



EIRENE Management School

デザイン思考研究所

The Five Phases of Design Thinking

「d.seed」 model

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Ver1.0



About d.seed model

What is the d.seed model ?

The d.seed model represents design thinking, an innovation methodology, in five phases.

The five phases are **Discover**, **Specify**, **Explore**, **Experiment**, and **Develop**—forming d.seed using the initial alphabets from each phase.



Importance of the d.seed model

In design thinking, there are phases where hands-on approaches are important, such as understanding customers and prototyping, as well as phases where abstract thinking and innovation are important, such as identifying the demands and concept development.

Through d. seed model, you can better understand what to take note of and what to focus on in the respective phases. This allows you to use it as a common language in your team, and to maintain an iterative innovation process.

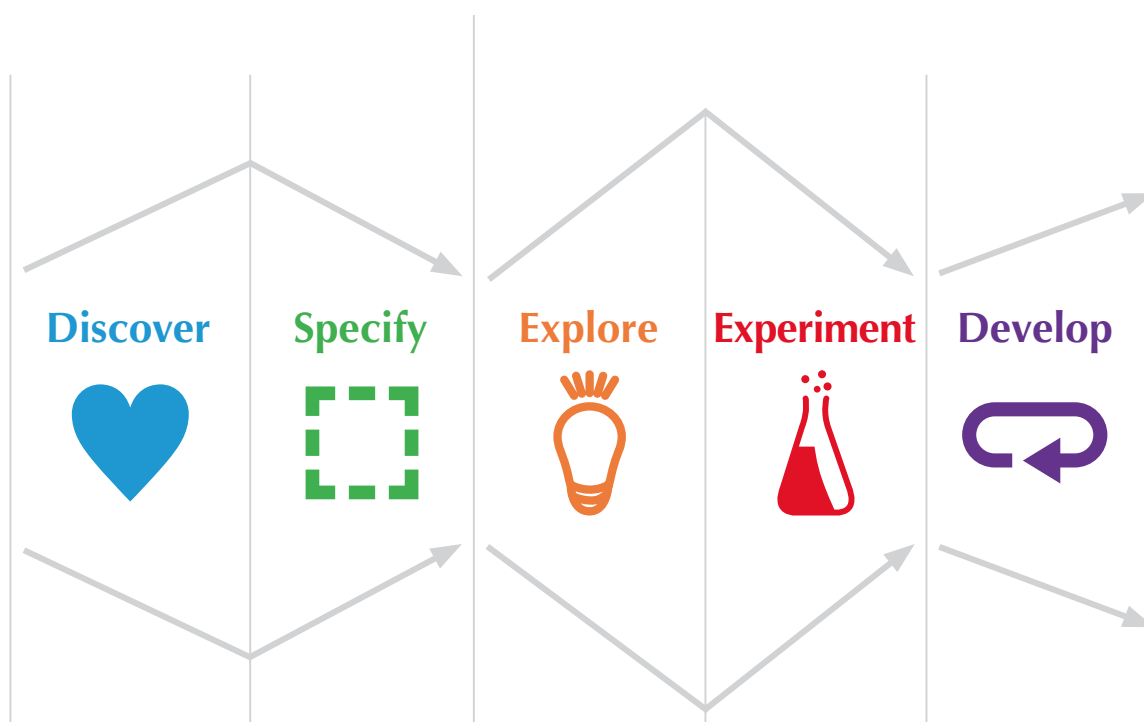
Features of design thinking and the structure of the d.seed model

Design thinking is a non-linear process that creates new market opportunities and validates the value of new concepts through repeated divergence and convergence of information and ideas.

For example, after validating a prototype in the **Experiment phase** of the d.seed model, all the team members may notice a lack of customer understanding. It is possible to proceed with the development as it is, but this raises the risk of creating products and services that are low in customer value. In such cases, it is recommended to return to the **Discover phase** and investigate again to further study the lack of customer understanding.

Non-linear progression is important, but judging when to proceed and when to return for the time being is tough if you are not used to the process. If you or your team are trying to understand the process of design thinking, firstly, you should work on understanding the whole picture through iterative divergence and convergence as shown in the following figure.

Like team sports, design thinking improves by working both right and left sides of the brain and both the head and body. Please do be mindful this is repetitive practice.





Discovery

What is Discover ?

The first step in innovation begins with some kind of discoveries, such as social changes and customer behavior that you have never known. Understanding the kind of action customers usually take and their reasons through interacting with them personally—it is especially helpful to learn about each and every customer and the stories behind them.

In this phase, you put aside the idea of classifying customers by general properties such as age, occupation, annual income, and address. Instead of interacting with customers before knowing them and after they were categorized, you should understand them by deeply empathizing with the kind of person they are and the background stories that surround them.

Understanding customers through empathy and a human-centered manner helps you grasp new opportunities that drive innovation. These include new customer aspects that are unidentifiable simply by referencing macro data or discussing in a meeting room, such as how people perceive their daily lives and work, and what is meaningful or pointless to them.

Importance of the Discover phase

While resources such as organizational technology and funds are also important in driving innovation, products and services created through using of resources can spread throughout the world because of the customer support they have received. To win customer support, you must create new value for the customers.

To create value, you need to know what customers view as important and what they see as valuable. Progressing this phase carefully increases the likelihood of making discoveries that lead to innovation.

The methodology of the Discover phase

In order to find new opportunities that lead to innovation, you need to put yourself in relevant areas that drive innovation and understand these environments and context from a multi-angle perspective. Specifically, they are experience, observation, and dialogue.

1. Experience

Use existing products and services to experience what a customer feels. For example, if you want to create a mixer as a new cooking appliance, you can try cooking using an existing mixer. By beginning from purchasing ingredients from a supermarket and experiencing a customer's usual life as such, you will be able to understand the strength and the area of improvement of existing products from a customer's perspective.

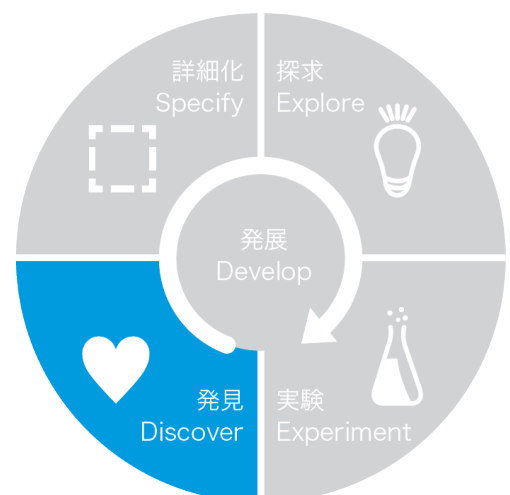
2. Observation

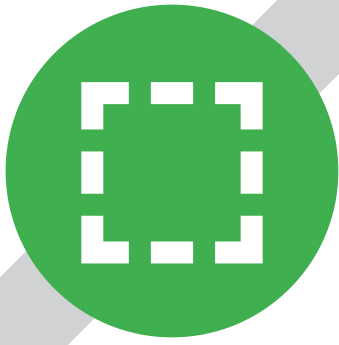
Understanding the customers' behavior objectively. For example, if you want to start a new service for a restaurant, you should check how customers behave in a cafe or restaurant and understand how they make use of the services. Visiting such places will provide you chances to discover new customer behaviors that you did not know before.

3. Dialogue

Understand the stories behind the customers better by interacting with them about the circumstances and reasons leading to their behaviors. It is important to close in on their thinking and feelings by deeply empathizing with them.

Refrain from asking questions that seek to validate hypotheses. Instead, talk to the customers and elicit unexpected thinking and opinions so that you can form new hypotheses.





Specify

What is Specify ?

In the Specify phase, you organize and analyze the customers and information about their behaviors obtained in the [Discover phase](#), and obtain insights that lead to customer needs and innovation opportunities.

It is necessary to take a new perspective on the gathered facts while sharing the results of the investigation. You have to develop a consistent interpretation of the customers' behaviors and thinking as you unravel their stories.

Importance of the Specify phase

During the Specify phase, as you carefully review and check the customers' information, you can obtain a new perspective that your team or organization had not anticipated. This new perspective will lead to the next innovation.

You do not simply list down the information obtained from customers but integrate it skilfully and form into a story. It is important to create a new framework or pattern of the customers that are different from before.

The methodology of the Specify phase

There are three key details: understanding the whole picture, understanding customer needs, and understanding the insight.

1. Understanding the whole picture

Focus on what you find surprising or memorable in the stories you have heard from the customers. Probe into why the information was memorable. There should be some kind of specific pattern or story embedded.

You do not only deepen your understanding of the customers, but also consider whether you can explain the environments and context surrounding the customers from a new perspective.

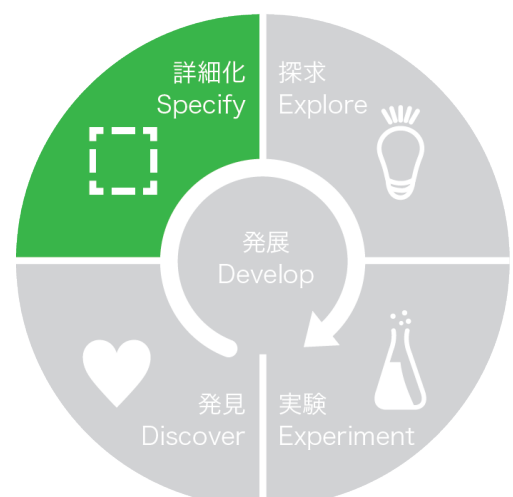
2. Understanding customer needs

Other than understanding the whole picture, at the same time, also list down the needs of every customer. When listing down the needs, you too identify the customers' actions and statements that lead to them. On top of understanding the facts, you should formulate needs that can interpret them anew.

3. Extracting the insight

Based on the whole picture and customer needs, you should verbalize perspectives that you and your team have overlooked. An example could be the differences between your expectations of the customers' daily lives and how they seemed like in-person.

The differences may be caused by a discrepancy between the perspective you and your team have and the customer's unique thinking patterns and behavioral rules. By verbalizing customer behaviors and the environment using a new framework, you can create new opportunities for innovation.





Explore

What is Explore ?

In the Explore phase, candidates of new concepts that can create values are identified through an investigation. As the name Explore suggests, it is important to expand the potential of new businesses, products, and services, rather than invent a single perfect answer. Through this phase, you can acquire the opportunity to create innovative solutions for customers and society.

Importance of the Explore phase

Very rarely would you encounter only a single method to meet a customer's needs. Once you have narrowed down the issues and problems that customers possess, you create as many methods as possible that can solve them. It is important to come up with as many options as possible during the Explore phase, especially so when the project or business development process is in the early stages.

The more options you have, the more the potential of the project will expand. Ultimately, in this phase, you only focus on the divergence and spreading of ideas. You will check which ideas and concepts are actually valuable to the customers only in the **Experiment phase**, which will be getting introduced two pages later. Again, in the Explore phase, it is important to come up with 100 to 200 ideas or concepts that might be the best, rather than trying to find just one best solution.

The methodology of the Explore phase

During the Explore phase, it is important not to evaluate ideas immediately. Specifically, you consciously divide this phase into two timings: divergence of ideas and convergence of the many disseminated ideas. By dividing into different timings, the entire team can consciously switch between focusing on increasing the number of ideas and focusing on assessing the potential of ideas.

1. Idea Creation: Divergence

The most common method is brainstorming, advocated in 1939 by Alex Osborn, founder of an advertising agency. Borrowing other people's ideas and plans, create new ideas one after another, like a word association game. There are two particularly important points in brainstorming.

1. Focus on quantity, not quality : Many ideas will generate good ideas. Avoid the act of evaluating ideas as it focuses on quality.
2. Collaborate to come up with ideas : Combine yours and other people's ideas or come up with ideas from what another person said.

2. Idea Selection: Convergence

The goal here is to select ideas with potential that might be worth prototyping and experimenting with.

A common mistake in this stage is to judge based on only technical feasibility and profitability. Apart from feasibility and benefits, you should also not forget to judge the potential to provide new values to customers and society.

At the early stages of a project, ideas with potential for development are selected, and feasibility and profitability are confirmed and verified through prototyping in the **Experiment phase**.





Experiment

What is Experiment ?

In the Experiment phase, you acquire customer feedback by materializing ideas. The goal is to experimentally demonstrate how are the ideas you have envisioned valuable to the customers.

In design thinking, a prototype is a low-cost method to materialize an idea without spending much money or time. It is a tool that minimizes the risk of failure and effectively corrects the direction of a project.

Importance of the Experiment phase

Through the Experiment phase, you can determine which part of the created idea to focus on when progressing with the project development, and use customers' feedback to help shape the process. An important part of the Experiment phase is to learn something new the team has not noticed before. The learning effect can be divided into the following three main categories.

1: The team can pursue more ideas.

During prototyping, the team may encounter new and unanticipated ideas or concepts when they were coming up with ideas during the [Explore phase](#).

2: Empathize deeper with the customers

By testing prototypes and getting customers feedback, you can empathize deeper and gain a better understanding of the challenges customers face in their daily lives and occupation.

3: Refine and validate solutions

You can use prototypes to refine solutions with the customers, or you can validate the customer behaviors anticipated by the concept—the direction of the project will become clearer.

The methodology of the Experiment phase

The Experiment phase assumes the following three steps to be repeated multiple times.

1. Prototype creation as experimental materials

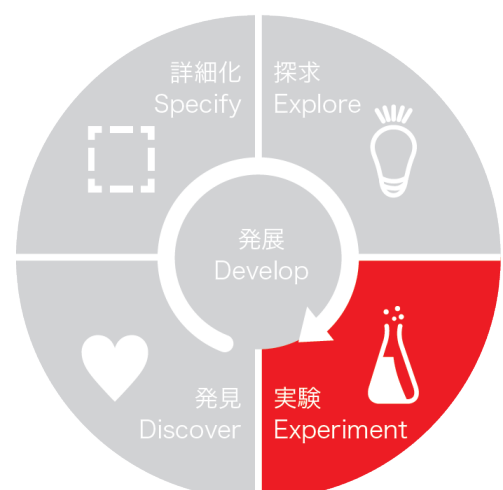
The prototype can be in any physical form, such as a pictorial representation of an idea or a three-dimensional interface made using hand tools. The first prototype can be something made in about 30 minutes using drawing paper or Simili paper. Customers rarely acclaim early prototypes. Take note that the prototypes are not meant to impress or persuade customers and build them quickly and cost-effectively.

2. Experiment through customer interaction

Once you have a prototype, you can have customers and potential customers use it. You should actively talk to them about their experience of using the prototype and, needless to say, observe how they use it. The purpose of the experiment is to learn what the customers' needs are and how they behave. You should avoid asking questions from the developer's perspective (e.g., "Do you want to buy this product?"). Instead, you should hold dialogues that draw out their thoughts and feelings by asking, "How did you feel using this prototype?"

3. Organize the experiment results and decide on a direction of improvement

Organize customer feedback. For example, you can categorize the prototype by its strength, area of improvement, questionable aspects, and new features. After organizing the feedback, you should discuss the future steps. For example, you may decide to enhance or remove a feature, or you may switch to a completely different direction from what was originally planned. Once the direction is decided, you can create the next version of the prototype that reflects this direction.





Develop

What is Develop ?

Once the utility of a new concept has become more apparent than before, the process of commercializing this new concept can be driven with the help of internal parties involved, who are not part of the team, as well as external partners. Specifically, you will expand the business operation in two directions to enhance business feasibility.

One of the directions is the functional aspect. As you forecast the kind of business models that will create values and predict the specific product and service development specifications, you communicate key elements of the business implementation to internal and external parties involved.

The other direction is the sensitive aspect. What kind of value will the current project provide the customers and why must our company engage in this business—you create a story that can be understood instinctively and communicate it as you gain empathy.

Importance of the Develop phase

By carrying out the Develop phase, stakeholders such as team members, internal parties involved, and external partners can create opportunities that provide themselves the support they need for future business development.

Specifically, they can reduce the difficulty of performing difficult actions that are important for future steps, such as securement of internal budgets, preparation for pre-release promotional activities, and acquisition of initial customers after release.

The methodology of the Develop phase

Several tools can be used to develop effectively. The tools introduced here are mainly the ones important for the sensitive aspect. For example, storyboards, media mock-ups, and short videos. An important point all these tools share in common is that they immediately induce new imagination of the customer's life and behavior in those who have seen the final product.

1. Storyboard

Create a story that captures the daily lives of customers in a picture-story show format. You can create a story from a more human-centered perspective by dividing it into the following four stages.

- 1) Usual customers behaviors
- 2) Customers' challenges and issues
- 3) Benefits for the customers who use the product currently under development
- 4) The kind of changes in their daily lives after using the product

2. Media mock-up

After a product is put on the market, will it be the magazines or the TV if it were to be featured in the media? What kind of value will the product be featured? Visually represent how the products developed by you and your team will be introduced while imagining the media that potential customers usually use.

3. Short video (2–3 minutes)

Visually represent the actual changes in customers while bearing the storyboard in mind. For example, you need to provide suggestions about the kind of customers the new products will provide value to, the kind of lives they are living, and how their daily lives will change after they purchase the product.





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