

DESIGN THINKING Guide

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2 Introduction

2.1 Objectives of the Guide

This guide is designed for professionals and innovation leaders who seek to deepen their understanding of Design Thinking to drive transformation and creativity within their organizations. Through this document, the reader will gain an advanced understanding of the methods, tools, and practical applications of Design Thinking, equipping them to lead high-impact innovation projects.

2.2 How to Use the Guide

Each chapter of this guide is structured to offer both theoretical exploration and practical applications of the components of Design Thinking. It is recommended to read the guide sequentially, as each section builds upon the knowledge established in the previous ones. Additionally, the case studies and practical examples are designed to illustrate how these principles can be implemented in real-life situations.

3 Origins and Evolution

Design Thinking has its roots in the fields of engineering and industrial design from the 1960s. Herbert Simon, in his book *The Sciences of the Artificial*, and Robert McKim, in *Experiences in Visual Thinking*, were pioneers in emphasizing the importance of the creative process and problem-solving in design. In the 1980s, David Kelley, founder of IDEO and later the d.school at Stanford, popularized Design Thinking as a structured approach that integrates human needs with technological possibilities and business success requirements.

3.1 Key Figures in Its Development

Figures like Tim Brown have expanded the reach of Design Thinking, promoting its application in various disciplines beyond traditional design. Brown argues that Design Thinking is an essential methodology not only for designers but for any individual or team seeking innovative solutions to complex problems.

4 Fundamental Principles of Design Thinking

4.1 Human-Centered Focus

Design Thinking is based on empathy for the people for whom services or products are being designed. This human-centered approach helps innovators observe and develop a deep understanding of the needs and motivations of end users.

4.2 Iterative Thinking

Iteration is fundamental to Design Thinking. This process is not linear but cyclical, involving repeated phases of ideation, prototyping, and testing, which allows learning and improving solutions continuously as feedback is gathered from real-world interactions.

4.3 Multidisciplinary Collaboration

Design Thinking encourages working in multidisciplinary teams, where each member brings unique perspectives. This collaboration is crucial for addressing problems from multiple angles and generating more effective and innovative solutions.

5 Design Thinking Phases

5.1 Empathize Phase

The main goal of the empathize phase is to gain a deep, empathetic understanding of the problems and realities of end-users. This understanding helps designers and innovators put themselves in the users' shoes, which is crucial for developing solutions that truly address their problems in meaningful and sustainable ways. In the Empathize phase, we can find some widely used techniques such as:

5.1.1 Direct Observation:

- **Description:** Involves observing users in their natural environment without directly interacting with them. This can help identify details about how users interact with products or services in their daily lives.
- **Utility:** Reveals behaviors and situations that users might not report in an interview due to their trivial or unconscious nature.

5.1.2 In-depth Interviews:

- **Description:** These are one-on-one conversations where the users' experiences, desires, and frustrations are explored in detail.
- **Utility:** Allows obtaining deep and personal insights that are not visible through observation alone.

5.1.3 Empathy Maps:

- **Description:** A tool that helps synthesize data gathered from observations and interviews into four main quadrants: what the user thinks and feels, what they see, hear, and what they say and do.

- **Utility:** Facilitates visualizing and understanding the user's emotional and motivational environment.

5.1.4 Real-life Examples of Empathizing:

- **IDEO Health Clinic Project:**
 - **Context:** IDEO was hired to redesign the patient experience at a health clinic. The team started by observing and conducting in-depth interviews with patients and medical staff.
 - **Insight and Application:** They discovered that much of the patients' fear and anxiety were not due to medical treatments but rather the perception of disorganization and lack of communication in the clinic. IDEO designed a new admission process that facilitates better communication between patients and healthcare staff, significantly reducing patient anxiety.
- **Airbnb and the Trust Crisis:**
 - **Context:** In its early years, Airbnb faced a significant trust problem between its users. The Airbnb design team used empathy techniques to better understand the concerns and needs of both hosts and guests.
 - **Insight and Application:** Insights obtained through detailed interviews and observation led Airbnb to implement a more robust profile system and a more transparent review system, improving trust in the platform and helping the company grow.

These examples show how the empathize phase not only informs the design of solutions but can also fundamentally transform a company's strategy, leading to innovations that directly address the core needs and concerns of users.

5.2 Define Phase

The goal of the define phase is to condense the observations gathered during the empathize phase and clearly articulate the design challenge. This clear and focused definition helps teams generate directed and effective ideas, ensuring that the development of solutions aligns with the real needs of users. In the Define phase, we find some commonly used techniques such as:

5.2.1 Problem Statements:

- **Description:** A problem statement is a clear and concise declaration that defines the specific problem the team is trying to solve.
- **Utility:** Acts as a focus for ideation, ensuring that all design activities remain centered on the user's needs.

5.2.2 Point of View (POV):

- **Description:** A POV is a structured phrase that synthesizes observations about the user and their needs, integrating the team's vision on how the problem should be addressed.
- **Utility:** Provides a unique and specific perspective that guides the ideation process and ensures coherence in the solution approach.

5.2.3 Revised Empathy Map:

- **Description:** After formulating problem statements and POV, the empathy map is revised to ensure that it accurately reflects the most relevant insights.
- **Utility:** Allows refining and deepening the understanding of the user's emotional and motivational environment, ensuring that proposed solutions are relevant and personalized.

5.2.4 Real-life Examples of Define

- **Ford Project with Elderly Drivers:**
 - **Context:** Ford sought to improve the driving experience for older people, recognizing that this demographic often feels ignored in automotive design.
 - **Insight and Application:** After the empathize phase, Ford defined the problem by focusing on the ease of getting in and out of the vehicle, a crucial aspect for older drivers. The team developed design features such as wider doors and adjustable seats, making this process easier and significantly improving the user experience.
- **Cincinnati Children's Hospital:**
 - **Context:** Cincinnati Children's Hospital wanted to reduce anxiety and fear among children who had to undergo surgical procedures.
 - **Insight and Application:** Based on information gathered in the empathize phase, the problem was defined as how to make the pre-operative experience less terrifying for children. This led to the development of an intervention that included a 3D virtual tour of the operating room days before the procedure, allowing children to familiarize themselves with the environment in a playful and educational way.

These examples demonstrate how a good problem definition can focus the team's efforts and guide the creation of innovative solutions that effectively respond to the specific needs of users. The define phase acts as a critical bridge between understanding human needs and developing practical and creative solutions to address them.

5.3 Ideation Phase

The goal of the ideation phase is to generate a wide range of ideas that could effectively solve the defined problem, using the deep understanding of the user obtained in the empathize and define phases. This phase seeks to explore potential solutions, some of which may be innovative and break conventional boundaries. In the Ideation phase, we find some commonly used techniques such as:

5.3.1 Brainstorming:

- **Description:** Brainstorming sessions where participants are encouraged to think freely and suggest any idea that comes to mind without criticism or restrictions.
- **Utility:** Helps generate a large volume of ideas, allowing the team to explore solutions beyond standard responses and discover creative possibilities.

5.3.2 SCAMPER:

- **Description:** SCAMPER is an acronym representing different creative thinking techniques: Substitute, Combine, Adapt, Modify, Put to other uses, Eliminate, and Reorganize.
- **Utility:** Provides a structured approach to modify existing elements in new and creative ways, generating innovative ideas.

5.3.3 Concept Prototypes:

- **Description:** Rapid creation of prototypes to visualize and communicate ideas more concretely. These prototypes don't necessarily function and are often just visual representations or low-fidelity models.
- **Utility:** Facilitates discussion and evaluation of ideas by making them tangible, allowing for quick improvements and adjustments based on immediate feedback.

5.3.4 Real-life Examples of Ideation

- **Samsung and the Development of Dual Cameras:**
 - **Context:** Samsung sought to innovate the smartphone market with new camera features.
 - **Insight and Application:** During the ideation phase, Samsung's team explored various ideas that could significantly enhance the photographic experience for users. The idea to integrate a dual camera that allows for depth-of-field photos and better low-light photography emerged from these brainstorming sessions and concept prototyping. This development was crucial in establishing Samsung as a leader in smartphone camera innovation.
- **Bank of America and Keep the Change:**
 - **Context:** Bank of America wanted to design a product that helped its customers save money more effectively without changing their daily habits.
 - **Insight and Application:** During the ideation phase, the "Keep the Change" idea was generated—a program that rounds debit card purchases to the nearest dollar and transfers the difference to a savings account. This idea was a direct result of creative sessions focused on how to facilitate unconscious saving. The program proved to be extremely popular and effective, increasing customer satisfaction and loyalty.

These examples illustrate how the ideation phase can lead to disruptive and highly effective solutions. The key is to foster an environment where creativity knows no bounds, and all ideas, regardless of how initial or "out of the box" they may seem, can be explored and considered.

5.4 Prototyping Phase

The main goal of the prototyping phase is to experiment with models of selected ideas to identify the best possible solutions before investing significant time and resources in their development. Prototypes are essential tools for visualizing, testing, and improving ideas with a practical focus and based on the user's real experience. In the Prototyping phase, we find some commonly used techniques such as:

5.4.1 Low-Fidelity Prototypes:

- **Description:** Includes sketches, mock-ups made from easily accessible materials like paper, cardboard, or basic digital tools.
- **Utility:** Allows teams to quickly test the functionality and design of an idea without worrying about the final technical or aesthetic details.

5.4.2 Digital Prototyping:

- **Description:** Using specialized software such as Adobe XD, Sketch, or Figma to create interactive user interfaces or digital product simulations.
- **Utility:** Enables rapid iteration and the ability to test user interaction with more complex interfaces or systems.

5.4.3 Service Prototyping:

- **Description:** Role-playing simulations of service interactions to evaluate their flow, touchpoints, and overall user experience.
- **Utility:** Helps identify friction points and improvement opportunities in services before their real implementation.

5.4.4 Real-life Examples of Prototyping

- **Dyson and the Development of Bagless Vacuum Cleaners:**
 - **Context:** Dyson aimed to innovate the vacuum cleaner market by eliminating the bag, a fundamental component in traditional models.
 - **Insight and Application:** The Dyson team created over 5,000 low- and mid-fidelity prototypes of their cyclonic vacuum cleaner before arriving at the final design. These prototypes helped refine the cyclone mechanism that separates dust from the air without the need for a bag, ensuring effective and constant suction.
- **IKEA and Furniture Design:**
 - **Context:** IKEA continuously seeks to improve the functionality and design of its furniture to ensure an optimal user experience.
 - **Insight and Application:** IKEA uses product prototypes in its design labs to test everything from durability and strength to ease of assembly. This approach allows IKEA to ensure that its products are not only aesthetically pleasing but also practical and easy to use for customers.

These examples show how the prototyping phase facilitates a deeper, more practical understanding of how solutions will work in real-life situations, allowing for adjustments and improvements before mass production or the final launch. Prototyping is essential to minimize the risks associated with developing new products and services, ensuring that the final solutions are effective and well-received by users.

5.5 Testing Phase

The goal of the testing phase is to validate developed solutions and refine them based on real user interaction. The aim is to identify any problems, understand the user experience, and gather insights to adjust the design before the final launch. In the Testing phase, we find some commonly used techniques such as:

5.5.1 Usability Testing:

- **Description:** Sessions where users interact with the prototype while observers record their behavior and feedback.
- **Utility:** Helps identify friction points in the interface or user experience and allows adjusting the design to make it more intuitive and effective.

5.5.2 Feedback Interviews:

- **Description:** Post-interaction conversations with users to delve into their experiences, perceptions, and suggestions.
- **Utility:** Provides detailed qualitative data that can reveal issues not evident during usability tests.

5.5.3 A/B Testing:

- **Description:** Comparison of two versions of a product or service to determine which works better in terms of specific success parameters.
- **Utility:** Offers a clear view of which design elements yield better results in terms of user behavior and satisfaction.

5.5.4 Real-life Examples of Testing

- **Google and Gmail Design:**
 - **Context:** Google constantly innovates and updates Gmail, its email service, to improve the user experience.
 - **Insight and Application:** Google extensively uses A/B testing to test new features before fully implementing them. For example, when introducing the undo-send feature, Google first tested its popularity and usefulness through A/B tests, allowing them to adjust the available time to undo a send based on direct user feedback.
- **Fitbit and Wearable Product Development:**
 - **Context:** Fitbit designs devices and experiences to help people lead healthier, more active lives.
 - **Insight and Application:** In developing each new device, Fitbit conducts multiple rounds of usability testing to ensure that new wearables are comfortable, intuitive, and effective.

These tests include monitoring the device's performance during daily activities and specific exercises to ensure accuracy and functionality before launch.

These examples illustrate how the testing phase is essential for iterating and refining a product or service before its final launch. It is a stage that directly connects design with the user experience, ensuring that the final product is not only usable and aesthetically pleasing but also effectively meets the user's expectations and needs.

5.6 Real-World Implementation

Design Thinking has been adopted by numerous leading companies to innovate and improve their products and services. Some examples include:

5.6.1 Successful Company Case Studies

- **IDEO**: A pioneer in applying Design Thinking to product design, services, and workspace environments. Their work on redesigning shopping carts is a classic example.
- **Apple**: Uses Design Thinking to integrate design and functionality, focusing its products on the user experience.
- **Airbnb**: Transformed its business approach by applying Design Thinking, focusing its efforts on improving the user experience and facilitating interaction between hosts and guests.

5.6.2 Advanced Tools and Resources

Success in implementing Design Thinking largely depends on the tools and resources used, ranging from digital tools to educational materials that facilitate the process.

5.6.3 Software and Digital Tools

- **Miro and Mural**: Collaborative platforms for brainstorming and visual mapping, allowing teams to work remotely and synchronously.
- **InVision and Adobe XD**: Digital prototyping tools that help quickly create and test user interfaces.

5.6.4 Workshops and Templates

- **Ideation Workshops**: Guided sessions that help teams learn and practice idea-generation techniques.
- **Design Thinking Templates**: Pre-designed templates for documenting the process, from empathy maps to prototype templates.

5.6.5 Recommended Books and Courses

- *"Change by Design"* by Tim Brown: A deep introduction to Design Thinking from the perspective of IDEO's CEO.
- Online courses such as those offered by **IDEO U** or **Stanford's d.school**: Programs covering everything from fundamentals to advanced applications of Design Thinking.

5.6.6 Common Challenges and Solutions

Implementing Design Thinking in organizations can present several challenges, from internal resistance to effectively integrating the practices into existing processes.

5.6.7 Organizational Resistance

- **Solutions:** Training and demonstrations of success to show the value of Design Thinking. Involve leadership to foster a culture of innovation.

5.6.8 Method Limitations

- **Solutions:** Combine Design Thinking with other methodologies like Lean or Agile to complement and strengthen the problem-solving approach.

5.6.9 Tips for Overcoming Obstacles

- **Rapid Iteration:** Encourage a culture of prototyping and quick testing to learn and adapt without fear of failure.

6 The Relationship Between Design Thinking and Agile Methodologies

Design Thinking is a user-centered methodology designed to solve problems creatively and systematically. Though it's an independent practice, it complements agile methodologies like Agile, Scrum, Kanban, and Lean, which focus on development efficiency, quick iterations, and continuous delivery. Exploring how Design Thinking integrates with these methodologies can offer valuable insights for teams seeking to improve innovation and project execution.

6.1 Design Thinking and Agile

Agile is a project management approach that promotes continuous delivery, adaptability, and collaboration among cross-functional teams. The relationship between Design Thinking and Agile is built on rapid iteration and continuous adaptation to change, with a strong focus on meeting user needs.

- **Complementarity:** While Design Thinking helps define the right problem and generate user-centered solutions, Agile focuses on effectively and efficiently implementing these solutions through quick iterations.
- **Mutual Benefit:** The integration of both approaches can lead to more effective product development and greater customer satisfaction, as ideas are continuously tested and refined through real user feedback.

6.2 Design Thinking and Scrum

Scrum is a framework within Agile development that organizes work into short, manageable cycles called sprints. Design Thinking and Scrum can be effectively connected, where Design Thinking acts in the initial phases of exploration and definition, and Scrum executes the proposed solutions.

- **Phase Integration:** In projects using Scrum, the empathize and define phases of Design Thinking can occur before the first sprint, while ideation and prototyping can be integrated within the sprints.
- **Roles and Events:** Scrum meetings like daily stand-ups, sprint reviews, and retrospectives provide regular opportunities for feedback and adjustments based on Design Thinking learnings.

6.3 Design Thinking and Kanban

Kanban is an Agile methodology that improves efficiency by visualizing workflow, limiting work in progress, and managing flow. Combining Design Thinking with Kanban allows for greater flexibility in managing creative and complex projects.

- **Continuous Flow:** Kanban can be adapted to incorporate Design Thinking phases into its visualized flow, ensuring each stage of the creative process is clearly defined and managed.
- **Adaptability:** Kanban's adaptable nature makes it easier to incorporate changes based on prototyping and testing results, which are key aspects of Design Thinking.

6.4 Design Thinking and Lean

Lean is a methodology that emphasizes waste reduction and value creation for the customer. When combined with Design Thinking, the Lean approach can help ensure that solutions are not only innovative but also efficient and directly aligned with customer needs.

- **Customer Value:** Both methodologies place a strong emphasis on customer value. Design Thinking ensures the product is desired and needed, while Lean focuses on delivering that value in the most efficient way possible.
- **Iteration and Learning:** Lean promotes fast learning cycles based on releasing minimum viable products (MVPs), which are perfect for testing and improving ideas generated through Design Thinking.

The synergy between Design Thinking and these Agile methodologies offers organizations a robust structure for continuous innovation and product or service improvement, ensuring they are relevant, well-designed, and delivered efficiently.

7 The Future of Design Thinking

As we move towards an increasingly digital and automated world, Design Thinking continues to evolve.

7.1 Emerging Trends

- **Integration with AI and Big Data:** Using advanced technologies to gain deeper insights into user behavior and needs.
- **Sustainability and Social Design:** Increased focus on solutions that are not only profitable but also sustainable and ethically responsible.

7.2 Integration with Other Disciplines

- **UX and Product Development:** Integrating Design Thinking practices into digital product development to enhance user experience.
- **Strategic Innovation:** Using Design Thinking to inform business strategy and decision-making.

7.3 Summary and Conclusions

This guide has explored the principles, processes, and applications of Design Thinking, demonstrating how it can be a powerful tool for human-centered innovation.

7.4 Call to Action

We encourage readers to adopt Design Thinking as a comprehensive approach to problem-solving and innovation, applying it across all levels of their organization to foster a learning and continuous adaptation environment.

7.5 References and Credits

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- *"Design Thinking for Strategic Innovation: What They Can't Teach You at Business or Design School"* by Idris Mootee.
- *"Creative Confidence: Unleashing the Creative Potential Within Us All"* by Tom Kelley and David Kelley.
- *"Designing for Growth: A Design Thinking Tool Kit for Managers"* by Jeanne Liedtka and Tim Ogilvie.
- *"Sprint: How to Solve Big Problems and Test New Ideas in Just Five Days"* by Jake Knapp.
- *"The Design of Business: Why Design Thinking is the Next Competitive Advantage"* by Roger Martin.
- *"The Field Guide to Human-Centered Design"* by IDEO.org.
- *"Design Thinking: Understanding How Designers Think and Work"* by Nigel Cross.

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