LEARNING MADE EASY

Design Thinking

for dummies®

A Wiley Brand

Develop your unique design thinking mindset

Build a creative toolbox that inspires new ideas

Examine how design thinking applies across industries

Christian Müller-Roterberg

Design Thinking

by Christian Müller-Roterberg

for dummies®
A Wiley Brand

Design Thinking For Dummies®

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Introduction

Ready for an adventure? That's where design thinking will take you. You'll learn a lot, cope with a lot of uncertainties, and discover many new things. Design thinking offers you a method to develop innovative products, services, business models, and concepts. With design thinking, you can use the obstacles in your path to create something new, learn to think outside the box, and still move straight to your goal. Design thinking lets you answer questions that your customers never thought they would have, and later your customers will say: "This is exactly the solution I was always waiting for."

Developing innovative ideas always takes some effort. Compared to traditional product development processes, this effort is manageable. Asking yourself whether you can afford design thinking is the wrong way to start. Ask yourself instead whether you can afford to skip design thinking. Yes, design thinking costs money, but not investing in design thinking costs you more in the long run.

About This Book

The book you're holding in your hands is a guide for practitioners with a 360-degree view of the innovative approach known as design thinking. It

- **Takes a look at the entire process, from beginning to end:** You start with the customer's problem and end with a solution for the customer.
- **Examines all significant success factors for design thinking — the five Ps:**
  - Practices
  - People
  - Principles
  - Processes
  - Places

- **Follows different perspectives on design thinking:** You learn which steps you must take in order to succeed with design thinking, from these perspectives:
  - The company
  - The project
  - The employee
  - The customer

This book answers your questions about what design thinking is, which conditions must be created at your company in order for it to succeed, how you can plan a project, and how to implement it successfully. This book can be used in myriad ways and is a Swiss army knife in paper form. It is

- A step-by-step manual for using design thinking to identify a problem and come up with a solution
- A guidebook with practical suggestions for the implementation of a design thinking strategy
- A reference book divided into parts, chapters, and sections so that you can quickly find the content you're looking for when you need it

This book, which is designed so that you can swiftly get a grasp on everything, features many examples, instructions, checklists, illustrations, and tables. It's also structured systematically according to the design thinking process.

Conventions Used in This Book

This book doesn't have many rules. The entire book is structured so that you can quickly find everything you need and get a grasp on the contents. The detailed table of contents helps you jump right to the information you need, and each chapter begins with a brief and succinct description of the chapter's main topics. Whenever topics overlap or other chapters are mentioned, cross-references help you conveniently jump back and forth between the chapters. If you're interested in a particular term, you can look it up in the index.

Foolish Assumptions

This book is not (only) for designers. Design thinking is too important for you to let only designers develop attractive products. Whether you work at a company, an educational institution, a research institute, a public agency, or a nonprofit

organization, you can benefit from the people-based approach that is at the heart of design thinking. Whether you have an education in the technical, economic, or social field, this creative approach gives you new stimuli and ideas.

On an individual level, I make the following assumptions about you:

- You're working in a department at a company and want to see the bigger picture.
- You want to apply design thinking at your organization and need to know how to implement it.
- Your company is already working with some design thinking methods. You want to enhance your previous work with new methods, tips, and tricks for its implementation, and you want a set of comprehensive instructions.

You don't need to have any specific skills for this book — you only have to be curious.

What You Don't Have to Read

It's worth your time to read the entire book. You can find important tips everywhere in it. Even if you can use only a few of its suggestions, the time and money you invest will be worth it. I guarantee that you'll be able to use more than just a few of the tips, regardless of whether you're a novice or an expert. Some of the text in this book appears in a gray box, in order to highlight background information. You don't absolutely need this info, but it's always helpful.

How This Book Is Organized

To make things easier for you, I've arranged this book into four distinct parts, as described in this section.

Part 1: Getting Started with Design Thinking

This section gives you an overview of the principles and methods of design thinking. You'll find out how to create the necessary conditions for design thinking in order for it to succeed at your company, how to plan a project, and how to organize teamwork.

Part 2: The Problem Phases

The first phase of the design thinking process is all about giving you an in-depth understanding of what your target users need. Observations and interviews give you a better grasp of your customers' perspective. At the conclusion of the problem phase, you summarize your task in the form of a defined problem.

Part 3: The Solution Phases

Only when you reach the solution phase do you develop new ideas. After implementing creative principles and techniques, you evaluate your ideas and make a selection. Customers can use prototypes to tangibly test your selected ideas, and you can benefit from their feedback.

Part 4: The Part of Tens

No *For Dummies* book exists without The Part of Tens. In this part, you learn about ten (or so) success factors for interviews and ten (or so) success factors for implementing design thinking projects.

Icons Used in This Book

Now and then you'll find symbols in in the margins of this book. Their purpose is to make you aware of important information.

This icon points to tips and tricks that should be helpful when you apply and implement an idea. They show you how you can improve your project.

This icon highlights illustrative examples from practical experience. They should offer inspiration for your project.

This icon makes you aware of potential stumbling blocks and shows you how to *not* do something. If you avoid errors that others have made before you, you'll save time, money, and effort.

Beyond the Book

In addition to what you're reading right now, this publication comes with a free, access-anywhere Cheat Sheet that offers a number of tips, techniques, and resources related to data science. To view this Cheat Sheet, visit www.dummies.com and type **"Design Thinking For Dummies Cheat Sheet"** in the Search box.

Where to Go from Here

You can start immediately, by choosing one of these two strategies:

- Read the book straight through, from cover to cover.
- Find individual chapters that you want to read first. (Each chapter covers an entire subject area so that you can read and understand it independently of the other chapters.) If you have no experience with design thinking yet, I recommend starting with Chapter 1, which offers a crash course in design thinking principles.

My advice to you: Read the way design thinkers would do it. Experiment with the reading strategy that works best for you. Jump to different sections while you read the book, if that makes sense to you. If necessary, reread a chapter multiple times or look up individual terms in the index. The idea here is for you to come up with your own way to read this book effectively.

1 Getting Started with Design Thinking

IN THIS PART . . .

Get to know design thinking with its advantages and principles.

Examine the individual steps in the design thinking process.

Create the foundation for success and prepare your organization for the project.

Define the goals, plan workflows, and resources for the project work.

Assemble a powerful team, arrange team-appropriate rooms, and manage team responsibilities as well as team communication.

IN THIS CHAPTER

- Getting to know the design thinking approach
- Comprehending the method
- Understanding the principles
- Implementing design thinking quickly

Chapter 1
Everything You Need to Know About Design Thinking

Do you want to invent something, design something, or implement something new? Design thinking offers you a method to develop innovative products, services, methods, business models, and concepts. This chapter gives you an overview of the potential, the basics, and the principles of this approach to innovation. You'll learn how to proceed with design thinking and what you must consider when carrying out the individual steps. You'll form a team and manage the collaboration; organize the project work by structuring a logical order for the tasks; assign resources; and respond flexibly to changes. You'll even learn about the importance of your work environment — from office floor plans to furnishings — when it comes to supporting the creativity of your team members.

This Is Design Thinking

Design thinking is a human-based approach to innovation that aims to establish creative ideas and effective business models by focusing on the needs of people. The basic idea behind design thinking is that you apply the approaches

and methods of designers to the development of innovations (this is what the word *design* stands for) while also engaging in a systematic, fact-based analysis of the feasibility and economic viability of these innovations — just like what a researcher does (this is what the *thinking* part of the term stands for).

Designers start with their customers' problems or wishes and consider them from the perspective of their target users. With this knowledge, designers develop the first user-oriented ideas, visualize their creative solutions at an early stage, and then design prototypes. They quickly request their customers' feedback and change their concept on this basis. Step by step, the designers approach the best solution for their target users. The approach and individual methods of the design are supplemented by a mindset that purposefully analyzes the feasibility and economic viability of the product during development. Like a researcher, you set verifiable goals for each step, make assumptions, and test these assumptions with the help of observations and surveys regarding their validity.

More than just design

The shaping and design of material products is just one application area. You can use this approach for all areas in life and business. Maybe you want to enhance your customer service, introduce new ways of executing your business processes, or change the corporate culture. Then you're dealing with many-layered issues. When you have no simple solutions, design thinking helps you find an innovative solution.

More than just a workshop

Design thinking is a process consisting of various steps — individual steps you complete multiple times. During the process, you rely on group work in the form of workshops as well as individual work.

TIP

Provide variety. Complete individual work after a workshop phase. This increases motivation, and you can more easily tap into your team members' different kinds of potential. When it comes to individual work, you can utilize the expertise of team members who don't feel comfortable with group work.

You complete various forms of group work and supplement them with results from the individual work. The team members work individually to conduct interviews with potential customers, and then everyone presents their results in a workshop. The group evaluates the results together. This leads to the creation of new assumptions about your target users or potential solutions, which the individual team members can then test in surveys.

More than just brainstorming

Brainstorming for the creative idea is just one phase in the design thinking process. The idea here is to fully comprehend the problem and understand your target users. Analyze the starting situation and make assumptions that you investigate with observations and surveys with potential customers. Creative phases with a lot of design freedom alternate with phases in which you summarize your results and focus on the priorities.

More than just methods

Different methods can help you during the individual phases of the design thinking process. You can describe your target users with the Persona method, where you come up with a profile of your target audience, made up of the most important characteristics, modes of behavior, problems, and preferences of that audience. With the Customer Journey method, you can analyze the individual steps that the customer experiences while using a product. However, you must apply creative techniques that have assisted you when searching for a new idea as well as the various methods you may have made use of during the creation of the prototype. You can test your assumptions and ideas by applying methods from experimental research. The right application of the right methods is crucial for the success of the project.

The methods are just one factor. In design thinking, you have to keep the 5 Ps in mind:

- **Practices:** You apply proven methods from various disciplines, such as design, market research, ethnology, psychology, engineering sciences, and strategic management.
- **People:** You assemble a team that contributes different competencies and perspectives.
- **Principles:** You follow principles that determine the team's approach and position — mindset, in other words — and that serve as a guideline for the team's collaboration.
- **Processes:** You're flexible and you handle the different work and decision-making processes in an agile manner.
- **Places:** You offer places for group and individual work that encourage creativity and also enable focused work.

Seeing What Design Thinking Can Do

It takes new ideas to handle social challenges such as climate change, population growth, food security, health, mobility, or energy supply. These ideas are the foundation for economic growth. Some ideas develop into worldwide standards, and others cover niches in local and regional markets. Design thinking supports you in your creative work regardless of whether your question deals with a big or small problem, and it provides you with possible solutions. The approach can be used for all kinds of questions. These might be new products, services, business models, or social and organizational concepts.

Developing new products

New technologies such as artificial intelligence or nanotechnology definitely offer opportunities for new products. When it comes to product development in these areas, however, the difficulties don't necessarily lie in the limitations of the new technologies themselves. Difficulties arise when you have to recognize the right application areas of technologies in order to present the greatest benefit for a large number of people. You have to know who might be the product's target users and which of your potential customers' needs you might satisfy. Design thinking can help you find applications that promise success.

EXAMPLE

New ideas don't have to come from the high-tech area. At General Electric Healthcare, people noticed that children were afraid of the high-tech equipment, such as the magnetic resonance image scanners (MRI) used for diagnostic imaging procedures. Some of the children had to be sedated before the examination. Engineers subsequently tried to view the entire examination process through the eyes of a child, which led them to completely redesign the equipment and spatial environment. The walls in a children's hospital were painted to look like a pirate ship, and the exam table like a shipwreck. The exam procedure was designed as a child-friendly, role-playing game, in which the even the equipment's background sounds were integrated as an adventure game.

Creating new services

Service innovations involve changes in how the services are delivered — a new service for customer consultations, the automation and digitization of business processes, or new payment options for customers, for example. The potential of service innovations is often underestimated. Services involve particularly in-depth exchanges with customers so that a human-based approach like design thinking can offer numerous ideas when it comes to improving and redesigning services.

EXAMPLE

As early as the 1940s, the brothers Dick and Mac McDonald already used an approach similar to design thinking. While observing their customers, they realized that the truck drivers who made up a significant portion of their customer base wanted to have simple food served quickly and often ordered the same meals. The brothers limited their meal selection and offered mainly the bestselling hamburgers and French fries. At the same time, they improved the processes in the kitchen and service area. They also redesigned the dining spaces in their restaurant, with the result that only 30 seconds passed between the order and the food delivery.

Designing new business models

With a business model, you describe the way in which a company creates added value for certain customers, how it produces this value, and how it generates permanently growing revenue from it. The introduction of the *freemium* principle (a combination of *free* and pre*mium*), in which a basic version is offered for free and a premium version is based on charges, was initially a business model innovation and is now widespread even outside of online offers.

Designing social and organizational innovations

Social innovations are solutions for social problems and challenges that aren't driven by the goal of making profits. Design thinking starts with the problems and wishes of people and makes them the top priority. With design thinking, you can systematically solve tasks in the social domain. The solution can be a product, a service, or a concept of how to solve a social problem.

EXAMPLE

Students at Stanford University applied design thinking to develop a simply designed lamp to be used in developing countries — a lamp that could illuminate a room in a cheap, maintenance-free, and ecofriendly manner. Equipped with a mobile solar system that can function off the grid as well as LED lights and rechargeable batteries, the lamps are designed particularly for the needs of people in developing countries.

Examples of organizational innovations include new decision-making processes at a company or a new organizational form.

EXAMPLE

The Swiss web app company Liip has changed its organizational structure so that it eliminates hierarchies — individual teams at the company now organize themselves. Each team decides on its strategy, the type of customer acquisition it means to employ, and the applied techniques it feels are necessary for success.

Each team also handles the recruitment of new employees on its own. (If you think this means anarchy, know that there are clear rules on how to coordinate among the equal teams.)

Establishing a culture of innovation

In a dynamically changing environment, some companies continue to achieve competitive advantages through the agile, creative, and flexible recognition and utilization of entrepreneurial opportunities. They develop new markets and successfully position themselves as global players. These companies have a culture of innovation that promotes their employees' creativity and successfully turns it into new products, services, processes, or business models. With these principles and approaches, they set the foundation for a corporate culture that promotes innovation.

Understanding the Basics of Design Thinking

Before you try some of the methods of design thinking in a workshop, you should become familiar with the basics. The principles and methods of this approach to innovation are probably unfamiliar to many in your organization. New ideas are always met with skepticism, reservations, or resistance. Overcome your reservations and foster your curiosity.

Following and communicating the principles

In design thinking, you should observe a few principles that will guide you toward success:

- **Align yourself with people and their needs at an early stage:** You start with people by either taking up a problem your target users have pointed out or a wish they may have expressed. Look for *lead users* — the ones who are ahead of their time and anticipate future needs of the target market. They are especially useful because their needs precede those of all other customers in the market and they have a strong incentive to resolve the need. Actively involve these customers in the development of your idea.

- **Develop empathy:** Put yourself in the position of your target users and explore these users' emotions, thoughts, intentions, and actions.
- **Illustrate ideas:** Visualize your idea and demonstrate it with a prototype for potential users to experiment with. Prototypes can be hardware of various kinds, drawings, stories, role-playing games, model designs, or online applications in the form of Internet pages or apps.
- **Learning from failure:** Establish a culture that welcomes the value of mistakes at your company so that errors are tolerated as well as learned from. Make sure that mistakes are understood as a fixed component in the design thinking process and perceived as opportunities to learn.
- **Ensure diversity in the team:** Rely on diversity in the team so that you offer different perspectives. Diversity is shown in age, gender, education, cultural background, and personality type.
- **Offer team-oriented and creative workspaces:** The workspaces for individual and group work as well as spaces for the group as a whole must have a flexible and inspiring design. You should choose different locations, rooms, or furniture arrangements for the different design thinking phases.
- **Make the process flexible:** The design thinking process promotes a gradual approach. Analyze the problem, use it to formulate a task, develop initial possible solutions, test them, and learn from the feedback.

TIP

You don't strictly go through these phases in sequence. Whenever you get information that you have to analyze in detail, jump back to a previous step.

Consider and observe these principles during the entire innovation process. Discuss the principles in each workshop, write them down, and display them in communal spaces so that they're easily visible. As a team, check whether you've consistently adhered to the principles after each phase.

Getting an overview of the whole process

In the first part of the design thinking process, you analyze the problem. This is the *problem space*, where you address the What and Why. (What is the problem? Why is it a problem?) Only in the second part, the *solution space*, are specific solutions developed and tested: Here you ask about the How. (How can something be solved?)

In this process, you combine two phases. In the *divergent* (dispersing) phase, you collect information or develop numerous ideas that result in expanding your perspectives. In the convergent (combining) phase, you sharpen the field-of-view and compile the results or decide on choices.

These divergent and convergent phases alternate. According to the British Design Council, the change between expanding and focusing resembles the image of a double diamond (Double Diamond Process Model), as shown in Figure 1-1.

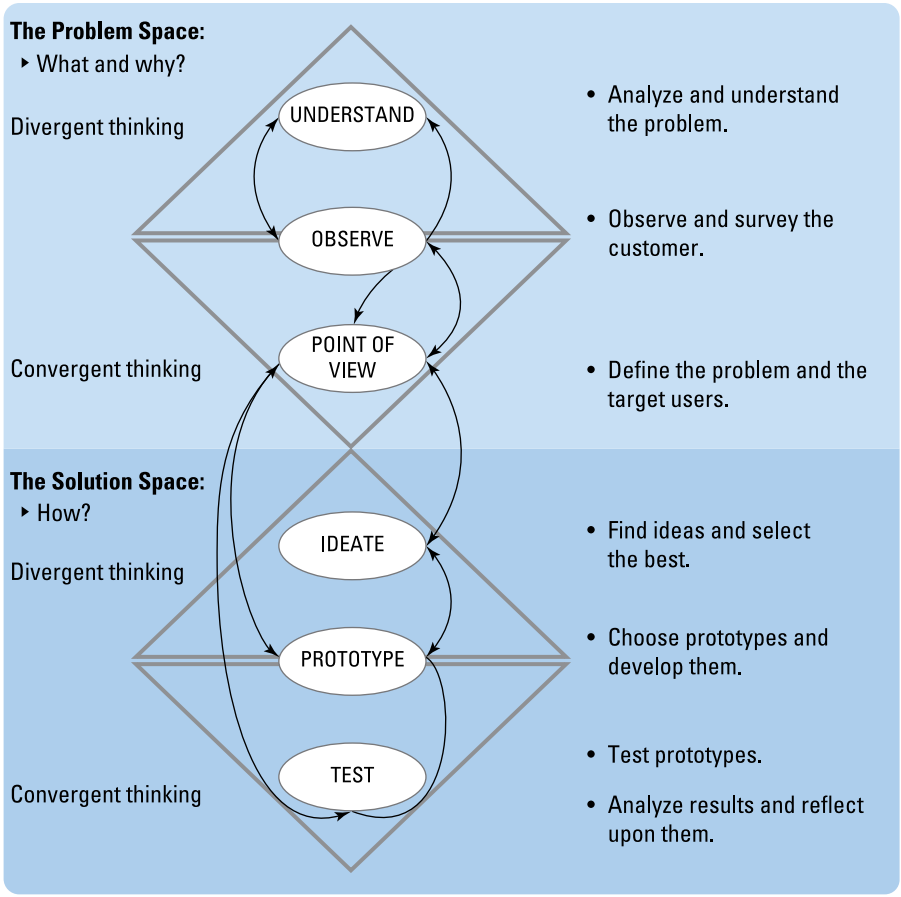

FIGURE 1-1: The design thinking process.

The design thinking process is similar to the approach of members of the Hasso Plattner Institute of Design at Stanford University (commonly known as the "d.school"). They spell out these six distinct phases:

1. **Understanding the problem:** In the first phase, you create an in-depth understanding of your target users' problem or need. You have to clarify which information you're still lacking about the target users, their needs, and their problems.