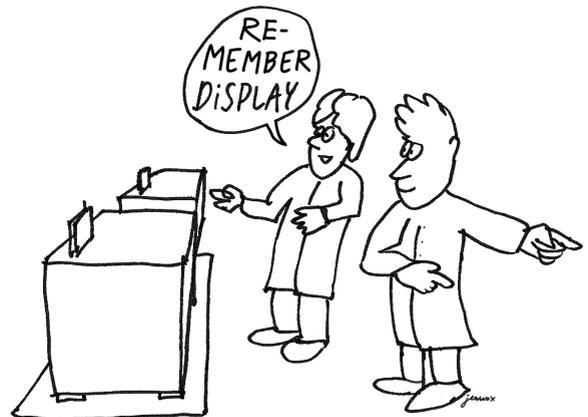
She planned and facilitated the sprint, which was run over three workshops. The other OHS consultant and the laboratory's OHS coordinator and OHS group helped with planning, facilitation, and follow-up. A group of employees with good knowledge of the problems participated.

OUTCOMES

- The employees acquired better working positions
- The employees gained influence, a common understanding, and ownership of the solution
- The company achieved a solution to a complex problem that impacted the health of many employees.

What did the participants say about their sprint?

We had to spend time understanding what the problem was and moving from an understanding of the problem as 'working at the tank' to 'the location of the tank'. This made the solution obvious, and all we then had to do was find a new way of locating the tank. When we stood at the mock-up, we could see that the display also had to be moved because we had made the artefact model, and we therefore knew that we had to look at all the requirements and ergonomic challenges.



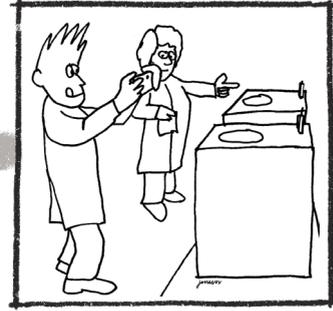
PREPARATION

How do we organize it?



The OHS group meets with its manager and OHS consultant

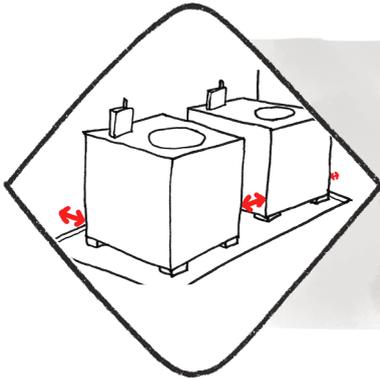
What are we to work with?



The OHS group took pictures of the work areas in the laboratory and assessed how problematic they were

DESIGN SPRINT

How is the problem to be understood?



The problem is that there is not enough space for the work at the tanks

The participants explored the problem by working with the Sequence model and the SOFT model

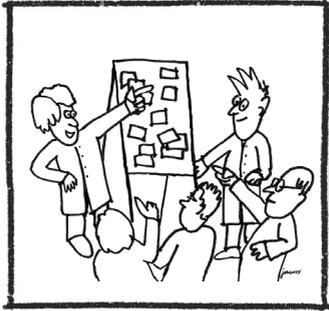
What is the best solution?



The participants narrowed down the problem using Voting and Problem focus

The participants used Round of ideas and the SOFT model to find solutions

What do our colleagues think is the most important?



The problems caused by working at the tanks are mostly ergonomic

At a staff meeting, all employees brainstormed and chose a problem

What tools should we use?



The OHS consultant planned design print workshops using workshop planner and then prepared scripts

Will the solution be feasible?

The solution is to move the tanks



The tanks could be located better this way. Here is a plan for how we do it and what it will take

The participants chose a solution by Voting and clarified it using Solution concepts

The participants tried out locations of the tanks using the Artefact model, Simulation and the SOFT model

The participants then prepared a model of the best solution and a plan using the IGLO model

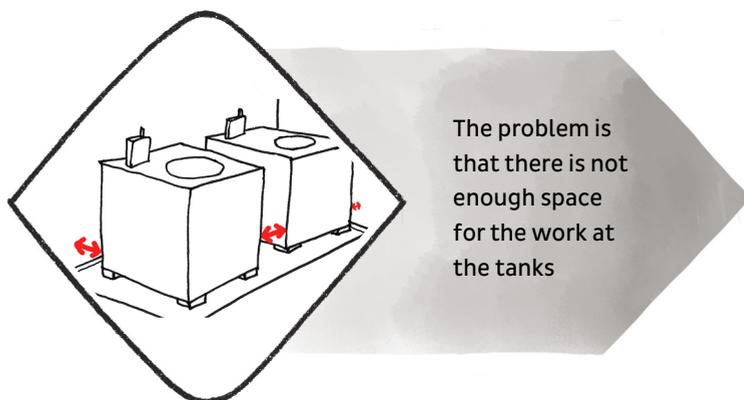
FIRST WORKSHOP

UNDERSTANDING THE PROBLEM

At the first design sprint workshop, five employees with knowledge about the problems participated together with their immediate manager and an OHS representative. In the course of just over three hours and through creative activities, the participants reframed the problem from an abstract problem of musculo-skeletal pain to a specific and tangible problem with cramped working space at two tanks.

- They used a sequence model to establish how many work processes were actually involved in the work at the tanks.
- They used the SOFT model to formulate all the problems connected with the work processes, as parts of a system. Through this approach, they discovered that many of the problems were connected with the 'Space' dimension – that is the physical surroundings.

On conclusion of the workshop, they understood that the problem especially concerned the way in which the tanks were placed, which opened up a new solution space.



Before the first workshop, the OHS consultant had prepared a script which followed the Double Diamond model. The script was useful in the planning to ensure that the participants both explored and narrowed down the problem. The script was also useful in acquiring an overview of the time used in the individual phases in advance.

Time	Phase	Activity	Materials
09.00-09.30	Welcome Presentation of workshop	Welcome Today's programme Warm-up exercise: Gunman	Paper and pens Post-its Plates Sticky tack
09.30-10.00	Understanding the problem	Sequence model in two groups Post-its Affinity diagram	2×sequence template Post-its A5 2 colours: Red: Problem Green: Assignment step
10.00-10.30	Understanding the problem	SOFT model in three groups Affinity diagram	3×Soft model A3 Pictures of work areas
10.30-10.45	Break		Coffee
10.45-11.15	Demarcating the problem	Revisiting the problem (5 min.) Choose 3 criteria for the most important elements to work with (10 min.) Voting – choose max. three formulations (10 min.)	Post-its Board Sticker dots
11.45-12.00	Sharpening the problem	Problem focus tools	Problem focus template A3
12.00-12.30	Conclusion	Assignments for next time Goodbye and thank you	

Script

SECOND WORKSHOP

FINDING SOLUTION OPTIONS

The second workshop had the same participants as in the first workshop. In just over three hours, they arrived at the conclusion that the best solution would be to move the tanks to create better space around them for the work.

- They used the SOFT model again, but, this time, to ensure that they considered solutions of different types, so that they looked at both organizational and technical solutions, for example.

They agreed that, at the next workshop, they would explore the options of moving the tanks somewhere else.



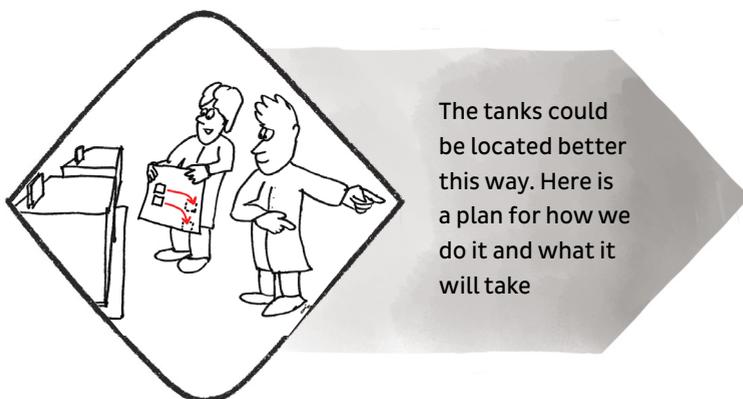
THIRD WORKSHOP

TESTING SOLUTIONS

The participants were the same as in the previous workshops, and the time spent was about the same.

- They used the artefact model to create increased focus on the requirements that the new solution was to meet – the tanks were still to function as intended, but, at the same time, the ergonomic challenges were to be met.
- They used scenario-based simulation to build models of the tanks and auxiliary functions. This visualized the options of alternative locations.
- When they made a rapid prototype of the chosen model on site, they discovered in a good way in which the tanks could be located with some minor changes and investments.

They tested the solution at the place where it was to function, thus turning the abstract idea into a tangible and specific solution.



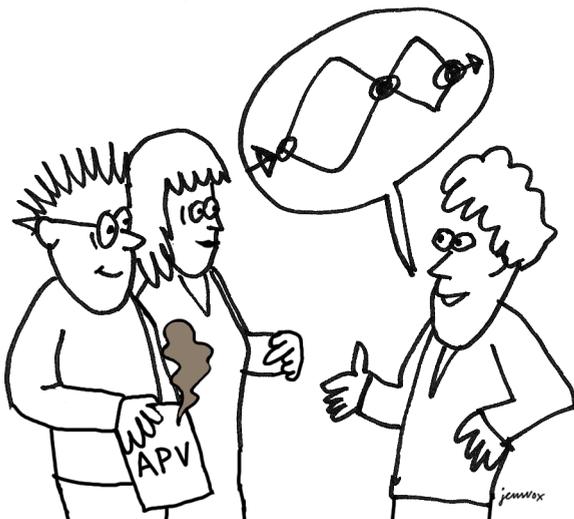
The tanks could be located better this way. Here is a plan for how we do it and what it will take

6

CASE 2

PROBLEMS WITH THE PSYCHOLOGICAL WORKING ENVIRONMENT IN THE MUNICIPALITY

The OHS group in the children and youth department of a municipality could see from their WPA that many colleagues had reported having a too heavy workload. This came as no surprise to them, because the department had experienced both long-term absence due to illness and been offered an agreed course of action from the Danish Working Environment Authority. However, based on the WPA results, they were allocated a pool by the management and approached the workplace's regular OHS adviser. He suggested that they prepare a design print which he could plan and facilitate.

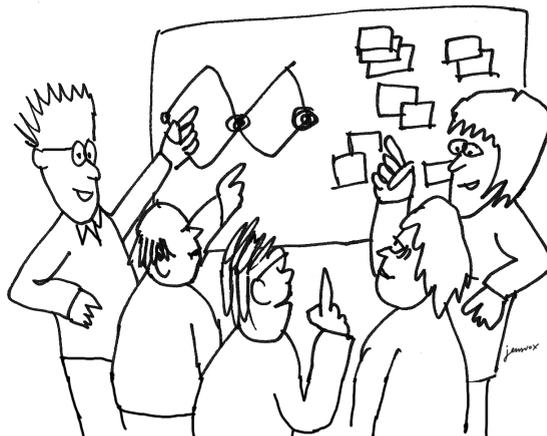


OUTCOMES

- The participants were able to demarcate the problem from 'too heavy workload' to a more tangible 'our cooperation in-terfaces with other departments are not clear enough'.
- The employees found a model for getting closer to each other across departments
- The OHS group learned a method they could apply to similar problems in the future
- The organization acquired a more efficient way to perform tasks because of improved cooperation.

What did the participants say about their sprint?

It's been good for us to figure out for ourselves what we wanted to achieve. Our adviser took us through a visual process, and we acquired some tools to work with this, but the insights and solutions were to come from ourselves. The last workshop was an eye-opener for us: We realized that the solution should not be something big, but something tangible. It's been good for us to adopt another perspective, because we had run out of ideas for what we could work with to improve things.



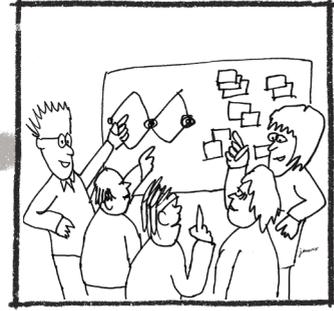
PREPARATION

Are we doing a design print?



The OHS group meets with its manager and OHS adviser. They agree on the framework for the course and appoint the OHS representative as the coordinator.

Who wants to join?



At a staff meeting, the OHS group presents its plan for the sprint and invites colleagues to participate.

DESIGN SPRINT

How is the problem to be understood?



Our cooperation interfaces with other departments do not work well enough.

The participants explored the problem by using Make the tree grow, Affinity diagram, and 5 x why.

What is the best solution?



The participants narrowed down the problem using Voting and Problem focus.

The group came up with solutions using Ideas in rounds and Negative brainstorming.

We have problems with too heavy workload

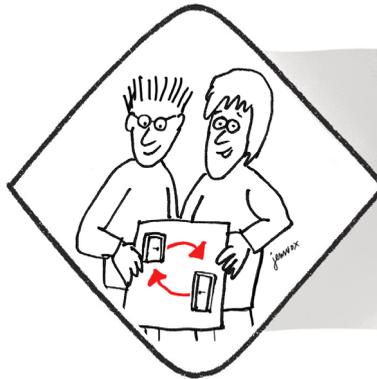
Which tools are we to use?



The OHS adviser prepares scripts and discusses the plan with the OHS representative

Will the solution be feasible?

We can learn more from each other across departments by visiting each other's team meetings



We have a plan for a new procedure with visiting each other's meetings in turns

Participants chose a solution by Voting and using a Spider web diagram

The participants used Storyboard and Simulation to test a future scenario

To prepare a plan, they used the IGLO model

FIRST WORKSHOP

UNDERSTANDING AND FORMULATING THE PROBLEM

Six employees participated in the first workshop in the sprint. In the course of three hours, they discovered that they did not have the same views on what constitutes a heavy workload and what it comes from. This differed depending on their work tasks. But a common thread was that they experienced time waste which could have been used for their core task. Therefore, they decided to work with something that they could influence positively. i.e. their cooperation interfaces with other departments.

The OHS adviser had prepared a script before the first workshop. The script was useful in discussing the plan with the OHS group. It was also a good management tool during the facilitation. In psychological working environment issues, conversations about



the problem take up a lot of space because the employees can have very different views of the same problem. So some of the activities took much longer than planned because a good discussion arose. Here, the script was a help in quickly being able to see which activities could be postponed to the next workshop.

Time	Phase	Activity	Materials
12.00-12.30	Welcome Presentation of workshop	Welcome Today's programme Warm-up exercise: Grandmother, Tiger, Ninja	Paper and pens Post-its Plates Sticky tack
12.30-13.00	Understanding the problem	Make the tree grow in three groups Summary on the board	A3 sheet
13.00-13.30	Understanding the problem	5 × why In three groups Summary on the board Affinity diagram	5 × why template Affinity diagram template
13.30-13.45	Break		Coffee
13.45-14.15	Demarcating the problem	Revisiting the problem (5 min.) Choose 3 criteria for the most important elements to work with (10 min.) Voting – choose max. three formulations (10 min.)	Post-its Board Sticker dots
14.15-14.45	Sharpening the problem	Problem focus tools	Problem template A3
15.00-15.30	Conclusion	Assignments for next time Goodbye and thank you	

Script

SECOND WORKSHOP

FINDING SOLUTIONS

The participants found that if they knew more about the tasks and day-to-day working life of the other departments, they would be easier to involve in their own tasks and vice versa. They found that they could use the weekly team meetings to acquire a greater understanding of each other's work. They used a spider web diagram to assess which solution would be the most realistic, while also leading to better collaboration.



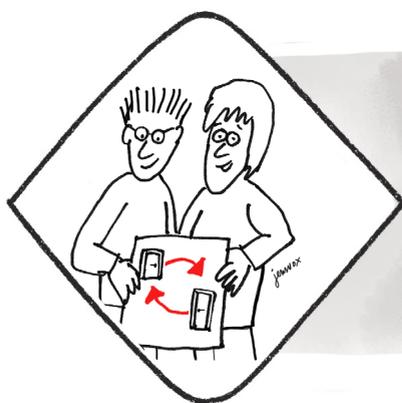
We can learn more from each other across departments by visiting each other's team meetings

THIRD WORKSHOP

TESTING THE SOLUTION

Participants drew a storyboard of different ways in which they could organize visits to other departments' meetings. At each scenario, they discussed how realistic it was, how their colleagues would receive the plan, and which model would give everyone new learning about each other.

The model that worked best in scenario-based simulation was to take turns visiting a team meeting in another department and then reporting back in one's own department, as a kind of ambassador between the departments. They also decided to perform a role play at a staff meeting about how such an ambassadorial visit could proceed. In this way, the colleagues would be better equipped for the role.



We have a plan for a new procedure with visiting each other's meetings in turns

7 THE ROLE OF DESIGN SPRINT FACILITATOR

It takes a little experience and some skills to facilitate a workshop as part of a design sprint. But it can be learned! You may start by practicing in your own organization with good colleagues. It may also be a great advantage to be two in both planning and conducting workshops.

If, as an OHS professional, you want to try working with design sprint, there are a number of questions that it is a good idea to think through in advance:

- Why do I want to use design sprint to work with the given OHS problem?
- What would I like to achieve through the design sprint?
- What atmosphere can I expect to meet with the given participants in the workshop?
- Is there a risk of power games in the workshop with the given participants?
- How will I deal with scepticism and power games in a workshop?
- Am I only a facilitator or should I also bring my professional expertise into play?
- Should I be completely neutral or may I express my personal opinions?
- What do I do if the participants choose a problem focus or some solutions that I do not find appropriate?

Tips

At the start of the first workshop in a design sprint, it may be a good idea to tell participants about your own role and your views on some of the above questions. It is important that the participants do not get the impression that you have hidden agendas,

but that you are open about when you facilitate and when you express your own opinion or professional expertise.

It may also be a good idea to tell the participants that you consider the workshop a 'space' for mutual learning, where everyone has something to contribute and where there is an open and constructive atmosphere. You may also explain that the workshop lifts the participants into a new 'space' which differs from the day-to-day space, where there may be small power games and conflicts of interest. To support such a learning space, you are responsible for laying down some rules for the workshop. This may, for example, be that you will sometimes do a round of the participants to make sure that everyone is heard. Or that some tools are first implemented individually and then discussed in plenum.

If you find that the work in the workshop is heading towards a problem focus or some solutions that you find inexpedient from a professional point of view, it is OK to say so. You must then be ready to return to the facilitator role and give the participants room again.

Facilitation is a technique for making it easier for a assembled group of people to accomplish what it wants. A facilitator is a kind of chair of the meeting or moderator who assists the group by controlling the form of the participants' conversation and interaction rather than the content. The facilitator guides the group forward by making requests and asking guiding questions that the participants accept to follow – to the extent that they respect the facilitator. This can be seen in contrast to the greater content management of meetings and groups that a manager often uses. (translation of Danish Wikipedia page)

8

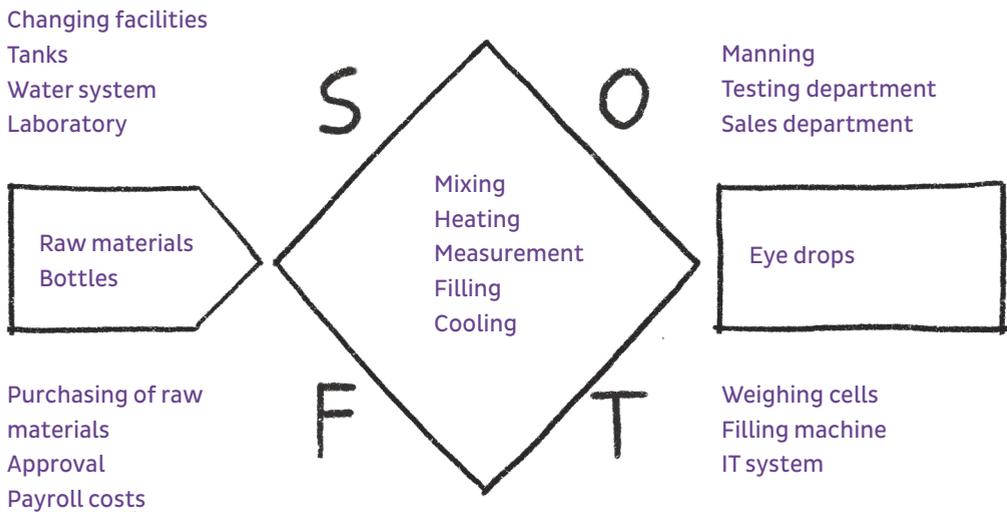
DESIGN THINKING WORKS BEST WHEN THE WORKING ENVIRONMENT IS SEEN AS A SYSTEM

Design thinking and the Double Diamond process give you a systematic way of working creatively with solving complex OHS problems. Our experience is that it works best if you concurrently adopt a system perspective to the OHS problem. You are probably thinking: What is a system perspective on OHS problems?

It is generally based on how you can look at the work performed in a workplace. The work can be understood as containing different elements that form part of a system. Everyone can probably agree that work usually takes place in a physical space containing a lot of things located in certain ways in relation to each other. It is also easy to see that there is usually some technology involved in the form of machines, technical aids or IT systems. You can also observe that not all employees do the same work. There is a division of work, and there is a management structure to ensure that everything is coordinated and managed. Finally, there is something that is not directly visible, but which plays a major role and that is the financial aspects of a workplace. The company must make money or the public workplace must save taxpayers' money. Therefore, a certain level of efficiency must be ensured in the work, and investments must be made in equipment and development.

These observations can be summarized in a system perspective on the work and thus also on the working environment. There are different system models for the work. We have had great

benefit from using the so-called SOFT system model, see the figure. The model consists of four elements, called Space, Organization, Finance, and Technology, respectively, hence the name of the model. The SOFT model basically expresses that if you want to understand why work is being done in a workplace, you need to look at the four elements of the model. These four elements influence how the different employees perform their day-to-day work. They consequently also contribute to determining what the working environment is like.



The overall elements in a system that produces eye drops. The model can help establish an overview of work conditions that cause, for example, ergonomic OHS problems.

WE THINK
IN SYSTEMS



The four elements of the SOFT model are interdependent. This means that if you make changes in one 'corner', this will also entail changes in one or more of the other corners. The model is very useful to bear in mind when it comes to understanding and solving OHS problems. It provides a holistic perspective on the causes of OHS problems and on possible solutions.

The model also points out that different persons and groups make decisions or exercise influence in the individual corners. This is precisely sometimes the reason why challenges and OHS problems occur in a workplace. If there is no coordination between the different corners, a change in one corner can lead to problems in another corner.

We see the SOFT model as a useful tool that can be used in several places in the Double Diamond process. In the first diamond, SOFT can help explore the problem by looking systematically at possible causes of an OHS problem. In addition, the model can be used to demarcate the system in which the OHS problem occurs. In the second diamond, SOFT can be used systematically to develop coordinated solutions in the different corners. In the section on auxiliary tools, you can read more about how you specifically use it.

9

TOOLS 1 PREPARATION OF DESIGN SPRINT

In the following posts, you will find tools for preparing and planning the sprint. You will need a [script](#) and [workshops](#) for all types of sprint. In the preparation of a design print, it may also be a good idea to use a little time to familiarize yourself with the work affected by the OHS problem. You can also find tools for this here.

Please note that several of the tools can also be used together with the participants in a workshop. This applies especially to affinity diagram, photos, workbook, and overview of stakeholders.

- Workshop
- Workshop planner
- Script
- Interview with key persons
- Master-apprentice interview
- Observation
- Affinity diagram
- Photos
- Workbook
- Overview of stakeholders

The preparation part is super important, as this is where you lay the foundation.

OHS professional

WORKSHOPS

A workshop can briefly be defined as a work form in which a group of persons gather for a specific period of time to discuss and work actively with a specific task or project. In this guide, we define a design sprint as consisting of one or more workshops.

As the planner and facilitator of a design sprint workshop, there are a number of things that you need to consider:

1. Where does the workshop fit into the Double Diamond process? What do you want to achieve with the workshop? What results should preferably have been achieved at the end of the workshop?
2. Who and how many are to be invited for you to meet your objectives?
3. Establish a clear purpose that may be communicated with a catchy title to the participants.
4. How are you to follow up on the results of the workshop?
5. Is there anything you would like the participants to do before the workshop? How can you communicate this to them?
6. Plan all workshop activities using a script.
7. Clarify your own role: Do you primarily want to facilitate the workshop or do you also want to contribute professional input and your own views?
8. What practical things need to be in place: book a suitable room, materials for use in the workshop, refreshments, etc.

You can also consider the following success criteria for a workshop:

1. There is a high degree of mutual exchange between the participants.
2. Everyone sees themselves as both recipients and contributors.

3. Everyone participates actively.
4. Everyone is heard.
5. Everyone knows what will happen after the workshop.



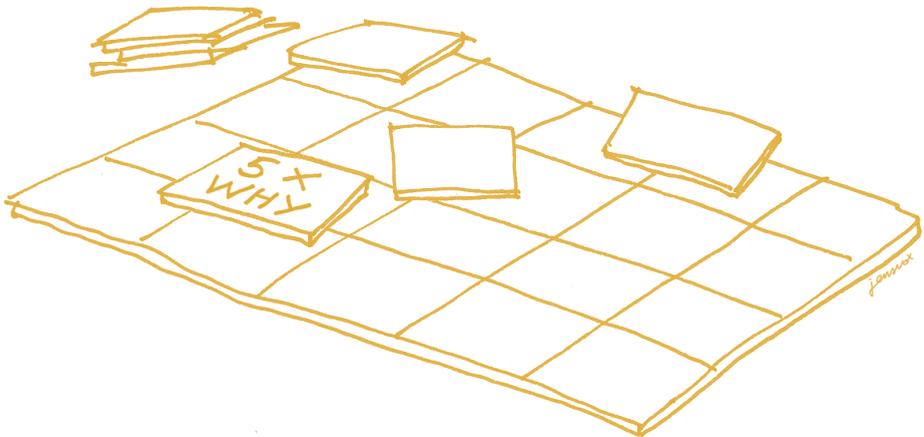
Clarify your own role: Do you primarily want to facilitate the workshop or do you also want to contribute professional input and your own views?

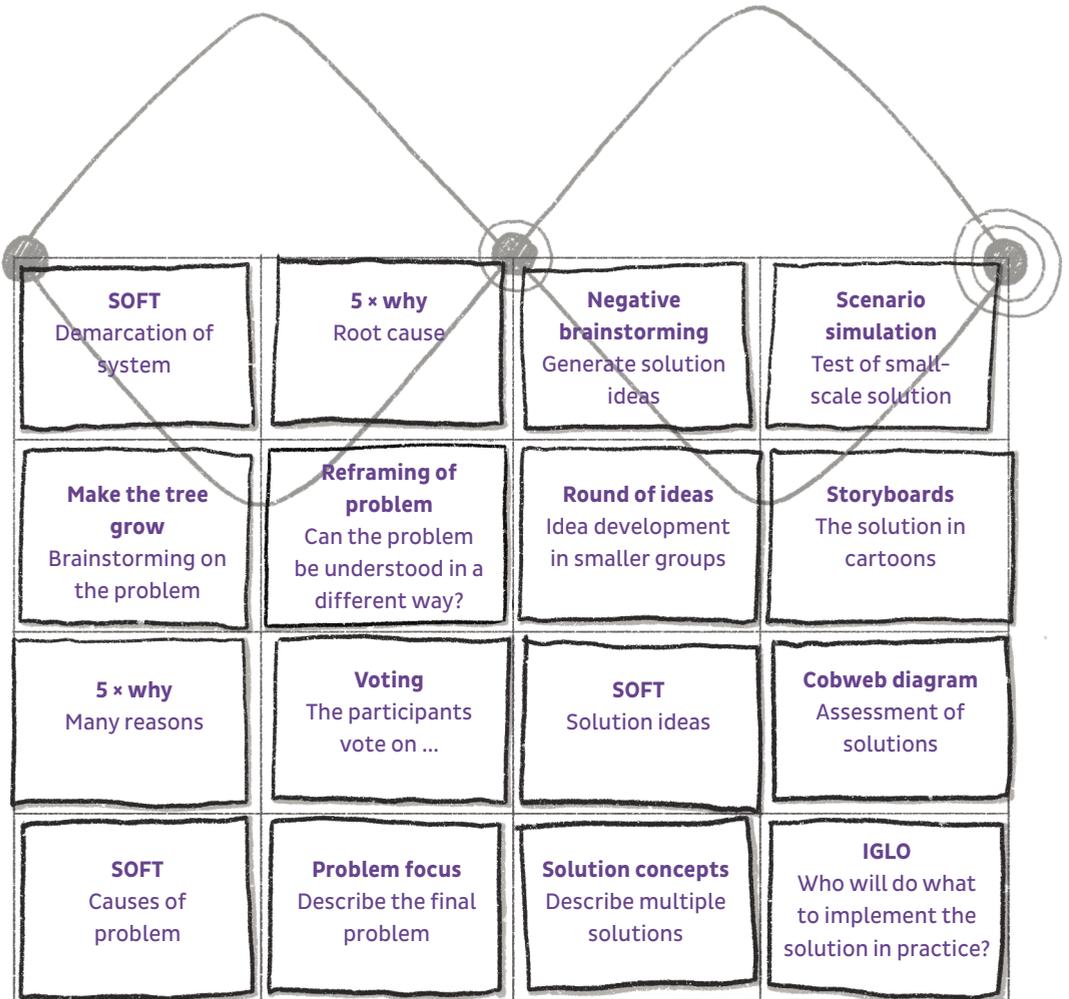
WORKSHOP PLANNER

This tool can help you plan a workshop. The tool consists of two templates. Template 1 is 'pieces' containing all the tools in this guide. Template 2 is a squared plate with squares that the pieces fit into.

Steps

1. Start by printing out the two templates. They must both be printed in A3 format.
2. Cut out the squares in template 1, so you have all the tools as loose pieces.
3. Use the objective of a workshop as a basis and start by putting the tool pieces on the plate. Find out, by trial and error, the tools you want to use and in what order. You can constantly replace tools and change their order until you think that you have the right tools in the right order.





SCRIPT

A script is a useful tool for planning and facilitating a workshop in a design sprint. The script describes in details how a workshop is to be conducted and within which time frames.

Steps

The following considerations should be included in the preparation of a script:

1. What is the objective of the workshop? What goal should the participants preferably reach?
2. Who are the participants and what are their qualifications?
3. How much time should be allocated for the workshop?
4. What activities are to be included in the workshop and in what order? See also [Workshop planner](#)
5. What is the purpose of the individual activity?
6. How much time is to be allocated to each individual activity?
7. When should there be breaks?
8. How do I summarize and maintain results when the workshop has been concluded?
9. What materials should be prepared for the workshop? This may, for example, be paper, post-it notes, felt-tip pens, LEGO figures, workplace drawings, whiteboards, stickers, etc.

Tips

Expect that you can use the script as a guide, but that you will also have to improvise once the workshop is underway. Preferably consider in advance which activities are necessary and which can be skipped.

Time	Phase	Activity	Materials
09.00-09.30	Welcome Presentation of project	Welcome Today's programme Warm-up exercise: Gunman	Paper and pens Post-its Plates Sticky tack
09.30-09.45	Understanding/ demarcating the problem	Post-it and whiteboard exercise (problems and success criteria) Affinity diagram	Post-its A5 2 colours: Red: Problem Green: Success criteria
09.45-10.00	SOFT exercise	SOFT model exercise	2 × SOFT model a3 Pictures of work areas
10.00-10.30	Finding causes	5 × why: 1) underlying causes and 2) multiple interacting causes (30 min.)	5 × why sheet
10.30-10.45	Break		Coffee
10.45-11.30	Finding solutions	Revisiting the problem (5 min.) Negative brainstorming on problem (20 min.) Choose 3 criteria for the good solution on plate in plenum (10 min.) Voting – choose max. three solutions (10 min.)	Post-its Negative brainstorming sheet Sticker dots
11.30-12.00	Lunch		
12.00-12.45	Select solution proposals	Warm-up exercise: Grandmother, Tiger, Ninja Outline concept (20 min.) Cobweb (10 min.)	Different colours min. 7 2 × cobweb 2 × sheet for outlining/ synthesizing
12.45-13.00	Conclusion	Evaluation Goodbye and thank you	

An example of a script.

MASTER-APPRENTICE INTERVIEW

A master-apprentice interview is a kind of combination of an interview and observation. This can help you acquire a deeper insight into the OHS problem to be solved in a design sprint.

The idea behind a master-apprentice interview is that it is conducted while the interviewee is working – or at least in at his or her workplace. Such an interview is an excellent tool for acquiring deeper insight into the OHS problem in focus. The strength is especially that you see and hear how the interviewee *works in practice*. If the interview is instead conducted in a meeting room, the result is that the interviewee speaks about his or her work in more abstract terms – and it will not always reflect what actually happens in practice. The starting point for the interview is that you are in the apprentice's position, while the interviewee is the master.

Steps

1. You must obviously first obtain permission for interviewing and following an employee around in his or her working environment.
2. Present yourself and the purpose of the interview. Explain what happens with the results of the interview.
3. Use what the person is currently working on as a basis and ask what he or she is doing. Remember that you are the apprentice and that you can therefore ask all kinds of stupid questions: Why are you doing this? What do you use this gadget for? How does a 'heavy workload' manifest itself in your work? Why haven't you just solved it by ...?
4. Follow the person around if the work is done in different places, so you get as complete a picture of a working day as possible.

5. Take notes along the way.
6. Conclude the interview when you or the interviewee has run out of time.
7. You can then process your notes by creating an affinity diagram. This may especially be relevant if you have interviewed several employees.

Tips

It is a good idea to bring a camera. Photos from the workplace can subsequently be used in workshops or in workbooks.



INTERVIEW WITH KEY PERSONS

Quick interviews with affected employees or others who have knowledge of the problem can be a help in the initial mapping of the problem. You can use two different techniques depending on whether you will be interviewing affected employees (see [master- apprentice interview](#)) or key persons. Key persons are other persons who have knowledge about the problem or who may be part of the development of the solution. They may, for example, be colleagues from another department, a manager, or technicians.

Before the interview

- Only interview one person at a time and make sure, in as far as possible, that you are not disturbed.
- It may be a good idea for you to record the interview or to be two so that one takes notes and the other can concentrate on interviewing.
- Write a short list of the topics you want to ask about. Use open questions. If you can answer yes/no to them, they are not open and need to be reworded.
- Create a template for the minutes with the topics on which you are focusing.

During the interview

- Start the interview with a “Describe...” or “Tell me about...”. Remember that your key person is the expert and you are the person who needs to learn. The shorter the questions and the longer the answers, the better the interview.
- Preferably use a drawing, a picture, or a relevant object as a starting point.
- Ask how and ‘WH’ questions. Who, what, how, why, where, and when. Constantly use what your key person is saying to

ask more in-depth questions. Take breaks and allow time for subsequent rationalization.

After the interview

If you have recorded the interview, listen to it and then write short minutes in the template. Otherwise write based on notes. You can also choose instead to write the most important information on post-its and gather them in an affinity diagram, which you may use in a workshop.

Interview guide

1. The problem

How do you experience [the problem]?

Can you think of a situation that illustrates [the problem]?

What do you find are the causes of [the problem]?

Do others know more about [the problem]?

2. Ideas

What do you think it will take to solve [the problem]?

Who do you think can contribute to a solution?

OBSERVATION

The method can be used to highlight the selected OHS problem, possibly as preparation before a design sprint. You can use the method to make your own observations or the participants in a workshop can do it together to acquire a joint understanding of what is going on.

You can observe a person perform one or it may be a room with activities you observe yourself or with others. What, how, and who observes will depend on what the purpose is.

Observation is suitable for examining OHS problems that may otherwise be difficult to map through interviews. The tool can help with a specific and detailed description of the elements of a task or procedure.

Before observation

- Allocate a specific amount of time.
- Consider what is ethically responsible. It is generally always a good idea to inform the participants about the observation.
- If you are several persons, then agree internally who does what. Who takes notes, who takes pictures, who focuses solely on participating?
- You may write down what you want to focus on. This may be layout, procedures, communication, or something else.

During observation

- Keep your observations by means of notes, photos, and possibly video.

After observation

- Review your notes.
- The insights from this can be used to describe procedures or some fragments of the observation can be selected as a starting point for reflections by the participants during the sprint.
- You can also choose instead to write the most important observations on post-its and gather them in an affinity diagram.



AFFINITY DIAGRAM

An affinity diagram is a good tool for helping to systematize notes from interviews and observations, and thus arrive at some results. It can be created by means of post-it notes and provides a visual overview of the main results. This could, for example, be in connection with a more in-depth understanding of an OHS problem or about the possibilities of implementing a solution. It can be created by you alone or with the participants in a workshop if there is a need to systematize a number of ideas that have emerged during a brainstorm.

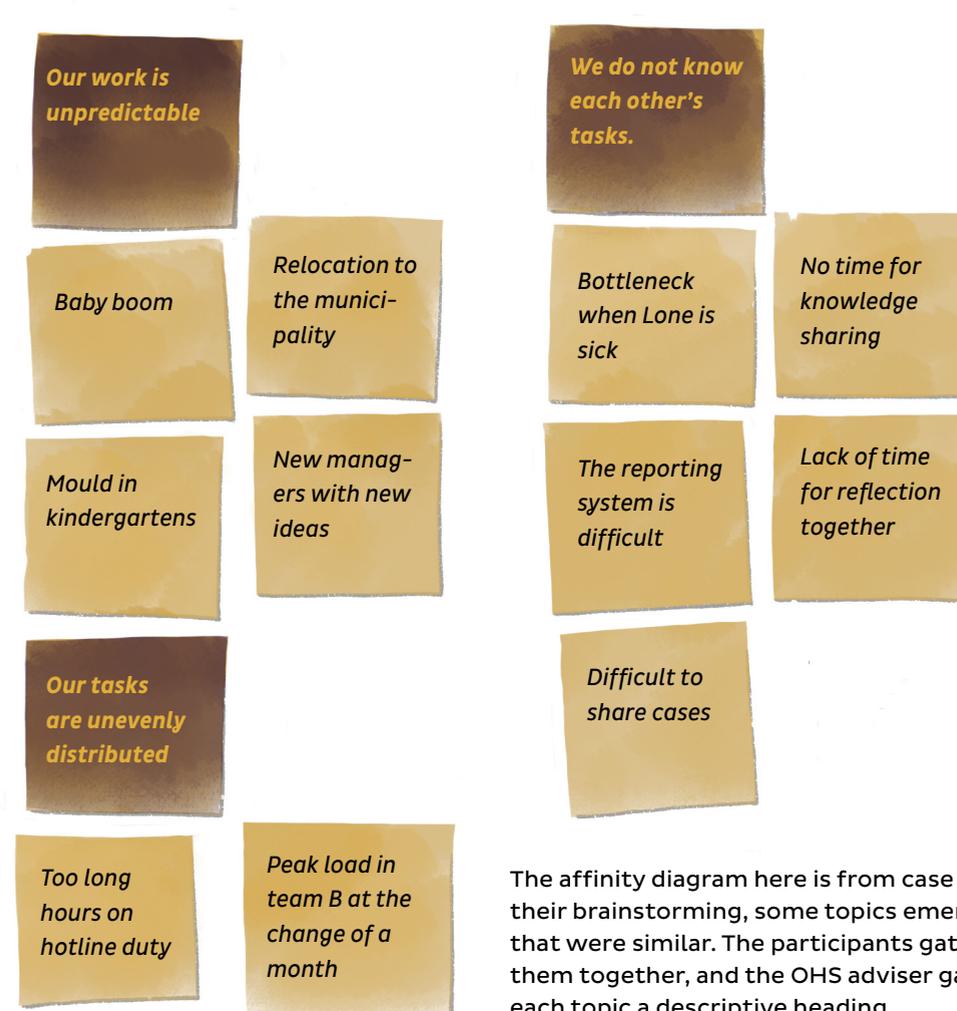
Steps

1. You must use post-its in several colours.
2. Look through your notes or recall what you remember from interviews or observations.
3. Find important statements – something that the interviewee has said or something you have observed.
4. Write statements on post-its. Only one statement per post-it. Use the same colour post-its.
5. When you have finished filling in post-its, you select one to begin with.
6. You then look through all the others and find the ones that you think belong with the one you have selected first and place them together. Do not place more than 4-6 post-its in the same group.
7. Then proceed with another post-it and again find the other post-its which are about the same thing.
8. After all the post-its have been divided into groups of 4-6 pieces, you must start naming the groups. This is a very important step in the method. The name of a group should briefly summarize the contents of the 4-6 post-its. The name must in itself be a statement, so that it sounds as if the interviewees or observed persons are talking to you.
9. Group names are written on a different colour post-it and placed above the group.

10. Finally, you may try to see whether you can find connections between the groups you have arrived at. Are there some factors that affect or presuppose each other?

Tips

Neutral group names do not work well. “The IT system” does not tell you anything. Is it good or bad? In turn, “We have not received sufficient training in how to use the IT system” tells you something about a possible cause of an OHS problem.



PHOTOS

Photos from a workplace can be of great benefit to you and can also be used in workshops and in connection with the artefact model and workbook.

If you are at a workplace anyway to interview, observe, or hold a meeting, it is a good idea to ask permission to take some photos. How do you find out which photos to take? Here are different strategies:

1. Consider for yourself which photos may be relevant in acquiring a greater understanding of the OHS problem that is the object of focus.
2. Ask one or more employees which photos they would suggest that you take to highlight the OHS problem that is the object of focus. Here it may be relevant to remind the employees that photos can also be of documents, drawings, screenshots, message boards, objects, and the like.
3. You can ask an employee to take you through a workflow that he or she performs. Take photos of important situations and objects along the way. If, for example, the focus area is work positions, it is important to take photos where you can see an employee and not just photos of the workplace where poor work positions occur.

Tips

If you already know that you need some photos for a workshop, it is a good idea to print them out in A4 or A3 format.

Ask one or more employees which photos they would suggest that you take to highlight the OHS problem that is the object of focus.



WORKBOOK

A workbook is a 'book' containing pictures from the workplace on which the employees can comment.

This tool can be used in the preparation of a design sprint or at the start of the first diamond, where the object is to acquire a deeper understanding of the problem. The workbook is a tool that can be used quickly to acquire several employees' assessment of the workplace where the problem is located.

Steps

1. Visit the workplace and take photos. It may be a good idea to walk around with an employee who can make suggestions for which photos you should take in relation to the specific OHS problem. See also [Photos](#).
2. Select 10-15 pictures for a workbook. Think about which pictures you select in relation to the OHS problem on which you are focusing. The selection may be made in cooperation with an employee from the workplace.
3. Print the workbook with photos in A3 format.
4. Return to the workplace and agree on the best location of the workbook if the selected employees are to have easy access to it. Together with the workbook, you place three pens that write in green, yellow, and red, respectively.
5. Inform your target group that the workbook is now ready and will be available in a specific location during the next one or two weeks. The employees' task is now to look in the workbook and write any comments on the pictures contained in the book.
6. The instructions to the employees should be on the first page of the workbook. The instructions are:

Red font = description of a problem that should be addressed

Yellow font = description of something that should be investigated further

Green font = description of something that works well

After one to two weeks, you return to the workplace to pick up the workbook with comments. It may be useful to make a list of comments for each colour and try to extract some results that may be important to include in the design sprint.

1. Consider for yourself which photos may be relevant in acquiring a greater understanding of the OHS problem that is the object of focus.
2. Ask one or more employees which photos they would suggest that you take to highlight the OHS problem that is the object of focus. Here it may be relevant to remind the employees that photos can also be of documents, drawings, screenshots, message boards, objects, and the like.
3. You can ask an employee to take you through a workflow that he or she performs. Take photos of important situations and objects along the way. If, for example, the focus area is work positions, it is important to take photos where you can see an employee and not just photos of the workplace where poor work positions occur.

Tips

If you already know that you will need some photos for a workshop, it is a good idea to print them in A4 or A3 format.

OVERVIEW OF STAKEHOLDERS

This tool can be used to get a visual overview of stakeholders who have a stake in the selected OHS problem. The result can be used to assess who should be invited to participate in the whole or parts of a design sprint. A stakeholder can be a person, a department, an authority, an institution, a company, an association.

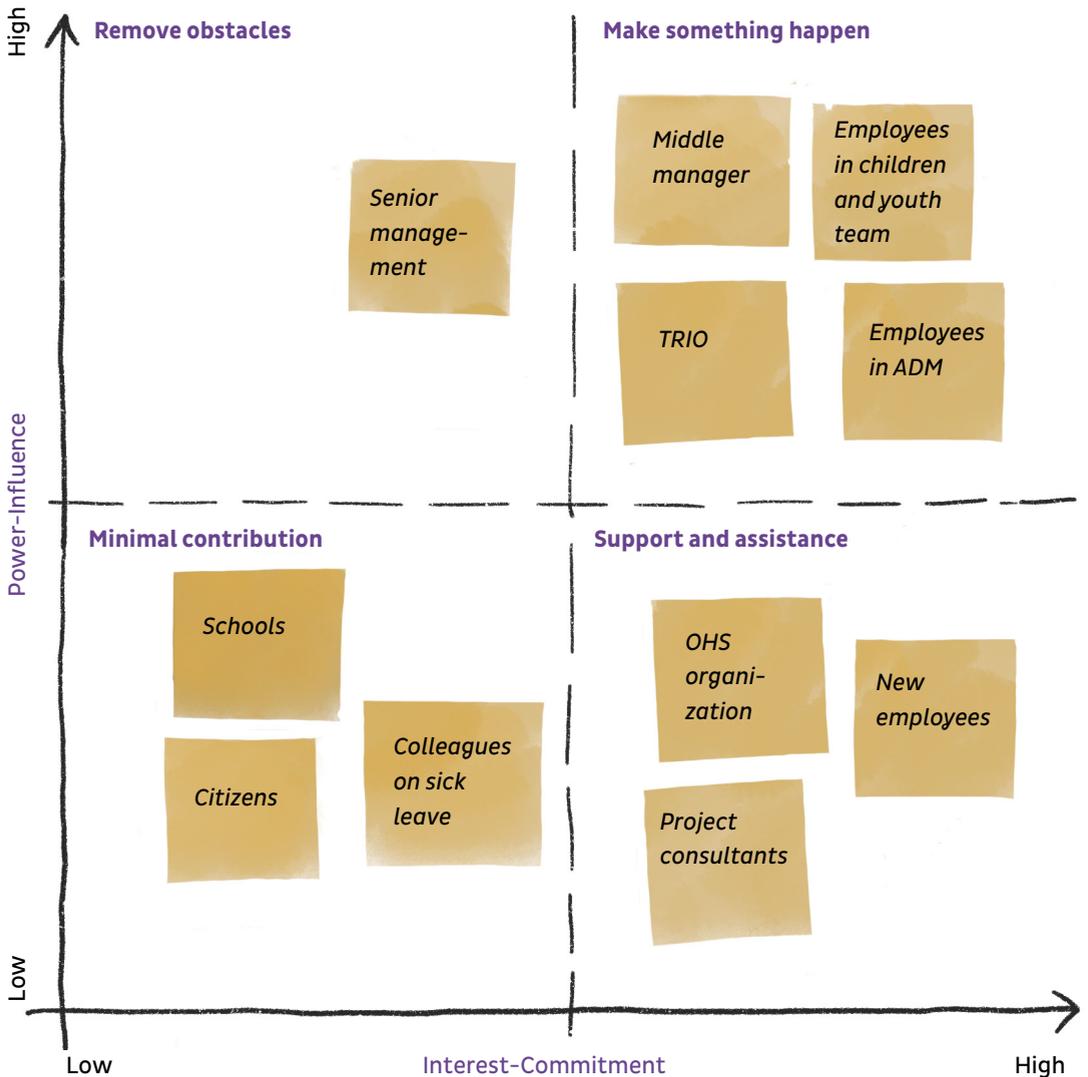
Steps

1. Do a brainstorm of all parties that are relevant to the problem. Write down all stakeholders. Both those who have large or smaller stakes in the problem and those who have positive, neutral, and negative stakes in the problem.
2. Only write one stakeholder on each post-it.
3. Prepare an overview of stakeholders using the template. Place the post-its in the template according to how much influence they have on the problem and how high their interest in the problem is.

Some stakeholders will be obvious to invite to participate in the sprint. Others will need to be kept informed or can be interviewed to share their knowledge about the problem.

Tips

You can also use the tool in a workshop, so that the participants do the brainstorming and fill in the template. It can be used at the start of a design sprint, so that the participants have an overview of the stakeholders. It can also be used at the end of the design sprint, so that you focus on the stakeholders' influence on and interest in the solution(s) arrived at. This can be used as a basis for preparing a business case and an overview of who does what (IGLO).



For case 2, an overview of stakeholders could look like in this figure. The stakeholders in the top right-hand field should be invited to participate in the sprint. The stakeholders in the top left-hand and bottom right-hand fields can be invited to participate in one of the workshops in the sprint. For example, it may be relevant to invite a new employee to the first workshop, which focuses on examining the problem.

10 TOOLS 2

WARM-UP OF THE PARTICIPANTS

Warm-up tools are useful for preparing the participants to think outside the box. It is also an easy way to break the ice and make sure that all participants have said something. The way is then paved for subsequent participation in discussions. There is usually a little reluctance involved in using warm-up tools, but the participants think that it is fun if you keep it short.

Name game

The purpose of this activity is for everyone to learn everyone's names. It is also an activity that boosts creativity.

1. All participants, including the facilitator, stand in a circle.
2. The facilitator starts by coming up with a word that begins with the same initial as the facilitator's name.
3. If the facilitator's name is Andrew, he says, for example, "athletic Andrew".
4. The next person is called Sophie, and she says, for example, "sunny Sophie" and so it continues all around the circle.
5. When you get to the second round, you have to come up with a new word.
6. The facilitator Andrew says, for example, "African Andrew".
7. Sophie, who was the next person, then says "sound Sophie".
8. The activity is repeated until the facilitator senses that the participants' creativity is running out.

Grandmother, tiger, ninja

This activity is a bit silly, but it makes the participants open up and relax.

1. The participants pair up and play 'Grandmother, tiger, ninja' – just like in rock, paper, scissors.
2. The participants are not merely to say grandmother, tiger, ninja – they must also play the part. By jumping up and landing in a pose that fits the part. For example, grandmother is bowed, the tiger shows its claws and the ninja takes up a defensive position.
3. The loser of the two becomes a 'fan' of the winner and must root for the winner.
4. At the end, only two participants are left to compete to win.

Rules:

- Grandmother beats ninja.
- Ninja beats tiger.
- Tiger beats grandmother.
- Each game is best of three.

Gunman

The activity can create a good atmosphere, make the participants feel comfortable, make them laugh, and learn each other's names. It can also be used as an energizer.

1. All participants stand in a circle.
2. You run three rounds where everyone says their names.
3. After the three rounds, the facilitator stands in the middle.
4. The facilitator then spins around, stops suddenly and points to a participant.
5. The chosen participant must duck.
6. The two participants standing on either side of the person who has ducked must then say each other's name.
7. The participant who says the other person's name first wins.
8. The loser enters the middle of the circle and points at the next person who is to duck.

WELL, WE WILL START
WITH A LITTLE
WARM-UP

OK, MAX
5 MIN.!



Dividing the participants

The purpose of this activity is to create comfort in the group and get the participants to know each other. In addition, the activity involves standing and motion, which helps create good energy from the start. As the facilitator, it is important that you have prepared some questions that do not overstep the participants' boundaries. Preferably start out with some very basic questions that will probably be relevant to most of the participants.

1. The facilitator divides the participants into two groups.
2. One half of the group must be stand in one side of the room, and the other group in the other side.
3. Both groups look at each other.
4. The facilitator stands in the middle.
5. The facilitator asks a question, for example "Who has already answered the well-being survey?"
6. Participants who have already answered the survey must move to the other group, and the activity continues like this.
7. The purpose is then to get all participants to move from one end of the room to the other up to several times.

I have used the warm-up tools several times. It has a value to warm people up to dare work differently. And most of them welcome it.

OHS professional

11 TOOLS 3

EXPLORING PROBLEMS

The tools you find here are well suited for exploring the OHS problem in the first part of the Double Diamond process. Some tools are easy to use for everyone. This applies, for example, to 'Make the tree grow', while others are more demanding. You can use all the tools for all employee groups, but with the more complicated ones, you should set aside plenty of time for the preparation if your participants are not all that used to analysing problems.

In the following descriptions of tools, there are three icons in the left-hand side panel that can help you plan which activities to choose and how you can compose your script.



The Double Diamond icon shows the phase in which the tool can be used. Use it to help you plan how you and the participants will go through the phases.



The people icon shows the number of participants who can participate in an activity with the tool. Use it as a guideline for how you will divide the participants into groups. It also gives you an indication of whether the tool is suitable for the number of participants you have.



The clock icon shows the approximate amount of time you need to allocate for the activity with the tool.



The three-bar icon shows how complicated the tool is to use, so use it as a guideline for how much time you need to set aside for preparation in relation to your target group. The more bars that are marked, the more demanding the activity is for you and your participants.

- 5 × why to find multiple causes
- 5 × why to find one root cause
- Make the tree grow
- The SOFT model for problem exploration
- Flow model
- Sequence model
- Physical model
- Artefact model

You can find the templates we show in the following chapters on www.designthinking.dtu.dk

5 × WHY TO FIND MULTIPLE CAUSES



Exploring
the problem



2-8



15 min.



Complexity

There are often multiple interacting causes of a given OHS problem, and pinpointing them is an important step in defining the problem. The 5 × why tool can be used by the participants to find multiple causes of the same problem. The participants should work in groups of 2-5 people, and it is a good idea to not to give the participants too much time, to ensure that they work intuitively.

Steps

1. Give each group a 5 × why template. Describe the problem at the top of the template.
2. Ask the first member of the group to reformulate the problem into a 'why?' question and write it on the first line. The participant then writes the answer to the question on the next line.
3. The sheet is passed on to the next person.
4. The next participant writes the same 'why?' question on a new line. The participant then writes another proposal for an answer and passes the sheet on to the next participant.
5. Repeat the activity until the sheet has been filled and the participants have found five different causes.

The result of this activity can be included in the overall exploration of the problem in the first diamond. The results may also point towards the solution options that appear, but it is important to remain in the problem exploration phase while working with the tool. The result can provide a starting point for reframing the problem.

Tips

It is important that some of the participants have insight into the problem.

Problem: *We do not cooperate enough*

Why?
Because *Why do we not cooperate enough?*
Because we do not know each other's tasks

Why?
Because *Why do we not cooperate enough?*
Because we have conflicts

Why?
Because *Why do we not cooperate enough?*
Because our management does not attach importance to it

Why?
Because *Why do we not cooperate enough?*
Because we are far from each other

Why?
Because *Why do we not cooperate enough?*
Because we work at different times

In case 2, the participants' 5 xwhy sheet looked like this, as they used the tool to find multiple causes.

5 × WHY TO FIND A ROOT CAUSE



Exploring
the problem

There may also be more underlying causes of the OHS problem that it is important to know about to ensure that the solution arrived at provides optimal prevention. The 5 × why tool can be used to find underlying causes. The participants should work in groups of 2-5 people, and it is a good idea to not to give the participants too much time, to ensure that they work intuitively.



2-8

Steps

1. Give each group a 5 × why template. Describe the problem at the top of the template.
2. Ask the first member of the group to reformulate the problem into a 'why?' question and write it on the first line. The participant then writes the answer to the question on the next line.
3. The sheet is passed on to the next person.
4. The next participant does the same: reformulates the answer into a 'why?' question and writes this on the sheet. The participant then writes the answer and passes the sheet on to the next participant.
5. Repeat the activity until the sheet has been filled and the participants have found five different causes.



15 min.

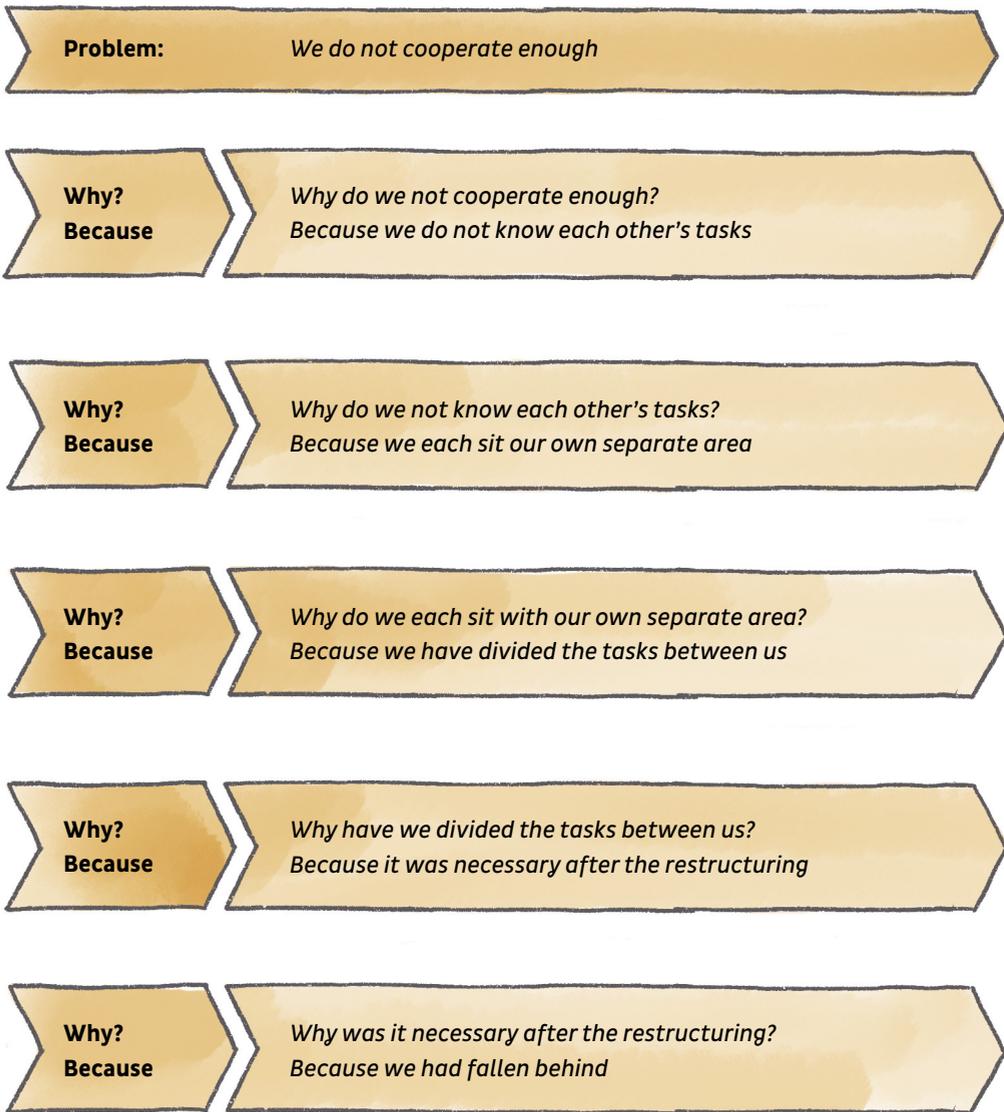


Complexity

The result of this activity can be included in the overall exploration of the problem in the first diamond. The results may also point towards the solution options that appear, but it is important to remain in the problem exploration phase while working with the tool. The result can provide a starting point for reframing the problem.

Tips

It is important that some of the participants have insight into the problem.



In case 2, the participants' 5 × why sheet looked like this, as they used the tool to find a root cause.

MAKE THE TREE GROW



Exploring
the problem

This tool helps you unfold the understanding of the OHS problem. It thus belongs in the first half of the first diamond. It is a creative tool that is based on the associations that the participants have when they consider the selected OHS problem and the input from the other participants.



2-16

Steps

1. The participants are divided into groups of 2-4 people.
2. The participants are each given a felt-tip pen to write with.
3. Make sure you have placed a sheet of paper – preferably A0 – on each table in advance. Alternatively, the group can stand at a whiteboard.
4. Ask each group to write the initial term on the middle of the paper or whiteboard.
5. You have chosen the term in advance, and it must be closely related to the OHS problem, for example 'heavy workload'.
6. Person A must then draw a line from 'heavy workload' and write the word that comes to his or her mind, for example 'telephones'.
7. Person B then builds on the word 'telephones' and the persons in the group take turns to proceed with this.



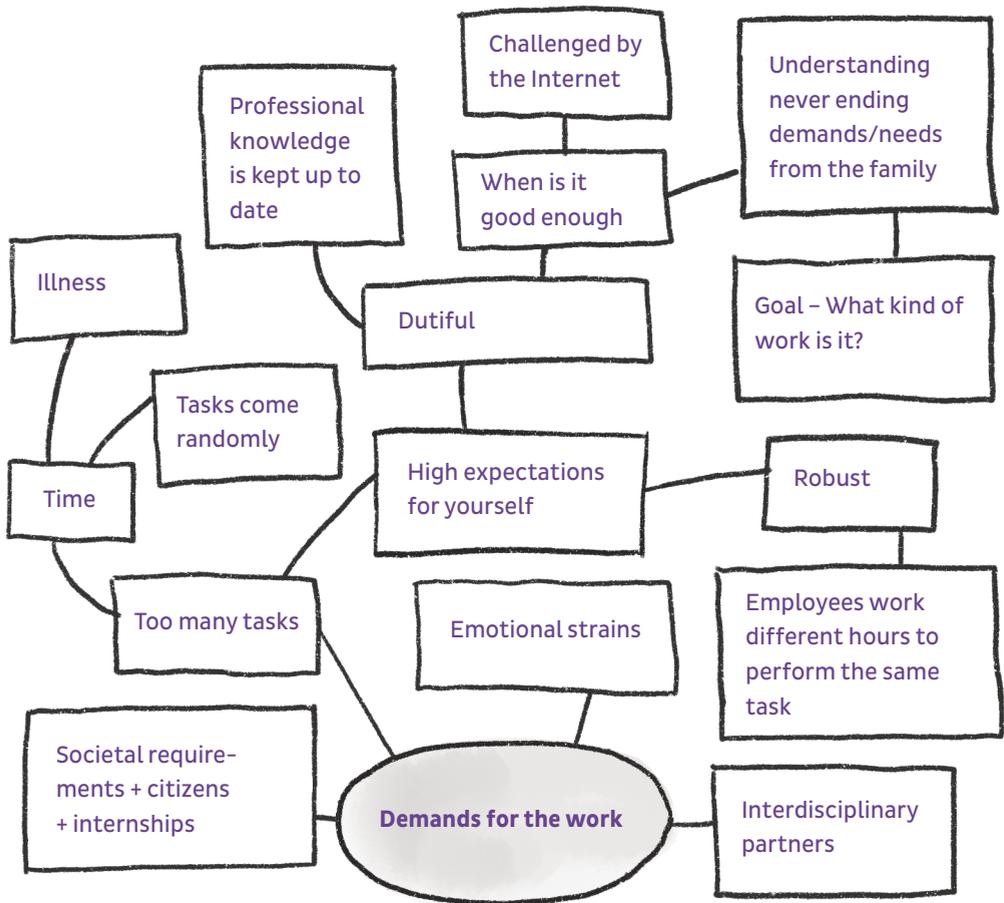
5-10 min.



Complexity

Tips

Let the completed sheet remain visible during the rest of the workshop. It can inspire the participants when they are to demarcate and focus their understanding of the OHS problem.



Here you see the 'tree' which the participants in case 2 drew based on the topic 'work requirements'. They wrote both associations for the original topic and for each other's input.

THE SOFT MODEL FOR PROBLEM EXPLORATION



Exploring
the problem

With the SOFT model, the participants can examine an OHS problem from a system perspective. In brief, the model indicates that if you place the OHS problem in the middle of the model, it will be formed and affected by the four system elements.



2-8

S (Space): the physical space and its layout and design
O (Organisation): organisational structure
F (Finance): financial matters
T (Technology): technological systems and facilities



15 min.

These four elements are interdependent. If you change one element, this will affect the other elements and may also require changes to them.

Steps

1. Place a SOFT template (preferably in A0 format) on a table or wall. You can also use a whiteboard directly.
2. Have post-its and felt-tip pens ready.
3. Ask the participants to write the problem in the middle of the model.
4. Start with one 'corner', for example Space, and ask the participants whether there is anything in this corner that contributes to or causes the problem. Ask the participants to place post-its in the corner in question.
5. When the participants have placed all their post-its, it is time to hear the individual participants explain their post-its. If there are many post-its, the participants may group them.
6. Then proceed to the next corner. Do not skip a corner because it might not appear relevant. You can always be surprised!



Complexity

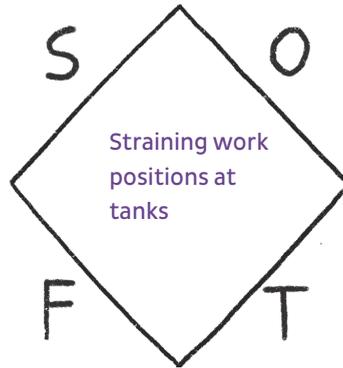
Once the participants have been through all four corners, the roots and causes of the problem will have been systematical-

ly and holistically examined. The result can form part of the further process of reframing the problem and arriving at a problem focus.

Tips

The completed system model can also form a basis for reflections on who in the organization have influence on each corner and thus may be relevant to involve in a subsequent workshop or who are to be contacted in the period between two workshops.

Cramped spatial conditions
The display is far away



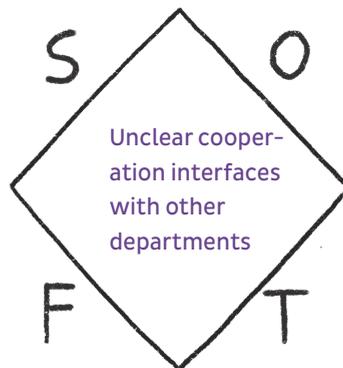
Frequently repeated work process
The same employees

Time waste at tanks
Expensive installation

Heavy measuring glasses
The base from weights is in the way
The display is too small

SOFT model from case 1. Ergonomic strain is placed in the middle, and the system elements that contribute to the strain are placed in each their corner.

We sit physically separated



We do not know their work processes
Unclear distribution of responsibilities

Spending much time communicating with other depts.

IT system does not support cooperation

SOFT model from case 2. Psychosocial strain is placed in the middle, and the factors that contribute to the strain are placed in each their corner.

WORK MODELS



Exploring
the problem

With work models, the participants can explore specific parts of the work covered by an OHS problem. Work models have the advantage that they are to be drawn and can thus be created jointly by the participants.

Work models

The guide contains a description of the following four work models:

Flow model

Sequence model

Physical model

Artefact model

The idea of the work models is that each of them focuses on a specific element of the work. The purpose of making these models is to use them to visualize the participants' knowledge about the relevant work tasks and to identify where the OHS problem is located in the element in question.

The participants can use a red pen to draw a 'bolt of lightning' on the figure at the point where there is a problem.

Therefore, the work models contribute to exploring an OHS problem, but they also contribute indirectly to pointing towards where possible solutions can be found.

Tips

Remember to save the models or take a picture of them. They may be useful later on.

Work models have the advantage that they are to be drawn and can thus be created jointly by the participants.

FLOW MODEL



Exploring
the problem

Work models

The flow model describes how an individual employee or group, for example a reception, works with other people and departments. This is consequently about forms of cooperation and physical or digital communication in the workplace.

The participants can only work with the flow model if representatives of the affected employees are present.



2-8

Steps

1. Place a large piece of paper (preferably A0) on a table or wall. You can also use a whiteboard directly.
2. Ask the participants to draw an oval in the middle. An employee or a function with several employees engaged in the same work is placed in the oval. The employee's most important work tasks are described in the oval.
3. Ask the participants to draw more ovals around the first one. Other employees with whom the employee in the middle oval collaborates and communicates are placed in these ovals. The direction of the communication flow is marked using arrows.
4. The artefacts that form part of the flow are illustrated by means of squares on the lines. These may be physical objects, emails, information on paper, and the like.
5. Direct oral communication is also marked with arrows, but without a square around them.
6. When the figure has been finished, the participants must identify where there is a problem that may contribute to the OHS problem in focus. This is marked with a red 'bolt of lightning'.



15 min.

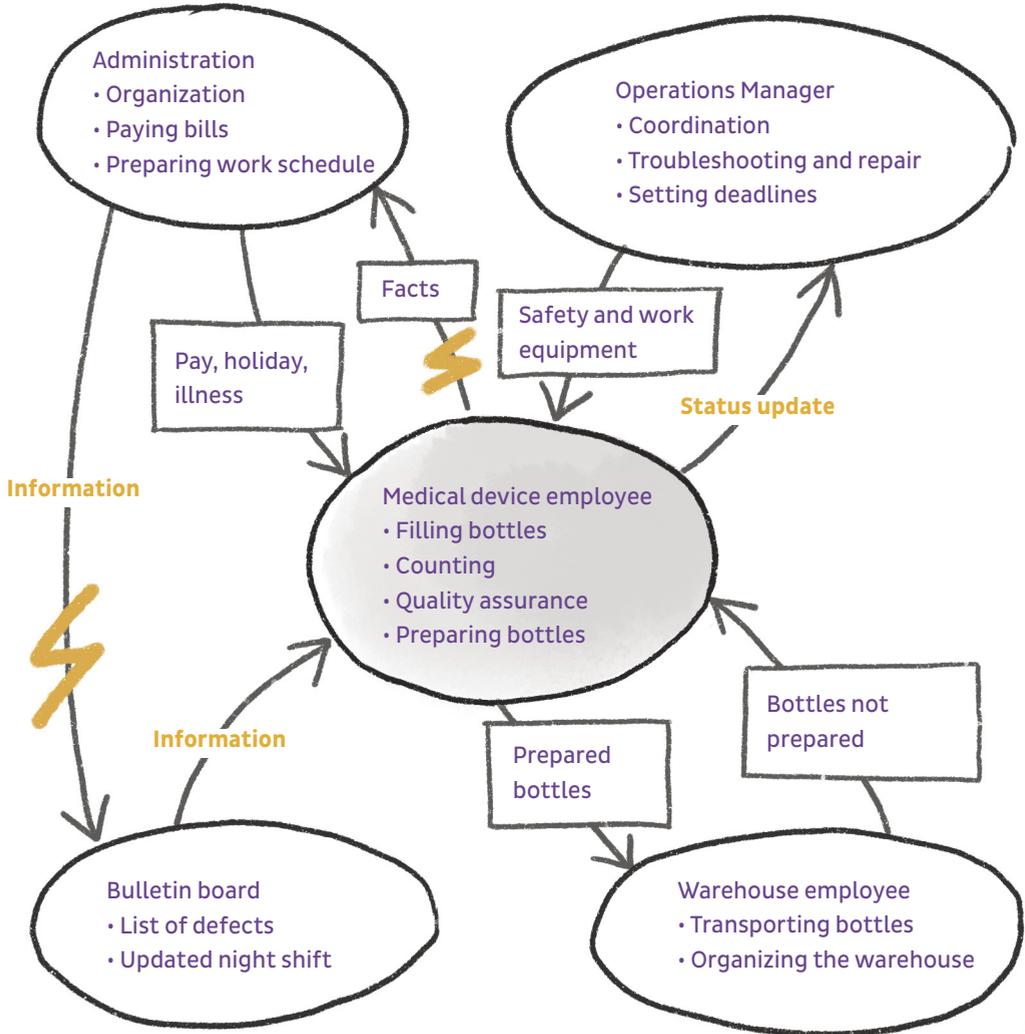


Complexity

The result of this exercise can be included in the overall exploration and demarcation of the OHS problem in the first diamond.

Tips

You can make a summary of this activity by listing all the red 'bolts of lightning' that the participants have entered in the diagram.



Here is an example of a description of the flow in the work task of filling eye drops in bottles.

SEQUENCE MODEL



Exploring
the problem

Work models

The sequence model describes the number of work sequences that form part of a workflow to arrive from input to output. The sequence model starts with a *trigger* – the element triggering the sequence. In addition, the model contains an *intention*: the goal for which the sequence has been initiated.



2-8

Steps

1. Place a large piece of paper (preferably A0) on a table or wall. You can also use a whiteboard directly.
2. Ask the participants to select a trigger and an intention with the sequence. That is what triggers the sequence and what the goal is.
3. Using post-its or hand drawing, the participants must now specify the individual steps of the sequence, from trigger to goal completion.
4. Ask the participants whether there are other important work sequences in relation to the OHS problem in focus. Ask the participants to perform these sequences correspondingly.
5. When the figure(s) has or have been completed, the participants must use a red felt-tip pen to draw a 'bolt of lightning' where there is a problem or something inexpedient that forms part of the OHS problem.



15 min.



Complexity

The result of this exercise can be included in the overall exploration and demarcation of the OHS problem in the first diamond.

Tips

You can make a summary of this tool by listing all the red 'bolts of lightning' that the participants have entered in the diagram.

Please note that an overall sequence model can be used to place an item 'in the middle' of the SOFT model to describe and demarcate the work you are looking at in connection with the OHS problem.

Trigger: Raw materials arrive



They are prepared in arrival area



Raw materials are put in oven or pot



Are cooled in pot or cold store room



Arrives in storage boxes



Are moved to storage basement



Are filled in boxes



Machine sealing



Are refrigerated



Are packed in box

**No fixed
procedure**

Here, an example is shown of the individual sequences in a task involving packing meal boxes.

PHYSICAL MODEL



Exploring
the problem

Work models

The physical model describes the spatial surroundings in which the work is located. The model is drawn as an 'architectural drawing' with an indication of the location of different spaces and the layout and design of selected spaces. In addition, the 'traffic pattern' in and between the selected spaces can be indicated in the drawing.



2-8

Steps

1. Place a large piece of paper (preferably A0) on a table or wall. You can also use a whiteboard directly.
2. Ask the participants to make a simple 'architectural drawing' of the selected space(s).
3. Then ask the participants to draw with dotted lines or colours how different employees move around in and between the spaces.
4. Ask the participants to place red 'bolts of lightning' at in-expedient layout and location of spaces and at in-expedient movement patterns.



15 min.

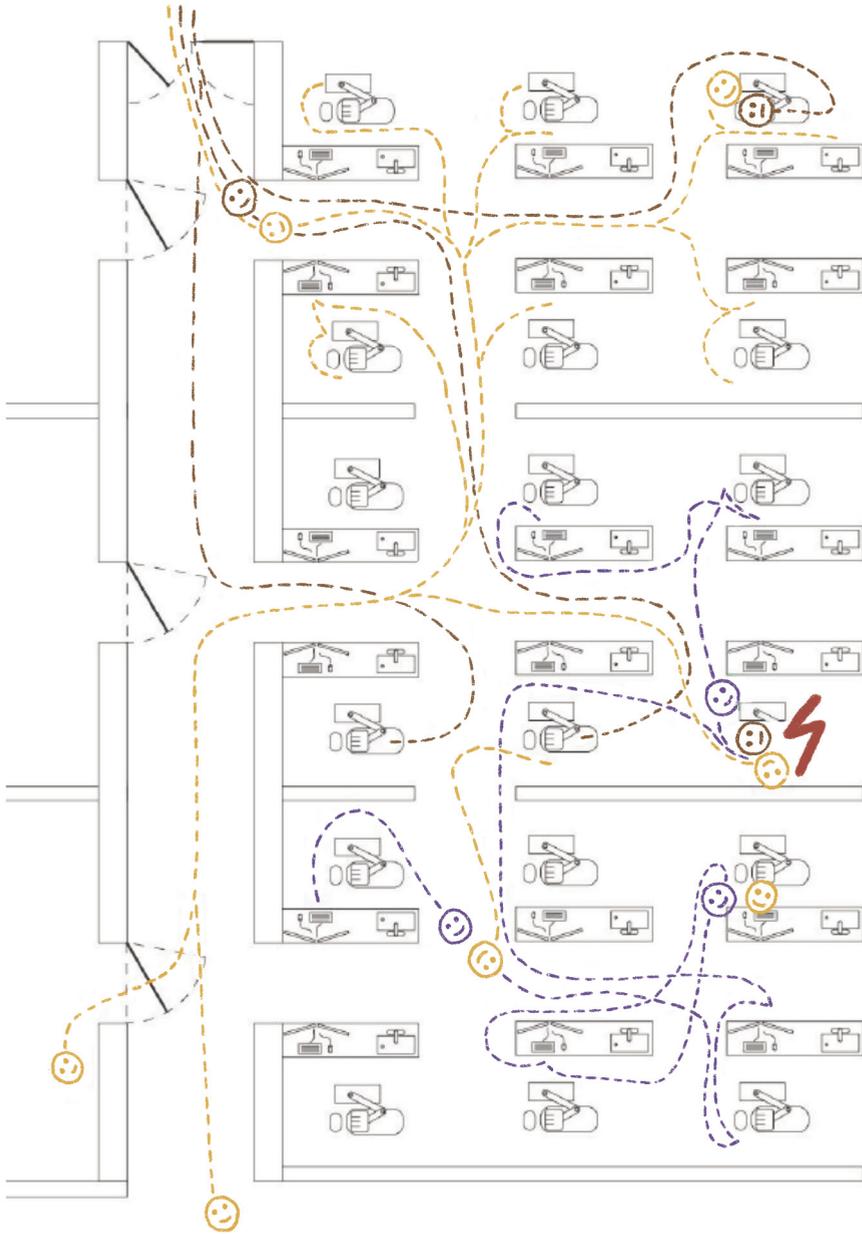


Complexity

The result of this exercise can be included in the overall exploration and demarcation of the OHS problem in the first diamond.

Tips

You can make a follow-up on this tool by listing all the red 'bolts of lightning' that the participants have entered in the diagram.



Here, an example is seen of how different employees move around in the laboratory.

ARTEFACT MODEL



Exploring
the problem

Work models

The artefact model is used to examine important objects that are used in the work. This may range right from a serving trolley to a screenshot on a computer. The selection of relevant artefacts may have been made by you or in collaboration with the participants in the workshop.



2-8

Steps

1. Make sure to have one or more good pictures of the artefact(s) that are to be examined.
2. The picture of the artefact is placed in the middle of the table or on a wall.
3. Ask the participants to take turns to put red 'bolts of lightning' and write comments on the picture. The comments should initially express inexpedient circumstances connected with the artefact.
4. Ask the individual participants to explain their comments.



15 min.

The result of this exercise can be included in the overall exploration and demarcation of the OHS problem in the first diamond.

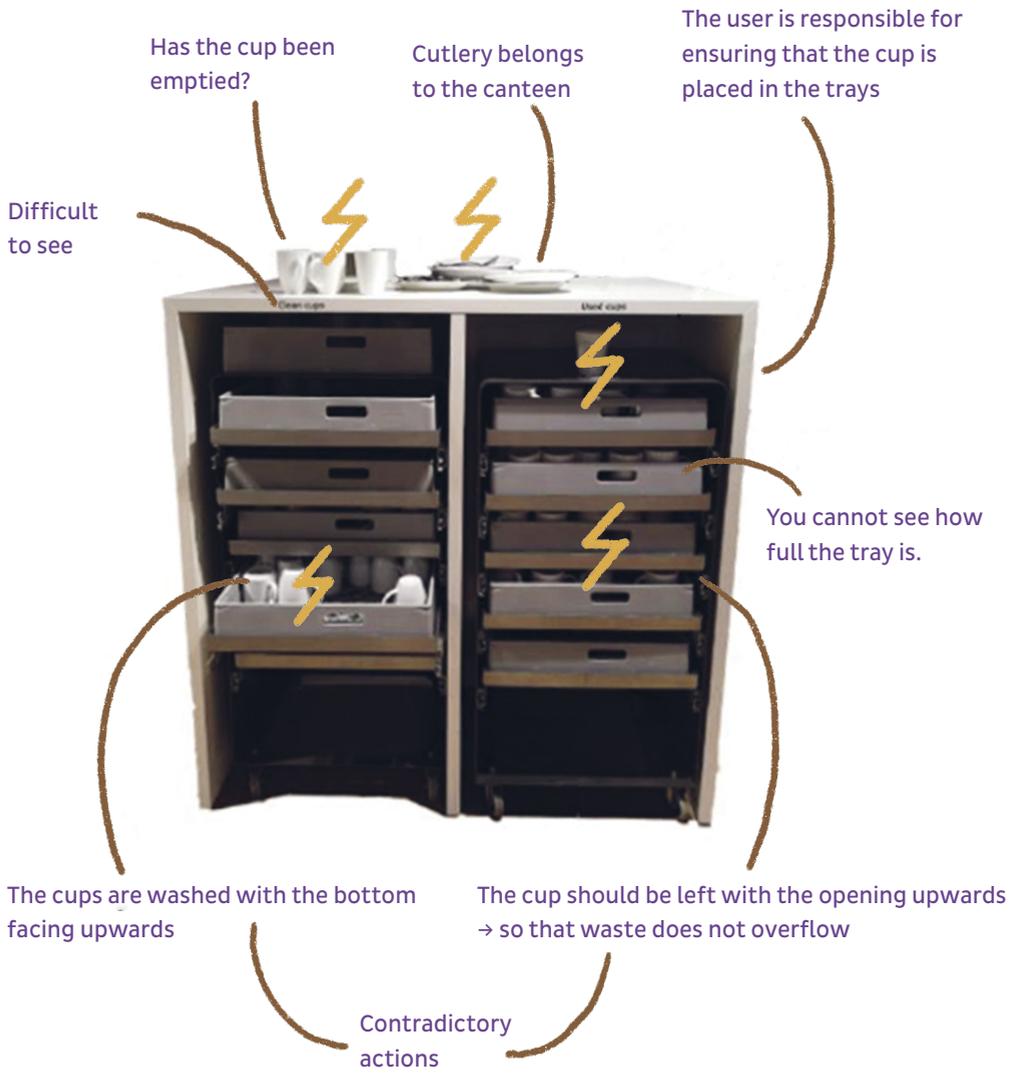


Complexity

Tips

You can make a summary of this activity by listing all the red 'bolts of lightning' that the participants have entered on the picture.

You can return to the artefact model when solution ideas are to be developed. Here you can ask the participants to come up with ideas for how to change the artefact so that it contributes to remedying the OHS problem. This can be done by the participants writing and drawing on a new picture of the artefact.



12 TOOLS 4

FINDING PROBLEM FOCUS

The tools you find here can help narrow down and clarify an understanding of the problem. It is an important step in a sprint that the participants acquire a joint understanding of the problem that they would like to work to solve. Far too often, we think that we are talking about the same thing, but we mean something different by the words we use without realizing this. Other times, the actual problem and its possible causes may not have been fully understood. It may therefore be worthwhile to spend time on this phase in the Double Diamond process. After all, it is important to solve the right problem.

It is important that, when concluding the first diamond, the participants have jointly formulated a final version of the problem that they want to solve. If the problem focus is well defined and understood by all the participants, you have the best basis for navigating diamond 2 – the solution space.

Some of the tools, such as 'voting', are a simple way of sorting and prioritizing, which can be used in all phases of the sprint.

- Reframing the problem
- The SOFT model for mapping of the work and demarcation of a system
- Voting
- Priority games
- Problem focus



REFRAMING THE PROBLEM



Demarcating
the problem

This tool can help explore the problem. This can either lead to a more *demarcated understanding* or to a completely *different way of understanding the problem*.



2-4

Steps

1. Place a reframing template (preferably in A0 format) on the table or wall.
2. Start by asking the participants to write the current problem understanding in field 1.
3. Then ask the participants to reflect on the top questions in field 2.
4. The participants are then to write a new problem understanding or demarcation at the top of field 3.
5. Then ask the participants to reflect on the bottom questions in field 2.
6. The participants are then to write a new problem understanding or demarcation at the bottom of field 3.



10 min.



Complexity

The result of this exercise can be included in the overall exploration and demarcation of the OHS problem in the first diamond.

Tips

If the participants have previously used the 5 × why tool, the results from this can also be included in the reframing template.

The follow-up may consist in the participants having to agree on the understanding of the problem with which they want to proceed. Here, the voting tool may be used.

Field 1

Field 2

Field 3

<p>The problem is <i>That we do not</i> _____</p> <p><i>cooperate enough</i> _____</p> <p>_____</p> <p>_____</p>	<ul style="list-style-type: none">• Why is that a problem?• To whom is that a problem?• Who else is involved?• Can the problem be understood in another by putting yourself in other persons' position? <p>(root cause)</p> <p>5 × why</p> <p>(multiple causes)</p> <ul style="list-style-type: none">• Is there something we have overlooked about the problem?• Is it more than a work problem?• Are there better goals to aim for?• Have we learned something new about the problem?	<p>The problem is <i>That we do not know</i> _____</p> <p><i>each other's work tasks</i> _____</p> <p><i>well enough</i> _____</p> <p>The problem is <i>That we do not use</i> _____</p> <p><i>enough time</i> _____</p> <p><i>to run in new colleagues</i> _____</p>
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THE SOFT MODEL FOR MAPPING OF THE WORK AND DEMARCATION OF A SYSTEM



Demarcating the problem

With the SOFT model, the participants can examine an OHS problem from a system perspective. In brief, the model indicates that if you place the work tasks in the middle of the model, it will be formed and affected by the four system elements.



2-8

S (Space): the physical space and its layout and design
O (Organisation): organisational structure
F (Finance): financial matters
T (Technology): technological systems and facilities



15 min.

These four elements are interdependent. If you change one element, this will affect the other elements and may also require changes to them.



Complexity

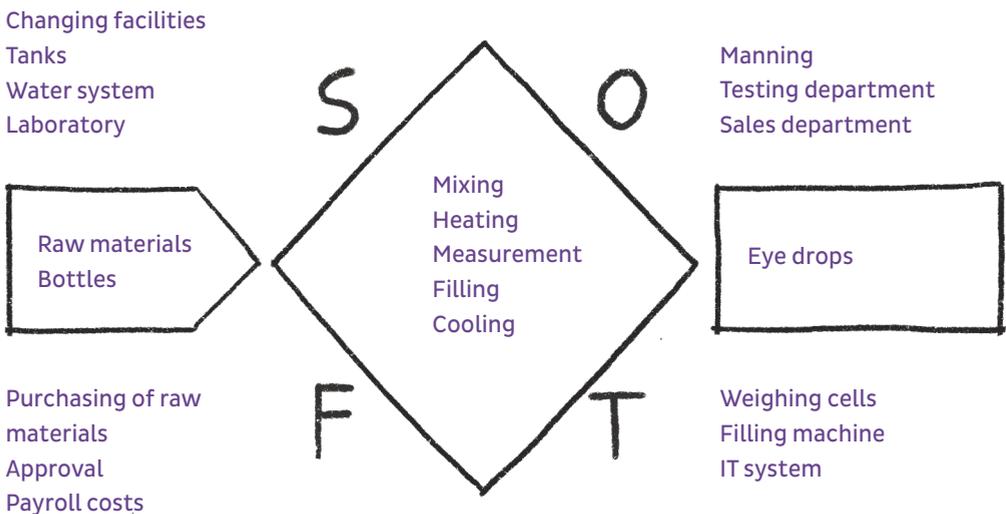
The SOFT model can be used to describe systematically the work connected with an OHS problem. Use of this tool requires that there are employees among the participants who perform or know the work well.

Steps

1. Place a SOFT template (preferably in A0 format) on a table or wall. You can also use a whiteboard directly.
2. Have post-its and felt-tip pens ready.
3. Ask the participants to start by demarcating the system by writing what it takes to perform the task (input) and what the product is (output).

4. Ask the participants to write the most important tasks between input and output in the middle of the model. If necessary, seek inspiration in the sequence model.
5. Start with one corner and ask the participants which elements from this corner characterize the work. Ask the participants to place post-its in the corner in question.
6. When the participants have placed their post-its, it is time to hear the individual participants explain their post-its. If there are many post-its, the participants may group them (see affinity diagram).
7. Then proceed to the next corner. Do not skip a corner because it might not appear relevant. You can always be surprised!

Once the participants have been through all four corners, everyone will have a *joint description* of the system and the work that the OHS problem concerns. It is a good basis for proceeding with an exploration of the problem.



The overall elements in a system that produces eye drops.

VOTING



Demarcating
the problem

This tool can be used in situations in which the participants have come up with several different suggestions and a choice has to be made. This may, for example, be several proposals for formulation of problem focus or several solution ideas. You should always consider whether a matter is to be put to the vote or whether it is better to try to reach an agreement through dialogue. For the latter, the priority game can be used.



2-16

Steps

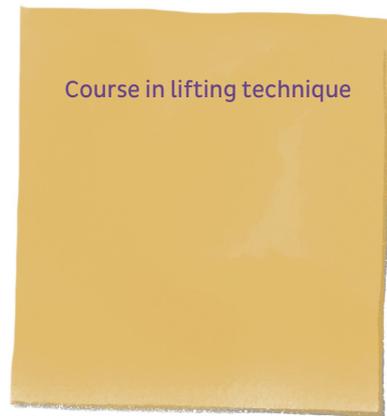
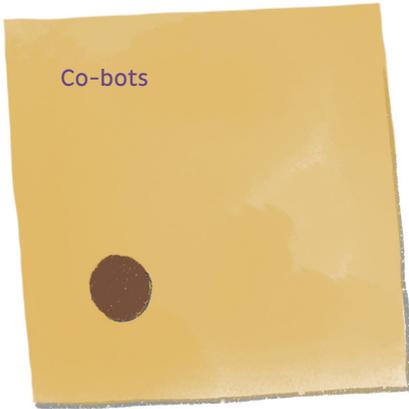
1. Hang the various proposals on a wall, for example using large post-its. Alternatively, the proposals can be written on a whiteboard. Or you can use post-its or sheets made earlier on, if relevant.
2. Put the participants together two and two – or do it individually – and ask them to evaluate the proposals based on a specific criteria. This may, for example, be ‘which problem is most important to solve first’ or ‘which solution is most realistic to implement’.
3. The groups with two participants or the individual participant vote(s) by putting small round stickers on the proposal in question.
4. Repeat steps 2 and 3 with a different criteria. This may, for example, be ‘which work task provides the heaviest workload’ or ‘which solution is best for preventing future problems’. Voting must now be done using another colour of stickers.
5. The proposal which has received the most votes overall ‘wins’.



5 min.



Complexity



In the laboratory, the solution proposal “move the tanks out of the laboratory” got the most votes on all three parameters and was therefore assessed to be the best solution overall.

-  Prevention potential
-  Realism
-  Impact

PRIORITY GAMES



Demarcating the problem

This game can be used to ensure that the participants conduct a dialogue about what they consider most important. It can be used in the first diamond to discuss which problem or parts of a problem is/are to be given top priority. It can also be used in the second diamond to prioritize solution ideas.



-

The game is based on a 'target'. A prioritization is expressed by the post-its placed in the centre or close to the centre being the most important, while those placed in the periphery are less important.



-

This game can be seen as an alternative to voting. Here, instead of voting, the participants use dialogue to reach an agreement on how to prioritize a given subject.

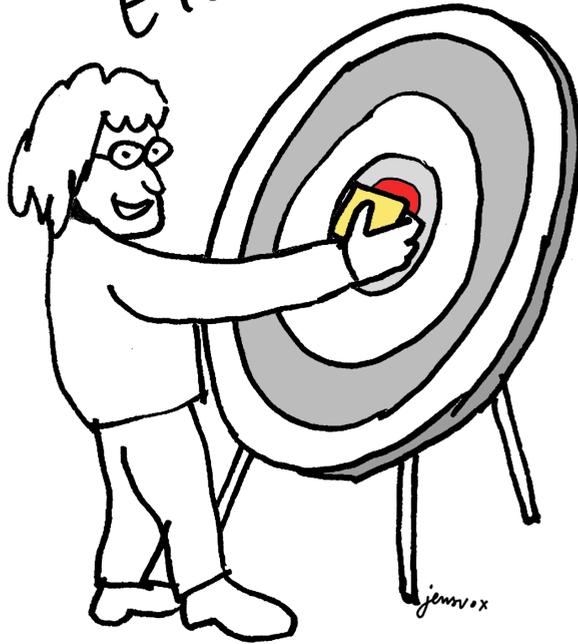


Complexity

Steps

1. Print out the template with the 'target' on a large piece of paper or draw the target on a whiteboard.
2. Base the activity on post-it notes that the participants have already prepared about, for example, the problem or start by asking the participants to fill in post-it notes with different problems or solution ideas.
3. The game is played as a round of the participants. The first participant takes a post-it and places it somewhere on the target and explains why it is placed there. The next participant then places a post-it and explains why. When all post-its have been placed on the target, the round continues, where participants can then move a post-it and explain why. The dialogue continues until agreement has been reached on the location of the various post-it notes.

BULLS
EYE!



PROBLEM FOCUS



Demarcating
the problem

This template can be used at the end of the first diamond to formulate the final problem focus. This means that the participants have been through other tools such as 5 × why and reframing the problem. It is now time to agree on how to formulate the problem and thereby form the basis for the development of solution ideas in the second diamond.



2-4

Steps

1. Place the problem focus template (preferably in A0 format) on the table or wall. Alternatively, use a whiteboard.
2. Ask the participants individually or in groups of two to look through the previously completed problem activities.
3. Ask for proposals for the final formulation of the problem.
4. Inquire about whether there is consensus on a wording or whether voting is required to choose the final wording.
5. When the top field (the problem is that _____) has been filled in, the participants must proceed and fill in the next three fields.
6. Once the template has been filled in, the participants are ready to enter the second diamond and start developing many ideas for how to solve the given problem.



5 min.



Complexity

Problem focus

The problem is that

We do not cooperate enough

This problem may cause the following inexpedient conditions:

1. *Bottlenecks in the case handling*
2. *Unequal distribution of tasks at peak workloads*
3. *Absence due to illness among overworked staff*

This problem may have the following causes:

1. *After the relocation, we are located further from Dept. C*
2. *Many new colleagues without enough time for run-in*
3. *IT systems are different and require training*

Our goal in solving the problem is that:

1. *We can relieve each other*
2. *We can use each other as sounding boards*
3. *We will have time for reflection and development*

13 TOOLS 5

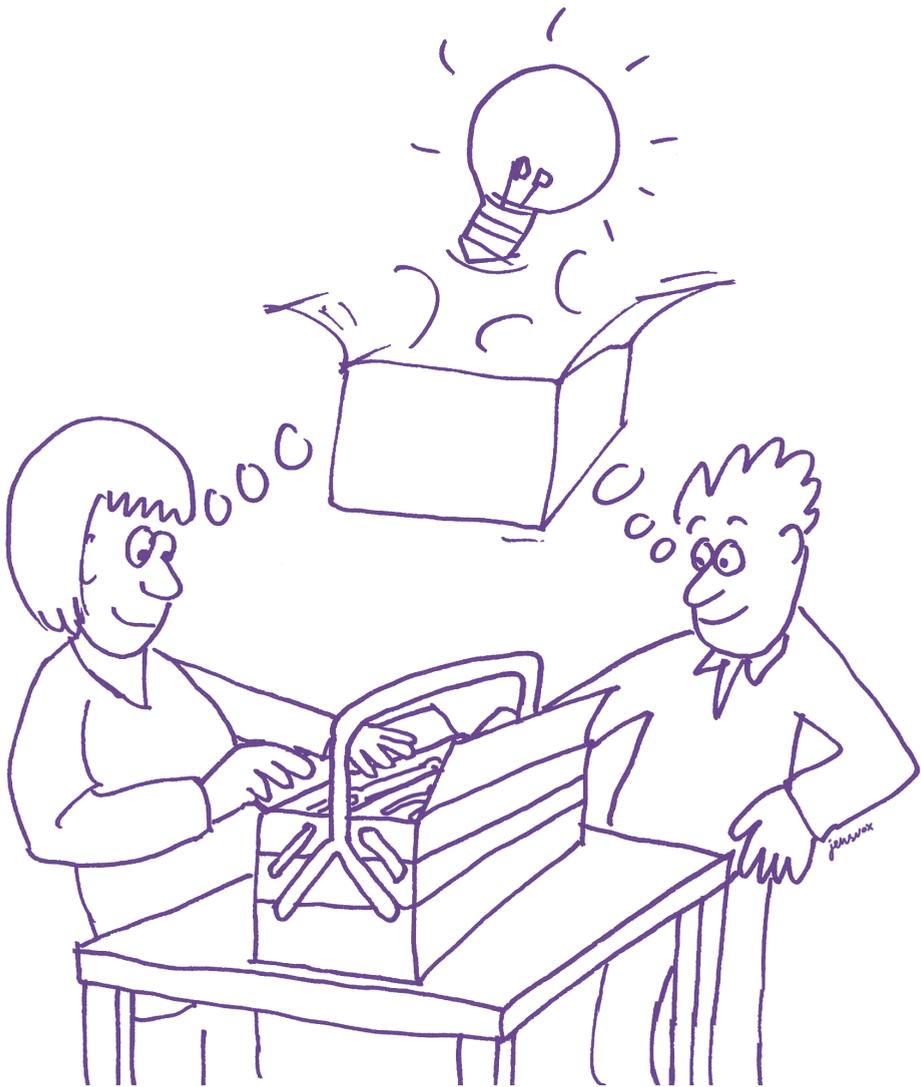
FINDING SOLUTION IDEAS

The tools here are designed to boost creativity. It is a good idea to start the phase by letting the participants uncritically come up with many solutions and then only prioritize them and test them later on. There should preferably be a playful atmosphere in which dreaming big is allowed.

- Brainstorming
- Negative brainstorming
- Round of ideas
- The SOFT model for developing solution ideas

These are good tools for getting the participants to think outside the box.

OHS professional



BRAINSTORMING



Finding solutions



2-16



5-10 min.



Complexity

Brainstorming is a method for creating many ideas quickly, and it is therefore well suited at the start of the second diamond for finding solutions ideas for an OHS problem. The method is based on the assumption that quantity – many ideas – can lead to quality – good solutions. It is important that the participants in a brainstorm are informed about the basic rules applicable to the method:

1. All ideas are accepted and written down – either by the facilitator or by the participants themselves on post-it notes.
2. Criticism of other participants' ideas is forbidden. Crazy ideas are welcome in a brainstorm session.
3. The participants build on each other's ideas. It is about creating a secure atmosphere where the reaction to the ideas of others generates even better ideas.
4. In the session, neither the facilitator nor the participants should think about starting to put the ideas into order or prioritize them. This will only be done once the session has been concluded.

Steps

1. Together with the participants, the facilitator will ensure that *a question is defined* for the brainstorm. This will often be a 'how' question. For example, "How can we solve the problem of heavy workload in our department?". Several specific sub-questions may be included in the work.
2. The facilitator determines how much time is to be spent on brainstorming and how the session is to proceed. The participants can write ideas on post-it notes themselves or the facilitator can write down all ideas on a whiteboard.
3. When the brainstorming has been concluded, the participants can work with grouping ideas that resemble each other.

4. If necessary, the participants can then vote on the ideas with which they wish to proceed. See voting. A new brainstorming session may be held for the selected ideas.

Tips

If there are several introverts among the participants, it may be a good idea to start the session with the participants writing down a number of ideas by themselves – either on post-it notes or simply as a list. A round is then taken in which the individual participants present their ideas – for example by putting their post-its up on the board.

If there is a need to be thorough in the grouping of post-its, the affinity diagram can be used.



NEGATIVE BRAINSTORMING



Finding solutions

Negative brainstorming is a way to get the participants to think outside the box and come up with other solutions than those they usually resort to.



2-16

Steps

1. The participants are divided into groups of two.
2. Distribute the template, preferably in A3 format.
3. The facilitator asks the groups to write the problem formulation that the participants have agreed on or that the facilitator has decided.
4. The participants must reformulate the problem formulation into something negative in field 2. For example, the problem becomes “We are too disorderly?” becomes “How can we create even more disorder?”
5. The groups brainstorm on ideas for how we can create even more disorder. List the ideas in field 3.
6. The groups must now take each of the negative ideas and turn them into a positive version of the same idea. List the ideas in field 4.
7. Do a round to the groups where they can present their process and results.



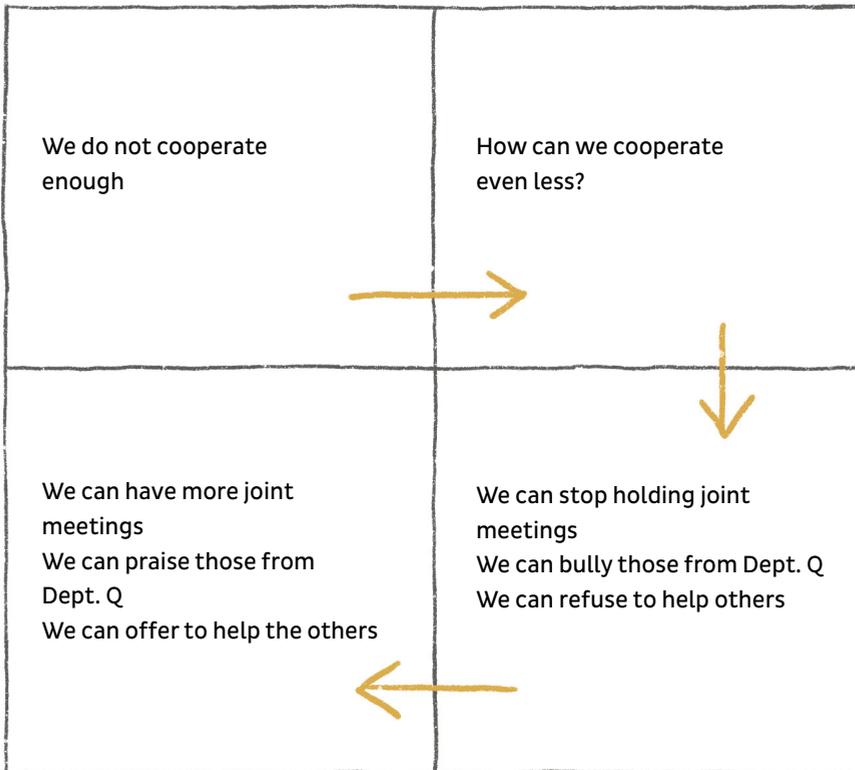
30 min.



Complexity

Tips

You must be aware that some of the solutions can be a little silly, and you must therefore ensure to add a subsequent activity in which the proposals are reduced. And the participants should be informed about this so that they do not hold back. In this activity, they must be free to let their ideas flourish.



Here is an example of a negative brainstorm from case 2

ROUND OF IDEAS



Finding solutions

This tool is a brainstorm in which the participants together develop ideas for solving an OHS problem or further develop an already conceived idea. This is done in a process in which the participants build on each other's ideas. The starting point is a first idea for a solution, which will then be developed further.



2-8

Steps

1. Give the participants a template each, preferably printed in A3.
2. The facilitator tells the participants which problem needs to be solved.
3. Each participant brainstorms and writes one or more solution ideas on the template (1 min.)
4. When a minute has passed, the participants pass on their sheet to the person next to them on the right.
5. The recipient brainstorms further with ideas for solutions and adds them to the sheet.
6. Repeat steps 3-5 until the participants receive their own sheet back.
7. Depending on the number of participants, another round can be done.
8. Now ask the individual participants to present their sheet with ideas. This may be in the form of the participant summarizing the ideas into a 'solution concept'.



10 min.



Complexity

Tips

The result of this activity can be continued with the [solution concepts tool](#).

If you have more than six participants, they should be divided into groups.

The tool can also be used in the first diamond to develop a deeper understanding of the problem.



In case 2, the participants further developed an idea of becoming better at performing tasks together.

THE SOFT MODEL FOR DEVELOPING SOLUTION IDEAS



Finding solutions

With the SOFT model, the participants can develop solution ideas from a system perspective. In brief, the model indicates that if you place the OHS problem in the middle of the model, you can start a brainstorm on ideas for solutions in each of the elements:



2-8

S (Space): the physical space and its layout and design
O (Organisation): organisational structure
F (Finance): financial matters
T (Technology): technological systems and facilities



15 min.

These four elements are interdependent. If you change one element, this will affect the other elements and may also require changes to them. This makes it possible to assess solutions from a holistic perspective and evaluate how different solution elements interact.



Complexity

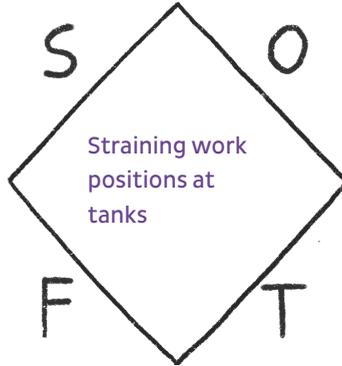
Steps

1. Place a SOFT template (preferably in A0 format) on a table or wall. You can also use a whiteboard directly.
2. Have post-its and felt-tip pens ready.
3. Ask the participants to write the selected OHS problem in the middle of the model.
4. Start with one corner and ask the participants whether there is anything in this corner that can contribute to a solution of the problem. Ask the participants to place post-its in the corner in question. If there are many post-its, the participants may group them in an affinity diagram.
5. When the participants have placed their post-its, it is time to hear the individual participants explain their post-its.
6. Then proceed to the next corner. Do not skip a corner be-

cause it might not appear relevant. You can always be surprised!

7. When the participants have been through all four corners, there will typically be ideas for different solution elements in each corner. The next step may be to ask the participants to consider the best or most realistic solution from each corner and put them together into an overall solution concept.

Tanks in attic.
Relocating tanks. Chang-
ing display location



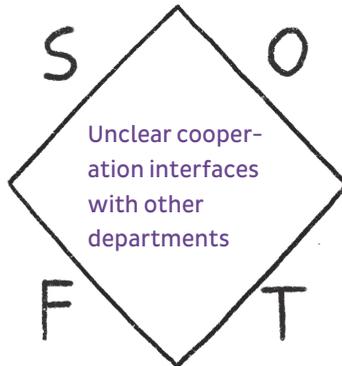
Distributing the work
on more employees

Investment in relocating
tanks. New drain

Smaller measuring glass
Larger display

The SOFT model has been used to find solution ideas for an ergonomic problem, as in case 1. The problem with strain is placed in the middle and the participants have proposed solutions of a physical, organizational, financial, and technological nature and written them in each corner.

Having a joint location



Visiting each other's depart-
ment meetings
Clarifying distribution of re-
sponsibilities

Team training
Rolling board

Using teams for communication
Board with task summary

Here, the SOFT model has been used to find solution ideas for a psychosocial problem, as in case 2. The problem with strain is placed in the middle and the participants have found solutions of a physical, organizational, financial, and technological nature.

14 TOOLS 6

TESTING AND SELECTING SOLUTION PROPOSALS

These tools help you test one or more solution ideas. It is a bit like building a model of the finished house before building the actual house. The tools can help the participants spot weaknesses and strengths in the solution they have come up with before the company actually implements it.

- Rapid prototypes
- Scenario-based simulation with Duplo figures
- Scenario-based simulation onsite
- Storyboards
- Solution concepts
- Cobweb diagram

The prototyping tools are straightforward to use, and, in our case, it worked well for those employees who were not so used to analysis methods.

OHS professional

RAPID PROTOTYPES



Choose solutions

Rapid prototypes can be used to test and communicate solution ideas. If this concerns more comprehensive solutions, it will often only be selected parts of a solution that can be tested in a prototype.



Prototypes are an unfinished and physical version of an idea for new or changed workplace layout and design, workflow, distribution of tasks, technical aids, user interfaces, and the like.



Prototypes can be produced in many different ways and using different materials:

- Diagrams on a piece of paper or a whiteboard, for example a physical model, sequence model, or a flow model.
- Spatial models built in LEGO or cardboard.
- Draw a new layout on an architectural drawing of the workplace layout.
- Draw a new design by drawing on a photo of a machine, equipment, or technical aid.
- Build a mock-up either in a scale ratio or in full scale.
- Use brightly coloured adhesive tape on the floor to indicate new rooms, spaces, or partitions.
- Come up with more examples yourself ...



Complexity

Some prototypes can be supplemented by scenario-based simulation.

Steps

1. Start by finding out whether a solution idea or parts thereof can be expressed in a prototype.
2. Find out how the prototype can be used to test and assess a solution idea. Can the participants play a scenario? Can the participants move about physically in the prototype, as is, for

example, the case in a full-scale mock-up or using adhesive tape on the floor. If the prototype consists of work models drawn on a piece of paper, the participants can assess solution ideas by comparing models of the current work situation with models of a possible future work situation, for example a changed workflow or a change in the distribution of tasks between the employees.

3. Make the prototype.
4. Conduct a test or an assessment of one or more solution ideas – using a scenario, physical movement in mock-up, or a comparison of models.
5. Hold a debriefing for each completed test: What worked well? What worked less well? What needs to be redone?
6. If the prototype can be changed on site, you can do so and then conduct a new test.
7. The results can be used to choose from several solution ideas and as input for creating one or more solution concepts.

SCENARIO-BASED SIMULATION



Choose solutions



4-6

This tool can be used to test and examine selected solution ideas. Simulation means that, using a simple mock-up or other prototype, the participants simulate how tasks, workflow, and cooperation will play out if the chosen solution idea were to be implemented. This offers an opportunity to assess how this will function and to arrive at some recognitions which mean that you may make changes to the solution.

The tool is most suitable for testing solutions for new or changed workflows and/or a new layout or design of premises.



15-30 min.

Materials

- Duplo figures or the like
- Large sheets of paper
- Felt-tip pens
- Post-its



Complexity

Steps

1. Start by asking the participants to describe a scenario that is central to a test of the solution idea. A scenario has a start, then a series of actions, and finally a conclusion. A scenario can be based on sequence models if the participants have worked with such models earlier in the process.
2. Distribute Duplo figures to the participants. To the greatest possible extent, you should start by playing your own role.
3. Let the participants select one of the solution ideas and then ask them to start playing through a scenario where this solution has been introduced.
4. Once the scenario has been played through, the participants must evaluate, for example by pointing out good and bad aspects of the chosen solution.

5. New ideas can arise by playing through a scenario, and the facilitator should therefore be open to testing such ideas.
6. Finally, let the participants reflect on all the solutions that were tested and try finding the best solution. The best solution is often found by the participants looking across the different solution ideas and possibly finding the best elements from each solution.

Tips

It may sometimes be useful first to start by playing through a scenario based on the current set-up. This can typically contribute to a better understanding of the problem.

Example

In an outpatient clinic in a hospital, a workplace assessment had shown great dissatisfaction with workflows, cooperation, and coordination between doctors, nurses, and secretaries. The problem was defined as “lack of cooperation between our different competences results in a poor working environment for everyone and also affects patient experience”. The outpatient



Simulation means that, using a simple mock-up or other prototype, the participants simulate how tasks, workflow, and cooperation will play out if the chosen solution idea were to be implemented.

clinic was facing a renovation, which offered opportunities to change the physical layout of the premises. In a design sprint, work was done to develop ideas for solutions. Most of the proposals revolved around a changed layout of the outpatient clinic and changed workflows that would affect the collaborative interfaces between the different competences. Using a large drawing of the outpatient clinic and Duplo figures, it was possible to test different solution ideas. The scenario that was played through was described as follows:

Patient arrives – (a number of work tasks distributed on different healthcare professionals) – patient leaves the outpatient clinic

This scenario could then be played through with different layouts of the outpatient clinic, with a change in the distribution of tasks between the different staff groups, and with new technological options. To the greatest possible extent, the Duplo figures were moved by a person from the staff group in question. A doctor moved a doctor Duplo, a nurse a nurse Duplo, etc. The design sprint facilitator moved a patient Duplo. For each solution idea, the scenario could be played through rapidly with an assessment of the strengths and weaknesses of the solution.

SCENARIO-BASED SIMULATION ON SITE



Choose solutions



4-6



15-30 min.



Complexity

If possible, solutions can be simulated on site. That is in the right surroundings. This type of simulation is especially suitable when possible solutions concern a changed physical layout of the workplace. In this case, a mock-up is made using adhesive tape on the floor and perhaps cardboard boxes and the like to illustrate furniture and equipment. Adhesive tape on the floor can mark a new partition or a new location of an object. Cardboard boxes can also represent objects. The advantage of onsite simulation is that the participants get a highly realistic impression of the possible solutions, including whether the spatial conditions are in order.

Materials

Heavy adhesive tape

Cardboard boxes

Other materials, depending on the specific circumstances and possibilities

Steps

1. If some particularly interesting solutions have emerged during the development of solution ideas, the facilitator may suggest planning an onsite simulation.
2. Tell participants how to work with adhesive tape and other simple things to create a mock-up of a solution that focuses on a changed physical layout. Agree who will do what for the next workshop. Also agree which scenarios it will be relevant to play through in an onsite mock-up.
3. The participants meet in the mock-up on site. The facilitator instructs the participants in the scenarios which are to be played through. The participants should play their own roles in as far as possible.

4. Once the scenario has been played through, the participants must evaluate the process, for example by pointing out good and bad aspects of the chosen solution.
5. New ideas can arise by playing through a scenario, and the facilitator should therefore be open to testing such ideas.
6. Finally, let the participants reflect on all the solutions that were tested and try finding the best solution. The best solution is often found by the participants looking across the different solution ideas and possibly finding the best elements from each solution.

Tips

It may sometimes be useful first to start by playing through a scenario based on the current set-up. This can typically contribute to a better understanding of the problem.



Here, the work is simulated in a newly designed production hall. Yellow-black adhesive tape represents new partitions. Red-and-white adhesive tape represents machines.

STORYBOARDS



Choose solutions

Storyboards are small cartoons illustrating how a solution will work in practice. Storyboards are particularly suitable for showing ideas to others, such as decision-makers or other participants in a design sprint, and their purpose is either to convince others or to request feedback on a solution idea.



4-6

Not all people want to or are able to make drawings. However, our experience is that there is usually at least one person in a group who is willing to have a go, and who also thinks that it is fun. It is also important to tell the participants that it does not have to be beautiful drawings. Drawings with stick figures are often sufficient.



15-30 min.

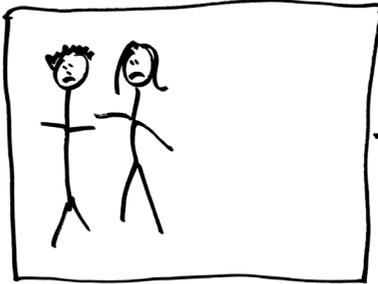
Steps

1. Choose particularly promising solution ideas or concepts to be illustrated in a storyboard.
2. Ask the participants to identify particularly important work tasks at which the solution idea is aimed. Then ask them to describe a sequence of work tasks that the solution supports. If relevant, use a sequence model for this.
3. Then ask the participants to draw this sequence of work tasks. Thought or speech bubbles may be used on the drawing or short subtitles. During this process, the participants may receive elaborations or clarifications of some aspects of the solution idea.
4. The finished storyboard is a form of testing of the solution. Other participants can now provide feedback on the solution. Storyboards can also be presented to relevant persons who have not participated in the design sprint. This may be a project owner or other parties with decision-making competence who need to be convinced that this is a good solution.

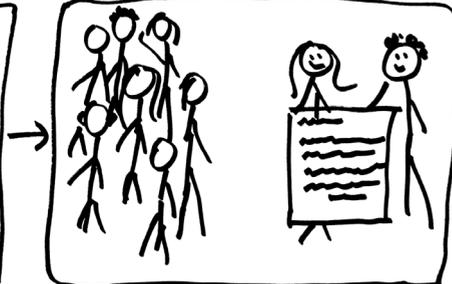


Complexity

DEMANDS FOR THE WORK :



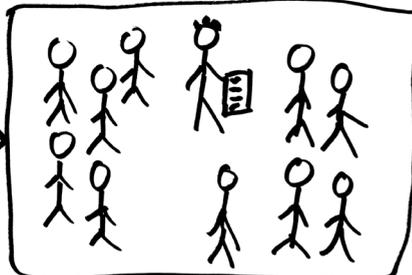
MANAGER AND
OHS REPRESENTATIVE MEET
TO FORM AN OVERVIEW
FOR THE COMING MONTHS



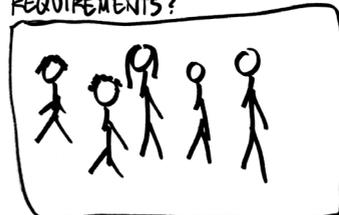
BRIEFING AND PLAN ARE
PRESENTED AT STAFF MEETING,
THERE IS LIGHT AT THE END OF
THE TUNNEL, IT IS A LIMITED
PERIOD OF TIME



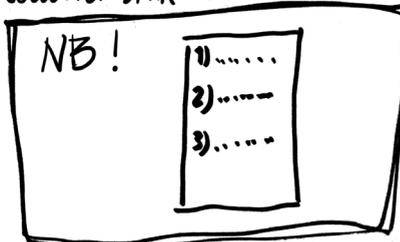
THE WORK ENVIRONMENTAL COMMITTEE
GETS TOGETHER, HOW IS THE SITUATION
DEALT WITH BASED ON THE TOTAL
DEPARTMENT'S NEEDS AND
REQUIREMENTS?



TEAM/STAFF MEETING WHERE THE LEADER
PROVIDES INFORMATION BASED ON
COLLECTED DATA



FOLLOW-UP AFTER PEAK LOAD PERIOD
-DID THE PLAN WORK?



WRITTEN PLAN IS PRESENTED AND
DISPLAYED ON BULLETIN BOARD

In case 2, the participants created this storyboard, which outlines a plan for how to handle workload during a peak load period.

SOLUTION CONCEPTS



Choose solutions



This tool helps the participants acquire a clear and joint understanding of a solution by describing it as a concept. A concept is a summary of ideas underlying the design of a solution. The concept describes a plan and structure for how the solution is to work. A solution concept does not contain (technical) details, but is based on a well-considered composition of ideas. If a solution concept is to be put into practice, it will always require further clarification of many details.



Steps

1. Let the participants work in groups of two or individually. Distribute the template, preferably in A3 format.
2. Start with solution ideas that have emerged earlier in the workshop, for example from use of the Round of ideas tool. Have these available on plates or post-its so that the participants can see them.
3. Distribute different solution ideas to the groups or let the groups decide for themselves which solution ideas they want to start with. Each group can work with one or more solution ideas
4. Invite the groups to discuss the idea(s) for a limited period of time.
5. Explain to the groups that they must now assemble the ideas into a solution concept using the template.
6. Ask the groups to fill in the fields in the template.
7. Each group presents their concept. See whether some concepts can be combined into a new solution.



Complexity

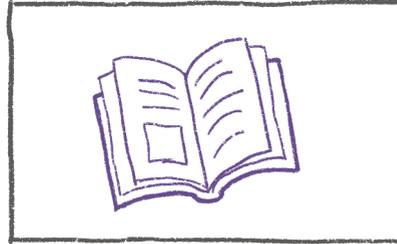
Name of the solution

Find a funny name for the solution

Systematic instruction

Draw an icon

Draw an icon that characterizes the solution



The solution

What elements does the solution consist of?

How does the solution contribute to solving the OHS problem?

- *Permanent instructor team*
- *Follow-up with checklist*

The figure shows how a group of participants in case 2 described a proposal originally simply called 'instruction'. They discussed what the idea actually entailed. In this way, they could present a clear idea to the other participants.

SPIDER WEB DIAGRAM



Choose solutions

The spider web diagram helps you assess which concept best meets the group's criteria for a good solution. The participants formulate why one concept is better than another using some simple tools. The diagram is an easily legible way of qualifying the choice of concept.



3-16

Steps

1. Start by getting the participants to agree on which criteria are to be used to assess the different solution concepts. Examples of criteria are 'solves the OHS problem optimally', 'the most realistic solution or 'the greatest preventive effect'. Other examples can be found in [voting](#). You may start this step by asking the participants what they think characterizes a good solution. They are then already on the way to finding some criteria.
2. Divide the participants into groups of two.
3. Give each group a spider web template, preferably in A3 format.
4. Ask each group to assess each of the concepts arrived at in relation to the criteria chosen by the participants.
5. Each concept is assessed on a scale from 1 to 5 for how well it meets each criterion. This is drawn in a spider web diagram. Preferably use different colours for each concept.
6. The groups count how many points each concept has scored both within each criteria and on aggregate. This shows which concept best meets the given criteria.
7. Each group presents its results. If there is great disagreement between the groups, you may suggest using the [voting](#) tool.



15-20 min.

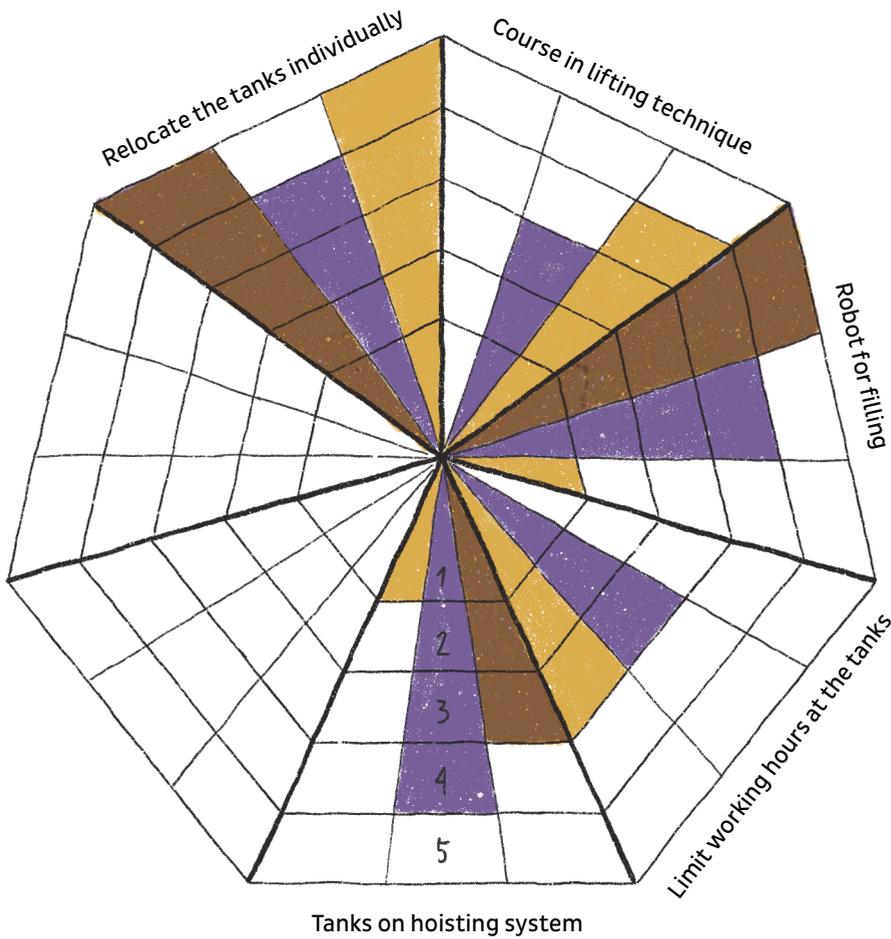


Complexity

Tips

Please note that it is not always expedient to choose between concepts. Sometimes, an even better solution can be arrived at by combining elements from different solution concepts. You

may conclude this activity by asking the participants if they see opportunities for making such a combination.



The figure shows how the participants in case 1 assessed five solutions on the basis of three criteria. The proposal to relocate the tanks scored best overall.

- Prevention potential
- Impact
- Realism

15 TOOLS 7 FOLLOW-UP

This phase can be part of the last workshop in the design sprint or come afterwards. This is the phase in which tangible plans must be made for how to implement the solution arrived at by the participants. This will most often involve selecting some persons responsible for each sub-task and agreeing on some deadlines. A plan of action may form part of the company's follow-up WPA work.

- The IGLO model
- Business case

I found it difficult to sum things up, close the diamond, and make priorities. It was easy enough to get started and prepare proposals, but to prioritize them, narrow down, and ensure that they were followed up, I had to prepare action plans.

OHS professional

THE IGLO MODEL

The IGLO model can be used to prepare how a solution concept is to be implemented in practical terms. The idea is to review what the different levels of the organization are to contribute to realizing the concept. Once the participants have ascertained what is required at each level, they can write down specific tasks and persons responsible on post-its and place them on the template.

IGLO stands for:

Individual – the individual employee

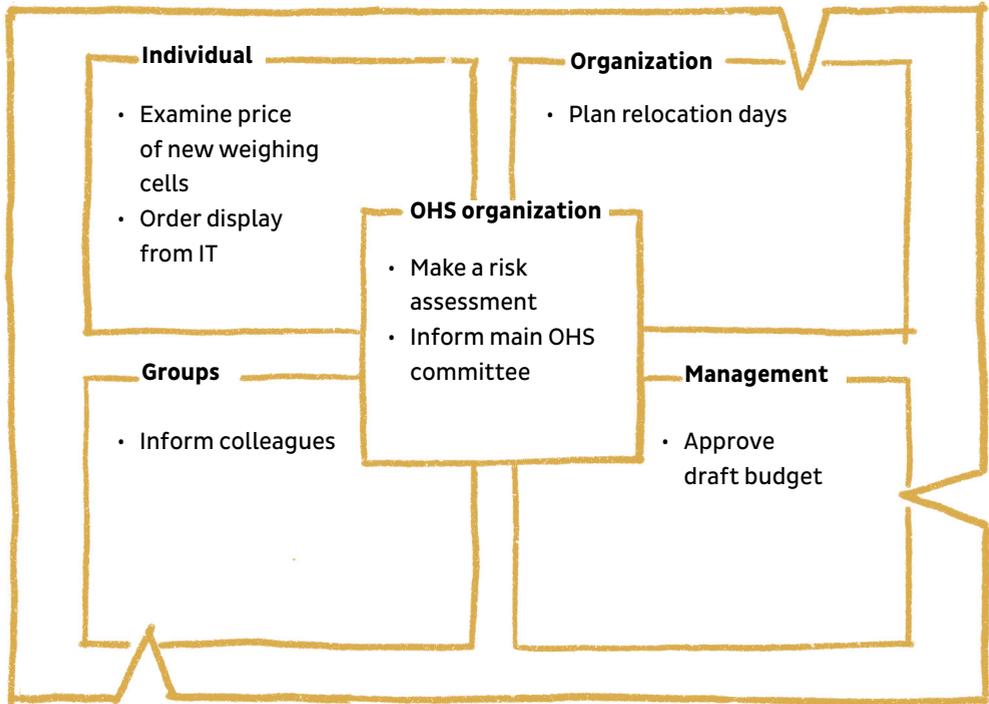
Group – the team/department

Leadership – the middle management

Organization – the senior management level

Steps

1. Place the IGLO template in an A0 format on a wall. Alternatively, draw the IGLO model on a whiteboard. Hand out post-its to the participants.
2. The selected solution is available in some form or other.
3. You ask the participants to discuss what actions are necessary to make the solution implementable in practice. Who will do what at which level in the IGLO model?
4. The participants can write their proposals for who can/are to do what on post-its and place them on the IGLO template. Alternatively, the facilitator continuously writes the participants' proposals on the IGLO template.
5. When there is agreement on the completion of the IGLO model, the facilitator may ask whether it should be turned into a proper action plan containing tasks, responsibilities, the resources required, and a deadline.
6. The facilitator ensures that one or more of the participants will make sure that the completed IGLO model and/or action plan gets to the right people after conclusion of the workshop.



The figure shows how the participants in case 1 used IGLO to describe which tasks had to be solved to turn their solution proposal into reality.

BUSINESS CASE

A business case can help the participants acquire an overview of what it will cost the company to implement a solution proposal and what the company can achieve. The finished case can be presented to, for example, the project owner, management, or budget holder as a help to decide whether the proposal is profitable from an overall perspective. The template can be filled in groups if there are multiple solution proposals or at the board in plenum.

Steps

1. Place the template in an A0 format on a wall or use a whiteboard on which the fields have been drawn.
2. Ask the participants to describe the solution briefly in the top field or do it yourself if this takes place in plenum.
3. Go through the other three fields one by one. Either ask the participants to attach post-its or write down their comments.
4. Once there is agreement that the model has been filled in correctly and to the participants' best ability, it is important to clarify who is to receive the model and how.

Proposal for solution to a work problem

Describe the solution briefly

Estimated costs of establishing the solution

- Equipment
- Payroll
- Operation

Estimated effects on the affected employees' working environment

- Ergonomics
- Psychosocial
- Security
- Well-being
- Motivation

Estimated benefits of establishing the solution

- Absence
- Ventilation
- Productivity
- Quality
- Wastage

16 LIST OF TEMPLATES

- Workshop planner
- Script
- Interview guide
- Stakeholder overview
- SOFT model
- 5 × why
- Negative brainstorming
- Reframing the problem
- Problem focus
- Priority games
- Spider web diagram
- Solution concepts
- The IGLO model
- Business case

The templates can be found on:
www.designthinking.dtu.dk

17 HERE YOU CAN READ MORE

Michael Lewrick, Patrick Link & Larry Leifer:

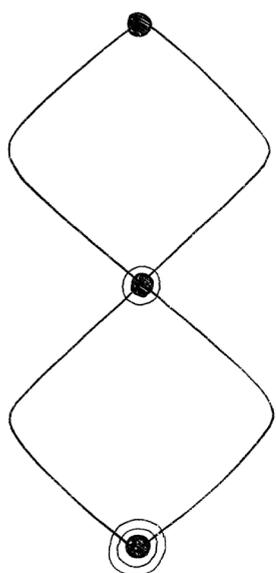
Design Thinking Playbook. Wiley, 2018.

Teun den Dekker: *Design Thinking*. Noordhoff. International Edition 2020.

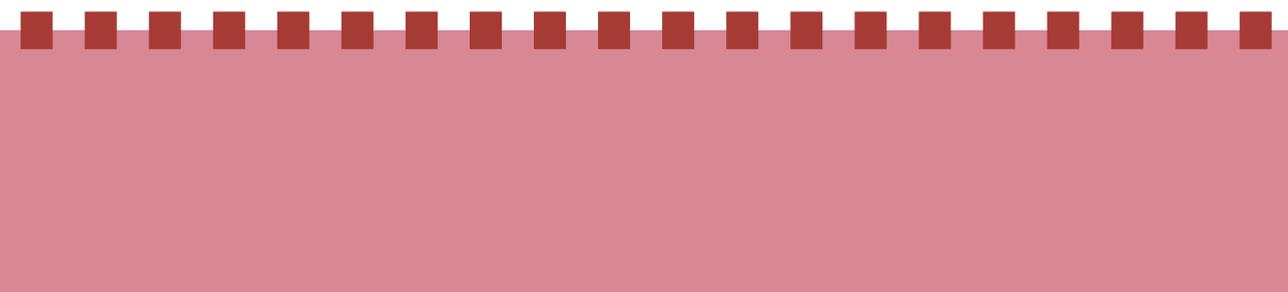
Jake Knapp: *Sprint – How to solve big problems and test new ideas in just five days*. Transworld Publishers Ltd 2016.

Thomas Wedell-Wedellsborg: *What's Your Problem? Løs dine største problemer gennem reframing (Solve your biggest problems through reframing)*. Content Publishing 2020. (the book is in Danish)

Karen Holtzblatt & Hugh Beyer: *Contextual Design*. Morgan Kaufmann 2017.



Enjoy the Double
Diamond





This guide is aimed at helping occupational health and safety professionals to:

- Apply a novel, systematic approach to address complex OHS challenges
- Be inspired by creative tools from Design Thinking
- Thoroughly explore an OHS problem before jumping to finding a solution
- Apply simple prototypes to test potential solutions