ADAPTING THE PROCESSES OF A PUBLIC SECTOR INNOVATION LAB WITH THE HELP OF DESIGN THINKING.

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THE CASE OF XLAB-RVO.

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EXECUTIVE SUMMARY

In the Netherlands, one of the government bodies solving complex problems is the Netherlands Enterprise Agency ('Rijksdienst Voor Ondernemers'; RVO). Within RVO, X-lab is developing new ways of working to be better prepared to deal with these complex problems. In short, X-lab is RVO's internal innovation lab that creates and collects different frameworks, methods and tools to support policy writers when they solve problems. They do this by co-creation, developing frameworks, experimenting and setting up processes.

In practice it has been noted by X-lab that innovative ideas are being created with the help of X-lab, but not always successfully carried out in practice. Hence, X-lab is working on improving its methods and processes. A new method they are currently developing is flow design, which is seen as a good fit to solve the present complex problems. However, X-lab encounters problems scaling up the flow design method, therefore it is not practiced by many. I was approached to further investigate this problem.

While investigating the problem, I noticed there are several underlying problems within flow design that do not allow flow design to live up to its full potential to deal with complex problems. This is mainly because after a flow design session no clear actions to solve the problem are designed after analysing the problem. Based on this insight, I decided to shift the focus of this research towards these underlying problems. Resulting in the following aim of this research: The aim of this research is to deliver a tangible product that enables X-lab to better deal with complex problems, supported by recommendations that are based on a thorough analysis of X-lab and flow design. Since I am a designer experienced in design thinking, the following research question was drafted: **Where and how can design thinking support the trajectory of flow design within X-lab RVO?**

This thesis follows the structure of the double diamond as presented by the design council (2007). The starting point of this thesis was conducting research into X-lab and flow design. These results are evaluated and then compared to design thinking theories. Based on the outcome of this analysis several experiments were performed to develop the solution. As a final step this solution is validated and iterated. Resulting in two manuals and a decision-making canvas.

The discovery phase

The first phase of this thesis is *the discovery phase*. In this phase case studies and interviews are done to develop a theory explaining flow design. Based on this analysis several problems are identified which are arbitrary division, language, time limitation, lack of process and measuring impact. Of these problems lack of process is the most relevant problem and therefore it was selected to solve in this thesis. In this analysis it was concluded that flow design doesn't live up to its full potential. According to the theories by Tuckmann (1972) and Snowden and Boone (2007), there need to be steps added after a flow design session, so that the group can live up to its full potential and so that complex/complicated problems are solved in the best possible way. Therefore, the question arises whether design thinking is a relevant theory to support in developing these steps and if so, how can it support flow design?

The define phase

This question is answered in the second phase of this thesis, *the define phase*. With the help design thinking models, such as frame creation (Dorst, 2015) and the double diamond (Design council, 2004), the conclusion is made that design thinking is supporting when dealing with complex and complicated problems. Also, based on the design thinking models, two design thinking principles were drafted that can support flow design, which are:

- To be able to perform next steps while solving a problem, their needs to be clarity in which steps to take and why
- Secondly, these steps need to be taken using iteration and experimentation

The create phase

The third phase of this process is *the create phase*. In this phase the solution is created and developed. To do so several experiments are performed to understand the moment of intervention, the use of frameworks, how to deliver clarity and their current way of experimentation. Based on these experiments a model is developed and tested. The result was a concept model, which had potential, but needed further iteration so that the user knows how to properly apply the model. This was done in the final phase.

The deliver phase

The final phase of this thesis is *the deliver phase*. In this phase I have developed two manuals and a decision-making canvas which guides you through the necessary steps to take for solving a complicated or complex problem. These products were validated using a fictive case study. The evaluation pointed out that the product portfolio is succesfull, but where and how did design thinking support the trajectory of flow design? I will explain that based on the theories I have consulted in this thesis.

The support of design thinking

Based on Tuckmann (1972) and Snowden (2007) and the interviews it can be said that the full potential of the current flow design process is not met. First of all, because in theory the potential is higher when all steps of the two theories are completed, and secondly, because flow design has no tangible outcome and therefore no clear actions to solve the problem are designed after analysing the problem. However, the final goal is to solve the problem, consequently the current flow design process could be improved.

So, flow design doesn't perform all the steps of Tuckmann's model of group development and also not of Snowden's dealing with complex/complicated problems model. The missing steps in flow design are Tuckmann's norming and performing steps and Snowden's probe, sense and response steps for complex problems, and Snowden's sense, analyse and response steps for complicated problems. The product portfolio was designed in such a way that it facilitates that all of Snowden's and Tuckmann's steps are performed. Furthermore, the validation showed that the product portfolio indeed delivered clear actions to solve the problem. Since, the product portfolio has been created with the use of design thinking, namely the methods of the double diamond and frame creation are being applied, I conclude design thinking supports the trajectory of flow design.

So, I have presented a product portfolio in this thesis which improves flow design. Furthermore, this product portfolio along with the thorough description I made on flow design itself has been written down in a tangible document that can be transferred to collegues within the organisation. Reflecting on the starting point of this project six months ago, I conclude that the side effect of this thesis is that the resulting product increases the potential scalability of flow design.

Lastly, the validation pointed out that improvements can be made on clarifying what type of problem you are dealing with and on how to use the action model more time efficient.

WELCOME!

CONTENTS

CHAPTER 1

1.1 INTRODUCTION

If we look around, we see things our parents couldn't dream of. This also means that there are new challenges. According to the Harvard Business Review today's decision makers face environments in which things that were isolated from one another just 30 years ago are bumping up against each other, often with unexpected results. This is due to a large number of technological and sociological changes that occurred after 1980:

- Digitization of massive amounts of information,
- Smart systems that communicate interdependently,
- The decreasing cost of computing power,
- The increasing ease of communicating rich content across distances,
- An increasingly wealthy human population, resulting in more participation in the formal economy, and
- The wholesale rewriting of industry norms and business models.

In the public sector political and administrative leaders are subjected to great pressure. In recent years, there have been major issues erupting that undermine "business-as-usual" approaches to law and security, social wellbeing, economic stability, and environmental health.

In the Netherlands, one of the government bodies solving these complex problems is the Netherlands Enterprise Agency ('Rijksdienst Voor Ondernemers'; RVO), which is a government implementation agency with around 4000 employees; its activities are carried out on behalf of various Dutch ministries, provinces and the European Union. It aims to facilitate entrepreneurship, improve partnerships, strengthen positions and help realize national and international ambitions through financing, networking, knowledge and compliance with laws and regulations. in 2020, RVO paid out 12.3 billion in subsidies to entrepreneurs, on behalf of 9 different ministries (Tweede Kamer, 2020).

Within RVO, X-lab is developing new ways of working to be better prepared to deal with these complex problems. In short, X-lab is RVO's internal innovation lab that creates and collects different frameworks, methods and tools to support policy writers when they solve problems. They do this by co-creation, developing frameworks, experimenting and setting up processes. For example, a case solved by X-lab several years ago is for the Ministry of Economic Affairs(EZ). EZ needed a lot of data from the agro-food sector to be able to grant subsidies. This resulted in extra administration and therefore investment in ICT was needed. This created a conflict as to who is responsible for these costs. X-lab organized a co-create session in which the problem was treated as a system issue resulting in an investment agenda through which EZ can weigh the interests of its own parties(RVO, NVWA) against the interests of the industry.

The previous is an example of a successful outcome for X-lab and RVO. Nonetheless, in practice it has been noted by X-lab that innovative ideas are being created with the help of X-lab but not always successfully carried out in practice. Hence, X-lab is working on improving its methods and processes. A new method they are currently developing is flow design, which is seen as a good fit to solve the present complex problems. However, X-lab encounters problem scaling up the flow design method, therefore it is not practiced by many.

Another new way of working on solving complex problems is design thinking. Design thinking is a process generally defined as an analytical and creative process whereby one is allowed to experiment, model and develop prototypes, collect feedback and redesign (Razzouk, Rim & Shute, Valerie, 2012). Design becomes a force in the world. Today, design professionals have gained access to a wide variety of professions. This is a great success, not only for the individuals, but also as a testament to the value of design practices. Likewise, a growing number of non traditional designers are successfully picking up and using design practices to solve problems across society (Adam Thorpe & Lorraine Gamman, 2011).

This rise in complex problems in combination with design thinking can open up a whole range of solution options. An example is the Danish MindLab, an internal platform for creativity and innovation of the Danish Ministry of Economic and Business Affairs. They have successfully implemented design thinking into their methods and are regarded worldwide as a success for using design thinking to solve complex problems.

Therefore, I argue design thinking can be of added value to X-lab's activities. So, in this graduation project I will analyse the problems of X-lab's new flow design method in order to explore the added value of design thinking. The next goal of this thesis is to develop a structured process based on design thinking in which flow design can be applied to complex problems. This structured process will result in a transferable product and therefore it will be scalable.

Enjoy reading!

Image 1. RVO in the Hague

1.2 INTRODUCTION X-LAB

In this section I will briefly explain the context of this graduation project, considering the organisation RVO and the team X-lab.

RVO

This project takes place in the Netherlands Enterprise Agency (RVO). RVO is a Dutch government agency that operates under the auspices of the Ministry of Economic Affairs and Climate Policy. Its activities are commissioned by the various Dutch ministries and the European Union. They help enterprising Dutch people and policy staff move forward in the field of sustainability, moving business across borders, agricultural entrepreneurship, and innovation. RVO does this by giving advice, creating a network, and granting subsidies.

X-Lab

In 2014 RVO was exploring different process innovations to deal with these challenges. On the initiative of workers from RVO, “X-lab supports in solving complex problems by thinking in services” (Interview X-lab employee). For the development of this lab, existing innovation labs such as the Danish mindlab and the UK policy lab have been consulted and functioned as inspiration.

While searching for external help on a case, Deloitte stated the following description of RVO’s X-lab: RVO is setting up a “laboratory” in which public services are improved and renewed. In this X-lab explorations, analyses, and experiments are carried out in concrete cases that are submitted from within or outside the organization.

X-lab is founded because RVO has become globally aware of the complexities of the social, economic, and environmental challenges we face. These new challenges are open, networked and, dynamic problems. Many policy problems are wicked, ill-structured, or complex in the sense that natural, technological, social, and human elements interact. As a result, a variety of problem perceptions exists, values and interests may be conflicting, and power and resources to change things are distributed over multiple actors (Rittel and Webber, 1973). Such complexity is the everyday reality of analysts and problem solvers concerned with such complex socio-technological systems.

X-lab’s trajectory

In brief, X-lab delivers actionable design by facilitating meetings with the case owner. During those meetings tools are applied by X-lab to reframe the problem in order to open up new possibility space.

In total X-lab is ran by seven staff members.

1.3 FLOW DESIGN INTRODUCTION

In this section I will describe the new tool currently in development, flow design. Flow design is a method that can be requested by the problem owner as a single session or as part of the X-lab tractory as described in the last section.

Flow design is a method, developed by employees from X-lab. It is a method in which co-creation sessions are held and outcomes are not designs but future actions. Flow design solves problems that are complicated or complex snowden (2007). Different frames are created by using different experts. By using these different frames, a common mental model is created, which is then converted into action lines. How these problems are converted to actions is explained in chapter 5.

But the main goal of flow design is not the outcome but the process itself. The focus lies on getting into flow. This is a concept first described by Mihály Csíkszentmihály. He describes it as a state of concentration or complete absorption with the activity at hand and the situation. It is a state in which people are so involved in an activity that nothing else seems to matter. Whereby most of the theory focuses on individual flow. Flow design is also a method to get a group as its whole into flow. Group flow is notably different from independent flow as it is inherently mutual. Group flow is attainable when the performance unit is a group, such as a team or musical group. When groups cooperate to agree on goals and patterns, social flow, commonly known as group cohesion, is much more likely to occur (Walker, 2010).

Flow design is in development since 2018 by X-lab. The first name of flow design was the role model. This model consisted of a clarifier (duider), process moderator (process begeleider), expert and problem owner (probleemeigenaar). After using this model and improving it, flow design emerged. Currently, flow design is used to guide a session in a way to generate more solution space and to empower the participants.

2 DESIGN OF THIS RESEARCH

2.1 AIM OF THIS RESEARCH

In this section I describe the research question, aim of this research and the crucial steps needed to achieve this.

Research question

The research question of this research is:

Where and how can design thinking support the trajectory of flow design within X-lab RVO?

Research aim

While investigating the problem (see research objective 1), I noticed there are several underlying problems within flow design that do not allow flow design to live up to its full potential to deal with complex problems. Based on this insight, I decided to shift the focus of this research towards these underlying problems, resulting in the following aim:

The aim of this research is to deliver a tangible product that enables X-lab to better deal with complex problems, supported by recommendations that are based on a thorough analysis of X-lab and flow design.

To achieve the research aim several research objectives need to be achieved.

Research objective 1 (discover)

The first research objective is evaluating flow design. For this it is important to first understand the context. The context is researched by observing and participating in team meetings of X-lab and secondly by doing interviews. Thereafter flow design is analyzed. It is analyzed by performing interviews, observing meetings and following several cases.

Research objective 2 (define)

The second objective is researching how design thinking solves the problems found in research objective 1. First, several design thinking method should be selected. Then these methods should be compared with the conclusions found in research objective 1. Based on this research a selection should be made of which problems to tackle.

Research objective 3 (create)

The third research objective is to develop the solution. First, ideas should be developed based on the outcome of research objective 2. Next, several experiments should be performed to validate the assumptions underlying this idea. Lastly, several iterations will be done on the final solution.

Research objective 4 (deliver)

The last research objective is validating the solution. This is done by first performing several expert reviews. Followed by doing a case to see if the problems found in research objective 1 are solved.

Project structure

The Double diamond model (British design Council) in figure 1.1 constitutes the basic structure of this thesis. This project is stucture into 4 steps; discover, define, create, deliver. These act as the structure of the creative process that has led to the final deliverable.

The discover phase

In the discover phase X-lab's way of working and flow design is analyzed by interviews, case studies and meeting observations. Thereby fulffiling research objective 1.

The define phase

During the define phase I will scope and select problems. I will start by comparing X-lab's proccesses and methods to design thinking methods, identifing the added value of design thinking. This analysis then results in scoped redefined problems. Thereby fulffiling research objective 2.

The create phase

The create phase describes the iterative design process, in which different design techniques, experiments and evaluations form the basis of the final proposal. Thereby fulffiling research objective 3.

The deliver phase

The deliver-chapter describes the final deliverable of this graduation project. The final deliverable is tested in a case study. Thereby fulffiling research objective 4.

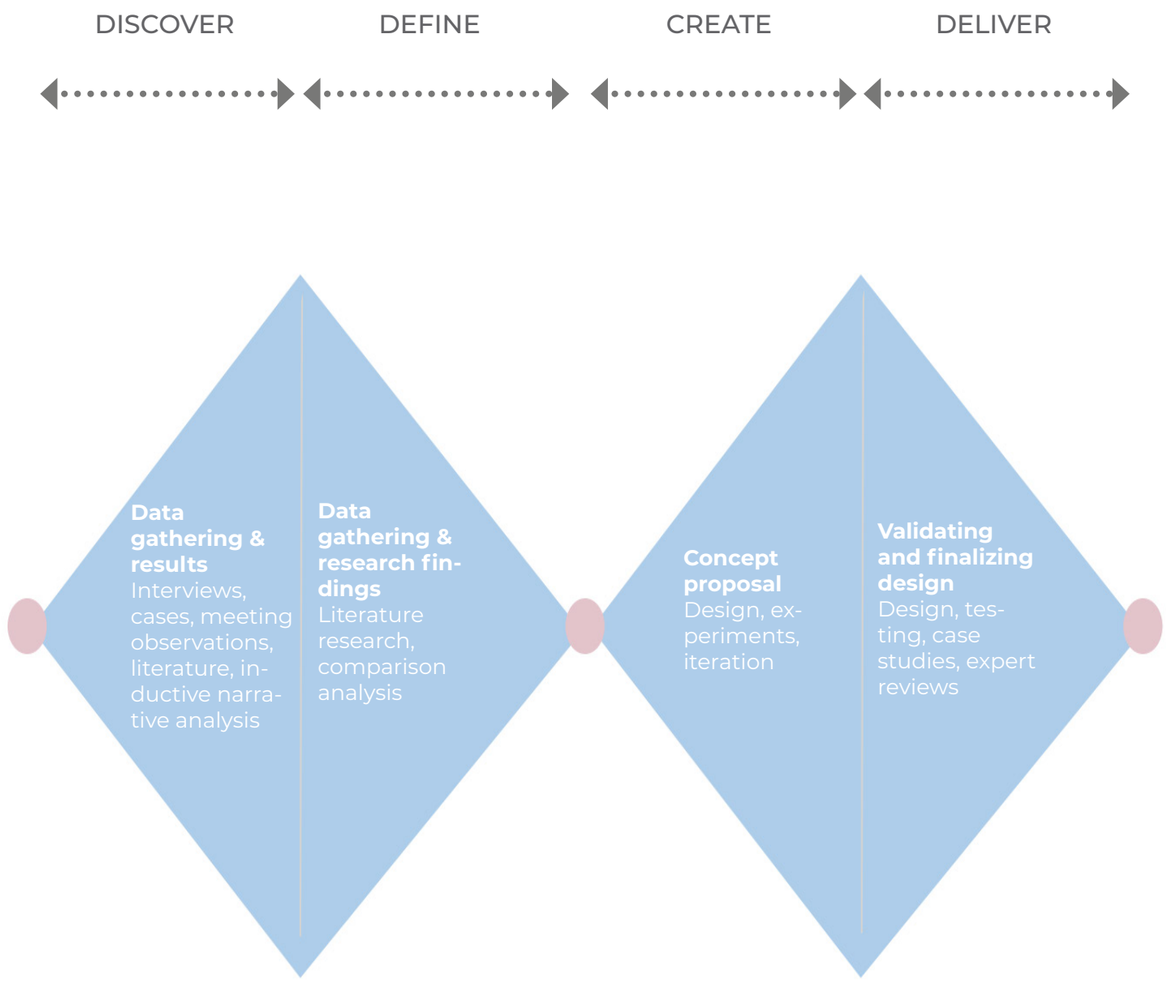


Figure 1.1 Project overview

2.2 METHODS

The focus of this project is on understanding flow design and its context. Therefore, it is first of all important to understand how flow design works and most of all understand the context in which it operates: X-lab's current way of working. This analysis is performed in the discover phase of this thesis. First of all, I will describe the methods used to gather in- formation which then will be used to analyze the process and formulate a problem statement.

The discover phase is split up into two sections: X-lab's current way of working and flow design.

X-lab's current way of working

The aim is to get an understanding of their current process and the principles that support their process. To do so, 15 interviews were conducted. Furthermore, I observed and participated in 20 meetings of 2-4 hours. Based on these interviews, meetings, and literature I came to a description of the X-labs process (chapter 4). I like to state that when starting this project there was no clear way of working in X-lab, so the description of the process is solely based on this analysis and confirmed by X-lab.

Flow design

The next aim is to get an understanding of how flow design works and find its current limitations. To deliver this analysis 2 case studies were done, 10 interviews were conducted and 25 meetings in which flow design was applied have been observed and participated in.

Interview method

Interview participants were recruited through the network of X-lab. The interviews lasted approximately sixty minutes in a semi-structured way through zoom or Microsoft teams; during this work strict regulations for limiting spread of the COVID-19 virus were implemented, including not working in offices. For the interviews Miro was used to show the interview approach to the participants and make notes, for an example, see appendix 2.

Case observations

To learn more about X-lab's way of working and their flow design method in practice, several cases were followed. The data was gathered by following the team in general, not limited to a specific project. Furthermore, I followed two specific projects more in depth to see the method in practice. To analyze these cases data was collected using Miro board and recordings. Also, the researcher participated in these cases by performing different roles to gain more insights from different perspectives.

Meeting observations

As an X-lab team member I participated in their daily work in over 20 meetings. In these meetings different team members or external experts participated on a variety of subjects. For details on the insights gathered in these meetings, see appendix 3.

Based on the information gathered in the interviews, case studies and meeting observations, I made a description of their current way of working, the flow design process, the limitations and problems. My observations and conclusions will be described in the next chapter.

2.3 FACTS AND FIGURES OF THE RESULTS

Data has been collected from a total of 127 hours of interviewing, case-reviewing and participating in meetings. All participants are anonymized.

Interviews

In total, 11 different people were interviewed in 21 interviews that lasted a total of 28 hours resulting in 66 excerpts. These interviews exclude interviews done for the case studies, described below. Participants included three executive managers in a ministry, one in a municipality, six X-lab employees and one designer. The interviews with the participants concerned their expertise, relative to either X-labs or flow design. The interviews were then analyzed by extracting the most relevant excerpts and then grouping them into categories; for details, see appendix 3

Cases

Two cases were analyzed that lasted a total of 15 hours. During these cases 37 different people participated. For more information about the participants and cases, see appendix D and E

Observations

In total, the researcher took part in 18 meetings, with an overall duration of of a total of 84 hours and observed through participation. All data was collected in Miro from which the interesting insights were subsequently obtained and discussed for feedback with the participants; see appendix 1.

2.4 HOW THE DATA IS ANALYZED

Research data is collected through interviews, observation, cases and literature. The collection of this data is done for each research objective. For analyzing the data of the interviews and observation, an inductive method was used.

The analysis was divided into four stages. First, the Miro boards, recordings and transcripts were analyzed and categories were identified to reflect on the specific definition of flow design and theory on flow design. Second, these categories were grounded into second-order themes to shift to more abstract concepts. in order to do so, the categories were compared with existing research of Jaap Daalhuizen (2021) on design methodology. Based on this theory second order themes that more closely reflect this theory were defined. I was unable to define alle these themes in more detail because research about flow design is lacking.

Thirdly, explanations for differences and similarities were explored on the basis of the interview and observation data. These are used in providing variation, if there was missing similarity or difference at a specific theme further research is required.

Fourth, the last stage of this analysis was drafting a description of the method of flow design. The descrption of the method is then compared to the data from the interviews and observations. The combination of these two sources allowed to select the most relevant factors. The key findings and relevant quotes can be found in the following chapter.

Lastly, the research findings are shown to flow design experts to validate the outcome of this analysis.

3 DISCOVER

In the discover phase the context of this thesis will be described and an analysis of X lab's current way of working and flow design will be done. In the coming sections, a theory will be developed on what flow design is and how it functions.

First, the results of this research will be presented. Secondly, the current way of working of X-lab will be explained. Thirdly flow design will be analyzed and lastly current limitations of X-lab and flow design will be presented.

3 RESULTS DISCOVER

As the first step of this discovery phase the result will be presented. In this section the interviewees and the cases are explained.

3.1 INTERVIEWEES

Different participants were interviewed to do the analysis of X-lab's way of working and flow design. Three different types of interviewees are identified:

Case owner

The case owners are the submitters of issues at the X-lab. They own and control the experiments. They provide their budget and have the results from the lab: they are the decision-makers.

Lab staff

The case owners are supported by the lab staff: specialists in designing, setting up, and supervising experiments and experts in the field of the applied methods and techniques. Users and lab staff are increasingly assisted by machine agents: pieces of software that support users in tasks such as providing access to information or recording results.

Experts and designers

In addition to the case owners and lab staff, experts and designers participate in the experiments. Experts (internal and external) provide input based on their expertise, designers actively participate in the design of services. Designers work on behalf of the case owners.

Overview number of interviews and cases

Five case owners have been interviewed for this research. The cases differed from smaller projects such as digital skill improvement within RVO to larger projects spanning different ministries.

Ten interviews with lab staff have been performed. The questions where based on their expertise and roles within X-lab.

Two interviews where done with designers working with X-lab and two interviews were done with experts on experimenting.

An overview of the results can be found in appendix 3. The result of these interviews will be shwon in following chapter as a base of the analysis.

3.2 OBSERVED CASES

Different case are used to get a better understanding of the working of flow design in different contexts. These case are analyzed by looking through Miro and recordings. Below is a decription of the cases in brief in section 3.3 and 3.4 you can find a detailed description of the cases.

BAR (Barendrecht, Albrandswaard and Ridderkerk) Group municipality

The BAR team tasked with the digital transition of three municipalities. They were lacking progress and asked for support by a single flow design session. This session was with 7 participants all working for the BAR. The result of this session was different actions, these actions took around 2 months, than a new session was required. For the case study see 3.3

MCU (ministeriële commissie uitvoering) Future proof services

This commission was commissioned with the Future-proof services of the government. The team consisted of 4 core members, they created an inspiration group with 26 participants of different governmental organizations, these participants were directors or senior strategic advisors. The sessions that where hosted used the flow design method. For the case study see section 3.4

The information from this case study was collected via Miro during the activities and afterwards it was discussed further by means of interviews.

3.3 CASE BAR

BAR, Case study BAR (Barendrecht, Albrandswaard, and Ridderkerk) Group municipality

A team From the Bar municipality was tasked with the customers come first project. This project was divided into three main project lines: identity, online services, people at the center together for the customer, and was led by a project manager. Their manager (not the project manager) expressed the problem as: Where can we strengthen each other?

Why flow design

This manager requested flow design because she wants the team to get inspired and wants them to support each other more because of this shared dream. All the other team members weren't familiar with the method flow design.

Structure

The case consists of three meetings spanning over 2 weeks, the first is with the colleague of the team manager, the second one with the colleague of the team manager and the manager and the third meeting was with the whole team. After these three session two reflection session are organized one after the flow design session and the other one month later.

First meeting

The first meeting was a meeting with the manager who requested flow design and a flow designer and a clarifier. The goal of this meeting was to discuss the problem and to discuss the process of the case. Resulting in the direction: what does it look like afterwards and a general approach that consisted of two more meetings one with the project manager and one with the whole team. For more details about the first meeting see appendix D1

Second Meeting

The second meeting was a meeting with the manager, project manager, flow designer, and a clarifier. The goal of this meeting was to prepare the project manager for the role of problem owner and to find 3 questions to ask the experts. These questions that were created are;: What would you like to do for citizens with this program? What would the public notice about this? What would you like the citizen to notice from this? For more details on how these questions are created see appendix D2.

Third Meeting

The third meeting was a meeting with the manager, project manager, three experts, flow designer, and a clarifier. The goal of this meeting was to get a good understanding of the problem and the essence of the connections between the different projects.

This session started with a check-in where everyone answered the following questions: How are you doing and what do you want from today. After these answers the group determined the definitions of done for the session; How do we move on so that we get everyone moving internally?

Thereafter the questions that were prepared in the second meeting were asked one at a time to all experts and the problem owner. The flow designer also asked when is phase 1 (after one month) successful?. This last question was used to see what the experts needed to proceed, which risk they saw, and where the focus was. Based on this several actions were created such as:

- Discuss with the steering committee which cross-sections we need - including delivery in time
- Create stories for target groups with core messages, involve opinion leaders in creating this message
- Set up a soundboard group - still think about the shape.

Lastly, a checkout was done with the group where comments were made by the experts such as:

- "It was a very valuable and concrete session."
- "Nice that it has yielded insights and that we can go a step further."

For further details about this meeting see appendix D3.

Output

To be able to determine the result of this meeting two reflection sessions were organized one directly after the meeting and the other two months later.

First reflection session

In the first reflection session the project manager, manager, flow designer, and clarifier were present. The goal was to reflect on the process of the session and the outcome of the session. When reflecting on the process the project manager and manager stated:" That they found it well prepared," the project manager also stated that: "Very effective way to do something complex, which has different images of complexity and remains complex, and you eventually have very concrete points that you can work with". When reflecting on the outcome, the project manager expressed: "This was a valuable session and created new insights, we're able to move on." and "We need to set up meetings different. More toward finding shared actions." The flow designer expressed that:" I took an extra step, the consultancy step, does not flow design, make concrete, indicate making concrete, making a path, this gives the most action perspective."

Second reflection session

In the second reflection session, the manager and clarifier were present. The goal was to reflect on how the outcome has impacted the different projects and the teams. When reflecting the manager stated that; "It is going great with the project the moment was perfect.We know where the opportunities are." "If looking back the impactful moment was discussing phase 1." The actions we decided to do helped ,we also added some extra actions after the session."

When looking into what are their next steps the manager expressed:" we need a new flow design session to make explicit where the new opportunities are, this to go next level with the project."

To learn about what they did with the outcome of the session the manager was asked what she did whit the outcome of the session: "We didn't really reflect or went back to the board. We just know in which direction we wanted to go. "

3.4 CASE MCU

The second case is a case for the MCU, (ministriele commissie uitvoering). This commission was commissioned with the Future-proof Services of the government. The team consisted of 4 core members, they created an inspiration group with 26 participants of different governmental organizations, these participants were directors or senior strategic advisors.

The session organized was the second inspiration session. During the first session a vision was created and during the second session, it was about how forwards. To determine what the questions were during flow design a pre-meeting was organized. Hereby the following 3 questions were created.

1. Describe two or three concrete effects for the citizen that you as an organization want to have achieved in view of this vision?
2. What opportunities do you see for new interactions within your organization, in collaboration with other organizations?
3. What do you need to take the next step? Do you now have enough answers for that, with this vision?

Before the flow design meeting, all participants were asked to answer these questions and present them at the meeting.

The meeting started with a short word of the case owner, here all the participant were thanked for their participation and explaining the goal of the meeting: finding how to move forwards. After this the process moderator was introduced and took charge of the meeting. The process was started by introducing the structure; every participant had 2-3 minutes to answer the three questions and then there was some small room for questions. The order of the speakers was predetermined to support the continuation of flow. According to the flow moderator this is important because by doing this the speakers dared to speak more. Also three clarifiers were introduced.

After this introduction the meeting started, after 25 minutes the process moderator asked the clearifiers to show what they saw and what they plotted in Miro. After this there was a break of 5 minutes.

After this break the other half of the group presented their answers, than at the end the clearifiers again showed their work. After this the case owner reflected on the process an asked for feedback of the group. The group expressed their satisfaction with the process.

At last, there was a reflection with the core members of the project, the process moderator and the clearifiers. Here the core members expressed their dissatisfaction with the result, they said: "We expected more connections between participants to create actions them self". Now they need to create a process for the next steps. The process moderator and clearifiers tried to help the core team to find these next steps, unfortunately the next steps found weren't explicit enough.

4 RESEARCH FINDINGS X-LAB

In this section I will focus on the first research objective: The first research objective is evaluating flow design. To evaluate flow design it is important to first understand the context. The context is researched by observing and participating in team meetings of X-lab and secondly doing interviews. Thereafter flow design is analyzed. It is analyzed by performing interviews, observing meetings and following several cases.

4.1 X-LAB'S OFFERING

To deeper understand the principles of X-lab we will look in this section into how and why it was founded, explaining the history and founding of X-lab.

Founding of X-lab

X-lab was founded by two RVO employees and one external expert. The first tool used by X-lab was 16x created by Majid Iqbal. With this tool, the team further developed the business case of X-lab. By looking into different innovation labs the team created a better understanding of their offering.

Their offering was an open, creative and safe place where you are welcome to work with them in complexity. They did this by helping you solve the problem, by asking questions, diving into the problem, experimenting, coaching, and advising you on implementation. When started they worked in the following three domains, the digital economy, integral demand and learning government. The total activities of X-lab in the period of 2015-2018 exist for 30% from policy innovation, 55% from process innovation and 15% from system innovation.

X-lab positions itself as an innovation lab for service design within the government. Based on interviews and looking through old cases, X-lab's offering can be split up in 4 elements:

Helping the client validate

Testing hypotheses aimed at policy impact, by conducting policy analyzes, analyzing, and visualizing implementation data, and setting up and executing targeted experiments, "probes", in ongoing implementation programs. Results are proposals for adapting public services.

Facilitating client with entire project trajectory.

Supporting whole projects, as a facilitator and/or expert. They do this by empowering the case owners during the whole project. As a result they deliver actionable design; a reframe and with this reframe they together design next steps.

Helping clients finding new frames.

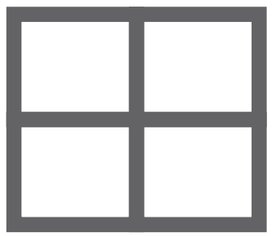
Supporting a project that is lacking perspective to act at that moment. They support such a project by facilitating a session where several experts are involved and then they create a reframe and this reframe delivers perspective to act.

Developping tools/methods for internal use.

Developing tools and methods for RVO. These tools are either self-created or are existing tools which have been adapted to fit the local context.

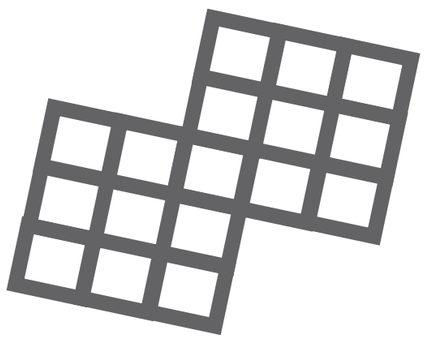
4.2 TOOLS X-LAB

During the meetings X-lab works with many tools and methodologies from facilitation methods to methods such as logical framework analysis. But X-lab mainly adds value with the following three tools based on systems thinking and service design. When looking at these tool it's important to notice that ownership is a problem for X-lab doing cases. The more X-lab does the less ownership the caseowners team takes. X-lab doesn't have the capability to do these cases, that's why they empower teams using principals of the following tools.



1. 16X

The 16x tool is a service design framework to gain insight into the components that make up the individual services. It brings attention to the duality and symmetry that services have in the interaction between customer and provider. For a filled in version see appendix A. According to an X-lab employee the principle of 16x is " giving and doing dualities."



2. ACCELERATOR

The accelator is a model to understand how the building blocks of public services are related: how public investments in society lead to added value and subsequently to better public investments. It supports the analysis of the roles and tasks of the learning government at the level of policy, programs, and projects. Accoridng to an X-lab employee:" Accelerator helps to see policy implementation in the context of the entire policy cycle."

3. PANDA

Panda is a framework which helps getting a grip on the systemic nature of complex issues. It helps understand the context of issues and the relationship with other issues on a system level in an investigative way. Accoridng to an X-lab employee:" Central is the idea that measures you take at one moment have an effect at other times in the system. You get a grip on the context and coherence within and between issues."

4.3 PROCESS X-LAB

The process of X-lab has several phases in the form of meetings. When a case owner enters the process, it is determined at which stage they will stop so that the case owner will leave with sufficient insight. The process can contain up to 6 phases, which I will elaborate upon in this section.

Note that this is their process on paper, completed by me after following and observing the team. However, the team does not necessarily follow a clear structure. The process is determined for each case individually by X-lab experts often based on intuition. While observing, I have noticed a process proposition at the start of each trajectory is limitedly suggested. Nonetheless, it is important to distinguish the outline of the process, to create the best possible understanding of the functioning of the team, in order to evaluate and have a starting point for this thesis.

PHASE 0

This is an intake, not part of the process, but here X-lab and the case owner try to see if there is a fit. This is based on whether or not the problem is complex enough, and does X-lab and the case owner have a connection.

PHASE 1

The case owner enters a subject in the form of a question. Those questions are mostly in the following direction: It is complex, it runs not as expected, how can I continue?

PHASE 2

Is to get the context, this may take some time because it is necessary to view the whole system with events, interests, principles used, core questions, and assignments, until it has become clear where the pain points are that hinder progress.

PHASE 3

Establishing the central question or hypothesis.

PHASE 4

This is the experimental phase to see if the question is correct and leads to result. This is not a traditional experiment as we designers think off, it is in the form of a panel discussion. Every participant brings knowledge and skills to complement each other and everything is allowed up to experiment. Sometimes that leads to a surprising result.

PHASE 5

The previous phase has provided insight into how the different components relate to each other. With this outcome possible concepts are created.

PHASE 6

We will design this in more detail: How can we create a precise design for the process and desired result and translate that into a plan of action.

4.4 BOUNDARY STRUCTURE WITHIN THE GOVERNMENT

During several interviews and meetings, the following comment was made severale times by case owners and X-lab employee's: "innovation within government is hard." When asking "why is this hard", several reasons where given such as:

- "we are spending tax money so you could say we need to be right every time." (X-lab employee).
- "our problems are really splintered, we have to deal with many different stories to the same problem."(Case owner)
- "Their seems to be resistance to helping people with implementation, these are "de krenten in de pap" (Dutch proverb meaning these are the great things of the job)." (X-lab employee).
- "When developing a solution, it is never your responsibility as a team you're responsible for a part." (X-lab employee).

Also according to an article released by Twynstra Gudde in 2021 there is resistance within the context of government when implementing. there are several reasons for the resistance which origin in the organizational, political and psychological characteristics of the government.

Organization

To be able to organize, boundaries are needed to a certain extent. Calling something an "organization" already means that there is a boundary somewhere between the departments inside the organization as well between inside and outside of the organization. Only when there is an organization is there an entity where a certain responsibility can be placed, where money can go, where people can be hired. Limiting is part of ordering and organizing, for example to be able to arrange mandate and management. Borders also create space. For example, a police officer has discretionary powers if it is clear what the limits are.

Politics

Politics is about the insolubilities of existence. Political decision-making always involves competing values, positions and interests. That is why politics is always a struggle to determine the issue in the first place, then where they start and where they end. Politics is not only about finding solutions, but also about naming and renaming problems. That is why politics is not only about integrality, but also about making and protecting a difference. This makes determining the boundaries of what social tasks are, in addition to a professional task, also political, and determining or shifting boundaries a political intervention.

Psychological

Limits are not only laid down in rules and procedures. They also arise in social interaction and perceptions. Sometimes explicitly, often implicitly in the form of unwritten rules. Part of giving meaning to the world is to put observations in perspective: they are given a certain shape and therefore also a certain boundary. This also applies to professional demarcation: every public professional also determines personally what his or her domain is, what he or she "belongs to", where responsibility begins and ends, who belongs and who does not.

4.5 REFLECTION

After eight weeks of observing the meetings held by X-lab, fulfilling several roles during meetings myself, and conducting interviews with case owners and experts, I have made the following observations on X-lab's way of working.

Experimenting

While experimenting is a part of the offering of X-lab, empolyees are holding back to do so. This has to do with culture but also with their view on experimenting. Their view is to experiment in order to validate something. Yet, validating can lead to a negative outcome, which can been seen as failure. But experimenting could also be used to better understand the problem, called explorative experimenting. I think this is a missed opportunity to get to the heart of the problem.

Outcome

The outcome of the trajectory as described by X-lab is actionable design, which means creating conditions to do, especially after the trajectory. However, I have observed when interviewing the case owners, that the outcome often does not lead to actions, but rather creates a new frame to approach the problem. So, there seems to be a discrepancy in the assumed outcome by the case owner and X-lab.

After conducting seven interviews with case owners and experts, the following concluding observation is made: the ideas and innovations created during X-lab's trajectory not always have the desired result. The ideas seem to stall in the execution phase.

Measuring Impact

To determine the impact delivered by X-lab interviewees are asked about X-lab's impact. Several answers were given such as:

- "When there is a lot of movement based on our interventions."
- "When our ideas spread."
- "We don't measure it so we don't really know."

Furthermore, during my time at X-lab, we have never quantified the impact of our efforts nor reflected in a quantifiable manner.

Based on these answers and observations, it is concluded that X-lab does not measure its impact. Hence, it would be good if a way of measuring impact becomes part of the way of working of X-lab. First of all, to reflect and improve, secondly, to quantify their added value.

Branding

Compared to other Public Sector innovation (PSI) Labs X-lab doesn't brand itself, X-lab doesn't have its own website, linkedin page nor can you download or find their tools online.

Lastly, it should be noted that X-lab is limited by the governmental context of their playing field, as described in the last section.

4.6 CONCLUSION X-LAB

In this chapter I have presented X-lab's current way of working, including several limitations. Here I would like to summarize this chapter by presenting five conclusions:

1. X-lab support teams within RVO when dealing with problems. They do so by applying tools and frameworks on the problem during sessions with the case owner and experts.
2. Often the set up of the trajectory is based on intuition. Due to this approach the process is not always as explicit and therefore hard to diffuse. This causes problems in twofold. First of all, it makes it difficult to explain the trajectory to collegues within X-lab, hence scalability is difficult. Secondly, it makes it difficult for the case owner to spread the ideas generated during the trajectory within the organization of RVO.
3. Moreover, due to the boundary structure within the governmental organizations it becomes difficult to include all stakeholders when solving complex problems that are often open, dynamic and transdisciplinary. It is important to keep this playing field in mind while designing.
4. Lastly, after several weeks of observing and interviews I have noticed measuring impact is not part of X-lab's activities. This is a missed opportunity, because it allows the organization to reflect and improve its processes and to show its value.

5 RESEARCH FINDINGS FLOW DESIGN

X-lab is working on improving its methods and process. A new method they are currently developing is flow design, which is seen as a good fit to solve the present complex problems. However, X-lab encounters problem scaling up the flow design method, hence it has not been implemented yet. In order to analyze the problems they are facing, first a deeper understanding of the suggested flow design method is desired.

In the previous section the context of this graduation is sketched. In this section I will answer the second research question: what is flow design? To answer this question I will first of all, give an introduction to flow design, then look into the different roles followed by some theoratical principles.

5.1 FLOW DESIGN RESEARCH SETUP

In this section I will describe the new tool currently in development: flow Design. Flow design is a method that can be requested by the problem owner as a single session or as part of the X-lab tractory as described in the last section. In this section I will elaborate on the meaning of flow design. This method will be explained using the method content theory of Jaap Daalhuizen (2021), which consists of the following 5 elements;

1. **Method goal** is defined as: the described goals and the prioritization of those goals a method aims to help achieve through its use.

2. **Method procedure** is defined as: the structural activities described in the method and their relative chronological and logical ordering.

3. **Method framing** is defined as: the context of use described in the method and its implications and prerequisites for method use.

4. **Method rationale** is defined as: the performance-goal relationship and motivations underlying the goals of the method.

5. **Method mindset** is defined as: the set of described values, principles, underlying beliefs, and logic that inform a method and its use.

5.2 FLOW DESIGN GOAL

In this section, I will explain the method goal of flow design; the specific goal that flow design aims to help achieve.

This is researched by performing interviews, with case owners, flow designers, and reflecting on the BAR and MCU cases. The following three actions were taken to research the method goal of flow design

1. The flow designers were asked: What is the goal of this method?
2. The case owners were asked: What was the result of the flow design meeting?
3. Reflecting on cases, on how the result of the case is described by case owners and flow designers during cases.

Flow designers

When asking what the goal is of flow design the following answers were given.

- “Bringing people with different interests into a state where they can design systematically together.”
- “Flow design will create collective commitment and motivation.”
- “With flow design you open up the possibility space.”
- “With flow design you’re able to see connections and because of these connections you’re able to move forward.”

Case Owners

When asking what the promise is made by the flow designers about the result of the flow design meeting the following answers were given.

- “It created safety whereby more space is created for individual interests”
- “It made explicit which relations there are between the different project this gave us perspective on what to do.”
- “I have been helped enormously with what options we have. What are the steps we are going to take next?”
- “I don’t know, when looking back what the added value was.”

Cases

When reflecting on the cases the following promises were made;

- “Flow design will help you see the connection and therefore you know what to do”.
- “When you’re stuck flow design will help you see new possibilities.”

Conclusions

Based on these three actions the following conclusions are drawn.

1. The goal of flow design is to bring direction when you’re stuck, so that the group can act in this direction.
2. Flow design doesn’t deliver actions according to the case owners.
3. The expectation of clear actions after a flow design session is not met.

5.3 FLOW DESIGN PROCEDURE

As mentioned before there are several roles; process moderator, clarifier, problem owner and experts. These roles have different functions, require different talents and have different responsibility.

The process moderator

The process moderator is the guider of the process and responsible for the flow of the group and the definition of doing which means, the activities are performed and the order of these activities. The process moderator, moderates the group. They give everyone time to speak to react, watches the time and creates rules beforehand such as speak when asked, not going into details. The process moderator also tries to create an equal group by giving everyone time to speak this to be able to understand different sides of the story. It is important for the process moderator to be unbiased, to that he / she does not interfere with the content and is also not interested in the result. As said before the main goal of flow design is getting into flow, the process moderator does this during the session by focusing on behavior of the individuals and interaction between individuals. With behavior the moderator looks at attitude and confidence of the members. The moderator tries to get the group into flow, without being a disturbing force.

The clarifier

The second role is the role of the clarifier, the clarifier is the one who listens and writes down the points made by the experts and problems owners and tries to link and group these points. Currently they use Miro to connect, they do this by writing down on digital post-its for an example see appendix D3. This role ensures that everyone feels heard by writing down what is being said. It is important here that the clarifier distinguishes between main and side issues. If he / she does not do this, it will be difficult to find the right connections, these connections are necessary for the group to gain new insights. Process facilitator often asks the clarifier to share his findings. The interpreter tries to get the context and the system on board.

The Problem owner

The problem owner is responsible for the problem, selects the experts and maintains the link to the company and context. For the problem owner it is important that he/she feels responsible for the outcome of the solutions. This is described by Taleb as Skin in the game. Second, the problem owner is responsible for selecting the experts, this is done in consultation with the process moderator. Often these experts are already involved in the process. In addition, the problem owner must ensure that the outcome is appropriate for the company and context. This does require an important nuance if the problem owner wants to be too concrete too quickly, there is no possibility to increase the scope for possibilities. This is because the group then focuses on the concrete and no longer on the links.

The Expert

Experts can be invited by the problem owner for two different reasons. The first is they have a clear added expertise and second are experts on the problem because they themselves are part of the problem. The latter is the most common. Problem owners are clearly introduced by the process moderator, this ensures that the group knows what their knowledge is but also what they have no knowledge about. Another effect of this is ego management, which ensures that the process moderator can clearly give someone's turn based on expertise. For an expert it is important to not be too dominant. If an expert is to dominant everyone starts to listen to the experts and not being critical towards and not challenge the expert. When dealing with complicated or complex problems **t**his is a problem.

"WE CANNOT SOLVE OUR PROBLEMS WITH THE SAME THINKING WE USED WHEN WE CREATED THEM"

-

ALBERT EINSTEIN

After observing, interviewing and taking part in several flow design sessions, I have made the following detailed description of flow design.

A flow design session has several stages. It starts with the intake, followed by the session itself and the roundup. In figure 2 you can find information about the steps in more detail, more information on the roles can be found in section 5.3.

1. Preparing

Before the intake, it is determined whether flow design is the best fit for the problem. To determine if flow design is of added value, the process moderator looks if the problem owner has enough skin in the game, if there is a systemic challenge and if they are prepared to work with a different way of working.

2. Intake

Secondly, there is the intake. The main goal of the intake is to prepare the being and doing of the future session. While preparing the process moderator tries to get a better understanding of the context. To prepare the definition of doing, the process moderator tries to get a better understanding of the problem. During this step the process moderator, problem owner and the clarifier define 2-3 question to support the session. The problem owner selects experts that should participate. Then a statement is created of the result when the session is done called the definition of done for example the definition of done of the BAR case was: a good understanding of the problem and essence of the connections between the different projects.

3. The session itself

After the intake the session starts. In the session all roles are present so; the process moderator, clarifier, problem owner and experts. During this session they go through four stages; the check-in, definition of done, deep dive, checkout.

The first step is the check-in here the process moderator asks all participants how they are doing, what is their interest for the meeting and when they are happy today. The process moderator also answers these question.

The second step is creating the definition of done. The definition of done is also created during the intake, here the rest of the group adds things to the definition of done. Eventually the problem owner together with the clarifier creates a definition of done consisting of 2-3 sentences. The first sentence is a sentence that states what the group is trying to achieve today and the second sentence is a sentence that describes why it is important for the whole process.

Thirdly, their is the deep dive, here the group starts to answer the previous determined questions. Here it is the role of the group moderator to focus on achieving group flow. He/she does this by eliminating ego's by controlling the talking time for each person and letting everyone react on each other. The clarifier tries to write everything down and focus on links between individual points. It is common that the process moderator ask the clarifier to talk about what you can see by connecting these points. Here the role of the problem owner is to check if the group is still going in the right direction, and is using a frame that fits in the right context and still links to the company. During the deep dive the clarifier and the process moderator distil action lines.

At last there is a checkout , starting usually 15 minutes before the end. Here everyone answers the following question; is your personal interest served, are you satisfied with the meeting and happy with the outcome? During the session a white board is used, during Covid this was Miro, a digital whiteboard. See appendix D how such a whiteboard looks like at the end of a session

4. The roundup

The final step in the process is the roundup. This a meeting afterwards without the experts. Here the process moderator asks the problem owner if he is satisfied with the result.

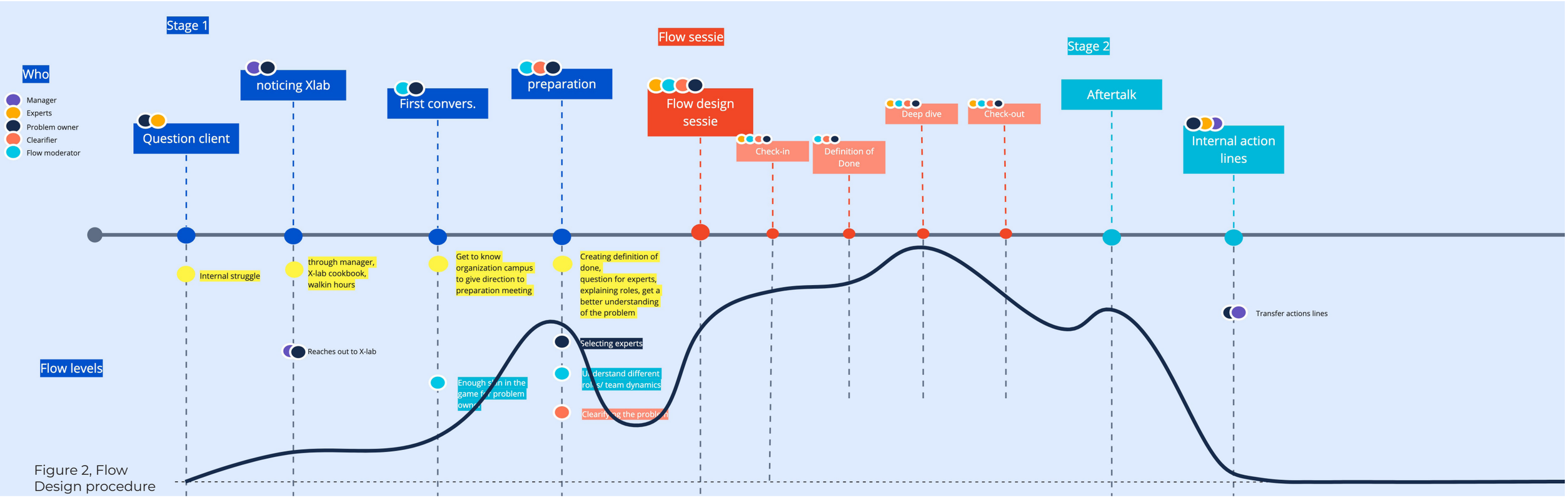


Figure 2, Flow Design procedure

5.4 FLOW DESIGN FRAMING

In this section I describe in what kind of context this method is used, the kind of problems in which this method is used and where in a process it is used. To research this, first, a literature review is done to determine which kind of problems there are and thereafter, the cases are categorized together with a team member of X-lab.

At last, the method is placed within two different processes.

Problems

Snowden(2007) presents a framework in which problems are categorized as simple, complicated, complex, and chaotic. To support the categorization of problems, context characteristics are given to each case and based on these characteristics the cases of X-lab are categorized. For the categorization see appendix C

As a result, the following conclusion is made with an X-lab employee: X-lab is doing complicated to complex problems. They are not doing chaotic cases, because their cases are lacking in turbulence and high tension.

Moment of use

In this section, I will use two theories to categorize the moment of use of flow design, especially the moment where does flow design stops.

You could also compare flow design to the model of group formation from Bruce Tuckmann (1965), this model is chosen because it explains the necessary phases a group needs to go through to grow, tackle problems and face up to challenges. Bruce Tuckman, is an educational psychologist, he developed one of the most influential models for group formation. Based on his observations of group behavior in different settings and on a literature study, he came up with a model representing the different phases groups need to go through to grow as a team.

The model initially consisted of four distinct stages of group formation: forming, storming, norming, and performing. Later, a fifth and sixth stage was added, called outperforming and “adjourning” or “mourning”. They represent the necessary and inevitable stages from facing challenges, tackling problems, finding solutions, and planning work to ultimately delivering results as a team.

In appendix B, Tuckmanns model has been compared with flow design based on the cases followed. It is noticeable that flow design doesn’t support all 6 phases. Instead, it stops at storming, missing the norming and performing stages.

When discussing the process of flow design with flow design participants, the following comments were made;

- “It was a nice process, but I don’t know what they added.”(Case owner)
- “It created a safe space where, everyone could say what they want.” (X-lab employee)
- “That good feeling disappears after a while and then it is difficult what you have left.”(Case Owner)
- “You can’t do much with flow design as a reframe tool, it needs more action.”(Design Expert)
- “When we finish a session, we don’t take any more steps ourselves” (Flow Founder)

Based on these quotes and the analysis of Tuckmanns model I would argue that flow design is not supporting the whole developing process a group needs to go through. Secondly, the impact of flow design could be increased when going through all the steps Tuckmann suggested.

Conclusion

Concluding, flow design supports in dealing with complicated and complex problems.

Lastly, when looking into Tuckmanns model of group development, it doesn’t go through all the phases.

5.5 FLOW DESIGN MINDSET

To better understand the mindset of flow design, two models are used that clarify how flow design works. The first theory is Maslow's Pyramidand the second theory is Edge of chaos theory. In this section I will elaborate upon their expertise regarding sociology and psychology.

Based on these studies and the flow design process as created by X-lab employees, I will draft the underlying beliefs of flow design, thereby defining the essence, to guide me in this thesis.

Maslow's pyramid

Flow design is about empowering people to be creative and solve problems. According to Maslow's pyramid, to be creative you first have to fulfill other needs, these are in chronological order, psychological, safety, love, esteem, and lastly self-actualization. For flow design, it is interesting how do you create esteem to get self-actualization. Flow design does this by focusing on the esteem layer. Maslow noted two versions of esteem needs a lower and higher vision Deckers, Lambert (2018). The "lower" version of esteem is the need for respect from others and may include a need for status, recognition, fame, prestige, and attention. The "higher" version of esteem is the need for self-respect and can include a need for strength, competence, independence, and self-confidence. In flow design, you can see the lower version of esteem. This is because people are treated with equal dignity, so that everyone is recognized and receives attention.

Edge of chaos

As a flow moderator one the tasks is to create chaos within the group on the content by asking questions. Flow design uses expert to solve and understand problems, Flow design challenges these expert to think outside of the box and to come up with new insights.

Skin in the game

To solve the problem it is important that especially the case owner and the expert have skin in the game. This means to have incurred risk by being involved in the problem. When there is no skin in the game in a case the case will not be solved with the use of flow design according to one of the founders of flow design. This has to do with the lack of preparedness to dive deep into the problem and remove personal interest towards the rest of the group involved in the case. When these personal interests are not as small as possible, the objectivity and depth of the.

Group

To solve problems, you need different insights and perspectives, you need to be able to challenge and support each other. Therefor flow design cannot be done with a flow designer and a caseowner.

Conclusion

Concluding, according to Maslow, in order to create a flow it is important to develop self esteem for each participant in the group. This to create safety within the group, to make sure everything is negotiable.

Secondly, chaos is sought in flow design to arrive at better and new insights

Thirdly, to do flow design you need skin in the game.

5.6 FLOW DESIGN RATIONALE

In this section, I will explain why flow design is relevant and meaningful in dealing with complex and complicated problems. Firstly, by looking at how these types of problems should be solved as explaind by Snowden(2007) and then how flow design fills in these requirements.

To solve complicated problems, Snowden indicates that there are three jobs to be done;

1. Sense, analyze and respond.
2. Create panels of experts.
3. Listen to conflicting advice.

Flow design fills in these jobs:

1. Flow design makes sense of the problem with the use of questions and the support of the clarifier. Therefore, the problem is further analyzed. However, Flow Design does not support the response. Therefore this job is not fully fulfilled.
2. One of the essential roles in Flow Design is experts. These are part of every session, therefore this job is fulfilled.
3. In Flow Design the role of the process moderator is to make sure everyone is allowed to speak freely, this is done by making everyone feel confident. Therefore this job is fulfilled.

To solve complex problems, Snowden indicates that there are four jobs to be done;

1. Probe, sense and respond.
2. Create environments and experiments that allow patterns to emerge.
3. Increase levels of interaction and communication.
4. Use methods that can help generate ideas: Open up discussion, set barriers, stimulate attractors, encourage dissent and diversity and manage starting conditions and monitor for emergence.

Flow design fills in these jobs for complex problems as follows;

1. Flow design starts with an investigation of the relations, process and content of the project, then with the use of clarifiers and the questions asked by the flow moderator sense is made of the outcome. However flow design does not support the probing and the response. Therefore this job is not fully fulfilled.
2. Flow design creates an environment where everything can be said, this is done by creating trust. The clarifier makes patterns clear by carefully listening to the conversation between the experts and problem owners. However, Flowdesign does not support doing any sort of experiments.
3. One of the important principles of flow design is "Focus on the relationship, not the outcome."(Flow Founder). Because this is one of the core principles of Flow Design this job is fulfilled.
4. Flow design uses different tools to open up discussion, these tools are explained in 4.2. In addition, during the preparation, it is discussed with the problem owner what the limits of this project are. Guarding these boundaries is also one of the problem owner's tasks.

Conclusion

Concluding, flow design has a similar approach to different types of problems.

Secondly, when looking at the jobs that needed to be done to deal with complicated or complex problems, it can be concluded that flow design is lacking in the response step for complicated problems and the probe and response step for complex problems. It is not making explicit how or what to do, which is the crucial part of the response and probe step.

Thirdly, flow design is not supporting in creating an environment for experimentation.

Nevertheless, flow design is supporting in all the other jobs that need to be fulfilled according to Snowden's theory.

5.7 REFLECTION ON FLOW DESIGN

After eight weeks of observing the meetings held by X-lab, fulfilling several roles during meetings myself, and conducting interviews with case owners and experts, I have made the following observations on flow design.

In the current way of working, after a flow design session, I have not witnessed the creating of tangible outcome. Therefore I conclude that there is no tangible deliverable.

Flow design tries to get to the heart of the problem by focusing on values instead of needs. It uses several frames to look at the issue, creating a paradigm shift, and therefore it causes new interpretations of wording also known as 'changing the meme'. These interpretations can differ per individual and sometimes results in miscommunications as one word can have a different meaning for participants in the group. In the end, a flow design creates a joint understanding within the group, which can rather be described as a shared understanding than a concrete action. This makes it difficult for the participant to translate their new insights gained in the flow design sessions to colleagues in their own or another department.

Lastly, I'm really impressed by their own approach to get to the heart of the problem. However, I noticed that their trajectory is unimaginably short as compared to the more traditional trajectories in which months are needed to find root causes. Which lead to the assumption that there is the potential of diving deeper into the problem. While being part of the session, I sometimes had the feeling that we were searching for the "common ground" instead of searching for the heart of the problem. I'm not saying this is necessarily a limitation, but it could be a potential problem.

5.8 CONCLUSION FLOW DESIGN

In this chapter I have presented flow design and also several limitations. Here I would like to summarize this chapter by presenting four conclusions:

1. Flow design supports problem owners in getting new insights in solving complicated and complex problems.
2. They do so by doing a single session in which they open up the possibility space. With these possibilities new actions should be found. However, flow design does not support the doing or creation of actions.
3. As seen from Tuckmann's theory, flow design doesn't support the norming and performing phases. So, flow design doesn't support the whole process of coming up with the right solution or concrete perspective to do.
4. Furthermore, flow design doesn't make a distinction between complex and complicated problems, as seen from the theory of Snowden.
5. Furthermore, in the current way of working, after a flow design session, there is no tangible deliverable that supports the process, which makes it less transferable.

5.9 CONCLUSION RESEARCH FINDINGS PHASE

To finalize the discover phase I would like to round up the research findings and make clear which problems I currently see in X-lab's way of working, and particularly while applying flow design. The main goal of the outcome of flow design is enlarging the possibility to do. So, by creating a new shared frame, the participants look differently at the problem and by doing so they see new solutions to the problem. I would like to clarify five reasons why flow design isn't living up to its full potential.

1. Arbitrary division

The first one is arbitrary division when solving transdisciplinary problems. When dealing with complexity, it's important to create a shared understanding of the problem and work directly with the involved parties. However, due to the bounded structure of the government the participants are limited to one of the governmental silos and are not held responsible for the solu tion of the overall problem. These silos make it hard to fully understand the problem and support the outcome. The innovations done by X-lab can potentially aid processes and solve problems in other areas, but without crossing silos, this potential is lost.

2. Language

Flow design uses language to create a shared mental model. To create this shared mental model, they give slightly different meanings to words. But also introduce words that someone who is not involved in flow design can see as a vague buzzwords which they do not fully comprehend. Such words are for instance, lean six sigma, systemic design, the power of the vector. This is especially the case in more complex problems where people work in different fields and have a different understandings. To stretch the boundaries, everyone within the organization must fully understand the outcome of the session or everyone should accept that the outcome remains hard to grasp and is multiinterpretable.

3. Time limitation

Flow design searches for value by getting to the heart of the issues. Due to time concerns and the fear of failure, the ac tions chosen are the ones that directly lead back to the surface, hence more in depth insights are overlooked.

4. Lack of process

Currently, a single flow design session is conducted and then the participant can determine if they want to do another one in the future. This happens due to the fact that there is no clear process from the start, which leads to a loss of flow between meetings. Due to this loss of flow the creation and sharing of new mental models is interrupted, which then makes it harder to get to valuable insights and to the implementation of solutions.

5. Measuring impact

The last reason is the measurement of impact. To support flow design, it is important to convince people of the value of flow design. Furthermore, to improve flow design it is important to be able to reflect. Currently, the way to convince people about flow design is in an intangible way by talking and describing it. Secondly, to reflect on flow design you want to see the result of the possibility space. Currently, they reflect by asking at the end of the session if the participants were satisfied. In this way, you don't measure organizational or systemic impact and make it harder to reflect. For example, if everyone is happy after a meeting it can be that you as a group had a great session, but the outcome doesn't make sense in the context. Hence, as KPI's.

Concluding, the main reason the outcome does not lead to actions has to do with the context of the bounded structure of the governmental organization. Furthermore, due to miscommunications in language and a lack of process there is no tangible outcome of the trajectory, which makes it harder for X-lab participants to cross boundaries, e.g. convincing colleagues from other departments to overcome complex problems. Lastly, a lack of quantifiably measuring impact, makes it difficult to measure impact from the start, and convince others of the potential added value of the trajectory.

5.10 PROBLEM SELECTION

In the previous chapter 5 problems are described, arbitrary division, language, time limitation, lack of process and measuring impact. To scope the research, one of the problems is selected to continue the research with.

Firstly, the problems arbitrary division and time limitation are problems that have to do with the context of working within the government and therefore these problems are too big to solve within this thesis, but rather factors that need to be taken into account. Secondly, language is a relevant problem in making things more explicit and better transferable. An adaption or advise on the language problem leads to a reframe of the process. Hence, solving the language problem inevitably results in a change of the process itself. However, the fifth problem also states that the process itself is lacking, making it difficult to implement solutions. So, it is pointless to solve the language problem first which affects the process, while it has already been determined that the process itself is not living up to its full potential.

Since in general the process itself is a problem due to a lack of process, it is more relevant to solve this first. Therefore, it is decided to focus on lack of process for this thesis.

How to proceed?

We saw that flow design doesn't live up to its full potential. According to the theories by Tuckmann and Snowden and Boone, there need to be steps added after a flow design session. Therefore, the question arises whether design thinking is a relevant theory to support in developing these steps and if so, how can it support flow design? This will be researched in the next chapter.

6 DEFINE

In the discover phase X-lab's current way of working and flow design has been described and several problems have been identified. There are multiple angles from which these problems can be solved. However, due to time restrictions, and given my personal designing background, I will explore the solution space as a designer.

As explained before, design thinking can be of added value and therefore, in the define phase of this thesis, I will look at flow design from a design thinking perspective. First, I explain the added value of design thinking. Then, I will scope the broad concept of design thinking into two design processes. Lastly, the principles of these two processes are applied to flow design, resulting in a design brief.

6.1 DESIGN THINKING

Design thinking within governmental organizations is globally on a rise (Mcgann,2018). Design thinking is used in all different layers of the government successfully, as well as within all different types of domains, such as healthcare, education, climate change, and energy transition. It is important to notice that design thinking always has been and will be in development.

While performing interviews and being part of team meetings I noticed that within RVO there is a rising awareness of design thinking, but it is not used on a daily basis. It's not odd that design thinking is received with enthusiasm, since it has been used to solve problems, and it is used to improve the service of the government, also referred to as 'service design'. When showing the double diamond as a design thinking tool everyone at X-lab realized that a different mindset is required.

What is design thinking?

Designing is something talked about before we had the term design thinking. This traditional term focused on a product fitting human needs, price, quality, and attractiveness in one product. Currently, design thinking is also used to solve social issues. Eventually, it is about redesigning systems; how do we need to change the system to come to a paradigm shift?

Tim Brown, CEO and president of IDEO, describes design thinking as 'the integration of feeling, intuition, and inspiration with rational and analytical thought.' Meanwhile, David Kelley, founder of IDEO and the Hasso Plattner Institute of Design at Stanford University, calls it a 'framework that people can hang their creative confidence on', providing those who don't consider themselves to be creative with a way to solve some of the world's most complex problems. There are a lot of different ways to look and talk about design thinking but it has the characteristics to support transitional challenges.

Why design thinking?

Many problems we face today are ill-defined, networked, dynamic, and seemingly intractable (Dorst, 2015). At the start of cases, case owners and participants express the feeling of not-seeing the bigger picture of the problem. Such problems have been called 'wicked problems' (Rittel & Webber, 1973). Wicked problems require specific methods and tools to frame and address them. We cannot achieve this in isolation as individual knowledge can only be partial (Russell, 2010). Rather, collective wisdom from multiple disciplines must be directed towards a common goal, tackling the wicked problem (Russell, 2010). A design-led approach has been argued to offer a holistic way to tackle complex, ill-defined, and ambiguous problems (Hocking, 2010). When applied during the problem framing phase of a project it can transform seemingly wicked process space into actionable briefs and solution opportunities that bring clarity and direction (Dorst, 2015).

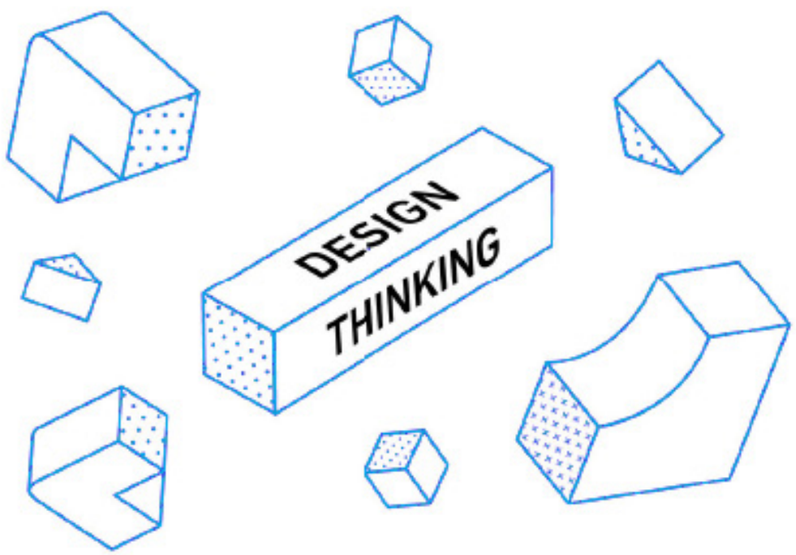
In conclusion, design thinking is a proven concept operating in the same context as flow design. Therefore, I argue it is interesting to draft lessons from design thinking and apply them to flow design.

6.2 DESIGN METHODS

There are many different design thinking methods, that are related to each other, but also differ on principles and execution. I will explain 2 design processes; one is the double diamond and the other one is frame creation.

First of all, the double diamond is described, because it is the most widely spread design thinking method. Also, during X-lab's meetings, when discussing design thinking, the double diamond was always brought up. The team knows that when seeing the double diamond a different mindset is required. Almost as like seeing a brand, when someone sees Volvo, for example, they know it stands for safety. However, in-depth knowledge of the double diamond is missing.

Secondly, frame creation, which is less known within RVO-X-lab. However, frame creation is known for creating actionable briefs and solution opportunities that bring clarity and direc tion. These outcomes are similar to the desired outcomes of X-lab's way of working (delivering actionable design and solution space).



6.3 DOUBLE DIAMOND

The double diamond model of the design pro- cess has been the most used model to structure design projects. In this projet it is used for two purposes, as a structure for this thesis and as a study.

Before the Double Diamond existed, the design process seemed like an unstructured chaotic mess. The Design Council found some structure while analyzing the way designers worked. They identified four phases in a design process see also picture 3,2

1. Discover: a deep dive into the problem we are trying to solve.
2. Define: synthesizing the information from the discovery phase into a problem definition.
3. Develop: think up solutions to the problem.
4. Deliver: pick the best solution and build that.

They added the divergence-convergence idea of Bela Banathy to it and the double diamond was born. The double diamond is launched in 2004, and it has become world-renowned with mil lions of references to it.

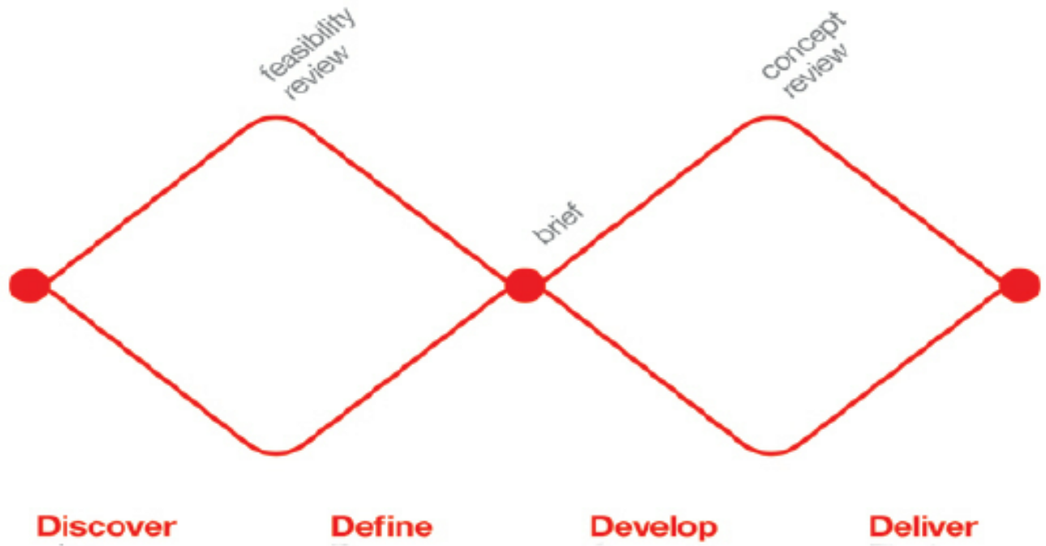


Figure 3.2 Double diamond, Design Council (2005)

According to the Design Council, it was time for an update according to the following three principles (Hambeukers, 2019):

1. Design is used more and more for in- nova- tion. The Design Council calls the model Framework For Innovation. That alone tells us that design is a great help when it comes to innovating. That is exactly what we see in the market: businesses that need to inno- vate turn to design for help, for a model.

2. A design process alone will not save you. The Design Council added four other as- pects to the model to turn it into an inno- vation framework. For innovation, you need a process, but you also need design princi- ples, design methods, engagement, and leadership.

3. Design is not a linear process. One of the biggest criticisms you can have on the original model is that it was a linear model. You went from A to B through two diamonds and that's it. The Agile approach and Lean Startup's thinking made it clear that design is not a linear process. It is iterative. Designers iterate their way for- ward. In the new model, they added some blue circles to show people the iterative nature of the design.

The Design Council also presents four design principles for problem-solvers to adopt so that they can work as effectively as possible;

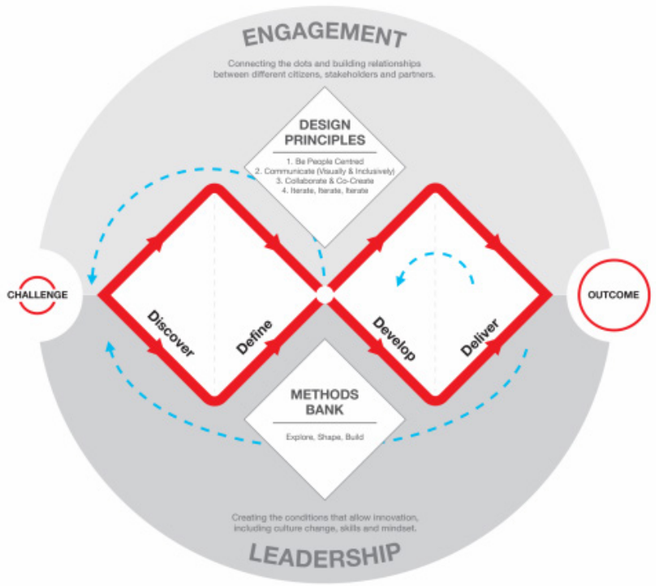
1. Put people first. Start with an under- stand- ing of the people using a service, their needs, strengths, and aspirations.

2. Communicate visually and inclusively. Help people gain a shared understanding of the problem and ideas.

3. Collaborate and co-create. Work togeth- er and get inspired by what others are doing.

4. Iterate, iterate, iterate. Do this to spot errors early, avoid risk and build confidence in your ideas

Design Council



6.4 CONCLUSION DOUBLE DIAMOND

The double diamond is a proven and widely accepted method from which lessons can be drafted for flow design.

After analyzing flow design and the current way of working of X-lab in combination with the double diamond, I conclude that several principles of the double diamond are used within flow design, and some are not.

Principles recognized within flow design:

1. **Put people first. Start with an understanding of the people using a service, their needs, strengths, and aspirations.**
2. **Collaborate and co-create. Work together and get inspired by what others are doing.**

Principles not recognized within flow design:

3. **Communicate visually and inclusively. Help people gain a shared understanding of the problem and ideas.**
4. **Iterate, iterate, iterate. Do this to spot errors early, avoid risk and build confidence in your ideas. Making it a non-linear process.**
5. **Performing a create step referred to as the last diamond.**

6.5 FRAME CREATION

An upcoming model for solving open dynamic and transdisciplinary problems is the frame creation by Kees Dorst. Frame creation uses framing to create actionable briefs and solution opportunities that bring clarity and directions. Its research focuses on the spreading of design practices into the domain of complex and complicated problems and uses abduction as a starting point to focus on the corresponding design practices of problem framing. With this approach frame creation was developed. Eventually, it allows non-design practitioners to approach today's open, complex, dynamic, networked problems in new and fruitful ways (Dorst,2015). He identifies 7 phases:

1. Context — Put the paradox away and look at how the participants are involved in the problem behavior. You'll start to see their process.

2. Field — Map the intellectual, cultural, and social 'space' that surrounds the problem.

3. Themes — Look for the universal elements in the problem field that arise from your archaeology and field-finding.

4. Frames — Common themes emerge that are different from those that create the problem's paradox. Start to try reframing problems. For example, "What if graffiti isn't a problem of law enforcement, but a problem of street lay-out?" "What if kids that don't pay attention in school isn't a problem of discipline, but a problem of nutrition?"

5. Futures — Think ahead within a frame to see if it can lead to realistic and viable solutions. Don't get attached. It requires some intuition to sense a fertile frame.

6. Transformation — Weed out the bad frames and begin to commit to short-term changes and long-term changes that would occur within the frame.

7. Integration — Bring the new frames into the existing practices and context of the organization. Specifically, the frame must enter the discourse of the organization — it becomes part of their future toolbox for understanding and solving wicked problems.

Based on this approach several principles could be distilled :

- Think around the paradox because the solution isn't there but rather in the broad area of contextual values and themes surrounding the paradox.

- It helps understand the underlying dynamics of a problem; this enables them to create new approaches to the original problem.

In this method it is clear which steps to take and how the steps follow up on each other. Due to this step by step approach you know where is what created, also more understanding of the problem is created. Therefore, everyone knows what to do, but also knows where he or she can be creative. Therefore it delivers clarity, which is important, because clarity empowers the designer to make relevant aspects of the problem salient. This helps to scope the problem, which on its turn makes it easier to structure and apply methods for identifying and solving problems (Daalhuizen 2014 Method Usage in Design -thesis).

6.6 CONCLUSION FRAME CREATION

Frame creation has the same purpose as flow design, which is opening new frames to look at the problems.

After analyzing flow design and the current way of working of X-lab in combination with frame creation, I conclude that several principles of frame creation are used within flow design and some are missing.

Principles recognized within flow design:

6. Thinking around the paradox, because the solution isn't there, but rather in the broad area of contextual values and themes surrounding the paradox.
7. Understanding the underlying dynamics of a problem. This enables flow design and frame creation to create new approaches to the origial problem.

Principles not recognized within Flow Design:

8. Creating clarity in the follow-up steps. Flow design delivers actionable design that sometimes lacks in clarity. Frame creation of Kees Dorst delivers clarity in a structured approach with making explicit the step to follow to come-up with the final solution.
9. Continuing the process until a tangible solution is found. Frame creation and flow design both create new frames. At this stage flow design stops, but frame creation continues the process with-the following steps: futures, transformation and integration, to get to a solution.

6.7 PROBLEM STATEMENT

In 2.4.1 there are 5 problems presented that are based on interviews and case studies. 1. Arbitrary division, 2. Language, 3. Time limitations, 4. Lack of process, 5. Measuring impact. Specifically, the fourth problem is important, and therefore the focus point of this thesis, see 5.9.

As described in the explore phase, the fourth problem is lack of process. Flow design supports the problem definition, however, follow up steps to get to an actionable and/or tangible design are missing. Both the double diamond and frame creation have steps following up on a clear problem definition. These steps focus on experimenting and evaluating in an iterative way, which helps to continue the trajectory in a structured way leading actionable and/or tangible design.

Secondly, when looking into the double diamond and frame creation, both deliver clarity in the follow up steps. How this clarity is developed will be researched more in depth in the next chapter.

Conclusions

Following this analysis, there are two requirements for the deliverable of this thesis:

1. Creating clarity in the follow-up steps at the end of a flow design meeting.
2. Adjusting the flow design trajectory so that a tangible outcome is found, supported by iterations.

7 CREATE

How can design support the continuation of the flow design process? In the create phase of this research I will focus on creating a second diamond as mentioned by the design council. For creating this next step I assume that a product should be developed which meets the following requirements:

1. **Creating clarity in the follow-up steps at the end of a flow design meeting.**
2. **Secondly, a product which helps completing the flow design process until a tangible solution is found, while focusing on iteration.**

As an end goal, I would like to support the continuation of flow from the first to the second diamond.

7.1 INTRODUCTION CREATE

This chapter describes how the directions of the previous chapter are translated into a concept proposal.

The idea generation process is visualized in figure 6, In the last chapters two requirements were chosen which I will explore further in order to get to a product that offers a solution to the problem as described in 5.9 :

1. Creating clarity in the follow-up steps at the end of a flow design meeting.
2. Adjusting the flow design trajectory until a tangible outcome is created, focusing on iteration.

Method

To get from the problem definition to a conceptual design the following method is used:

1. **Developing ideas -** During the create phase of this thesis, different techniques are used to develop ideas: individual brainstorming, brainwriting, a creative session using 'How can you?' (Tassoul, 2009), metaphors, feedback sessions with the target group (Fokkinga en Desmet, 2012). The explanation of these techniques is found in the Delft Design guide (Boeijen, Daalhuizen, Schoor, & Zijlstra, 2014).

2. **Creating clarity** - Based on literature on design thinking and clarity, I set up an experiment to test what the best way is to create clarity. I will describe the setup of this literature and experiments in section 7.2.

3. **Tangible outcome -** To meet this requirement, I need to explore first what the best moment in the flow design process is to intervene. Is this during the current flow design process or should steps be added to the process? I have researched this by conducting two experiments with a case owner and by conducting a flow design session. The setup and results will be described later in section 7.4

4. **Iteration** -Then, based on two interviews, I researched how RVO tests its results as a starting point. It is important to understand how RVO tests, and what options there are for testing in general, because iteration can only be done when testing is done. I consulted literature to investigate what the best way of iterating and testing is for a governmental organisation like RVO dealing with complex problems. The results will be described in section 7.5.

5. **Concept -** Based on the results; how to create clarity, where to intervene, how to iterate and how to test, I made a framework which meets the two requirements.

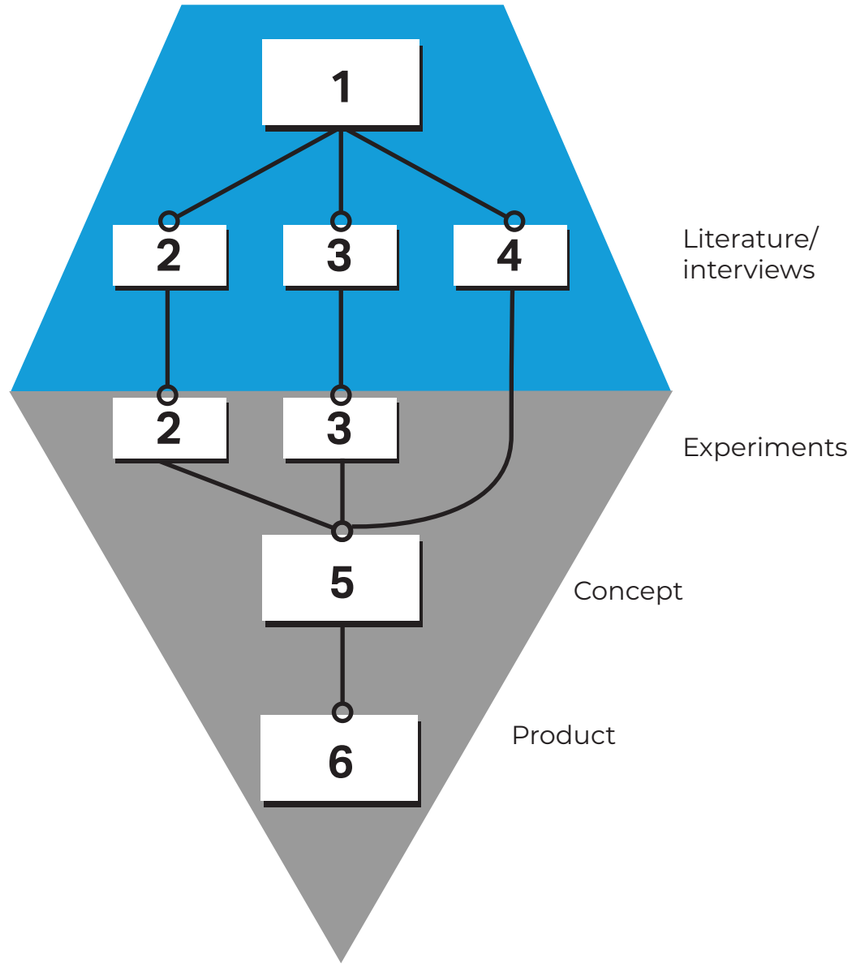


Figure 6, overview of the creative phase

7.2 CREATING CLARITY

One of the goals is to create more clarity in the process after a flow design session. Clarity is lacking now because at the end of a flow design session it is unclear to participants what the tangible actions are.

In the analysis of flow design, it became clear that flow design doesn't deliver clarity in the steps needed to take after a flow design session. This has to do with the lacking of a tangible outcome, and a language problem. Flow design is also dealing with two different types of problems, namely complex and complicated problems. However, it doesn't deal with both type of problems in a correct way. For complex problems it is missing the probing and response step (Snowden, 2007) and for complicated problems it is missing the response step (Snowden, 2007).

In the coming section I will investigate how design thinking can create clarity. To investigate this, first, I researched why clarity is important for design thinking. Next, two theories are looked at that are known to create clarity.

Added value of clarity in design thinking

Clarity empowers the designer to make relevant aspects of the problem salient. This helps to scope the problem, which on its turn makes it easier to structure and apply methods for identifying and solving problems (Daalhuizen 2014 Method Usage in Design -thesis).

Design thinking can create clarity, by asking questions that fit the context of use, method, and goal. For example, the expected outcome of the following two design thinking methods from the Delft design guide (Boeijen, Daalhuizen, Schoor, & Zijlstra, 2014) promises to deliver clarity:

- WWWWH, Who, What, Where, When, Why, and How': Enables you to deconstruct the problem systematically. You can constantly review the problem and set priorities. It does this by asking who, what, where, when, why, and how questions.
- Breaking down the original problem into means-end relationships: this method enables you to deconstruct the problem systematically. You can constantly review the problem and set priorities. It does this by asking you to create means-end relationships

In essence, both methods divide the problem or brief into categories and thereby challenge the designer to think in these categories and focus on looking through different frames at the problem. This way of thinking allows previously unnoticed aspects of the problem to become prioritized and more salient.

Nevertheless, as described in the explore phase, flow design solely focuses on the possibility space without clearly identifying all the relevant elements. However, when suggesting a design thinking approach to flow designers, the feedback was: "Our problems are too complex to create clarity in such a way, or you would be working on it for too long." So, I need to create a product that provides clarity in a structured way to overcome this complexity and time related issues of flow designers. My approach and the results will be discussed next.

7.3 EXPERIMENT ON THE BEST WAY TO CREATE CLARITY

To create clarity of which steps to perform after a flow design session, it is first important to acknowledge that flow design is used for complicated and complex problems. Both problems desire a different approach. First is looked at complex problems.

In the case of complex problems we know that an important step is searching for patterns. As we learned in the previous section, clarity is made by creating categories to look at a problem. So, the question arises which categories can we find within flow design that together form patterns.

Step 1 Analyze data

In order to identify the perspectives typical to X-lab's cases, I analyzed the Miro boards from flow design sessions held in the exploration phase of this thesis. Specifically, I investigated the three cases in which both the case owners and the clarifiers concluded that the possibility space was broadened for the detailed analysis of the miro boards see appendix H. Next, I categorized all the questions and answers in these sessions to a certain category. In total seven different categories were distinguished.

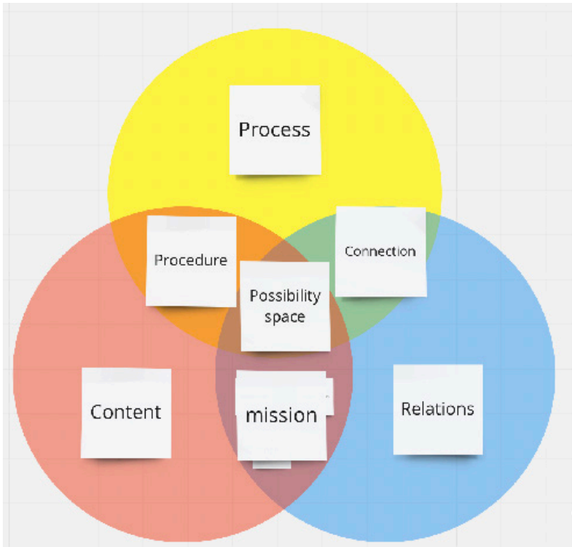


Figure 7, Clarity model, experiment 1

The seven categories are:

Process: Which actions or step can we take to achieve a goal and what is the order of these actions?

Content: what substantive points are there?

Relations: how do these substantive points relate to each other?

Procedure: The overlapping theme of process and content; how are we going to make this happen?

Connection: The overlapping theme of relation and process: who makes this happen?

Mission: The overlapping theme of content and relation; What makes this happen?

Possibility space: Which possibilities are there

Step 2 Test 1

Thereafter, I checked with an old case owner where the project is standing now, and then applied this model to the case to see if we could find new possibilities. This immediately provided clarity.

The results of this experiment were:

- At the beginning of the meeting the participant stated that they were unable to find the next step.
- The method created clarity, it provided that an action on the relation perspective should be taken.
- However, the current 7 perspectives were too complicated to fully comprehend for the case owner.

Step 3 Iteration

Because the model consisted of 7 different themes, it became too complicated. So, I adapted the model to three themes and removed the overlapping themes, see figure 7.

Step 4 Test 2

Two weeks later I tested this model in X-lab with three new participants including a case owner, moderator and clarifier, which provided them ability to find direction and categorize their actions.

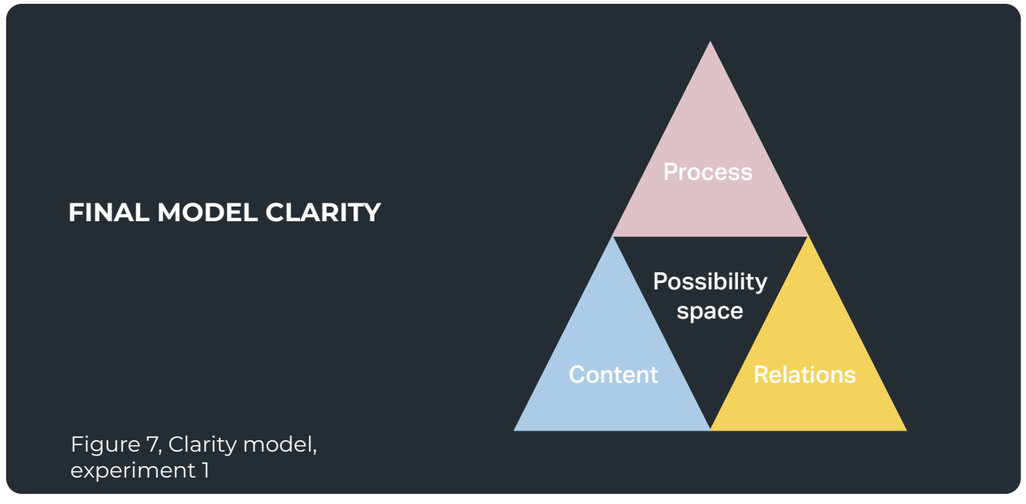


Figure 7, Clarity model, experiment 1

Step 5 Rationale

According to the cambridge dictionairy the definition of a pattern is "*a particular way in which something is done, organized or happens*". According to Snowden (2007) it is important to approach a complex problem by searching for patterns.

When explaining and evaluating the clarity model with people in X-lab and outside of X-lab, I found that the three categories combined are the building blocks of a pattern. Because, when discussing content, we talk about what happened at each individual moment, what does the user see/do. Secondly, when dicussing relation, we see how these point relate to each other. Lastly, during process, we see in which order these point follow up on each other. So, in the end we have distinghuished a pattern. This model will be further iterated when testing the final solution.

Step 6 Final Model Clarity

Since introducing this model, the X-lab colleagues have been using it to structure possibilities.

The following conclusions were drawn:

- Making explicit which perspectives you can look through supports the designer to find the next step when being stuck in a process.
- The specific perspectives presented for flow design support the designer in identifying which perspective is lacking in a case, which then helps to set up a particular action for this perspective.
- The perspectives process, content, relation have been received positive and the model is currently being used by X-lab in their meetings.

7.4 TANGIBLE OUTCOME & ITERATION – THE BEST MOMENT TO INTERVENE

In the define phase we concluded that flow design is missing the final part of the diamond, the creating and delivering phases. How can we add these steps in flow design to come to a tangible outcome? Should we intervene in the current process, or after the meeting?

There are three possible moments to intervene: before, during and after a flow design meeting. Before is a consequence of the research done for during and after a flow design meeting. So, two options remain to research whether it is the right moment to do an intervention: during and right after the session. In this section I analyzed if the current process can be adjusted, and then what happens to the outcome if extra steps are added to the process.

Intervening during flow design

During flow design meetings the focus often lies on the problem. However, if you keep focusing on the problem and nothing tangible comes out, it is difficult to reflect. The question arises: can you create a tangible outcome while in flow?

There are different potential interventions without adding extra steps:

- Start the session with a tangible goal
- Add extra clarifiers
- Filling in a canvas
- Physical prototyping

There are more options, however, for the sake of time, I did one experiment to explore, also referred to as 'research through design'.

Experiment 1: Change the goal of a flow design session.

I designed an experiment where a group of 6 participants conduct a flow design session, with the tangible goal of creating a fictional let- ter to minister Tjeenk Willink to offer their help.

In this experiment, there first was a preparation meeting with the process moderator and the clarifier. Next, an email was sent to all the participants explaining the goal of the session, then the session was hosted and lastly, there was a reflection. Before the session the goal was adapted towards: at the end of this meeting we have written a letter towards Tjeenk Willink offering our support. For more information about this experiment see appendix F.

The results during the session were:

- At the end of the session there was no finished tangible result
- It resulted in an action; 2 members of the group were going to finish the product.

Groups members showed lots of resistance while proposing to actually make something with comments such as "we aren't ready" or "we do not make things". This resistance was noticed during the beginning of the meeting when explaining this approach and at the end when reflecting all group members felt that there were several learnings from making something.

Several comments were made about learning such as:

- "I have learned about our own language, meme and identity. " (comment made by X-lab em- ployee).
- One of the group member suggested to use a storytelling tool, thereafter he introduced a tool.
- The group felt iterations are not necessary ("Iter- ation is not necessary when you are designing" (quote of one of the participants).

The results after the session:

The participants used the storytelling tool to get to a product in the weeks after the session. For the result see appendix F.

A week after the session two participants worked further on the letter. They finished the product, where both participants indicated that they had made the product in flow.

The group came back together, and the finished product was shown; most were satisfied with the result, but some felt like the letter wasn't finished.

Conclusions

This experiment was done to see if you can actually produce something in flow. In the experiment this was not possible. The things that needed to be considered after this session are:

Because flow design requires meetings there is a time limitation.

After the session a tangible product was finished that both participants made in flow, not during the session.

A storytelling tool helped supporting the continuation of flow between meetings. This is the reason to further indicate how a framework can support flow.

Finishing something in flow is difficult.

One of the participants stated: How small should the group be to make something in flow?

You could perhaps arrive at a tangible outcome within flow design, but due to the time limitation problem stated in Chapter 5, this is not seen as a feasible solution. However, the experiment has provided us some insight on the intervention in a flow design meeting and the effect on its outcome. Hence the goal of this design brief was to create clarity within the next steps and to implement iteration within these steps. Both of these goals are achieved. The group found clear following steps, a tangible product is made and reflected upon and adapted; therefore, iteration took place.

Furthermore, the participants flourished after the slow design session using a story telling tool, which qualifies as not being in the meeting. This brings us to a second experiment, which investigates the step the participants took with the story telling tool after the flow design session. This will be described next.

Experiment 2: Adding steps to flow design

A second experiment that follows up on experiment 1 has been created. In the first experiment we saw that a tool is of added value when coming to a tangible outcome. So, the question formulated for this experiment is: can you use a predetermined framework to support the creation of a tangible outcome?

The setup of this experiment is as follows: first a normal flow design session is organized; thereafter, a second flow design session was held, whereby one participant together with a process moderator fills in a predetermined framework. Lastly, a reflection was done. For more information about this experiment see appendix G.

The predetermined framework I selected for this experiment, was the well-known value proposition canvas. This framework seemed appropriate, because the participants searched for how to make a product better fitting the costumer needs.

The results of this experiment were:

- The value proposition canvas was filled in.
- By filling in a framework new insights were created.
- A plan was made to perform interviews to improve the filled in canvas.
- After a month the filled in framework was still used in communication to colleagues, each time resulting in a reflection on the filled in framework.
- Filling in a framework led to a finished frame- work that was shown to other employees.
- The participant clearly stated that making something tangible supported him in his pro ect.
- Without it being the goal of this experiment, we saw iteration steps being planned.

The conclusions of this experiment were:

Based on these two experiments the following conclusions can be made.

- It is hard to generate a tangible outcomes during flow; this is easier after the flow meeting.
- Using a canvas to build and develop understanding of the problem is of added value when doing flow design.

7.5 TANGIBLE SOLUTION & ITERATION - ITERATION & TESTING

Ideas are not born perfect, you need to improve them by testing and adjusting iteratively. In this section I will explain how iteration should be implemented in the final solution. To iterate first you need to make something tangible. In the first two experiments we saw how this can be done. The next step is to test the outcome and do iterations if needed. In this section I will analyze how this next step can be done best.

I will explore what the best way is to test the outcome and to do iterations, by firstly, researching the existing procedures within RVO, then consult literature on testing and iterations, followed by a final framework. This framework meets the requirements as set in the define phase, combining ‘creating clarity’, ‘tangible solution’ and ‘iteration’.

Existing procedures RVO

To get an understanding of the already existing iteration possibilities within RVO, two interviews were performed with experts on experimentation within RVO.

These interviews were both semi-structured and both interviews contained three different themes:

1. How do you perform tests within RVO?
2. What kind of tests are their within RVO
3. What kind of tests are there in general?

The results of the interviews:

1. When performing tests in RVO first the participant is asked to create a hypothesis, then a plan on how to test the hypothesis; next, the research is executed and data is collected and lastly conclusions are drawn.
2. Currently within RVO there is a network to spread information about experimentation. They do this by hosting and organizing test trainings.
3. RVO uses testing as a basis for validation, experiments are used to see if something works in a certain context. Participant: “Ideas are directly translated into plans to be used.”

When looking at these results the following conclusions can be made;

1. RVO is using a deductive way of thinking in their current way of working.
2. There is interest within the organization in the possibility of experimenting.
3. Experimenting is only used for validation and not for other types experimenting.

Reflection on RVO's way of testing

RVO learns in a deductive manner, but as an organization you can also choose to learn about the context in an inductive manner. The difference between these two approaches is explained in figure 8. As a designer I would like to argue that you need both. When learning about the problem as a designer you chose to act and, in this way, learn more about the system, especially when dealing with chaotic or complex problems it becomes important to respond(Snowden and Boone (2007).

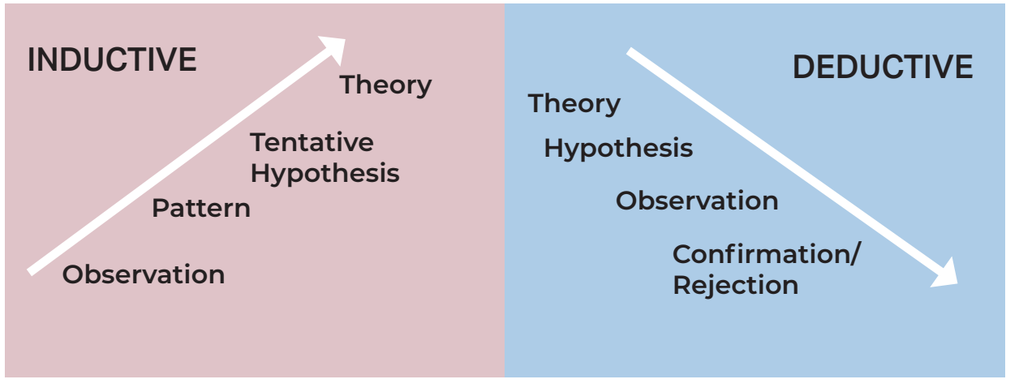


Figure 8 indutive vs deductive

No idea is born perfect

When implementing ideas directly or waiting until it is ready before testing, you overlook one of the first principles learned as a designer, which is "no idea is born perfect." Often ideas are based upon assumptions that need to be refined and improved. When going directly to implementation or validation, there is little room for failure as resources have already been invested (Leurs & Roberts, Playbook for innovation learning 2018) see figure 9. On the other hand, prototyping helps to identify and test assumptions in an early stage without spending a lot of resources, allowing there to be more room for failure. For example, building a paper scenario and testing this with the user may cost you only a few euros, whereas running a full-scale test will cost a lot more and it might lead to the same outcome.

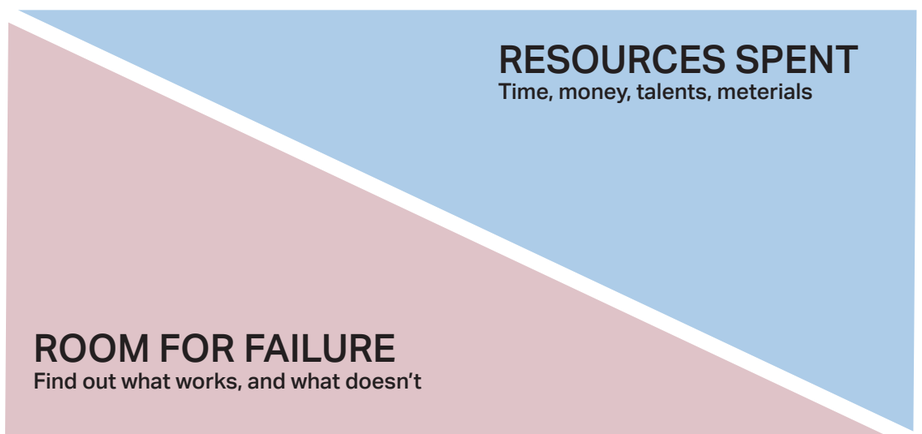


Figure 9 failing

Experimentation approach

Christiansen, Leurs & Quaggiotto (2017) present a framework that shows an experimentation approach that goes form exploring to validating your solution. This approach goes from inductive to a more deductive way of working. First, research is done by 'exploring'. In this phase your solutions are unknown and you are trying to discover what might be by searching for new possibilities. Then, you move toward the trial-and-error phase where you research what could be by searching for what works and what doesn't work. Finally, you move toward validate, here you research what should be by justifying decisions.

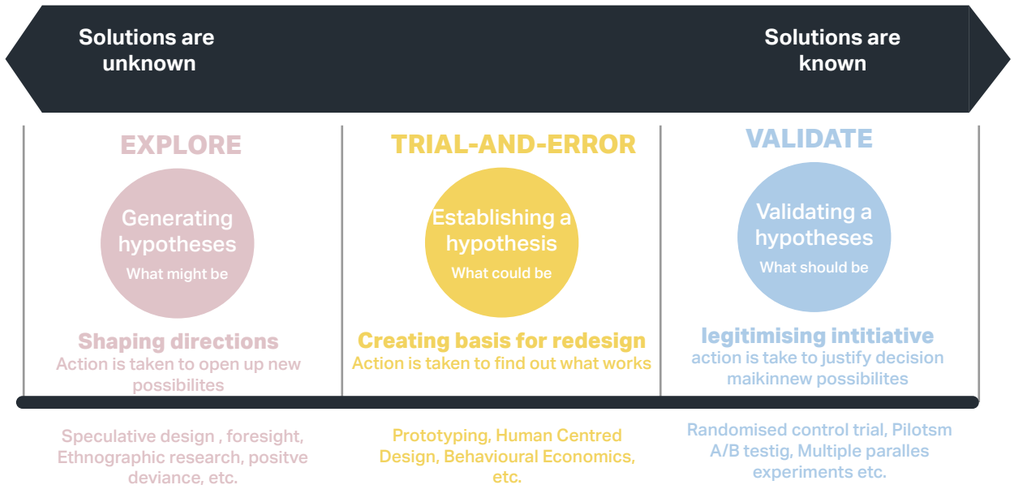


Figure 10 adapted fromChristiansen, Leurs & Quaggiotto (2017)

Conclusion

Based on the interviews and literature, a more inductive way of working should be added while testing and iterating within RVO. I suggest to do so by applying an adapted version of the framework from Christiansen, Leurs & Quaggiotto (2017), see Figure 10.

7.6 THE FINAL MODEL

When combining the frameworks from clarity and from testing & iteration, the following model see figure 11 is created. This model should support you in taking a step by step iterative approach based on the different themes which eventually will result in a tangible solution.

The frameworks are combined to create one framework where you have an overview of the actions you have, and you are going to undertake. This is import so that the relations or link between different project are more explicit.

The final model is a diagram consisting of nine diamonds that builds on the three principles shown before. The step-by-step and iterative approach ensures the continuation of Flow.

As a team you need to make explicit on which diamond you are focusing on per subject. The process will support you in coming up with questions and choosing actions which fit the questions you want to answer.

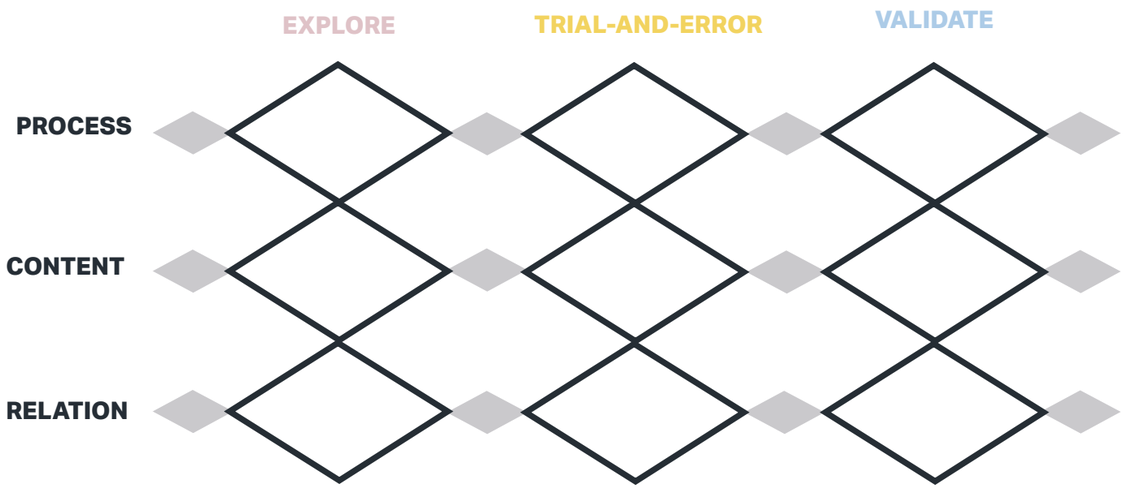


Figure 11 final model

7.7 VALIDATION OF THE FINAL MODEL

To validate whether this model meets the requirements, namely creating clarity, iteration and a tangible solution, this model was shown to several case owners.

When validating this model the following results were found:

- The participants were able to find small steps that had clear goals. So, the requirement of a tangible outcome can be met with this model.
- However, they were not able to implement such a step because it was not clear to them how to proceed. Participant: ”I know what to do, but how?” So, the requirement of clarity is not met with this model, resulting eventually in an outcome which is not tangible.
- You can only move to the next diamond, based on the results of the previous steps. Hence, the details leading to the result cannot be foreseen from an earlier stage on. So, each experimenting step must be completed. Since each step is an iteration, the goal of iteration is reached.
- One of the participants, stated; “this is so cool, it is what we need! It changes my way of thinking about learning.”

Conclusion

In the create phase of this thesis a model has been developed that does not meet the two requirements fully yet, because support on how to use the model is missing.

Concluding, in the create phase I have explored options and created a model based on theory and experiments that has the potential to add value to flow design. The next step is to focus on the user.

8 DELIVER

This chapter describes the final deliverable of this graduation project. The final deliverable is a manual answering the question:

How should an adaptation on flow design look like?

8.1 FIRST ITERATION: INTRODUCTION

In the create phase a model was made to add value to flow design. However, in the last chapter we saw it was unclear to the user how to use the model. So, in the define phase of this thesis I will present and test a user manual, to create more clarity.

This chapter describes the final deliverable of this graduation project. The final deliverable is a manual answering the question:

How should an adaptation of flow design look like?

To answer this question, I will first explain the context and the reasoning behind it.

Then, I will reflect on the product with multiple user evaluations. Resulting in two iterations of the manual

The final deliverable of this thesis is the ‘flow design and now?’ manual for civil servants that want to innovate. This manual will be given to civil servants after a flow design meeting to help them go from possibility space to action perspective.

The manual consists of two elements;

1. Three principles for shifting from possibilities to action
2. A step by step approach which supports the team in making choices and moving forward.

The final products are presented in chapter 10. In the coming chapter the evaluation and results are described.

8.2 THE MANUAL

In this section I describe the rationale behind the decisions made when creating this manual. These decisions are based on previously presented research in this thesis. More details about the manual can be found in the manual chapter

The user of the manual.

The manual is for flow designers and case owners. For flow designers, the goal is to help them better prepare the group in the actions to come and with that create clarity. For case owners, the goal is to be supported in an iterative approach and be able to create actions.

Content of the manual

After writing the foreword of this manual, I show the double diamond to create the right mindset. As explained in chapter 6, when showing the double diamond, the mindset changes towards a different undefined mindset, which allows you to have more creative confidence, optimistic and embracing ambiguity.

Next, the principles and rationale behind the principles are shown to make insightful how the final model came into being.

There after, a step-by-step approach is shown, which consists of the following four steps: selecting actions, build and run it, learning together and clarifying. These steps are the structure of the steps needed to take in each diamond, see figure 6 of the manual. They are in this order to stimulate a more inductive way of thinking.

As can be seen in the manual, the designer is able to create his own actions and choose his or her method to do so. The design actions chosen should make sense in the light of a designer's mindset and goal, and the features of the situation in which he or she is working (Daalhuizen 2014 Method Usage in Design -thesis).

8.3 STEPS IN THE MANUAL

To guide the users four steps are suggested to follow within the manual: selecting actions, build and run it, learning together and clarifying. These four steps need to be taken in each diamond, before shifting to the next diamond, see figure 10. The steps are further described below; for more details, see the manual.

To develop and create these steps research is done on which steps other PSI labs such as Mindlab and the UK policy lab and design firms such as IDEO, suggest in workshops or sprints. Most of these labs suggest to do a sharing moment of their learnings with the entire group and make sense of the learnings by using a framework. Therefore it is decided to add steps that allow for learning, sharing these learnings, and make sense of these learnings.

A description of the steps in more detailed is given:

1. Selecting actions

The goal of the first step is coming up with actions. This is done by creating an overview of the desired step and then in finding a fitting action.

At the end of this step, a list of learning questions and fitting actions is created.

2. Build and run it

Once you determined what kind of actions you are going to take, the time has come to get out there and start doing. You identified your questions and how to answer them, this is your kick-off point now. Remember that the only goal of the actions is to learn about the final solutions or products, so nothing needs be perfect. Think small, scrappy, and inexpensive. At the end of this step, each team member has acted and learned individually from doing so. During this step you are asked to fill in a canvas. This canvas will help you make explicit what you are going to do and why

3. Learning together

After doing and learning, it's time to sit down with your team and share the information you have collected. This is necessary to be able to draw conclusions in the next step. At the end of this step as a group, you have learned and interpreted from each other's learnings.

4. Clarifying

When starting to get an understanding of the system, you need to make the structure explicit to be able to move towards the next diamond. Make sense of key relationships and get a representation of the system. Then you will be able to brainstorm on the next steps you need to take in order to make the shift from diamond to diamond. Here it's important to think in terms of systems, relations, and patterns. At the end of this step, you have analyzed your learnings and made insightful what potential steps are next.

8.4 FIRST EVALUATION OF THE MANUAL

In this section, I will validate the manual to answer the following questions; does it deliver clarity? And does it stimulate iterations? To answer these questions I will conduct several expert reviews.

User Evaluation method.

To perform this user evaluation, two mangers of RVO and an outsider are asked to review the manual. This is done digitally through Microsoft teams. While the participant went through the manual, the researcher was able to ask questions to learn about likeability, if it supported iteration and if created more clarity in which steps they should take .

Results of the user evaluation of the manual.

Based on the user evaluation the following themes where observed: inductive vs deductive, making something explicit, how do you keep doing, coming up with actions.

Inductive vs Deductive

- “It feels like we are searching for an inductive way of thinking for a longer time without know- ing it, this is truly an eye opener for me.” (manager)
- “The steps almost force you to be inductive.” (manager)
- “For me it still feels like you need to do both.” (manager)

Making something explicit

- “Currently you ask people to make explicit which shift you want them to make ‘from -> to’. This is maybe to explicit. Is it possible to just have one question that is well introduced, so that you don’t discuss two points? “ (designer)
- “It already makes my thinking about project steps more explicit.”(manager)
- “Is there also a hand-out for process moderators, so that the transition is smoother?” (manager)

How do you keep doing?

- “it is important to reach a plateau so that your team keeps on doing this. It feels like you keep on making these steps after performing this step once.”(manager)
- “Maybe you could also train people in using this method, or the process moderator should support the first step. It doesn’t feel like you will need a flow design session that often.”(manager)

Coming up with actions and questions.

- “we probable need some support coming up with actions.”(manager)
- “Where can I find these questions?” (manager and designer)
- “how do I approach making these questions?” (designer)

Actions examples given by the users,

1. How might we create a shared language?
2. Which skills might we need?
3. Where do we start?

In general, the feedback was positive, the participant said:

- “When can we start doing this?
- “I have a project in September is it okay if we use this?”

Conclusion

In general, the manual is helping case owners to think about their projects steps and therefore creates clarity in the upcoming steps.

Secondly, it is hard to determine the iterative value of this method, because due to the time limitations of this thesis it can not be tested. This will be added to the recommendations.

Lastly, flow design deals with both complicated and complex problems. When discussing this approach with case owners, their natural response is to think directly into developing a solution. For complicated problems this is a suitable approach, but for complex problems you first need to discover the underlying patterns. Therefore, there needs to be support in creating awareness for the different types of complex and complicated problems. I will look further into how this can be done in the next sections.

8.5 SECOND ITERATION: INTRODUCTION

To deliver more support when dealing with complex problems a new design sprint is done.

This sprint starts with building a complex and complicated problem approach with the focus on how it should be used, this is thereafter shown to expert to get feedback. Then a draft approach is created and a case is done using this draft. After this the final product is created and again validated with a case.

Developing the two different approaches

To develop two different approaches, the requirements for dealing with complex and complicated problems are plotted on the double diamond. Also these requirements are categorized within the possibility space model presented in chapter 7.2.

For the details about the draft of the two different approaches see appendix I Also the feeback on this model can be seen in appendix I Based on the development and feedback on these approaches the following conclusions are made.

Complicated

1. These are problems wherein experts needs to be challenged to think outside of the box.
2. There needs to be space to come up with ideas.
3. Focus on an experimental approach towards the solution.

Complex

1. The most important thing here is to discover patterns.
2. Expertise is here hard to find due to unkown-unknowns. That is why it is better to select experts of the process rather than the content.
3. Risks are hard to oversee, as a group you should have skin in the game to deal with these risks.

Based on these principles I will develop a canvas that can support the use in correctly approaching a problem. But before I create this canvas, it is important to explore the two approaches further by doing a user journey to have an overview of how all my findings come together, to make them more explicit and to validate them.

8.6 SECOND ITERATION: DEVELOPING THE USER JOURNEY

To understand how and when actions were taken and by who, a user journey was created.

This user journey contained, the following 6 steps Intake, flow design, pattern search, decision of entry point, develop and hand-over. These step where developed further in more detail, see appendix J.

Case

To better understand the user journey a case is used to reflect on. The goal was to see if there are any logic errors and if this approach can support better decision making. To see if the support in decisions making was effective, we looked if this case had a different trajectory than suggested by the journey suggested in this thesis. If there were different approaches than there looked at the consequence of this different approach. This case is presented by two experts on flowdesign. This case is fully plotted in appendix K.

The case was about developing the organisational agenda for RVO 2022. To develop this agenda 5 teams were created to develop a story explaining a solution. This led to a problem that there were 5 good stories but not all stories could be true. At this moment X-lab was asked for their support in the case. The goal of X-lab was clear; show the links and differences between each story. To achieve this goal, they set up several sessions, reorganizing the teams to think and challenge the problem and develop new possibilities. This resulted in new patterns. Based on the patterns, they were able to create new development directions. For more details about this case and comparison, see appendix K.

Learnings

From the experts the following comments were made:

1. ”If we would have focused on discovering patterns from the beginning this would have saved costs.”
2. “How do I determine if a problem is complex or complicated?’
3. “If we would have used a more experimental approach from the beginning, we would have been more time effective.”
4. “I find it hard to make decisions where to move or where to go. What are the criteria for the next step?”

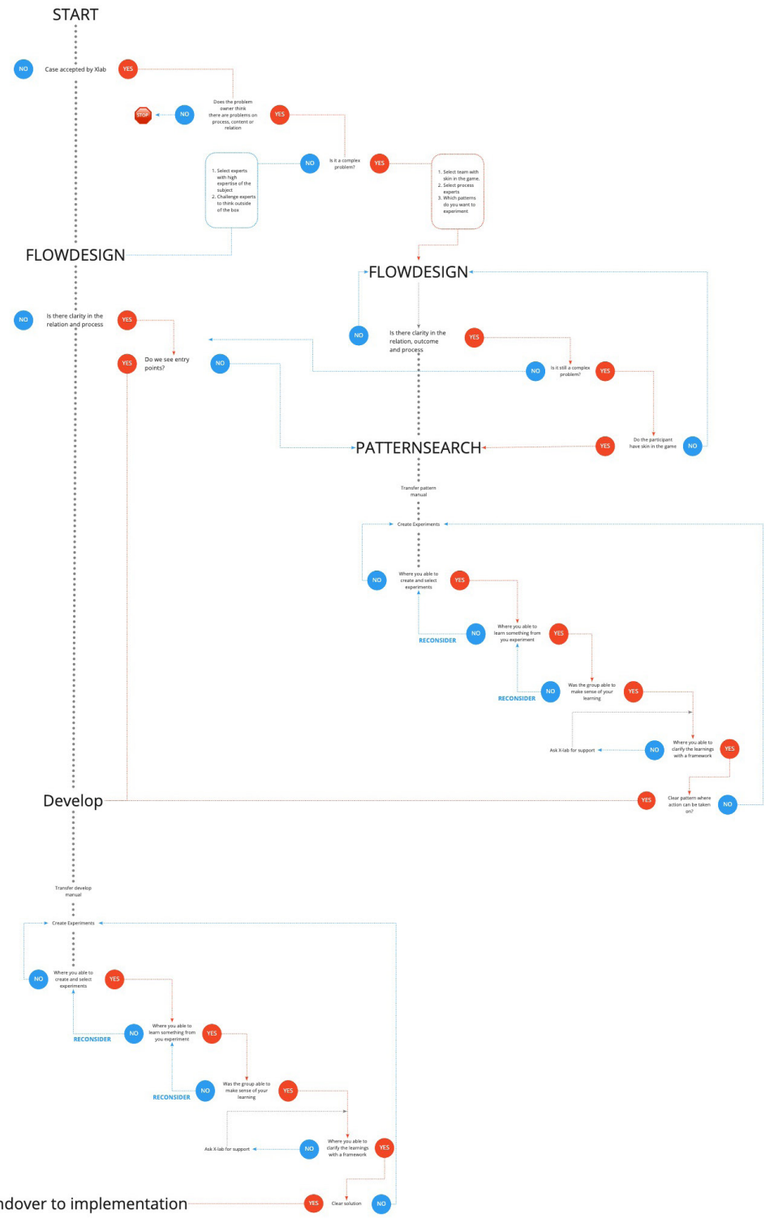
Conclusion

Based on these questions asked by the experts, there needs to be more support in decision making and a manual especially for pattern discovery. The decision making canvas and the pattern discovery manual are presented in the next two sections.

8.7 DECISION MAKING SUPPORT

Based on the previous learning a decision-making support canvas should be created, where the entry points and requirements for the next step should be explicit. Based on the development of the two different approaches and the user journey. For a more detailed version see chapter 11.

This canvas starts when a case is entered by a case owner or an X-lab employee and finishes when a concept is finished and ready to go towards an implementation or development unit.

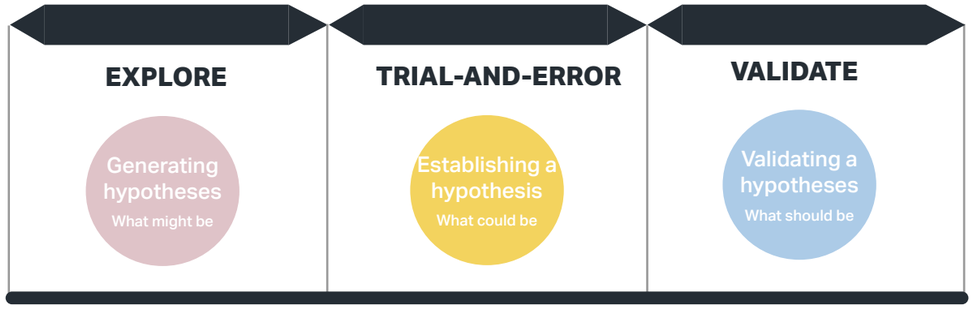


8.8 PATTERN DEVELOPMENT MANUAL

Based on the previous learnings it would be too confusing for the reader to have similar manual, especially examples would be confusing. Therefore, it is decided to keep the structure the same but change the content and at a support in determining which type of problem you are facing.

Adaptions made.

To make the manual more suitable for complex problems, first the introduction is changes where it is made explicit this is about developing patterns. Thereafter a page is added explaining the different types of problems to support the flow designer and case owners. Also, the explanation of the principals is changed to focus more on patterns. At last the examples of potential tools are changed. For the final pattern manual see chapter 11.



8.9 PRODUCT PORTFOLIO

In this chapter I have described the decision-making canvas, the pattern discovery manual and the development manual. In this section I will elaborate on how these products are related and the limitations of these products.

Decision-making canvas

This canvas is meant for flow designers and case owners to have clarity in their process. This is done by making explicit which choices there are and what is needed to move on. This canvas starts when a case is entered by a case owner or an X-lab employee and finishes when the product is ready to go towards implementation.

This canvas helps you decide if you are dealing with a complex or complicated problem. If you are dealing with a complicated problem, the decision-making canvas will guide you to use the development manual. When you are dealing with a complex problem, the canvas will guide you first to use the pattern discovery manual and after clear patterns are found it will guide you to use the development manual.

In the end, once completed the decision-making canvas, you will end with a (partly) filled in action model as presented in 7.6.

8.10 VALIDATION

After implementing the points of improvement of the previous sections. The decision canvas in combination with the two manuals was tested. The goal of this test was to achieve the design goal of creating more clarity in the next steps after flow design and to achieve the second design goal that the follow up step should be iterative. This is done by presenting a case to a flow designer, a case owner and an expert and ask them to follow the decision-making canvas.

Method

Due to time concerns and holidays there was no possibility to organize a flow design session with a new case. Therefore it was decided to reinact an old case, namely the BAR case, for details see chapter 3.3.. This case was presented to three members of X-lab. One of the members already was already familiar with the case and therefore took on the role of case owner. The other two members took on the role of expert and flow designer, and had never worked on this case before.

In the create phase a concept product was developed, see the action model in 7.6. However, it was pointed out in 7.7 that the action model was not clear to use. Then, in the deliver phase the product was extended to a product portfolio to help clarify using the action model. To verify if these products combined result in creating more clarity for the next steps and iterations, the participants were asked to fill in the decion-making canvas for the BAR case.

Experiment results

For the filled in decision-making canvas see appendix L.

At the start of this case study, X-lab decided to accept the case because the case owner had skin in the game.

Next, it was determined if the case was a complex or complicated problem. Here the case owner expressed that “on content and process it is clear, on relation it is complex.” It was complex on relation because there were 5 different stories for the municipality and the relations between these stories were not clear. Therefore, it was decided to treat the case as a complex problem.

Due to time limitations the old results of the flow design session as described in section 3.3 were taken instead of conducting a new flow design session. In the beginning of this old session more information on the case was gathered by adding experts. This information was now used to create a better understanding of the problem. Then, it was determined again if the problem still was complex or not. The case owner stated, “the problem is so clearly complicated that we even had time left to determine what to do next. This was possible because it was a small scope.”

After it was determined that the participants are dealing with a complicated problem, the decision-making canvas suggested the participants should use the development manual. After discussing the development manual, several actions were created such as: How might we share insight within our own organization? With whom do we need to develop a shared language? Lastly, these questions were plotted on the action model presented in section 7.6. During the plotting of these actions there was a

lot of discussion where to place them and why. During this discussion things came up such as:

- “Is this content or relation?”
- “We need to explore this first before moving on.”
- “That is a big step forward, maybe we can do some smaller things to discover this first.”

Particpant reflection

Also, a reflection was done in Miro at the end of the meeting to find out whether or not the product portfolio supported the participants in their process and to gather other points of feedback. For the feedback on the Miro board, see appendix M

Feedback from the problem owner:

- “It is nice to see the discussions were explicit on process, content or relations.”
- “Currently, you only ask X-lab for support, but maybe you can also involve RVO Campus.”
- “How do we spread this within our own organization.”
- “I love the way we need to make explicit choices. it supports me in having clarity about where to go and why.”

Feedback from the expert:

- “Flow design supports in finding the entry points of the process in the development manual”
- “ The process is explicit and fits our current way of working well, it supports in making your own thoughts more explicit. “
- “Is it okay if I use this for a session I’m organizing next week?”
- “Determining the type of problem is difficult.”

Feedback from the flow designer:

- “The phase transitions are the most important to me, and those are explicit.”
- “I noticed that the decision-making canvas really helps the group to make the steps to solve the problem more explicit. “
- “It is a total package in which the other tools also fit.”

Conclusion

Based on the result of this validation the following conclusions are made:

- All the participants stated that there was more clarity in their next steps. Also, next steps were created.
- When asking the participants to fill in the action model, there was discussion about iteration, and which steps you should take. Therefore, iteration and experimentation became part of their decision making on steps forwards.
- It is still hard to define which kind of problem it is. So, on the canvas should be more information about types of problems to support the participants.
- The product portfolio of this thesis fit the current way of working of X-lab.
- The action model presented in section 7.6. delivers a lot of discussion and therefore should be further researched.
- The participants became enthusiastic about the result and are eager to use it.

Concluding, the product portfolio is succesfull in creating clarity and iterations, and therefore the requirements are met. However, improvements can be made on clarifying what type of problem you are dealing with and on how to use the action model more time efficient.

8.11 THE SUPPORT OF DESIGN THINKING

Based on Tuckmann (1972) and Snowden (2007) and the interviews it can be said that the full potential of the current flow design process is not met. First of all, because in theory the potential is higher when all steps of the two theories are completed, and secondly, because flow design has no tangible outcome and therefore no clear actions to solve the problem are designed after analysing the problem. However, the final goal is to solve the problem, consequently the current flow design process could be improved.

Design thinking theories state that flow design can be improved by creating clarity in the steps to take after analyzing the problem and by doing iterations while determining these steps. More specifically, I will list the steps of Tuckmann that were not undertaken and relate them to flow design and my product portfolio:

Forming

Forming: In this phase Tuckmann advices to set up ground rules and a purpose is identified. This is done by flowdesign. When setting up the ground rules the decision-making canvas gives advice on which rules should be added.

Storming

Storming: In this phase Tuckmann advices an open exchange of information, emotional support, team cohesion and to create interpersonal team structures. All these are done in a flow design meeting.

Norming

After flow design you develop as a group this development is not supported by flow design. Tuckmann states several principles to support this development; experiment, increase the cohesion within the group and gather different viewpoints. The product portfolio supports in developing and performing experiments. Secondly it creates clear boundaries of the actions and understanding of each other’s goals therefore the cohesion. Thirdly, the roles become clear: who is going to do what. Lastly the product portfolio requires outside feedback when performing tasks.

Performing

Performing: after norming Tuckmann states that the team needs to become a working organization and needs to be able to achieve and adapt to solve problems. The product portfolio achieves keeping the same structures steps during different phases and therefore the team has a clear strategy and could operate autonomously. Secondly, the product portfolio suggest an agile working approach where you would quickly discover potential problems and therefore are able to adapt. Lastly the goal of the product portfolio is to deliver something tangible.

Snowden and Boone

I will list the jobs presented by Snowden to deal with complex or complicated and relate them to flow design and the product portfolio:

Complicated

Sense, analyze, respond this is the basic structure suggested by Snowden to deal with complicated problems by adding the development ma-

nual to the flow design trajectory the responds step is also supported.
Secondly, it is advised to listen to conflicting advice. This is done by challenging the user to go out there and generate feedback. Therefore, he or she develops their own story and gives this later back to the group.
Thirdly, create expert panels. In the decision-making canvas is clearly stated that when dealing with complicated problems you need to create a panel of experts.

Complex
Probe, sense and respond this is the basic structure suggested by Snowden to deal with complex problems. By adding the pattern discovery manual to the flow design trajectory. There is more emphasis on probing also this manual helps the user in developing a response.
Secondly, it is adviced to create environment for experimentation and patterns to emerge. This is clearly supported by the pattern discovery manual.
Thirdly, it is adviced to have more interaction and clear communication. This is done by working in an agile matter. Also, frameworks and canvasses are used to make more explicit what you are working on and what are your insights and what that means for the group.

Conclusion
As can be seen, the product portfolio facilitates that all steps to solve complex and complicated problems as a group at its full potential are being performed. Furthermore, the validation showed that the product portfolio indeed delivered clear actions to solve the problem. Since, the product portfolio has been created with the use of design thinking, namely the methods of the double diamond and frame creation are being applied, I conclude design thinking supports the trajectory of flow design. All in all, this thesis shows the added value of design thinking when dealing with complex or complicated problems and how it can enrich the current way of working of civil servants at RVO.

9 CONCLUSION

9.1 CONCLUSION

At the start of this thesis, I wondered how public organization such as RVO deal with complex problems? How do they learn about their problems? When is something a success to them? And can design thinking support their process?

Six months ago RVO's X-lab reached out to me, because they had a problem with scaling their flow design method in the organization. So, I started with an overall research to determine the problems within flow design. After doing an analysis, finding several problems, developing a solution, and validating this solution, it can be stated that design thinking indeed supports the process of dealing with complex problems within RVO.

Research objectives and research question

The first research objective was to evaluate flow design to determine its limitations. Based on this analysis several problems are identified which are arbitrary division, language, time limitation, lack of process and measuring impact. Of these problems lack of process is the most relevant problem and therefore picked to solve in this thesis. Research objective two was to research how design thinking can solve this problem. This can be done by creating clarity on actionable next steps and by conducting more iterations. Then, the third research objective was to develop a solution based on design thinking, which resulted in two manuals and one decision-making canvas. The fourth research objective was to validate this product portfolio, which was succesfully done, however some improvements can still be considered. Which brings us to answering the research question:

Where and how can design thinking support the trajectory of flow design within X-lab RVO?

So, *where* in flow design can design thinking be of added value? During the analysis it was concluded that flow design performs the first steps of Tuckmann's model of group development (1972), but does not complete all steps, consequently the full potential of the group is not reached. Furthermore, flow design doesn't perform all the steps of dealing with complex problems as defined by Snowden (2007). Therefore, it is concluded that after the current process of flow design steps should be added.

Secondly, *how* can design thinking be of added value? During the analysis it is concluded that design thinking can support the process in multiple ways. But the double diamond and frame creation model show that the most important principles for this thesis are:

- To create actionable steps after a meeting there needs to be clarity on how, which and why you are taking these steps.
- In addition, we can also conclude that when undertaking these steps, it is important top use iteration and experimentation.

With these two requirements in mind, I developed a product portfolio consisting of two manuals and a decision-making canvas. This proposal is tested and evaluated by several experts. The evaluation pointed out that the product portfolio is succesfull, but where and how did design thinking support the trajectory of flow design? I will explain that based on the theories I have consulted in this thesis.

Based on Tuckmann (1972) and Snowden (2007) and the interviews it can be said that the full potential of the current flow design process is not met. First of all, because in theory the potential is higher when all steps of the two theories are completed, and secondly, because flow design has no tangible outcome and therefore no clear actions to solve the problem are designed after analysing the problem. However, the final goal is to solve the problem, consequently the current flow design process could be improved.

So, flow design doesn't perform all the steps of Tuckmann's model of group development and also not of Snowden's dealing with complex/complicated problems model. The missing steps in flow design are Tuckmann's norming and performing steps and Snowden's probe, sense and response steps for complex problems, and Snowden's sense, analyse and response steps for complicated problems. The product portfolio was designed in such a way that it facilitates that all of Snowden's and Tuckmann's steps are performed. Furthermore, the validation showed that the product portfolio indeed delivered clear actions to solve the problem. Since, the product portfolio has been created with the use of design thinking, namely the methods of the double diamond and frame creation are being applied, I conclude design thinking supports the trajectory of flow design.

Reflection

So, I have presented a product portfolio in this thesis which improves flow design. Furthermore, this product portfolio along with the thorough description I made on flow design itself has been written down in a tangible document that can be transferred to collegues within the organisation. Reflecting on the starting point of this project six months ago, I conclude that the side effect of this thesis is that the resulting product increases the potential scalability of flow design.

Lastly, the validation pointed out that improvements can be made on clarifying what type of problem you are dealing with and on how to use the action model more time efficient.

9.2 RECOMMENDATIONS

After the analysis and development of the solution presented in this thesis. Several things need to be considered when undertaking future actions.

Experimenting

Experiment, experiment, experiment! No idea is born perfect, they are often based on assumptions and need to be refined and improved. When going directly to implementation, there is little room for failure as resources have already been invested. With experimentation you will quickly identify failures and successes in your proposed next steps. Currently, experimentation is missing in the trajectory of flow design, however I cannot emphasize the importance of experimenting enough.

Manual

The manual is currently a static product created by a not X-lab member. But it will require changes to fit the changing context and expertise. Therefore, it is important to keep changing and developing the manual.

Strategy day

X-lab is a team which currently doesn't have a clear strategy and therefore it is hard to determine which tools to develop or which cases to accept. Therefore, I would advice doing a strategy day. Here should be determined how X-lab should be positioned within and outside of RVO for the upcoming years.

Involve designers

When starting this thesis, I always said everyone can be creative and I still think this is true, but not everyone can test and build these creative thoughts. In this thesis, I explain the importance of experimentation. A designer is an expert in experimentation, because of years of training in developing and finding experiments. Because of this, a designer could support the team. Therefore X-lab's offering would be more complete.

Problems

Currently, I make a distinction between complex and complicated problems and it is either the one or the other. In real life, it would be more of a gradual scale and each problem would have complicated and complex components.

Further research

Frameworks and tools

The result of this thesis is a canvas and two manuals that require support in finding the right frameworks and tools. Currently, it's not made explicit how to select these tools or based on which factors to select. I recommend further research.

Reflection tool

One of the points of improvement found in this thesis is reflection. Reflection is needed to improve your process. An important aspect of reflection is measuring impact. Hence, I suggest a reflection tool is developed.

Does experimenting make it cheaper

In this thesis I suggest a more experimental approach, I also argue that experimenting from the beginning makes the product better and lowers the development cost. To spread experimentation as a way of working within government it needs to be more quantified, therefore research should be done into these KPI's.

10 EVALUATING THE PROJECT

10.1 EVALUATION OF THE PROJECT

This project has been an interesting journey. First, to understand flow design and thereafter, to see how design can support flow design.

The most important conclusion is that experimentation is key, you can analyze a problem if you want without going out there. But eventually you need to go out there and the longer you wait the more expensive it becomes and the harder it becomes to fail. However there are some potential points of improvement for this thesis.

During this project I tried to match my solution as closely as possible with the current way of working of X-lab. Basically, this meant that while researching the limitations of flow design I focused on more important problems than the initial problem of scalibility. Although, I do believe my product facilitates scalibility, more researched could have been done on scalibility if not for time limitations.

Overall, I improved flow design by making more explicit and clear which steps can be taken after a flow design session. However, determining the real impact of this project would cost time and would only have become visible in years. Time will tell the impact of this product portfolio, but for now the difficulty of determining the impact is a limitation.

The validation pointed out that improvements can be made on clarifying what type of problem you are dealing with and on how to use the action model more time efficient. Due to time limitations I could not further address these problems, but I would have done so otherwise.

In this thesis I do research in the way design functions and how it can support flow design. In the analysis I used several design methods and I consulted two design experts. I think it would be an interesting approach if I would have organized a reflection session with multiple design ers that are not familiar with flow design to reflect on the potential impact of design thinking on flow design.

When developing solutions, I quickly decided to move towards developing a method. Whereas other directions could have created something more hands-on, such as a pattern discovery toolbox, a story telling puppet show or an experimentation room for complex problems. I have decided not to pursue a more hands-on solution, because all the other hands-on tools of X-lab are not used explicitly and are therefore not functioning up to its full potential. When reflecting on my project I think if I would have decided to develop a more hands-on solution the outcome would not have been as useful.

In this thesis, I use the research through design method, meaning I developed an assumption and tested this assumption to learn and based on the learnings I developed new assumptions, and so on. This made it difficult to write a structured thesis. Generating information about a certain topic was sometimes so linked to another topic that to make it clear for the reader I needed to be aware of where I introduced what. This was sometimes really challenging and could be confusing to the reader.

10.2 PERSONAL REFLECTION

To finish up this project, I would like to personally reflect on my thesis, the time as a part of X-lab and the time as a graduate.

As a designer I do thinks based on intuition when something feels right, I just go for it and see what happens. This enables me to make quick decisions. But also makes it hard to explain in an academic way how certain decision were taken. When discussing this with Ahmee or Nynke they were always sharp on why I decided to go in a certain direction. They showed me there is a combination of both intuition and analytics. This has taught me to better think about how you communicate something and that taking a step back can help you find new possibilities.

A big part of this thesis was doing research, when starting this thesis my academic skills were small. During this thesis, I was challenged several times to write or analyze more academically. I found this the most challenging part of my thesis.

During this thesis I was able to join several meetings. Let's say several is an understatement, in total I joined over 200 hours of meetings and sessions. This is a lot, maybe even too much. But being here gave me a lot of information about their way of working, but also it gave me extra joy and motivation for this thesis.

At last, I had not imagined the amount of inspiration and understanding I would have developed about myself and the future. I had imagined this graduation to be an end point, but it is not. It is rather the beginning of a new chapter. I have learned with which kind of people I would like to work, which approaches I like and in which conditions I thrive. This has made me optimistic and curious about the future.

11 PRODUCTS

11.1 DEVELOPMENT MANUAL

The product should be read as a double-page spread.

Development

Manual

2021

Loek Dekker

Foreword

During flow design you have looked at a complex or complicated problem and created possibility space (mogelijkheidsruimte). However, creating possibility space is not enough to solve complex problems. You need action perspective (handelingsperspectief). This guide will help you converting possibility space into action perspective. So that you can support develop a successful product

‘The development’ manual aims to support civil servants that want to innovate. This manual supports this goal by presenting a set of principles and a framework supported by a four- step approach.
One of the core principles of this guide is iteration. By performing iterations the shared understanding of the problem is challenged and improved. In addition, you will focus on the problem by looking at the content as well as the relation and process.
It is clear that you will face barriers when applying part of this guide, some of which may require a shift bigger than this framework supports.

The flow design framework builds upon the existing framework for innovation from the Design Council (2019). The section on the right shows this framework; the flow design
and learning stages come together in the center and then are translated into actions
to learn again. The four stages in the middle represent the stages explore, reframe, create and catalyze, as distinguished by the Design Council (2007). These steps can be taken linearly, but are also likely to loop back and forth.

Figure 1

Principles

To create actions, it is first of all important to understand the key principles before diving into the process. We have collected 2 principles that will support the continuation of flow after a flow design meeting.

Principles
Iteration spots errors early, avoids risk and builds confidence and thereby improves the outcome.

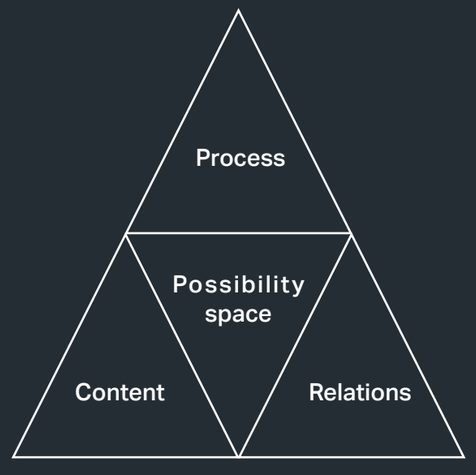
Clarity will allow a continuation of flow. It is
important to create a clear shared understanding of the problems and ideas.

To better understand these two principles three frameworks are presented. Lastly, these frameworks are combined to create the final framework. This final framework will condtitue the outline of process. These frameworks are explained below.

Clarity

During flow design you have created possibility space, during interviews with clarifiers and doing several case studies we concluded that generating solution space comes from the following three elements: content, process and relation. To create clarity, it is important to be aware of these. Therefore, when missing opportunity space search for possibilities in one of these categories.

Figure 2



Experimentation

To make a product successful it needs to be tested several times. For example, James Dyson created more than 5,000 failed prototypes of his very successful vacuum cleaner or Google was just another search engine until it iterated its way to AdWords and AdSense. Also, the earlier you start iterating your product the cheaper it becomes, as shown in Figure 3.

The diagram of figure 3 explains the value of prototyping and experimentation when developing a new solution. We sometimes see that new solutions are launched with a 'big bang'; ideas are translated directly into plans that are then fully implemented.

But no idea is born perfect; they are often based on assumptions and need to be refined and improved. When going directly to implementation, there is little room for failure as resources have already been invested and spent.

Prototyping, on the other hand, aims to identify assumptions and test out ideas at an early stage without using vast amounts of time and resources. Here, there is room to learn from failure. For example, building a paper prototype of online service may cost you only a few euros, whereas developing a fully functional website may cost hundreds of thousands of euros.

So, prototyping and experimenting are essential when developing a product.

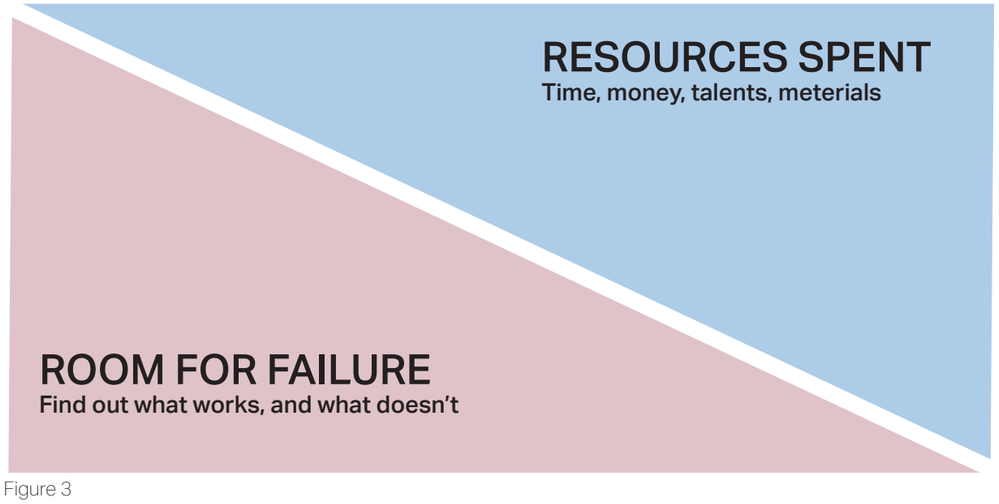


Figure 3

Iteration steps

So, how to experiment and prototype in a project? Experimentation in government can best be seen as a continuation of different approaches, rather than as one method. Different methods should be used if solutions and their intended outcomes are not known at all, partially known (or assumed), or known. Christiansen, Leurs & Quaggiotto (2017) have grouped these methods into three categories of experimentation; explore, trial-and- error and validate.

So, during the full length of a project there is room for experimentation and iteration. Not only at the end of a project.

Explore: In this phase your solutions are unknown and you are trying to discover what might be by searching for new possibilities.

Trial-and-error: here you research what could be by searching for what works and what doesn't work.

Validate: here you research what should be by justifying decisions.

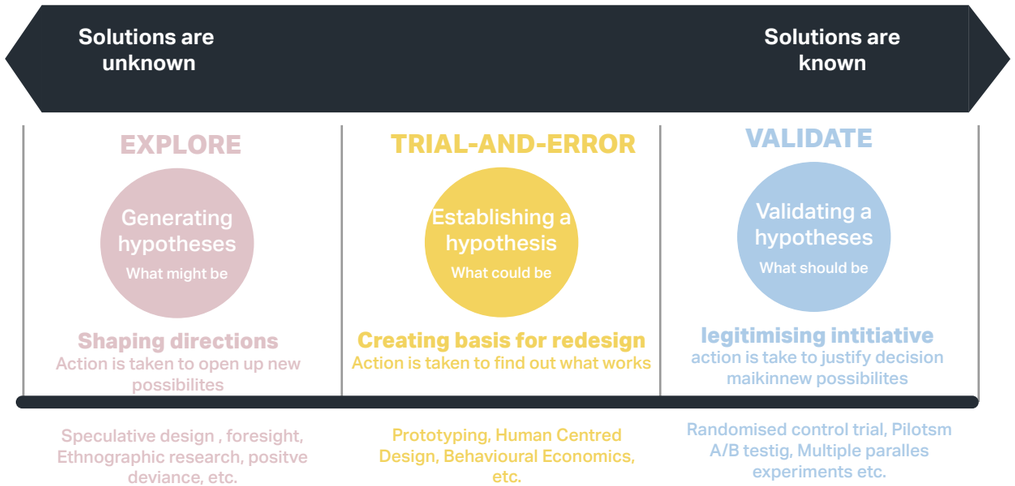


Figure 4

Action model

The final model is a diagram consisting of nine diamonds that builds on the three frameworks shown before.

The step-by-step and iterative approach ensures the continuation of flow. As a team you need to make explicit on which diamond you are focusing on per subject. The process will support you in coming up with questions and choosing actions which fit these diamonds.

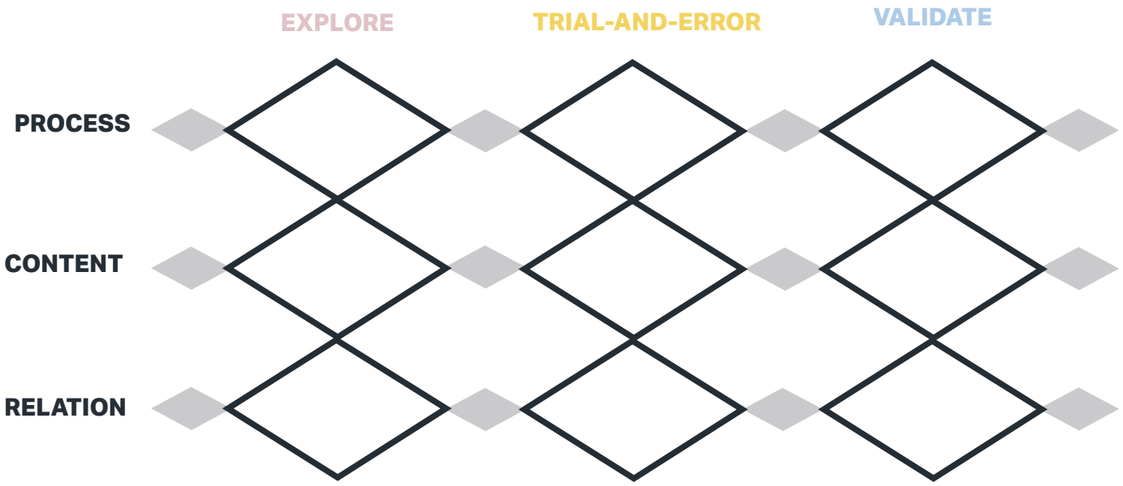


Figure 5

Method

In order to use the model correctly, a method is developed to support you in taking the right steps.

The frameworks and models presented previously are translated into a method. This method is designed to help you shift from diamond to diamond considering the earlier presented principles. The goal of this method is to support the user taking actions, creating clarity and finally learning from each other.

This method consists of the following four steps: Selecting actions, Build and do it, Learning together and Clarifying. These four steps need to be taken in each diamond, before shifting to the next diamond, see figure 6. A team can focus on multiple diamonds at once, but you cannot skip one.

Each step is explained in more detail on the next pages.

Process overview

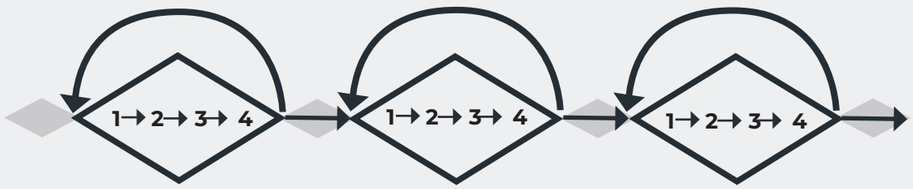
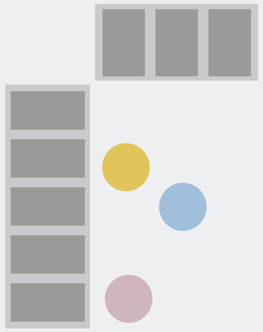


Figure 6: Process overview

1 Selecting actions

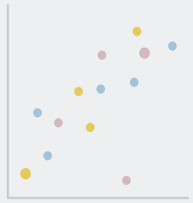
Explorer, decisions



The goal of the first step is coming up with actions. This is done by creating an overview of the desired step and then in finding a fitting action.

2 Build and do it

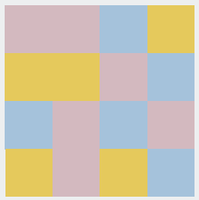
Testing, feedback



Once you determined what kind of actions you are going to take, the time has come to get out there and start doing. Think small, scrappy, and inexpensive.

3 Learning

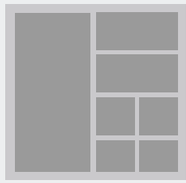
Open minded, sense making.



After doing and learning, it's time to sit down with your team and share the information you have collected. This is necessary to be able to conclude later in the process.

4 Clarifying

Systemic thinker, explicit



Make sense of key relationships and get a representation of the system. With this, you're able to brainstorm on the next steps you need to take.

For more info >> Loek Dekker

1. Actions

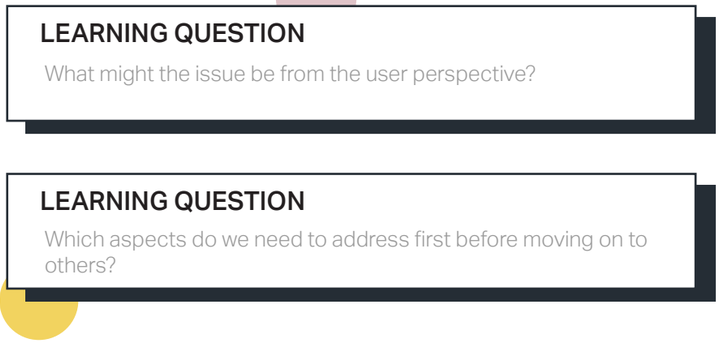
The goal of the first step is coming up with actions. This is done by creating an overview of the desired step from the flow design session and then in finding a fitting action.

How to use it
Get a space where you can place post-its, this can be a digital or physical place. Use this place to map out the things you are trying to discover, create or validate.

Also, don't be afraid to ask for help from the clarifier or process moderator in these steps.

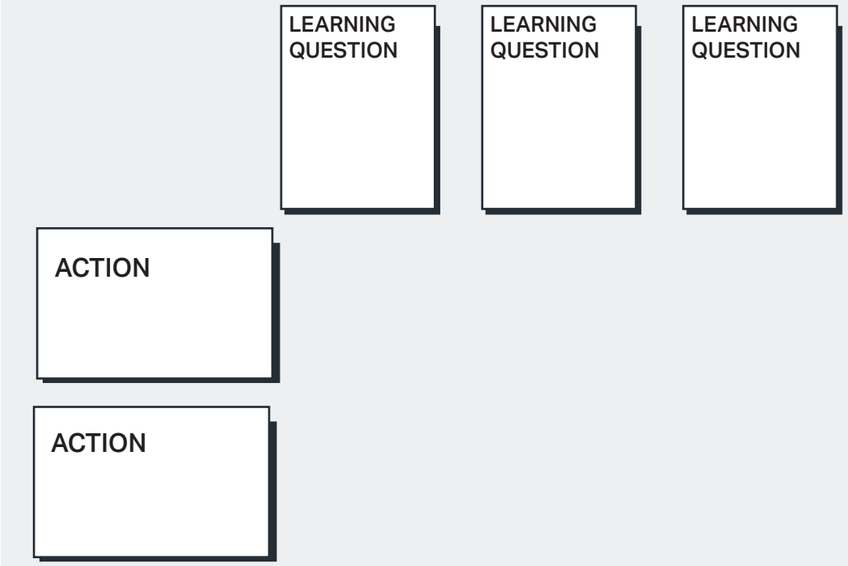
First step

First, select the diamonds your project is currently in. Then, ask yourself the questions related to either the explore, trial-and-error or validate phases, depending the diamond your in. Examples of these questions can be found on P18. Ensure that the questions become more explicit, see example below. In the end, there should be a list of questions. These questions are set up to learn, and from now on will be referred to as learning questions.



Second step
Write down how you want to discover, create or validate these questions. There are multiple actions you could do to answer these questions, brainstorm and discuss these as a group. You can learn using any number of actions, such as interviews, storyboards, role-plays, pressure cookers, models, mock-ups. For examples of possible actions see the bottom of this page. At the end of this step there should be a list of actions.

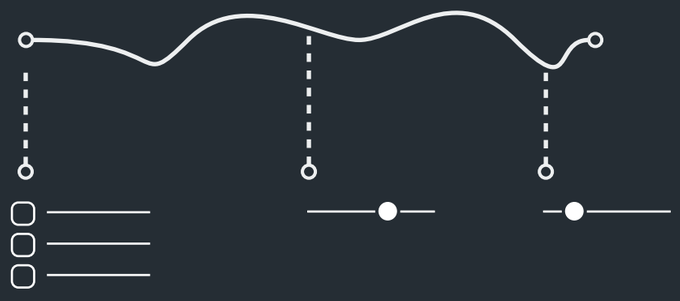
Third step
Create a grid where you tag your actions to the learning questions you want to address. As a group discuss which action you see fit for each question.



Examples of Actions

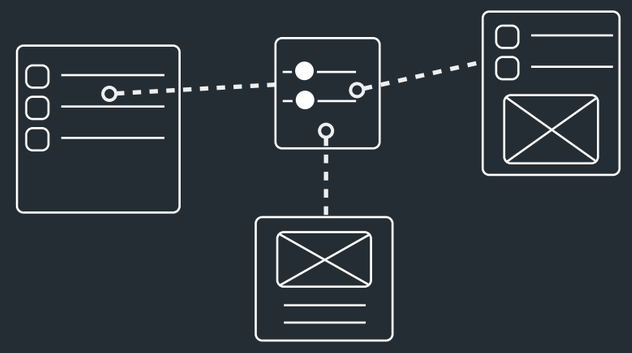
User Journey

A user journey map (also called the buyer journey or user journey) is a visual representation to help you tell the story of your customers' experiences with your service across all touchpoints.



Wireframes

Wireframing is a way to design a website service at the structural level. A wireframe is commonly used to layout content and functionality on a page which takes into account user needs and user journeys.



2. Build and do it

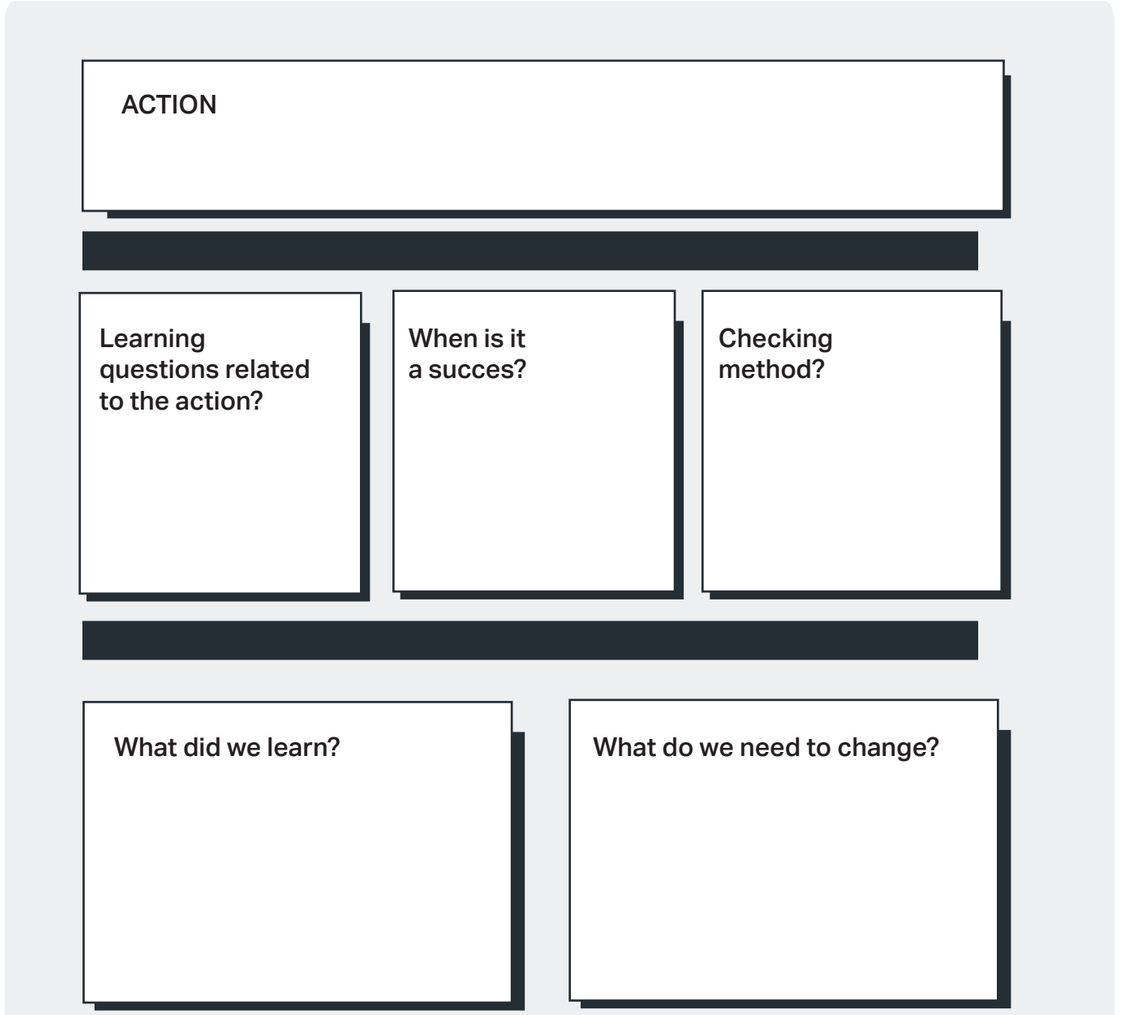
Once you determined what kind of actions you are going to take, the time has come to get out there and start doing. This is your kick-off point now.
Remember that the only goal of the actions is to learn about the final solutions or end product, so nothing needs be perfect. Think small, scrappy, and inexpensive.

Fist step
Fill in the worksheet on the next page for each action. The worksheet has two sections, the top four blocks will help you and your team align on what you want to learn and how you will do your learning (this may take a bit of time upfront but will set you up for success). The bottom section is for documenting what you learn later.

Second step
Undertake the action. The goal is to make something tangible that is good enough to get feedback from someone else.

Third step
Now go out there and gather feedback on the outcome of your actions. Go out in the field, show it to other people, show it to colleagues, etc.

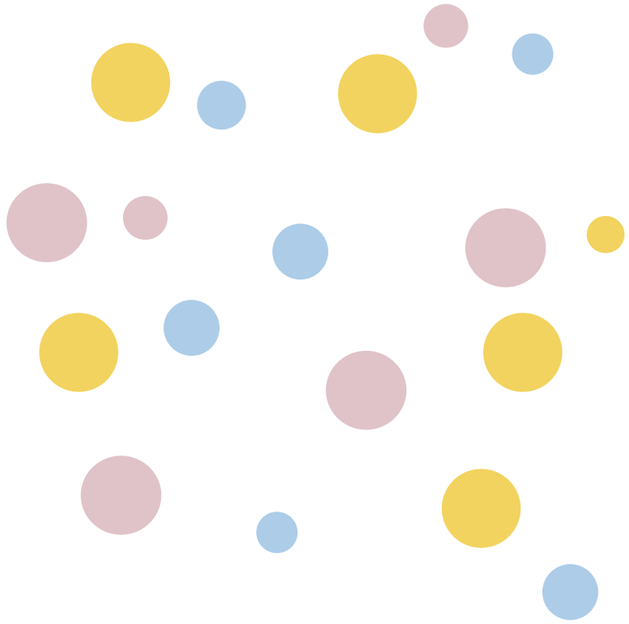
Fourth step
Write down your learnings, what is working what not, what did you learn, what do you need to change? If needed, adjust your outcome. For example, maybe the persona you made was not representative, so adjust it and go out in the field again for feedback.



Inspired by the prototyping report card by the IDEO's design kit

3. Learning

After doing and learning, it's time to sit down with your team and share the information you have collected. This is necessary to be able to draw conclusions in the next step.



First step
Create a space where you collect all the information of each team member.

Second step
Tell the most compelling stories from the field to your teammates. Talk about what you made, who you showed it to, how they reacted, and their comments. The details that might not seem important to you can be eye-opening to someone else, so try to be specific and descriptive.

Third step
The rest of the team writes down notes and observations in Miro. Try to capture quotes that are easy to understand.

Fourth step
Categorize the quotes and see where they overlap or are related to each other.

4. Clarity

When starting to get an understanding of the system, you need to make the structure explicit to be able to move towards the next diamond. Make sense of key relationships and get a representation of the system. Then you will be able to brainstorm on the next steps you need to take in order to make the shift from diamond to diamond. Here it's important to think in terms of systems, relations, and patterns.

First step
Start with drawing patterns, first start with simple frameworks, Venn diagrams, or 2 x2 matrixes.

Second step
When it becomes more complex, try to fill in existing frameworks such as personas, customer journeys or a value proposition canvas.

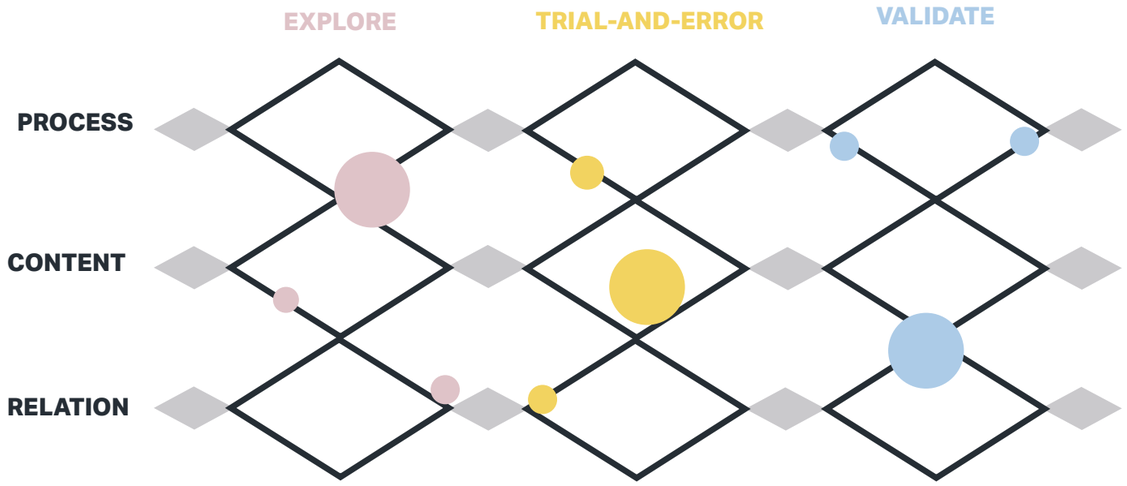
Framework example

The Business Model Canvas provides a unique combination of products and services which provide value to the customer by resulting in the solution of a problem the customer is facing or providing value to the customer.

Third Step

After finishing these steps it is important to look back at the action model and see which steps you have taken and what you have learned. Add post-its with your learnings to the model to create clarity in your learning. By creating clarity, it will be easier to find your next steps.

Be aware that some actions also impact different categories. For example, when focusing on relationships, it is possible to learn something or find a new action on process or content. Make sure to write these down as well. When finished it's time to move back towards step 1.



Do-it again!

Questions

Below are examples of the meta-questions n step 1. Make sure you change to fit your teams' ambition and context. There are many more suitable questions you can use these serve as inspiration.

Content

'What's the most important issue to focus this time on?', 'What is the user needs?', 'What is the issue from the user/employee/manager perspective?', 'How clear are this issue entails?', 'What feelings is this issue evoking for the user/employee/manager ?', 'What do we need to take into account as we work on this together?', 'Do we have the right information and expertise to do this?'

Process

'How would you like to do this?', 'What approach would we find most inspiring?', 'What might be the best way to approach this given the time available?', 'Which aspects do we need to address first before moving onto others?', 'What would be best to do now and what could be best done outside of this meeting?', 'Could we try a new way that would lift our energy levels?','Do we need to switch ownership later in the process?','What might that mean for the program?'

Relation

'What's important to us in this?', 'What underlying values does this touch on for our organisation?', 'How is ... impacted?'', 'What are you noticing from your perspective?', 'What distinctive contribution could you bring?', 'What is working well in the team's relationships?', 'What is creating tension?', 'How could we resolve conflicting differences?','Is the ownership at the right level?','What might that mean for the user?'

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11.2 PATTERN DISCOVERY MANUAL

Discovering Patterns

Manual

2021

Loek Dekker

Foreword

During flow design you have looked at a complex problem and created possibility space (mogelijkheidsruimte). However, creating possibility space is not enough to solve complex problems, instead you need to find patterns, patterns will help you find the right entry point so that you can take action!

'Discovering patterns' manual aims to support civil servants in developping patterns. This manual supports this goal by presenting a set of principles and a framework supported by a four-step approach.

One of the core principles of this guide is iteration, by doing iterations the shared understanding of the problem is challenged and improved. In addition, we will focus on the problem by looking at the content as well as the relation and process.

We recognize that you will face barriers when applying part of this guide, some of which may require a shift bigger than this framework supports.

The flow design framework builds on the existing framework for innovation from the design council (2019). The section on the right shows this framework. Where the flow design and learning stages come together in the center and then need to be translated into actions to learn again. The four stages in the middle represent the stages explore, reframe, create and catalyze, as distinguished by the design council (2007). These steps can be taken linearly, but are also likely to loop back and forth.

Figure 1

Principles

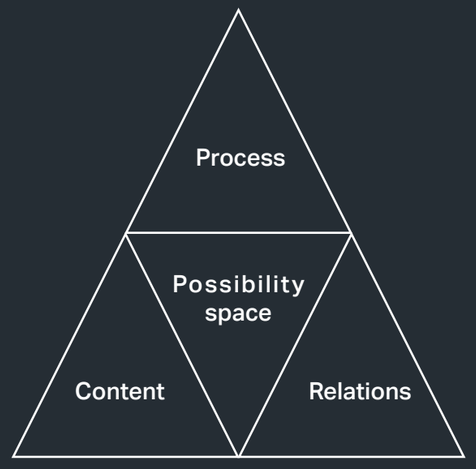
To find patterns it is first important to understand two key principles before diving into the process. During our research, we have collected these two principles that will support the continuation of flow after a flow design meeting.

Principles
Iteration, to improve the outcome, spot errors early, avoid risk and build confidence your ideas it is important to iterate.
Clarity, To be able to have a continuation of flow It is important to create a clear shared understanding of the problems and ideas.
To better understand these two principles three frameworks are presented, lastly these frameworks are combined to create the final framework. This final framework will be the outline of process.
These frameworks are explained below and on the following pages.

Elements

During flow design you have looked at the problem and searched for different directions and categorized the problem, during interviews with clarifiers and doing several case studies we concluded that those directions comes from the following three elements: content, process and relation and together create a pattern.

Figure 2



Types of problems

Understanding the difference between complex and complicated problems is becoming important for many aspects of management and development. Each system is better managed with different leadership, tools and approaches.

Simple
Simple problems are problems that represent the “known knowns”. This means that there are best practices and rules in place, the relationship between cause and effect is clear and the situation is stable.

Complicated
Complicated problems consist of “know unknowns”. It requires analysis of the relationship of cause and effect. This type of problem requires expertise to analyze and apply the appropriate good responds. It is possible to work rationally toward a decision but doing so requires expertise.

Complex
Complex problems have “unkown unknowns”. Cause and effect can only be deduced in retro perspective and there are no right answers. Your very actions change the situation in unpredictable ways. There are no experts on these types of problems that is why it is important to start with discovering patterns.

Chaotic
Chaotic problems require an immediate response. These problems are too confusing to wait for a knowledge-based response.

Experimentation

When investigating patterns it needs to be tested several times, for example, James Dyson created more than 5,000 failed prototypes of his wildly successful vacuum cleaner or Google was just another search engine until it iterated its way to AdWords and AdSense. Also, the earlier you start iterating your product the cheaper it becomes see figure 3.

The diagram of figure 3 explains the value of prototyping and experimentation when developing a new solution. We sometimes see that new solutions are launched with a 'big bang'; ideas are translated directly into plans that are then fully implemented.

When dealing with complex problems. It's important to learn about the problem and find patterns, you could analyze your problem and at the end show your results. From design thinking we can learn that showing your analyses during your project and getting feedback is more effective. It's import to keep on iterating, failing and learn more about the problem.

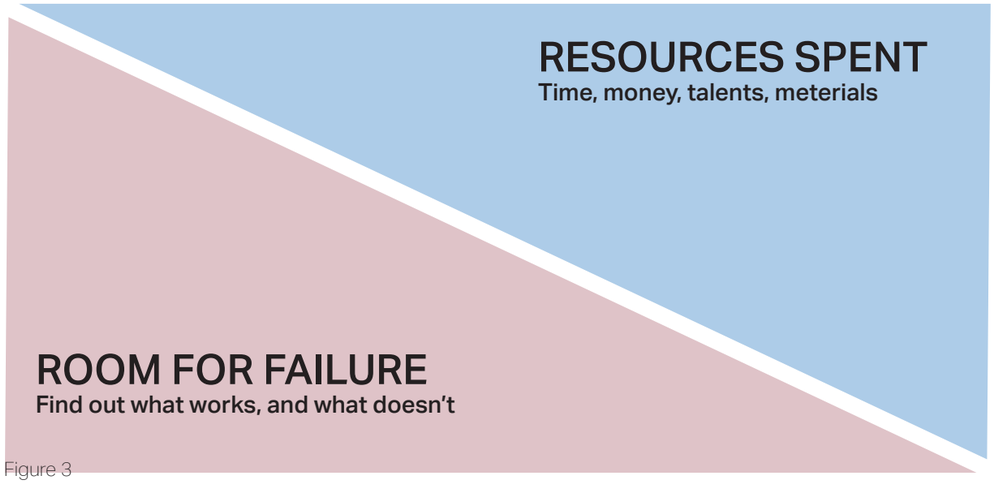


Figure 3

Iteration steps

So, how to experiment and prototype in a pattern? Experimentation in government can best be seen as a continuation of different approaches, rather than as one method (Interview with Tom). Different methods should be used if solutions and their intended outcomes are known, partially known (or assumed), or not known at all. Christiansen, Leurs & Quaggiotto (2017) have grouped these methods into three categories of experimentation; explore, trial-and-error & validate.

So, during the full length of a project there is room for experimentation and iteration. Not only at the end of a project.

Explore: In this phase your solutions are unknown and you are trying to discover what *might be* by searching for new possibilities.

Trial-and-error: here you research what *could be* by searching for what works and what doesn't work.

Validate: here you research what *should be* by justifying decisions.

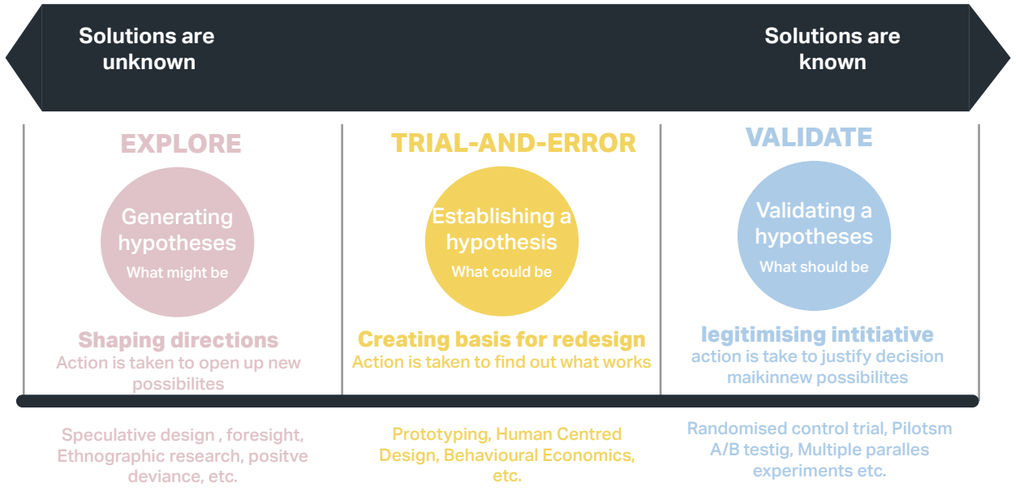


Figure 4

Action model

The final model is a diagram consisting of nine diamonds that builds on the three frameworks shown before.

The step-by-step and iterative approach ensures the continuation of flow. As a team you need to make explicit on which diamond you are focusing on per subject to investigate patterns. The process will support you in coming up with questions and choosing actions which fit these diamonds. When you have finished this process you will clear and validated patterns.

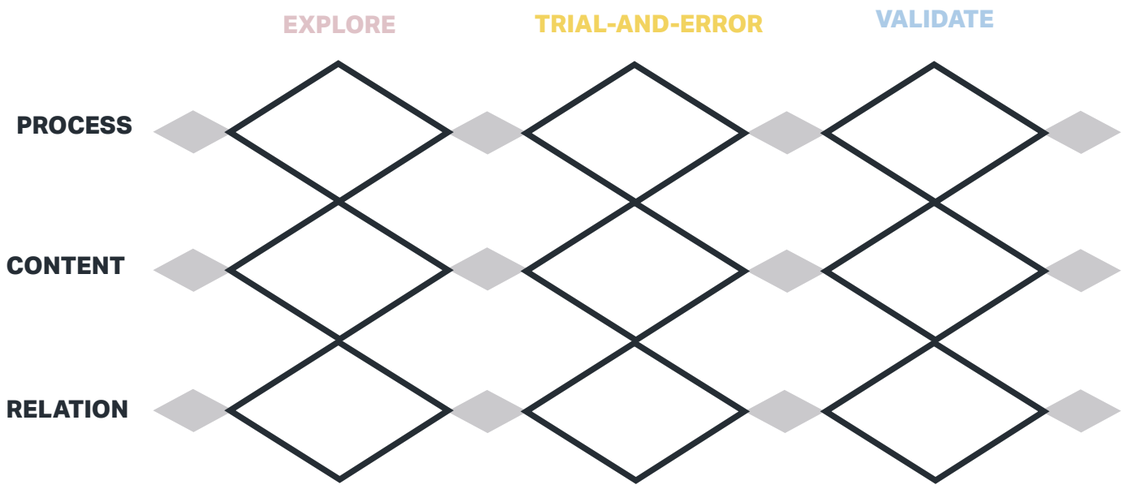


Figure 5

Method

In order to use the model correctly, a method is developed to support you in taking the right steps.

The frameworks and models presented previously are translated into a method. This method is designed to help you shift from diamond to diamond considering the earlier presented principles. The goal of this method is to support the user taking actions, creating clarity and finally learning from each other.

This method consists of the following four steps: Selecting actions, Build and do it, Learning together and Clarifying. These four steps need to be taken in each diamond, before shifting to the next diamond, see figure 6. A team can focus on multiple diamonds at once, but you cannot skip one.

Each step is explained in more detail on the next pages.

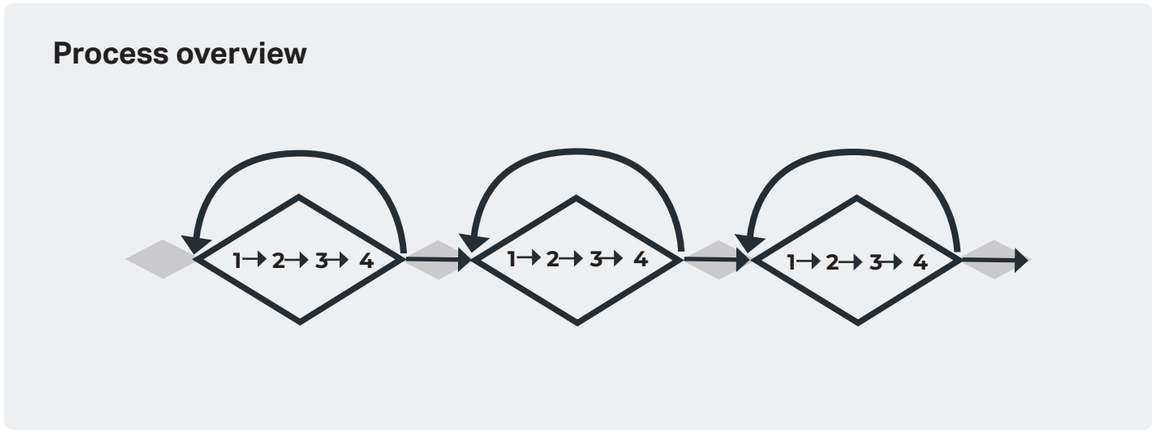
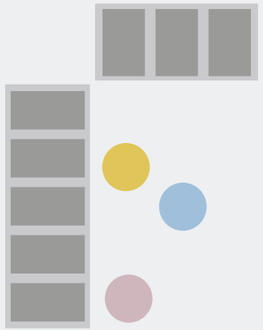


Figure 6: Process overview

1

Selecting actions

Explorer, decisions

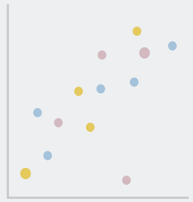


The goal of the first step is coming up with actions. This is done by creating an overview of the desired step and then in finding a fitting action.

2

Build and do it

Testing, feedback

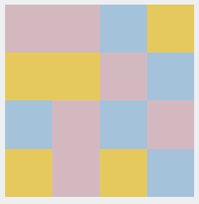


Once you determined what kind of actions you are going to take, the time has come to get out there and start doing. Think small, scrappy, and inexpensive.

3

Learning

Open minded, sense making.



After doing and learning, it's time to sit down with your team and share the information you have collected. This is necessary to be able to conclude later in the process.

4

Clarifying

Systemic thinker, explicit

Make sense of key relationships and get a representation of the system. With this, you're able to brainstorm on the next steps you need to take.

For more info >> Loek Dekker

1. Actions

The goal of the first step is coming up with actions. This is done by creating an overview of the desired step from the flow design session and then in finding a fitting action.

How to use it
Get a space where you can place post-its, this can be a digital or physical place. Use this place to map out the things you are trying to discover, create or validate.

Also, don't be afraid to ask for help from the clarifier or process moderator in these steps.

First step

First, select the diamonds your project is currently in. Then, ask yourself the questions related to either the explore, trial-and-error or validate phases, depending the diamond your in. Examples of these questions can be found on P18. Ensure that the questions become more explicit, see example below. In the end, there should be a list of questions. These questions are set up to learn, and from now on will be referred to as learning questions.

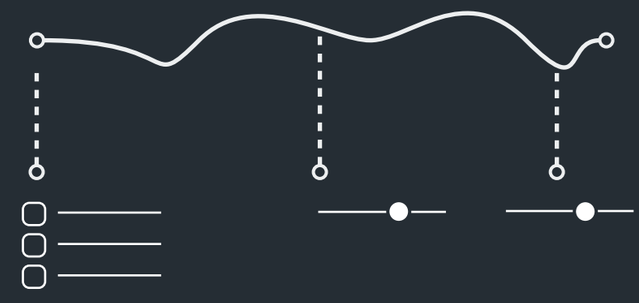
LEARNING QUESTION
What might the issue be from the user perspective?

LEARNING QUESTION
Which aspects do we need to address first before moving on to others?

Examples of Actions

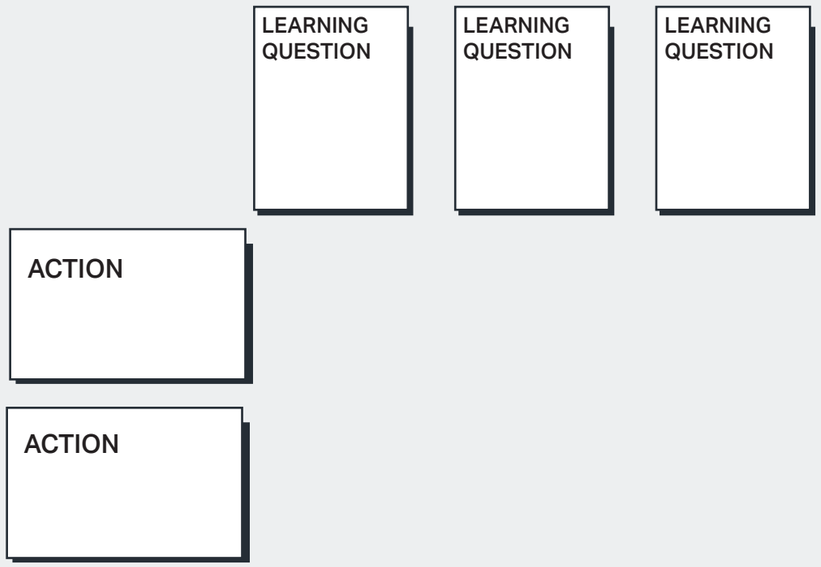
Customer Journey

A customer journey map is a visual representation of the customer journey (also called the buyer journey or user journey). It helps you tell the story of your customers' experiences with your service across all touchpoints.



Second step
Write down how you want to discover, create or validate these questions. There are multiple actions you could do to answer these questions, brainstorm and discuss these as a group. You can learn using any number of actions, such as interviews, storyboards, role-plays, pressure cookers, models, mock-ups. For examples of possible actions see the bottom of this page. At the end of this step there should be a list of actions.

Third step
Create a grid where you tag your actions to the learning questions you want to address. As a group discuss which action you see fit for each question.



Persona

A persona is a fictional character, created to represent a user type, who a site, brand, or product.

2. Build and do it

Once you determined what kind of actions you are going to take, the time has come to get out there and start doing. You identified your questions and how to answer them, this is your kick-off point now. Remember that the only goal of the actions is to learn about the final solutions/end product, so nothing needs be perfect. Think small, scrappy, and inexpensive.

Fist step
Fill in the worksheet on the next page for each action. The worksheet has two sections, the top four blocks will help you and your team align on what you want to learn and how you'll do your learning (this may take a bit of time upfront but will set you up for success). The bottom section will be where you document what you learn later.

Second step
Undertake the action. The goal is to make something tangible that is good enough to get feedback from someone else.

Third step
Now go out there and gather feedback on the outcome of your actions. Go out in the field, show it to other people, show it to colleagues, etc.

Fourth step
Write down your learnings, what is working what not, what did you learn, what do you need to change? If needed, adjust your outcome. For example, maybe the persona you made was not representative, so adjust it and go out in the field again for feedback.

Inspired by the prototyping report card of the IDEO's design kit.

3. Learning

After doing and learning, it's time to sit down with your team and share the information you have collected. This is necessary to be able to draw conclusions in the next step.

Fist step
Create a space where you collect all the information of each team member.

Second step
Tell the most compelling stories from the field to your teammates. Talk about what you made, who you showed it to, how they reacted, and their comments. The details that might not seem important to you can be eye-opening to someone else, so try to be specific and descriptive.

Third step
The rest of the team writes down notes and observations in Miro. Try to capture quotes that are easy to understand.

Fourth step
Categorize the quotes and see where they overlap or are related to each other.

4. Clarity

When starting to get an understanding of the system, you need to make the structure explicit to be able to move towards the next diamond. Make sense of key relationships and get a representation of the system. Then you will be able to brainstorm on the next steps you need to take in order to make the shift from diamond to diamond. Here it's important to think in terms of systems, relations, and patterns.

First step
Start with drawing patterns, first start with simple frameworks, Venn diagrams, or 2 x2 matrixes.

Second step
When it becomes more complex, try to fill in existing frameworks such as personas, customer journeys or a value proposition canvas.

Framework Example

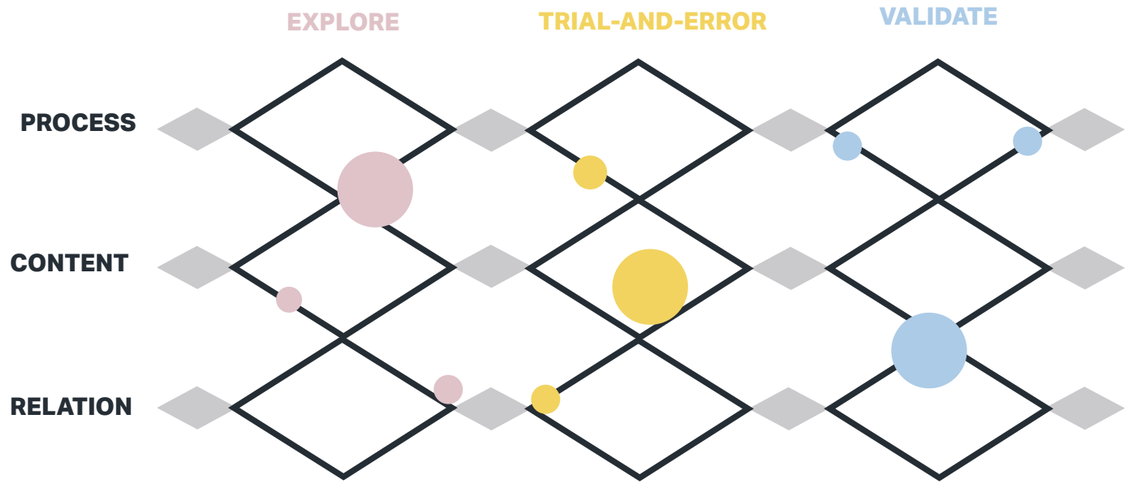
The value proposition canvas Osterwalder, A, (2014). Alows you to systematically understand what customers want and to help you to create products and services that match their needs. As such, it can be used as an instrumental part of your strategy and should be the anchor around which you'll build your Business Model Canvas.

X-Lab // Flow Design

Third Step

After finishing these steps it is important to look back at the action model and see which steps you have taken and what you have learned. Add post-its with your learnings to the model to create clarity in your learning. By creating clarity, it will be easier to find your next steps.

Be aware that some actions also impact different categories. For example, when focusing on relationships, it is possible to learn something or find a new action on process or content. Make sure to write these down as well. When finished it's time to move back towards step 1.

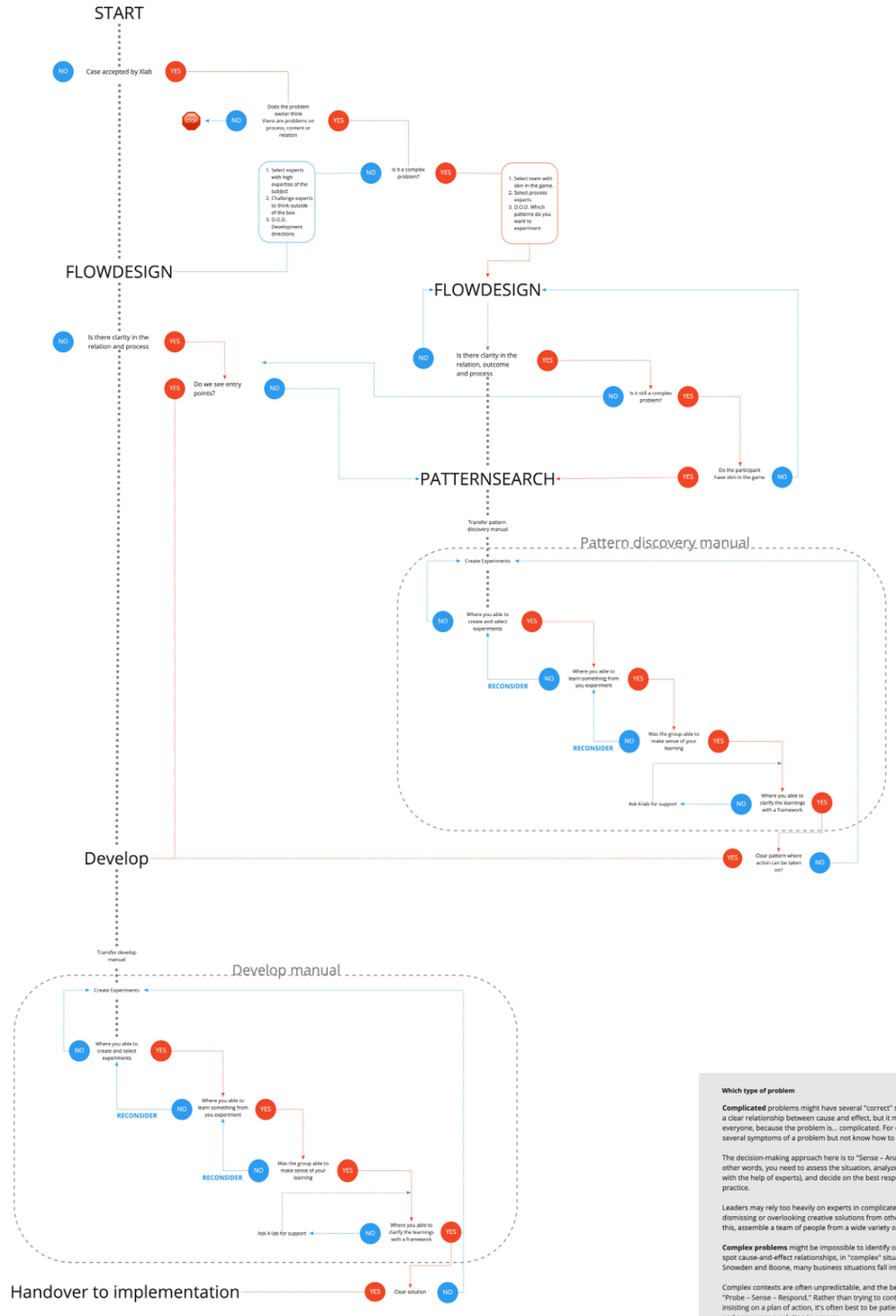


X-Lab. // Flow Design

11.3 DECISION MAKING SUPPORT CANVAS

This decision-making support canvas should be printed on A2, Therefore, first it is shown on an A4 thereafter, it spread on 4 pages to be able to get a detailed view at the canvas.

DECISION-MAKING CANVAS



Which type of problem

Complicated problems might have several "correct" solutions. Here, there is a clear relationship between cause and effect, but it may not be visible to everyone, because the problem is... complicated. For example, you might see several symptoms of a problem but not know how to fix it.

The decision-making approach here is to "Sense – Analyze – Respond." In other words, you need to assess the situation, analyze what is known (often with the help of experts), and decide on the best response, using good practice.

Leaders may rely too heavily on experts in complicated situations, while dismissing or overlooking creative solutions from other people. To overcome this, assemble a team of people from a wide variety of backgrounds.

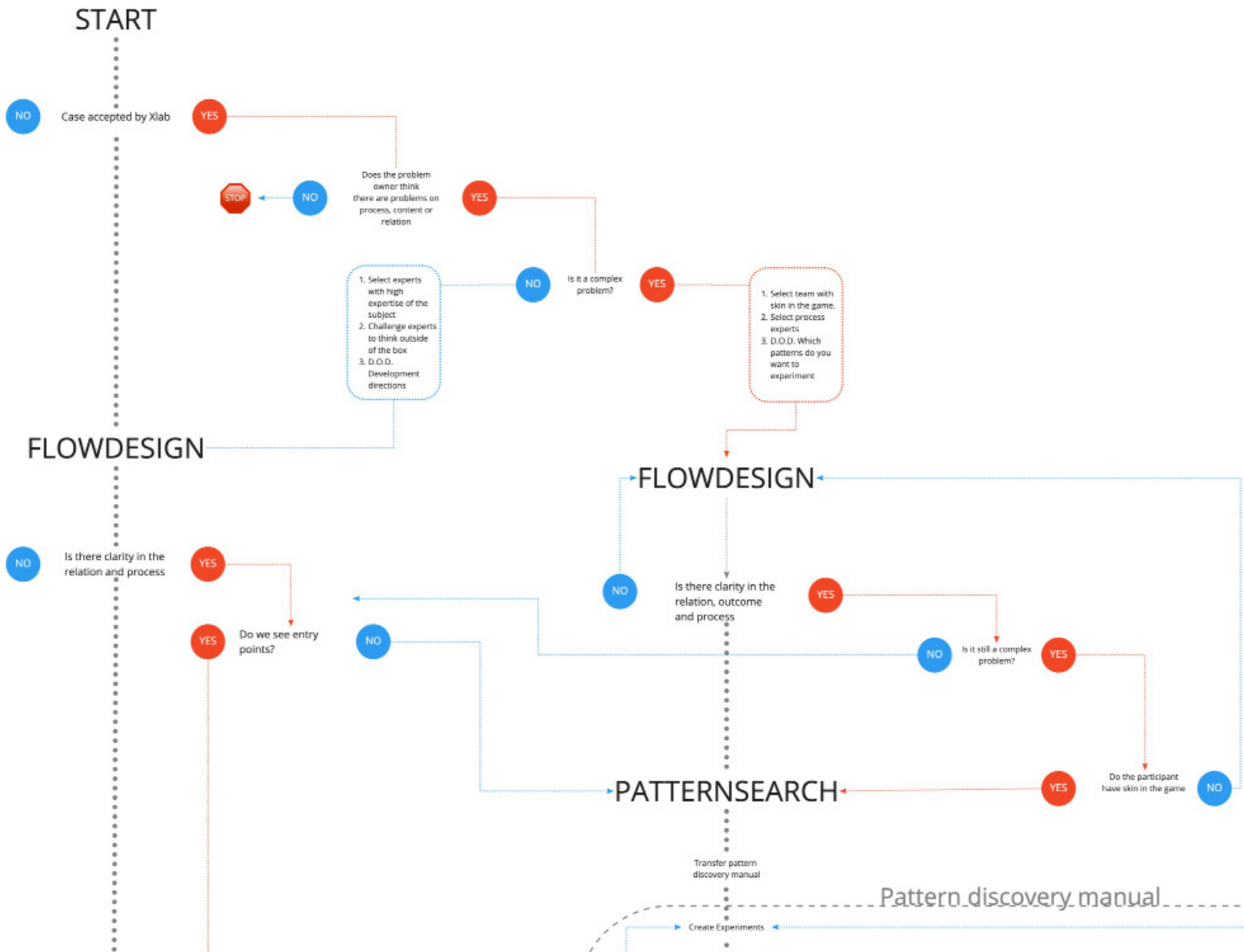
Complex problems might be impossible to identify one "correct" solution, or spot cause-and-effect relationships, in "complex" situations. According to Snowden and Boone, many business situations fall into this category.

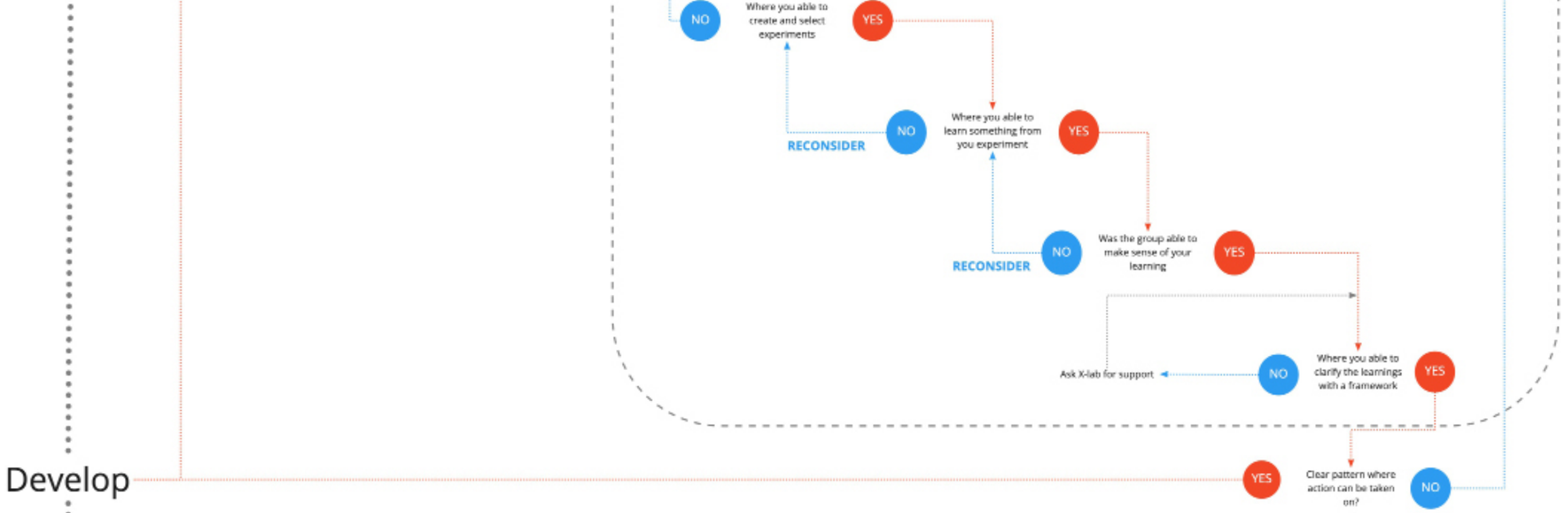
Complex contexts are often unpredictable, and the best approach here is to "Probe – Sense – Respond." Rather than trying to control the situation or insisting on a plan of action, it's often best to be patient, look for patterns, and encourage a solution to emerge.

Lots of different typesof experiments needs to be conducted in these situations, and accept failure as part of the learning process. Make sure that you have processes in place to guide your team's thinking – even a simple set of rules can lead to better solutions than no guidance at all.

Communication is essential here, too. Gather a diverse group of people to come up with innovative, creative solutions to complex problems.

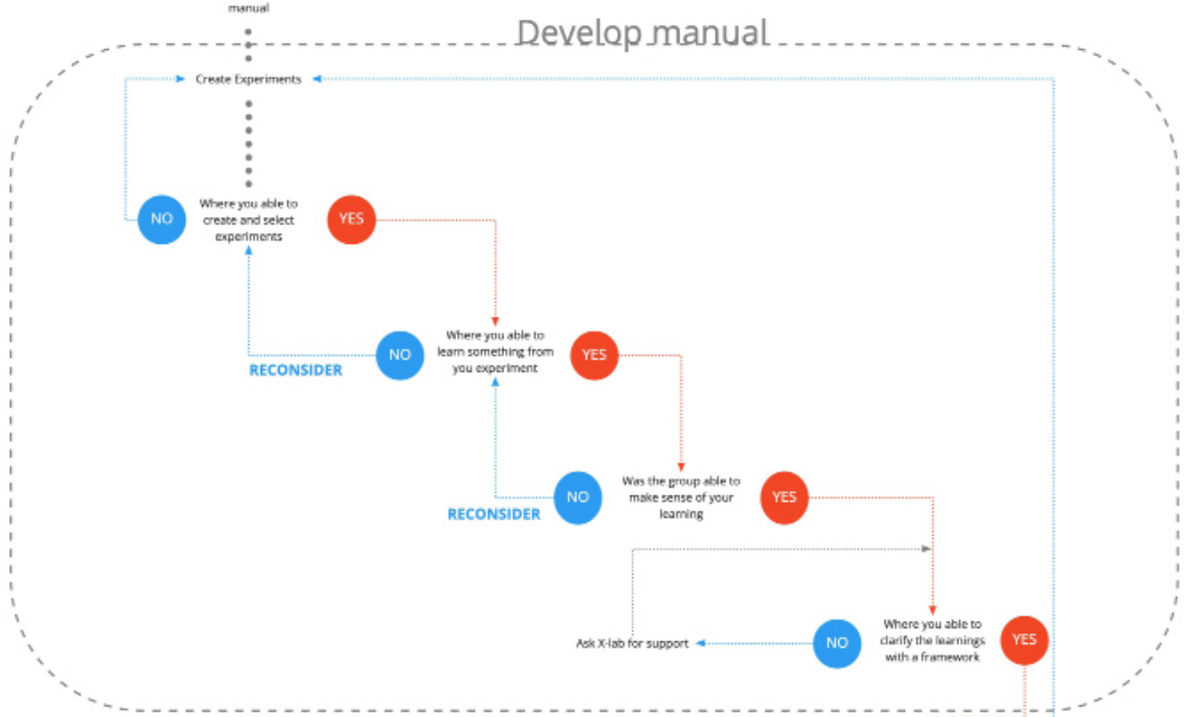
DECISION-MAKING CANVAS





Develop

Transfer develop manual



Handover to implementation

YES

Clear solution

NO

Which type of problem

Complicated problems might have several "correct" solutions. Here, there is a clear relationship between cause and effect, but it may not be visible to everyone, because the problem is... complicated. For example, you might see several symptoms of a problem but not know how to fix it.

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APPENDIX!

Most of the appendices should be read as a double-page spread.

CONTENTS OF THE APPENDIX