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Christian Mueller-Roterberg

Handbook of Design Thinking

Tips & Tools for how to design thinking

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Preface

Another book about Design Thinking?

Yes, and this book is different in that it presents all the knowledge about Design Thinking from a business perspective in a comprehensive and straightforward way. In this sense, this preface is also short and concise.

How can you benefit from this book?

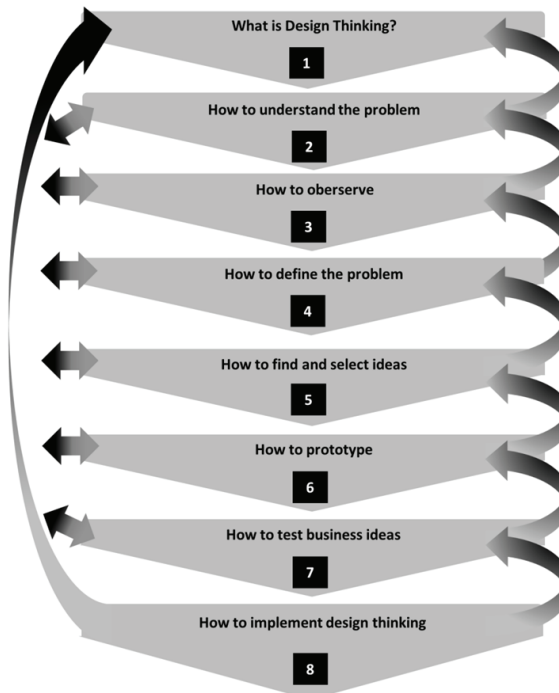
You will find countless tips, recommendations, checklists and tools in this book. If you can only implement a few of these tips, your time and financial investment in this book has paid off. And you'll definitely get more than just a few tips, guaranteed!

The symbol  indicates further literature tips following some chapters. Recommendations for interesting internet pages are marked with the following symbol:



What awaits you in this book?

The contents are structured along the Design Thinking process as shown in the figure below. This process is described step by step, but it is iterative with many feedback loops.



PS: Results from the Design Thinking are never perfect. This book is not perfect either, but lives from your feedback, dear readers. With this in mind, give me your feedback and make this book better with me: feedback@innovationsratgeber.de

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**What is
Design Thinking?**

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1

What is Design Thinking?

„The future has many names.

For the weak it is the unattainable.

For the fearful it is the unknown.

For the brave it is the chance.“ – Victor Hugo, French poet and novelist

Design Thinking is a comprehensive customer-oriented innovation approach that aims to generate and develop creative business ideas or entire business models. Essentially, Design Thinking attempts to project designers' approaches and methods onto business processes.

The approach is ultimately applicable to all kinds of business ideas – whether they have a product or service character. The first mouse for the Macintosh computer was created after a similar approach, or the first toothbrush with a wider ergonomic shaft.

The features of Design Thinking can be summarized as follows:

Design Thinking ...

- is an **integrative approach**: This means that for problem solving, the process of problem solving is considered together with its framework conditions. The problem analysis and solution development are considered systematically and holistically in the form of a process (see below). The various experts necessary for problem analysis and solution development (see below) are involved and enter into exchange with each other.

The working environment for this process is designed to promote creativity. One also speaks here of the **three Ps of Design Thinking** (see Curedale (2013)): **People** (the human being), **Process** (the problem solving process) and **Place** (the working spaces) must be considered for a successful idea development. A fourth P can be **Partnerships**, since a large number of partners must be involved in the development and implementation of ideas.

- focuses on **early customer orientation**: Design Thinking starts with people and not with a technology or a business goal. Ultimately, the customer should have a decisive influence on the "go/stop" decisions in the process. It is no longer sufficient to question customers about the classic market research instruments. Traditional methods of (testing) market research often only deliver disappointing results in the search for innovations.
- emphasizes **Empathy**: The central element is to put oneself in the position of the customer/user and to observe him in detail. Empathy can create distance to the innovator's own person on the one hand and proximity to the customer on the other. In other words, this approach creates customer orientation. Developments can thus be better aligned with the customers and, if necessary, prioritized to what extent they can satisfy the needs and wishes of these customers.
- strives to make ideas tangible at an early stage: **Prototypes** must be created as quickly as possible – this also applies to immaterial services. It is not a question of testing a quasi-finished (perfect) product, but quite the opposite: individual functions/features/characteristics or activities of the product/service offer are to be checked by the customer. The maxim when creating or selecting a prototype is: **as simple as possible, as meaningful as necessary**.

1 What is Design Thinking?

- consists of frequent **iteration loops** between the development phases. The return to a previous phase is not a mistake, but shows the learning success in this process. Failure is an integral part of this approach and should be tolerated, accepted and even expected by all participants. The motto is: "**Fail fast to succeed sooner**".
- Pay attention to the **diversity of the participants**. Design Thinking combines interdisciplinary breadth and technical depth: The knowledge, experience and perspectives of a team of engineers, natural scientists, humanists, social scientists and economists, etc., who have the ability for multidisciplinary cooperation, are put to good use.

Furthermore, differences in age, gender, affiliation to the company (long-time/for the time being short in the company), experience with the topic (intensive, little, not at all) and/or personality type (introverted, extroverted, etc.) should be taken into account.

- creates **team-oriented, creative working spaces**: "Me"-spaces (for individual work) and "We"-spaces (for group work) are flexible and inspiring to equip for individual, group and plenary work. It can be advisable to choose different locations, rooms or furniture arrangements for the different Design Thinking phases in order to create new atmospheres (suitable for the respective work) again and again.
- combines **analytical phases** (collecting, organizing, evaluating information) and **synthetic phases** (developing, testing, improving solutions). In the first part, the problem is analysed in detail (so-called **problem space**), where the focus is on what? and why? (what is the problem? why is it a problem?). Only in the second part concrete solutions are developed and tested (so-called **solution space**): Here the question is asked about the "how (something can be solved)".

In addition, one can differentiate between **divergent phases**, which lead to an expansion of the perspective by collecting information or generating ideas, and **convergent phases**, which lead to a focusing of the field of vision by making decisions between alternatives.

These divergent and convergent phases alternate, so that the Design Thinking process is framed by a **double diamond** (Design Council UK (2005)). The description of the procedure in chapter 1.2 explains this process in more detail.

1.1 Principles of Design Thinking

When carrying out the Design Thinking process described below, the following principles must be observed, quasi the "Ten Commandments of Design Thinking":

① Leave titles at the door!

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

② Encourage wild ideas!

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

③ Go for quantity!

Quantity before quality. Selected, analyzed and evaluated later.

④ Build on Ideas of others!

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

⑤ Think human centered!

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

⑥ Be visual and make it tangible!

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

⑦ Avoid criticism!

Idea generation and evaluation must be strictly separated.

⑧ Fail early and often!

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

⑨ Stay focused!

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

⑩ Let`s have fun!

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

1 What is Design Thinking?

These rules should be written in large letters on a flipchart in a Design Thinking workshop for all participants to see all the time. The participants are to be reminded of these rules again and again by a moderator.

The rule "Stay focused!" appears at first contradictory to the rule "Encourage wild ideas! Experience with creative processes has shown, however, that setting clear boundaries or limitations, in which the imagination should be given free rein, is a target-oriented approach for the idea generation and, in particular, development phase ("necessity makes invention!"). Such limits may include, but are not limited to, the broad direction set by the vision and corporate strategy, specific time and cost objectives (e.g. product/service offering to be launched within X months), a specific regional focus, number of new features, compliance with regulatory constraints or limited resources available. Boyd/Goldenberg (2013) speak here aptly of "Thinking Inside the Box" in order to add a counterpoint to the "Thinking Out of the Box" mainstream approach (see chapter 5.3.4).

In individual cases, a balance must be struck between, on the one hand, the danger of stifling unconventional ideas with potential and, on the other, pursuing utopian spinning.

Staying focused also refers to the Design Thinking process described below. Limits here can mean setting clear time budgets for the individual phases or specifying for whom, how and where the solution is to be used. Used to the right extent and communicated in a challenging way, these limitations can promote creativity and have a motivating and inspiring effect on the Design Thinking team.

1.2 The process of Design Thinking

"Some people think design means how it looks. But of course, if you dig deeper, it's really how it works."

– Steve Jobs, Apple

According to Plattner et al. (2009), the Design Thinking process consists of six process steps with iteration loops: Understanding, observing, defining problems, finding ideas, developing prototypes and testing. The initial three phases, the so-called **problem space** (see Lindberg et al. 2010)), describe the problem and its causes (what is the problem and why is the problem there?). The subsequent three phases, the so-called **solution space**, describe which solutions there can be and how these can be implemented. The process steps are described briefly below and then explained in more detail step by step (see also Figure 1).

Even if the following process representation is shown sequentially, the process is strongly iterative, i.e. there are numerous feedbacks to the previous phases in each phase. The individual process steps should be completed quickly in order to learn fast through iteration loops according to the "**fail early and often**" principle or, if necessary, to be able to terminate the process completely. It is helpful to define concrete time budgets for the individual phases (in agile project management, this is referred to as Timeboxing, see chapter 8.5).

Phase 1 “Understand“ (Understanding the Problem):

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

Phase 2 “Observe“:

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

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

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

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

It is only in this phase that the actual brainstorming process takes place. Here the creativity techniques mentioned in chapter 5.3 can be used. Strictly separated from this, the ideas can then be analysed in a customer-oriented manner in order to identify weak points, and a selection decision can be made on the basis of an idea evaluation.

Phase 5 „Prototype“ (Develop the prototype):

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

Phase 6 “Test“:

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

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

1 What is Design Thinking?

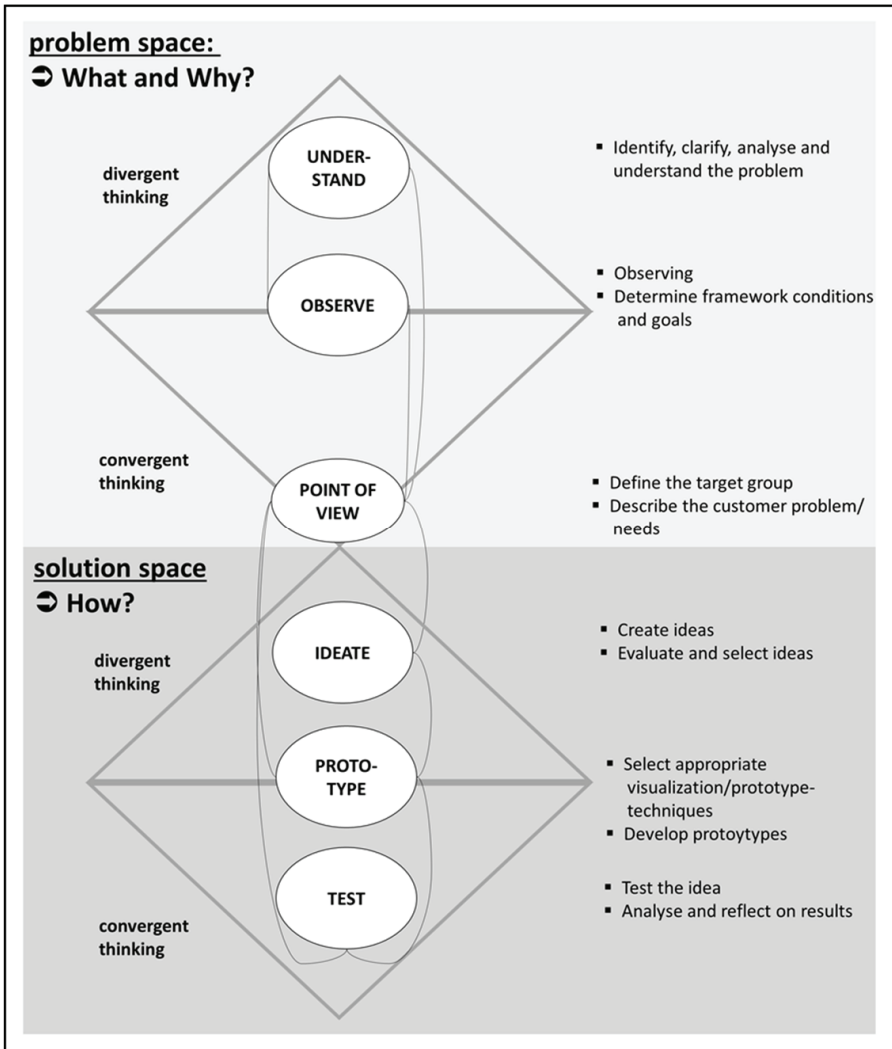


Figure 1: Process of Design Thinking supplemented with the Double-Diamond model

Source: Plattner/Meinel/Weinberg (2009), Lindberg et al. (2010) and Design Council UK (2005)

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

1.3 How to plan a Design Thinking project

First, the goals for the Design Thinking project are to be defined derived from the company/innovation strategy and the expectations of all participants are to be clarified:

- Should new ideas be found? If so, for what or for which search field (see chapter 2.1)?
- Should concrete customer needs and/or certain patterns or trends be found among the customers in a specific subject area?
- Which goal is to be achieved by when?
- Which priorities are to be set in terms of content and time for the achievement of the goal?
- Which employees or which external participants (experts from practice and research, customers, suppliers, external parties from outside the industry) are to be involved from which areas/disciplines?
- Who will be responsible for project management or moderation?
- Where are the interfaces between the required disciplines?
- Which project budget is available for Design Thinking?

Once the goals have been clarified for all those involved, it is certainly necessary to critically review whether the method is at all suitable for the goals.

A decisive success factor for the Design Thinking project is the project organization. In the vast majority of cases, Design Thinking is carried out as a project that involves internal staff as well as external participants from different disciplines. The project team should consist of six to a maximum of nine representatives from different areas (R&D, production, marketing and sales) or disciplines who contribute at least 50% of their working time (and are open to external ideas). Different experience horizons and characters are also helpful to get the diversity necessary for Design Thinking (see chapter 1.1 introductory to the characteristics of Design Thinking).

Not to be neglected is also the internal support in the company for the later implementation of the results from Design Thinking. The support of top management, which can be a decisive success factor, is also very helpful here. The support can be seen concretely in the following activities:

- Adequate resources for the project
- If applicable, taking over patronage for the Design Thinking project
- Desire for continuous reporting on the progress of the project
- Permanent internal and external communication about the strategic importance of Design Thinking
- Member of the steering committee, if any
- Personal participation in workshops
- Recognition of the employees involved

In the case of a more extensive project, a steering committee consisting of managers from the above-mentioned areas must also be set up. Overall, the tasks, competencies and responsibilities must be defined by all project participants.

For the implementation of the project, the explanations in chapter 8 must be considered.



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Table 1: Questionnaire to clarify the problem
Source: According to Andler (2016)

	problem	non-problem	solution
Who	has the problem? is indirectly affected? believes that they are affected? makes decisions?	is not affected by the problem?	could use the solution as well? can contribute to solving the problem? does not want the solution? could stand in the way of the solution?
Where	does the problem occur?	does not the problem occur?	has something similar already been successfully resolved? is the best place to solve it? could the solution also be used?
When	did the problem start? does the problem occur? does it become an even bigger problem?	does not the problem occur?	should the solution be available? will it improve?
What	Is the problem? do you know or don't know about the problem? is not understood about the problem? is different than it should be? is particularly noticeable? annoys you about the problem? are the individual aspects of the problem?	is not the problem?	has been made the solution so far? should the solution necessarily be able to do? are the constants that must not/cannot be changed? is needed for the solution? will be different in the future? is (or is not) important for the solution? are your goals for the solution? do you have to discover?
How	does the problem manifest itself? is it related to another problem? can it be formulated differently?	is it usually going?	should the solution look like? is it tried to be solved so far? could the problem be an opportunity?
Why	is it a problem? is the problem unusual?	isn't it a problem for others?	is the solution needed? do we want to solve it? won't it just solve itself? can it be solved? is it difficult to solve?

Based on this catalogue of questions, the following problem analysis according to Kepner/Tregoe compares the problem with a case in which the problem (surprisingly) does not occur. The problem as well as the comparison case have to be checked systematically for their differences. On this basis,

2 How to understand the problem

hypotheses are developed and tested that contain the cause of the problem or the cause of the missing problem in the comparison case.

How to do it:

The following table is filled in systematically. For this purpose, a comparative case is sought in which the problem (surprisingly) does not occur. This case can be very similar or can come from a foreign field (other scientific field, foreign industry). Other techniques, such as the fishbone model and root cause analysis (both see chapter 2.4.2), can also be used to analyse the causes.

Table 2: Problem clarification according to Kepner/Tregoe
Source: According to Andler (2016)

	problem	non-problem	discrepancy	Cause (why is there a discrepancy?)
Who	has the problem?	has not the problem?	differences?	assumption about cause
Where	does the problem occur?	doesn't occur the problem?	differences?	assumption about cause
When	does the problem occur?	does the problem not occur?	differences?	assumption about cause
What	Is the problem?	isn't the problem?	differences?	assumption about cause
How	does the problem emerge? extensive is the problem??	is it usually going? many parts/areas are not affected?	differences?	assumption about cause

In addition to the description of the problem, initial insights into possible solutions can also be gained. On the one hand, this includes the clarification of framework conditions: What is permitted? What is possible? What is available? Also consider what would happen if framework conditions changed, such as the available or necessary resources, the technical possibilities and/or the political/legal situation.

On the other hand, you should carefully analyse the current state of the art:

- Why are the existing solutions not sufficient?
- Where are their limitations or shortcomings?
- Why are there no adequate solutions so far?

2.3 Understanding of the problem

„There are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns – there are things we do not know we don't know.“

– Donald Rumsfeld, US Secretary of Defense

After clarifying the problem, it is helpful to reflect again on what we know or don't know about the problem. According to Gray et al. (2010), the following matrix with the so-called blind spot of knowledge is helpful for this. The next questions have to be answered in the individual fields:

- What do we know about the problem? Which means we're aware that we know it.
(**known Knowns**)
- What do we know that we don't know about the problem? Which means we're aware that we don't know it.
(**known Unknowns**)
- What do we know without even knowing that this knowledge could help us with the problem? Which means we're not aware that we know it.
(**unknown Known**)
- What do we know that we don't know we don't actually know? Which means we're not even aware that we don't know.
(**unknown Unknowns**)

The unknown Unknown area is, so to speak, the blind spot of our knowledge and awareness, which we only get out through the exploratory discovery. This is where Design Thinking begins.

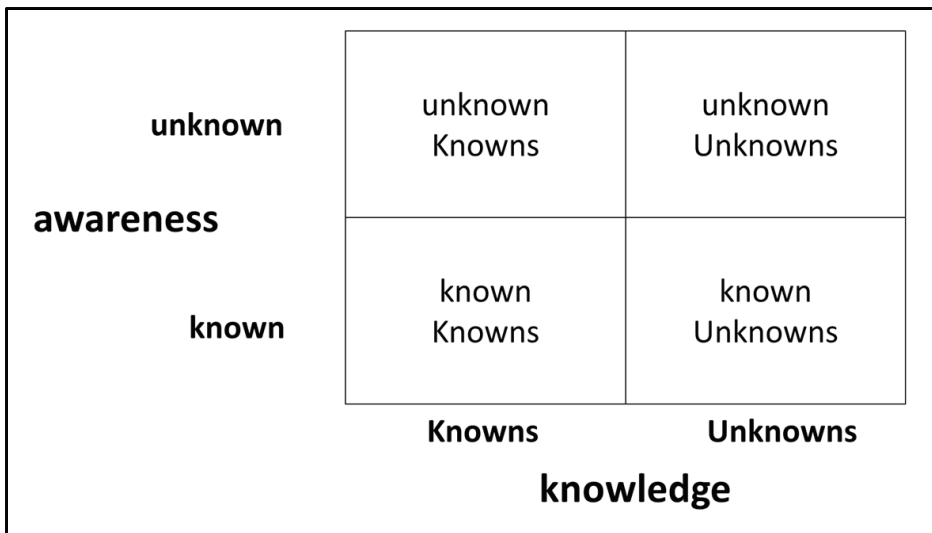


Figure 3: The blind spot of knowledge and awareness

Source: According to Gray et al. (2010) (with changes)

3

How to observe

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3

How to observe

“See what everyone is seeing, but think differently!” – Buddha

3.1 Observation Phase

In this phase the focus is on the potential customer/user. In order to gain a comprehensive understanding of the person of the customer/user, a real target group should be selected. Essentially, one should concentrate on customers/users who have the same needs / problems and are looking for appropriate solutions. Christensen (2003 and 2016) speaks here of the so-called "Jobs-to-be-done" concept (see chapter 4.3.1 for details).

If the solution to the problem is based on a radical innovation, it is also helpful not to concentrate on the "average customer" but first to look for progressive customers, the so-called innovators or early adopters. They have a concrete awareness of the problem and are actively or urgently looking for a solution. They will therefore probably be very willing to provide qualified customer feedback. Also search for extreme users who use products in very specific (extreme) situations (cold, heat, permanent use, certain regions etc.), or search for so-called lead users who have already developed their own solutions for the problem. The methods Persona (see chapter 4.2) and Empathy Map (see chapter 3.4.3) are also helpful here.

After selecting the "right" target group, it is advisable to first put yourself in the role of the target customer in the next step, against the background of your own experiences and views: What are your own experiences if you put yourself in the role of the customer? What would you as a customer do, want, wish, expect, be able to do, etc.? How could the customer be? Appearance, age, gender, special behavioural characteristics, etc.

Next, various methods can be used to directly or indirectly obtain information from the customer about himself or his behaviour and emotions: Analysis of secondary data, written surveys, interviews, observing future users and taking photographs or even shooting videos.

Secondary data about the customer can be very diverse: Search online and offline for studies, news articles, newspaper reports about your target group and collect statements in social networks (Facebook, Twitter, Instagram etc.), contact data or other relevant information. Search for blogs from or about your target customers. Also use internal knowledge sources from marketing/sales and in particular from customer service.

On this basis, you will consider what information you have or still need and how you can best research it through written surveys, interviews and/or observations. For all methods, the two basic questions are the following: What do the customers do and what do they not do? What do they say and what do they not say?

You will find detailed information and numerous tips on the methods of written surveys and especially interviews in chapter 7.

In the following, there are some tips on how to carry out an observation. It's about putting yourself in the customer's shoes, so that one also speaks of empathic design. Subsequently, in chapter 3.4 some methods of empathic design are presented in detail.

3.2 Empathetic design

“Innovation begins with an eye.” – Kelley (2001), S. 23

Empathic design means that the (potential) customer is observed during his activities (e.g. the use of a product/service but also during his daily work/service on site), so that the observer can "empathize" with the role of the customer and the situation and thus better understand it. This is in contrast to so-called product clinics or usability tests in which an artificial observation situation is created in a kind of laboratory. If the observer takes part in the situation himself, this is also referred to as "**shadowing**".

In addition to the use of a product/service, the situation to be observed can also include the use of prototypes ("Minimum Viable Products", see chapter 6.2) by the customer. The observation does not only concern the use of a product or prototype, but also the situation and environment of the customer, the general conditions or his daily routine. Also, knowledge about the customer's motivation and behaviour should be gained.

This approach offers numerous inspirations for innovations (observation of usage errors or hand-knitted solutions as well as latent or inarticulate customer needs) and is unfortunately too rarely used in practice. Observations are often only used in the context of usability tests, which, however, take place in a very late phase of the innovation process. Already in a very early phase – as described here in the Design Thinking Process – valuable customer-relevant information for problem solving and new ideas can be found.

In the following, we will first explain how to observe correctly. Subsequently, numerous methods of empathic design are presented in order to carry out observations or to systematically evaluate the observation results.

3.3 Tips for observing

Basically, it should be clarified in advance:

- Who should be observed?
- Who should carry out the observation?
- Which behaviour should be observed?
- How are the observations recorded?

In detail, the following further information should be observed:

During the observation one should become clear before about the place and the time of the observation, whom and what one will see there, which influence one exerts as an observer if necessary on the customers and/or environment. In this context, it is also necessary to clarify in advance how one behaves in the situation itself, where and how one sits, moves, what gestures and facial expressions one has, what and how one says something, how one wants to register the actions, etc. Recordings in the form of videos, photos or audio require the prior consent of the persons observed (preferably in written form). You should also always be aware of what expectations you have of the situation and the people involved. So one should try to let one's own prejudices become clear.

In this context, one should become aware of the numerous possible observation/perception and assessment errors. Above all, the interviewer effect ("observer effect" or also "Hawthorne Effect", see

below) must be taken into account here, that a change in the customer's behaviour can be determined by observation alone. The individual observation/perception and assessment errors are explained below. These can falsify the results and their analysis.

It would be helpful if different persons with different knowledge were to carry out the observation or evaluate the recordings. So psychologists, engineers/computer scientists or design experts can pay attention to very different aspects of the customer.

The observations can be supplemented with a survey of the customer before, during or after the observation situation. For example, this serves to clarify why a customer is doing something or what feelings he feels during this activity. In particular contradictions and discrepancies between the answers and the observations are particularly interesting to investigate further. For this purpose, you should observe the recommendations described in chapter 7.2 or 7.3 for conducting oral or written surveys.

In preparation, you should ask yourself the following questions (you should also be aware of your own bias/prejudices or the possible observation/perception/judgement errors listed below):

- What do you think the customer is doing?
- Why do you believe that?
- Where do you think you will find the customer?
- What will the customer do?
- How often do you think the customer acts like that?
- When do you think the customer will do that?

Situations are very informative when a customer wants to use something for the first time. What problems do the customers have? What do the customers do?

What is observed at all and how this information is to be evaluated must also be clarified in detail in advance. There are numerous schemes ("frameworks") to structure the observations and not disregard any essential aspects. In the following the concepts "nine dimensions of descriptive observation" of Spradley (1980), the "AEIOU-" as well as the "POEMS-" schemes are presented.

The very differentiated scheme of Spradley (1980) comprises the following nine dimensions, which one should pay attention to during observations and make corresponding notes:

Table 8: Nine dimensions of descriptive observation
 Source: Spradley (1980)

observation dimensions	Explanation
SPACE	Describe in detail the premises or outdoor area in which the customer is staying.
ACTORS	Write down the names and the relevant information about the persons observed.
ACTIVITIES	Summarize the activities performed by the persons.
OBJECTS	Write down the objects that the persons use or find in the situation (furniture, PC, special equipment, etc.).
ACTS	Emphasize special individual actions of the customers.
EVENTS	Describe the events or situations in which the customers find themselves (meetings, small talk, customer talks, etc.).
TIME	Make a note of the order in which the individual activities/actions take place.
GOALS	Describe which goals the customers want to pursue concretely with their actions.
FEELINGS	In particular, write down the emotions of the customers in the various contexts.

The observation scheme AEIOU of the Doblin Group (see Martin/Hanington (2012): 10) is structured in a similar way, with which, as an extension, the interactions between the individual observation aspects can also be visualized in the form of a matrix (see below).

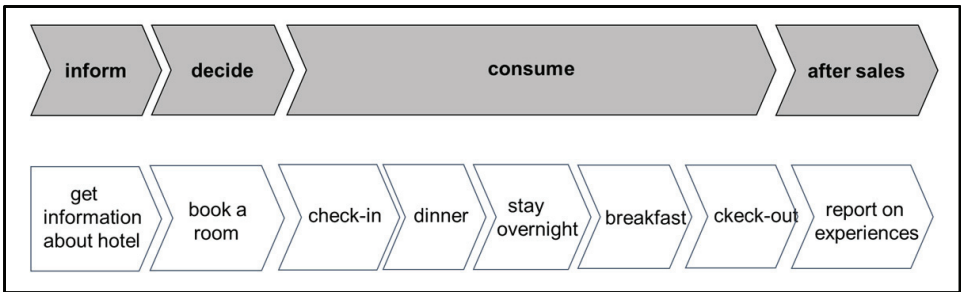


Figure 14: Phases of the Customer Journey with an example of a hotel stay

How to do it:

- ① First a persona must be created (see chapter 4.2) or selected and supplemented with an empathy map (see chapter 3.4.3). As already mentioned with the persona, different persona can also be used to work out differences and peculiarities in the Customer Journey. Possible persona could be:

Persona of a certain target segment, first-time buyers, extreme users (who frequently or under special conditions use products), non-buyers (negative persona), customers vs. user persona, decision-makers, influencers, possible saboteurs in the sales process, etc.

- ② With the help of information from surveys (see chapter 7.2 or 7.3 and the Lean Startup method in chapter 6.2), observations (see chapter 3), sales records or own experiences, customer satisfaction analyses or a brainstorming session (see chapter 5.3.1.1), the following phases of a Customer Journey can be summarised in key words (on Post-Its). At first, the phases can be described very roughly in order to describe them – especially the consumption phase – in more detail later.

In addition, there may be different customer journeys for a persona or different persona may have individually different customer journeys.

Phases of the Customer Journey:

Phase 1 – Attention:

How does the customer become aware of his need, his problem or an offer?

Phase 2 – Informing:

How does the customer inform himself about his wishes, a solution to his problem or an offer? How does he compare the offers?

Phase 3 – Decision:

How and by whom or by what is the customer influenced positively or negatively in his purchase decision? Why do customers make a choice?

Phase 4 – Consumption:

What does a potential customer experience step by step when he uses a service or a product? This phase should be described as concretely and in detail as possible. Virtually every step, every activity, every movement and every thought can be considered individually.

Phase 5 – After Sales:

What requirements/tasks/expectations does the customer have in the after-sales phase? How and by whom or what can the customer be encouraged to make another purchase? How and by whom or what can the customer be animated to report on his positive buying experiences or where can he report on them?

③ In each phase the following questions are asked:

- What does the persona want? What does she really want to achieve?
- What does he/she do/what does he/she not do (surprisingly)? How does she try to achieve her goals/wishes?
- What does she use for it and in what order? Who is the persona in contact with? Where are the contact points (points of contact) with the company? How long do the touches with the company last in each case? How long do the individual phases of the Customer Journey last in total?

Of particular importance here are the contact points – the so-called "**touchpoints**" – which represent places/opportunities/moments where people come into contact with the product or the brand or the company in the broadest sense. Touchpoints can be controlled by the company, e.g. advertisements, TV or radio spots, brochures/catalogues, flyers, trade fairs and events, customer hotline/call centres, mailings, personal consultation/sales, point of sale, shop fittings (see chapter 3.4 as well as chapter 3.4.8 on Service Blueprinting, chapter 3.4.9 on Mystery Shopping or chapter 3.4.10 on Critical Incident Technology), Internet presence, online advertising (e-mail/newsletters, banners, e-shops, landing pages, company/product blogs), etc. In addition, touchpoints that cannot yet be influenced or only indirectly, such as family members, acquaintances, friends of the target group person, social media networks, reports in newspapers/magazines, forums, blogs, comparison/evaluation portals, etc., must be taken into account.

The touchpoints should be as consistent as possible throughout the entire customer journey (by means of so-called **customer touchpoint management**). This means that everything the customer perceives (see, hear etc., see also the Empathy Map in chapter 3.4.3) should be coordinated with each other. This includes, for example, the visual and linguistic information presented to the customer at the touchpoints. The uniform and harmonious use of logos, images, fonts, messages with their tonalities etc. is part of this. In practice, this is by no means a trivial task, as various internal and (in part uncontrollable) external persons/departments/partners are responsible for the individual touchpoints.

Each touchpoint (in particular the controllable touchpoints) must be analysed in more detail with the following questions, for example:

3 How to observe

- Which touchpoints are particularly effective from the customer's point of view – which are not?
- To what extent does each touchpoint contribute to positively influencing the customer's experience?
- Are the possible touchpoints along the customer journey coordinated with each other?
- How do your employees evaluate the individual touchpoints in terms of effort vs. benefits? Are there touchpoints that offer little customer benefit but are very complex? Are there too many touchpoints that tend to confuse the customer?
- Which touchpoints does the competitor not have? Why?
- Are the touchpoints along the customer journey enough? Where are there gaps? Which additional contact points can be created for the customer?
- What can be automated and how?

The touchpoints must be analysed more closely, especially in connection with the moments of truth mentioned below.

- ➡ Which consciously/unconsciously/not (yet) perceived problems or negative emotions are/could there be?
- Customer is annoyed.
 - Customer is unpleasantly surprised about price/cost.
 - Customer does not know what to do.
 - Customer performs activity incorrectly.
 - Customer tries to solve the problem himself.
 - Customer has to wait and loses time.
 - Customer performs useless activities (waste).
 - Customer is disappointed about the quality.
 - Customer perceives situation/activity as too complex.
 - Customer perceives situation/activity as too user-unfriendly.
 - Customer fears risks/feels insecurities.
 - Customer embarrasses himself in front of others.

These problems/negative emotions could be evaluated in their significance (extent, frequency of occurrence), selected and analysed with regard to their cause. Various techniques are available for cause-effect analysis (see chapter 2.4.5) or the critical incident technique (see chapter 3.4.10). The assumptions behind the causes could also be investigated in more detail (see chapter 6.2 on the Lean Startup Method).

- ④ For each phase and each step in a phase, the satisfaction of the customer is assessed (so-called **Customer Experience Map**). How does the persona feel? It is possible to work with simple symbols (☺ ☹ ☹).
- ⑤ Furthermore, the so-called Key Moments of Truth (Carlzon (1989)) can also be identified for each phase/step, i.e. moments/situations that are of particularly high relevance for the customer. Various "Moments of Truth" can be located along the customer journey:
- **"First Moment of Truth"**, if the customer perceives the product/service at all.
 - **"Second Moment of Truth"**, if the customer is currently using the product or service and during this time evaluates the product/service on the basis of its quality requirements.
 - **"Third Moment of Truth"** if the customer has a positive, neutral or negative perception/service after using the product/service.

You can also add more:

- “**Zero Moment of Truth**”, when the customer perceives his problem/need for the first time through a stimulus (e.g. advertising) and seeks or compares information about possible problem solutions.
- “**Ultimate moment of truth**”, when the customer reports on his experiences/sensations with the product/service to others (e.g. via social networks, opinion portals, virtual communities, etc.).

⑥ The Customer Journey combines very well with the **Customer Benefit Matrix**, developed by Kim/Mauborgne (2015), a methodology to develop improvement opportunities for each phase/step. Answer ideas for the following questions need to be developed:

- Where can something be simplified for customers?
- How can you create more benefits for your customers?
- Where can their risks be reduced/minimized?
- Is it possible to add more fun and entertainment?
- What would inspire customers?

3 How to observe

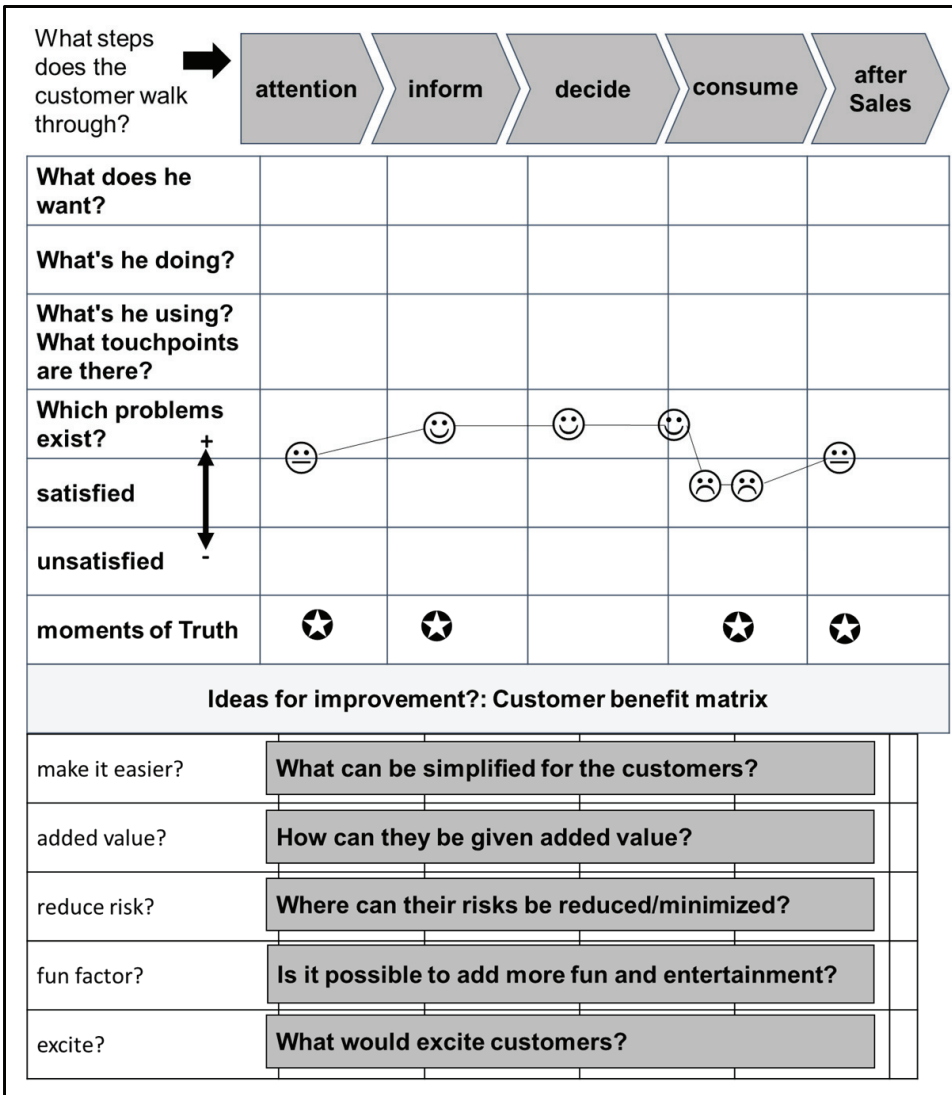


Figure 15: Customer Journey in combination with the customer benefit matrix

One variant of the Customer Journey is to outline a day in the life of a customer ("A Day in the Life").

In steps of 15 or 30 minutes, the following questions, for example, can be asked using the example of a concrete persona:

- How/where does the persona spend the day?
- What products/services does she use?
- How much time does she spend using the product?
- How would the persona's life change after receiving her product?
- How often is the persona online? Does she use a PC, laptop, tablet or smartphone?

Persona

With the Persona method, the user is placed in a hypothetical customer/user who represents members of a real customer/user group. This method is universally applicable both in the development of ideas and business models and in the design of marketing activities.

The selected person represents a fictitious person with individual characteristics that represent the target group (or part of it) of the innovation. However, one should not put together an average persona, but rather concretize different personas with actual data. It is recommended to represent different persona with different functions in the buying process. For example: persona of a certain target segment, first-time buyer, extreme user (who frequently or under special conditions use products), non-buyer (negative persona) or customer vs. user persona. The method can also be used in the business-to-business area (so-called buyer persona), in which decision-makers, influencers, possible saboteurs etc. are differentiated between companies in the sales process.

On a DIN A4/3 page, the person with a concrete name should be described in the form of a profile with keywords or short sentences (on post-it). The persona should not be reduced to a single characteristic, as is often the case in classical market research in the context of customer segmentation, but should be described holistically in its entire lifeworld. A (fictitious) quotation or motto of this persona can introduce the description.

The following biographical information can describe this person, for example:

- Gender, age, origin, marital status (married/disabled; children? How many? How old? What style of parenting?)
- Occupation (job, position), educational background, special knowledge, expert on a specific topic
- Friends and social environment, Pets
- Living conditions, own house / condominium / rented apartment / industry / type, design, quality and equipment of the apartment
- Asset status
- Attitudes (values, interests, preferences), frustration tolerance, health awareness, life goals
- Hobbies and leisure activities, sporting? Which sport? How often?
- How much time does the persona have for certain topics/activities?
- Which media/information sources does she use for which topics?
- Attitude towards digital media, users of social networks or rather loners, sharing information generously with others?
- Consumption habits or factors that influence purchasing decisions: How quickly does the decision to buy take place? Is it a spontaneous buyer or more planned? Which information channels does it use? Price, quality or service-oriented? Brand conscious?

It would also be useful to analyse the problems ("Pains") and wishes ("Gains") associated with innovation: For example with the following questions:


- What annoys/frustrates the persona? What problems does she have? What challenges in life does she face? What does the persona find too expensive, too uncomfortable, too time-consuming, too inferior, too user-unfriendly, too complex? What makes them angry? What risks does she fear? Why would she be ashamed of friends? What mistakes does she often make? What can the persona not do? What resistance is she confronted with?
- What needs does she have? What does she want? Where does she dream of? What goals in life does she pursue? What (buying) motives does she have? What offers does this persona need? What would she expect from an offer? What will make her life easier? What would make her happy? What would inspire them? How would she be admired by others?

These questions can be specifically adapted to the problem at hand and extended if necessary. Nevertheless, one should really sketch the answers on one page. It is also helpful to describe the persona and her problems or wishes in a personal form and in an ego form. The persona should also be updated again and again, because needs and desires are variable in the course of an innovation project. The Jobs-to-be-done method described in chapter 4.3.1 is recommended to deepen these "Pains" and "Gains".

Benefits of the Persona technique:

Persona can be used to create distance to the innovator's own person on the one hand and proximity to the customer on the other. This means that this approach creates customer orientation. Developments can thus be better aligned with the person and, if necessary, prioritised to what extent they can satisfy the needs and wishes of this persona. In addition, persona enables employees in the company who do not have frequent customer contact (e.g. employees in research, development and production) to become more sensitive to the needs of customers. Everyone understands the descriptions of the persona. Everybody can better understand the person. Furthermore, the customer is no longer seen as an anonymous something in an undefined mass, but gets a real character and is "brought to life". Furthermore, this method is cost-effective and can be combined with the following other approaches.

Motto:
„Who says innovations are dangerous, should try it with routine: which is deadly.“



Wishes

...

Is bothered by

....

C.M-R (age)
 male, German, married,
 has a son (age), family man, no pets,
 Professor with a background in
 business administration and technology,
 is enthusiastic about innovations, is an
 online and technology enthusiast,
 formerly an active handball player,
 wants to do more sport in the future,
 prefers japanese and indian cuisine,
 addicted to chocolate, etc.

Figure 18: Example for the use of the Persona method

4.3.1 Jobs-to-be-done

„People don't want to buy a quarter-inch drill. They want a quarter-inch hole.“ – Theodore Levitt (1986), Harvard Business School

The Jobs-to-be-done concept, which was essentially developed by Christensen/Raynor (2003) and Ulwick (2005), focuses on the tasks/activities – the so-called jobs – of or for customers in order to solve a specific problem for the customer, satisfy needs and/or realise wishes. In general Christensen et al. (2016) understands a job as a task that has to be completed in a certain situation or context in order to achieve progress from the customer's point of view. The task is not so much the result ("event") as the process. This job must always take the specific situation or context into account. This means that jobs are always dependent on a specific situation, which may have limitations, specifics, etc. This can be a particular stage in the customer's life, family status, financial or personal situation, local environment or other situational factors. Christensen (2003, 2016) speaks of customers not simply buying products and services, but "hiring" them to do certain jobs (tasks/activities). This concentration on the task and less on the product is also expressed in the above quote from Levitt (1986). Ultimately, customers do not want products, they want solutions for their tasks (problems, needs, wishes).

Jobs can be further differentiated according to Christensen/Raynor (2003) and Ulwick (2005):

➤ **Functional Jobs:**

Certain functions / characteristics / activities / process steps must / should (from the customer's point of view) be available / executed / completed.

➤ **Social Jobs:**

With the completion of the task/activity the attainment of prestige, power/influence, status or a certain (desirable) image for the customer is achieved. This means that the question is answered how the customer wants to be perceived by others (family members, friends, acquaintances, other organizations).

➤ **Personal Jobs:**

The customer enjoys it, finds it interesting, exciting, stimulating, entertaining, "cool", aesthetically pleasing, feels secure or then feels pride or personal satisfaction that the job has been done. This means that the question of how the customer wants to feel after the job is done is answered.

The social and personal jobs (= **emotional jobs**) thus represent a psychological benefit for the customer. With this differentiation it is possible to analyse why customers want certain tasks (jobs) done. The information and answers to the questions mentioned above and below (see following description of the procedure) can again be obtained using various methods. In connection with the development of innovations, personal surveys, observations of customers and workshops with certain customers are to be mentioned here. Tips for the systematic observation of customers can be found in chapter 3. Information on conducting customer interviews can be found in chapter 7.2.

4 How to define the problem

In the following, a concrete procedure for the application of the Jobs-to-be-done concept will be explained.

How to do it:

Based on Osterwalder et al. (2014) (modified and extended)

① Identify customer segment

First create or select a persona (see chapter 4.2) and add an empathy map (see chapter 3.4.3). As already mentioned with Persona, different Persona can be used to work out differences and peculiarities of customer problems or customer needs and wishes. Of course, customers can not only be individuals, but also organizations (companies).

Tip:

It is advisable to consciously also take current non-customers (Christensen (2016): 65) and analyse them according to the jobs-to-be-done concept. This will generate interesting new search fields for innovations. Instead of customers, each stakeholder can also be taken in the broadest sense and analysed in this way.

② Identify jobs

A possible method for identifying potentially interesting jobs is the so-called **job mapping** by Bettencourt/Ulrick (2008). Job mapping does not analyse what a customer is actually doing or how he interacts with a product/service, but what and why he wants to achieve something in a certain situation/situation. This is also the main difference to the concept of the Customer Journey, which focuses on the activities actually carried out and is explained in chapter 3.4.7. The jobs should therefore be as detached as possible from certain products and services. They are not characteristics, functions or process steps of products and services.

According to Bettencourt/Ulrick (2008), job mapping consists of the following eight steps:

① Define

What aspects does the customer need to clarify/what steps does the customer need to take before completing the task/activity? This can include the following: What are the customer's objectives for the task/activity? How does he plan to perform these tasks? How does the customer rate the resources he needs to complete the tasks and how does he select these resources?

② Search:

Which necessary resources or aids must the customer look for in order to complete the task? These can be material (tools, materials) or immaterial (information, knowledge) resources. How difficult is it for customers to locate these resources?

- ③ **Preparing:**
How must the customer prepare/organize the resources and resources or the situation so that the task can be completed?
- ④ **Confirm:**
What does the customer have to check before the concrete task so that he can actually start with it? Does the customer have to confirm the functionality of the resources and tools?
- ⑤ **Execute:**
What must the customer do to ensure that the task is completed successfully?
- ⑥ **Monitor:**
How does the customer check the success after completion of the task?
- ⑦ **Adaption:**
What does the customer need to adjust if the task is to be completed successfully?
- ⑧ **Closing:**
What must the customer do to complete the task? What are the steps that follow or must be completed after this task?

These steps of job mapping must always be analysed against the background of the specific situation. One challenge is to identify the jobs at the right level of abstraction. It must not be too abstract, as this will result in the loss of important detailed information. It must also not be too small, in order not to limit the search space too much for the later generation of ideas. The evaluation of the jobs below can provide information on the correct level of abstraction.

In addition to job mapping, the following checklist should be used to identify (relevant) jobs.

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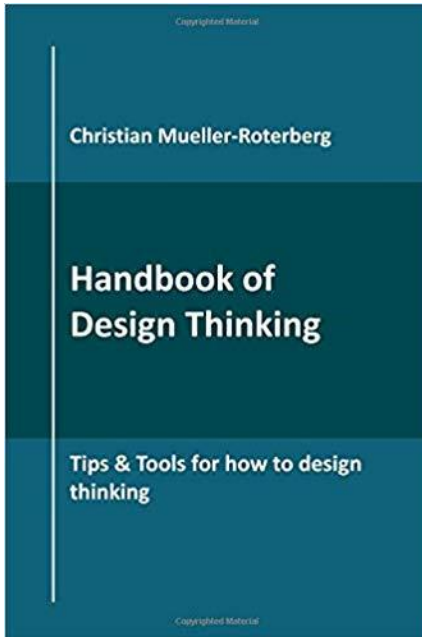
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