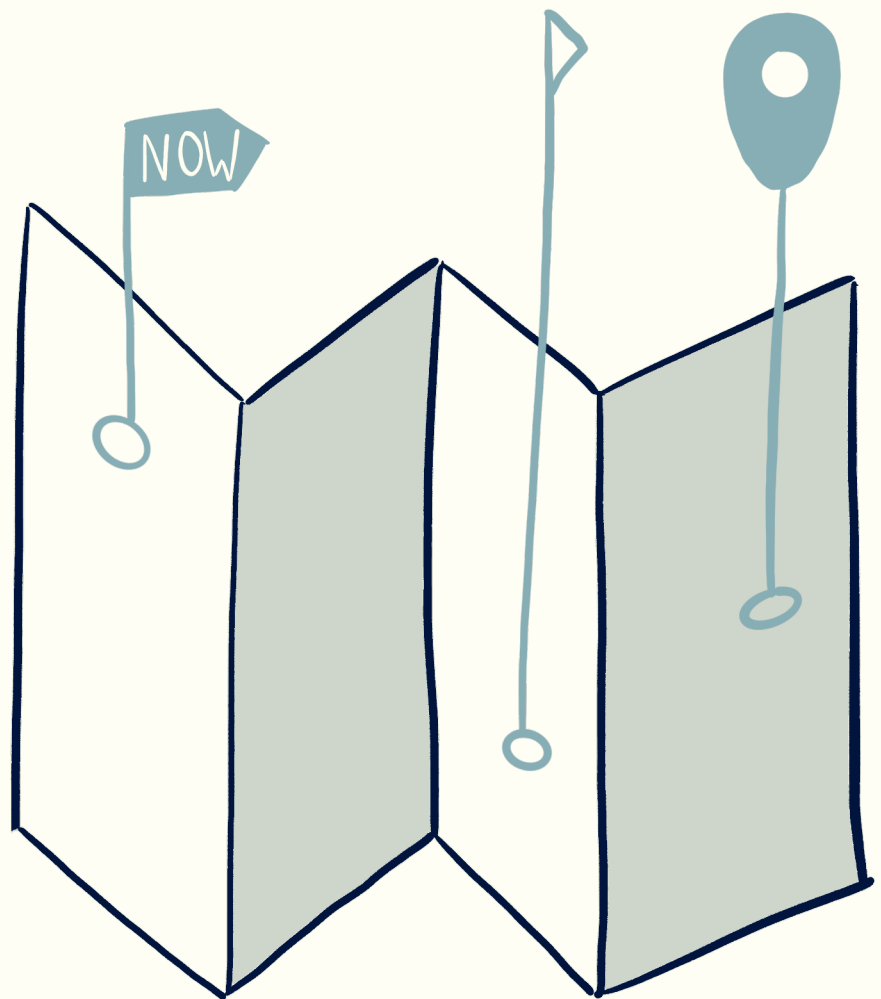


MENDING A BROKEN INNOVATION PROCESS

A STUDY OF THE INTERACTIONS IN THE INNOVATION PROCESS TO IMPROVE
THE IMPLEMENTATION OF INNOVATION BY DESIGN



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PREFACE

My interest in Industrial Design was awoken when I got the book “Hoe moeilijk kan het zijn?” (Translated: How hard can it be?) written by Jasper van Kuijk for Christmas. This book describes and analyses fallacies in every design. This opened my eyes and showed me that there needs to be more consideration for the end user in the design and production of products. As they are the ones who need to work with it in the end.

A while later, I had to decide what I wanted to do after high school graduation. I chose for a study which combines creativity and technology to design and create products that actually work for people. At 19 years old, I started my Bachelor of Industrial Design Engineering at the Technical University of Eindhoven. Throughout my education, I realized was not so much into creating and realizing the design. Instead, I was far more interested in researching the context in which the product would be placed. What is the problem/need? Who are the users? Who are the other relevant stakeholders? What are the values and pain points that need to be considered? I taught myself ways to conduct research and gather contextual data. I found ways to synthesize these large amounts of information and create a strategy or plan to solve the problem. Often, creating this profound understanding of the context resulted in little time to design and create an actual product. And it was precisely this that made me realize that I am no product designer. Instead, I discovered my great passion: Strategic Design.

After obtaining my Bachelor's degree, I set a course for Delft to follow the Master Strategic Product Design. Through the mandatory courses I learned various new techniques and methods to understand the context and create strategic products. Over the summer between the first and second year, I started thinking about my Master's graduation project. I brainstormed how to apply my newly learned tools and techniques and how this profound understanding of the context helps to solve a problem or respond to a particular need.

A fellow student told me about Frido Smulders, a teaching professor at the Technical University of Delft, who works in innovation and entrepreneurial behavior in social settings. We got into contact, and this sparked my interest in innovation. As innovation is new and uncertain, how can you make sure your innovation aligns with what people/end users want/need? This became exactly where I wanted to put my learned tools and techniques into practice and create a better understanding to help design products and processes that work for people. From this, I organized my own research project prior to my graduation project in which I performed an explorative study in digital innovation. The main takeaway was that organizations work more with and for end users, eventually leading to better designs. However, the implementation of a product/service is often not considered, which results in products/services that are not used (as intended).

Therefore, the subject of this Master graduation is the implementation process of innovation.

“AS INNOVATION IS A DYNAMIC AND ITERATIVE PROCESS, THERE IS
VALUE IN WORKING TOGETHER AND LEARNING FROM EACH OTHER.”

SUMMARY

Within the Dutch Ministries, implementing agencies receive the request to execute specific policies. To do this, they often need a (technical) product/service/platform which enables them to fulfill their job. With new types of technology coming to the market, the implementing agencies explore these new options to see if and how they can add value to their organization and make, e.g., executing a policy easier or more reliable. Therefore, the implementing agencies engage themselves in innovation projects. DICTU supports the implementing agencies with IT solutions such that they can create the product/service/platform to execute the policy. Currently, the innovation process in this context runs across multiple organizations and several departments, and there is little consideration of the various stakeholders; there often is a delay, the final product does not always solve the initial problem, or it occurs that the final product is not (correctly) implemented in the organization. This dissection of the innovation process leaves it broken and unwholly. This graduation project aims to create a designerly interaction between DICTU and its client to positively influence and contribute to a more successful implementation of innovation. Through literature and field research, a schematic overview of the current innovation process is created in which the various stakeholders and interactions are displayed. The two most important findings are that the implementing agencies have little trust for DICTU and that there is no moment in the innovation process where all stakeholders come together.

From a design point of view, there is value in involving the different stakeholders throughout the project to create a good solution for an existing problem by synchronizing the various parties. For this purpose, the Zegiswijzer is created. It is a tool that helps structure an additional interaction on the interface between DICTU and their client to make a smooth transition between the different organizations

to synchronize their languages. This is done in a workshop by (1) defining the problem and the relevant stakeholders and their connections and by stating the ambition (2) by defining success and illustrating the solution. The next step is to reflect (3) on the first two steps, is the problem definition still accurate? Does the proposed solution indeed solve the problem? Or is it necessary to reframe the problem and/or solution? After this reflection, the path (4) is defined to go from problem to solution and state the expected risks and needed resources. With this step, not only the start of the project and the go-live of the product are considered, but also the phase after the go-live. What is needed to implement the product? And how will the organization adopt the product? Then, a collaborative decision (5) on how to continue is made. Based on the combined perspectives of the stakeholders, a well-informed decision can be made on whether to accept the project, adjust it, or don't accept the project.

The implementation and development of the Zegiswijzer is captured in a roadmap. A future is envisioned in which valuable products/services are created, developed, delivered, and implemented in the Ministry of EZK/LNV by organizing the projects around close inter- and intra-organizational collaboration to create a profound understanding of the context facilitated by DICTU makes use of the Zegiswijzer. This future is realized by first using the Zegiswijzer on the interface between DICTU and its client to challenge the status quo of silo working. Then, DICTU should proactively engage in activities to create a profound understanding of the client's business and gain legitimacy and trust for their position. The last step is for DICTU to take the role of partner, which leads to the realization of the vision. Future research should investigate the effect of following this designerly interaction on the interface between DICTU and the client and the implications it has on the implementation.

TABLE OF CONTENTS

0. INTRODUCTION	6
1. CONTEXT	7
1.1 DICTU	7
1.2 INNOVATION	10
1.3 PROBLEM DEFINITION	11
INTERMEZZO #1: CO-EVOLUTION OF PROBLEM-SOLUTION	12
2. METHODOLOGY	13
INTERMEZZO #2: REFLECTION ON PROPOSAL	14
3. LITERATURE	15
3.1 INNOVATION LITERATURE	15
3.2 IMPLEMENTATION LITERATURE	17
INTERMEZZO #3: DELICATE NUANCE	18
3.3 INTERACTION LITERATURE	22
3.4 SYNTHESIS OF LITERATURE	25
INTERMEZZO #4: DEFINITION OF INNOVATION	26
4. FIELD RESEARCH	27
4.1 DICTU'S WAY OF WORKING	27
4.2 OBSERVATIONS AND PRELIMINARY INSIGHTS	29
INTERMEZZO #5: WORKING PROCESS	30
4.3 STAKEHOLDER MAP	31
INTERMEZZO #6: DIFFERENT STARTING POINTS	33
4.4 INTERVIEWS	33
INTERMEZZO #7: CLIENT SYSTEM	40
4.5 SYNTHESIS FIELD RESEARCH	41

5. DESIGNERLY INTERACTION	42
5.1 VALUE OF DESIGN	43
5.2 DESIGN IN THE INNOVATION PROCESS	44
5.3 CHALLENGES	48
5.4 DESIGN SOLUTION	49
5.5 EVALUATION AND CRITIQUE	60
INTERMEZZO #8: DESIGNING THE TOOL	63
5.6 APPLICATION	65
6. CHANGE MANAGEMENT	70
6.1 KEY PLAYERS	71
6.2 CHANGE MANAGEMENT STRATEGY	73
7. DISCUSSION AND FUTURE WORK	79
7.1 CLOSE THE LOOP ON INNOVATION LITERATURE	79
7.2 CLOSE THE LOOP ON IMPLEMENTATION LITERATURE	79
7.3 CLOSE THE LOOP ON INTERACTION LITERATURE	80
7.4 POINTS OF DISCUSSION REGARDING THE PROJECT	81
8. CONCLUSION	82
9. EPILOGUE	83
9.1 ACKNOWLEDGEMENT	83
10. REFERENCES	84

0. INTRODUCTION

The Dutch governmental system is divided into various ministries with domain and focus. Over the past decade, a trend toward innovation within the ministries has become apparent. Various organizations operate within the domain of a ministry, e.g., to execute a policy or create (new) systems for the domain. Many organizations engage in innovation processes to adequately respond to environmental changes to remain relevant in an ever-changing context.

Unfortunately, these innovation projects often result in unfinished initiatives or solutions for non-existing problems. Sometimes, the problem is correctly identified, and a proper solution is designed. However, it is still not used as the actual implementation and adoption of the product are not considered. As a ministry consists of multiple parties, an innovation project is often run across various organizations. The fact that other organizations also have their interests complicates the matter even further. Therefore, it is interesting to learn more about this process and the interplay between the different stakeholders and see how this can be improved to result in more successful innovation.

In general, there is value in using design principles in the innovation process as it helps to understand the customers'/users' (unmet) needs. By constantly reflecting and iterating on the problem and solution space and using the insights acquired from these iterations, a profound understanding of the context can be created, which helps to design a proper solution. Design Thinking is a popular and well-known method that teams can use to understand their users, challenge various assumptions, redefine and reframe problems and create innovative and creative solutions to prototype and test (Siang, 2022).

Therefore, this Master Graduation project aims to understand the interaction between

various actors in the innovation process within a governmental context and to see how a designerly approach can positively influence this process.

The research and findings are captured in this report and are structured as follows. The first chapter describes the governmental context in which this project operates and presents the main actors involved in the innovation process. The chapter concludes with an elaborate problem definition. The next chapter will provide more detail on the chosen method, followed by Chapter 3, in which the three literature is presented. Chapter 4 presents the field research, which complements the literature. Various observations from meetings and interviews are presented, followed by a case study within this context. Chapter 5 investigates the value of design to the innovation process within this context and proposes a solution to the problem definition. Chapter 6 formulates a strategy for effectively implementing the designed solution and realizing change. Chapter 7 relates the insights and the tool back to the initially stated research and indicates possibilities for future work. Chapter 8 presents the conclusion of the entire project and report. The last chapter serves as an epilogue and present a personal reflection and the acknowledgment.

“ ... TO UNDERSTAND THE
INTERACTION [...] AND SEE HOW A
DESIGNERLY APPROACH CAN POSITIVELY
INFLUENCE THIS PROCESS. ”

1. CONTEXT

The first chapter explains the context in which this project operates and describes the main actors. Section 1.1 explains DICTU's role and the ecosystem in which they are located. Section 1.2 examines the topic of innovation more closely

to understand the various terms and definitions standard in this research area. Section 1.3 presents the problem definition and explains how a designerly approach can help solve this problem.

1.1 DICTU

When the ministries of Economic Affairs and Climate Policy (Dutch EZK - "Economische Zaken en Klimaat") and Agriculture, Nature, and Food Quality (Dutch LNV - "Landbouw, Natuur en Voedselkwaliteit") create a new policy, they turn to organizations like RVO (Rijksdienst voor Ondernemend Nederland) or NVWA (Nederlandse Voedsel- en Warenautoriteit) to execute these policies. DICTU (Dienst ICT

Uitvoering) is the largest ICT service provider for the central government, and they support the primary processes and various implementing agencies with the IT-related elements of the created policies. DICTU creates and delivers the IT components to the RVO or NVWA, where the product/service/platform is (assembled and) used to execute the policy, see Figure 1.

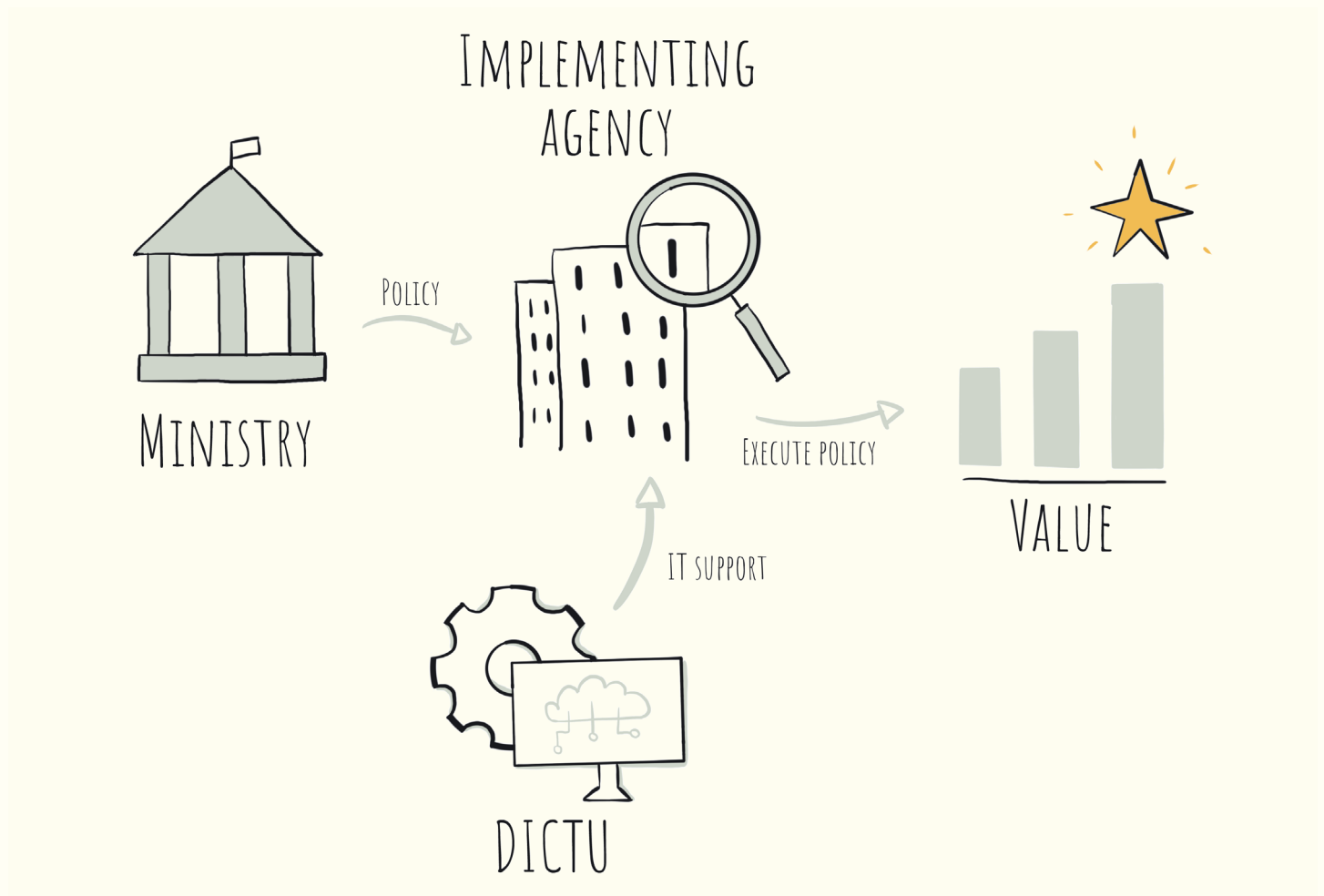


Figure 1: Simplified overview of DICTU in context

DICTU was founded in 2005 by combining separate organizations which were supporting implementing agencies in their digital issues into one organization. This history is still noticeable at DICTU as there are many individual teams with limited collaboration between them.

DICTU is currently positioned as an organization that merely executes orders from organizations like RVO/NVWA. The context in which RVO and NVWA operate is rapidly changing due to the availability of new types of technologies and other demands/developments from the market. Therefore, RVO and NVWA are focusing on innovation and experimenting with (new) types of technology to see if and how this could lead to increased value for their business. For example, it can be faster to conduct a specific inspection, analyze different data types or automate a particular process. This development also means that the question RVO and NVWA have for DICTU is changing as they request support in their innovation processes rather than merely an IT component.

DICTU realizes that something needs to change to remain relevant and valuable to the implementing agencies. DICTU focuses on today and tomorrow; only a tiny percentage (about 2%) of the projects/initiatives can be seen

1.1.1 ECOSYSTEM

The start of a project is often when a policy is created and directed towards implementing agencies like RVO and NVWA. Within the organization of RVO/NVWA, there is a distinction between the organization itself and the people who, e.g., execute an inspection. The organization creates/assembles the right tools so the inspectors can, e.g., collect data from the field or assess a particular process to execute the policy. The RVO/NVWA organization needs DICTU for the IT-related elements to create the right tool. DICTU buys individual components from their (market) suppliers, constructs the right piece internally, and delivers this to RVO/NVWA organization. RVO/NVWA finalize, implement, and diffuse the product further in

as disruptive and innovative. To remain relevant to their clients, DICTU should undertake more disruptive projects (up to around 10%) to develop themselves and learn what their clients need in their innovation processes. If DICTU does not undertake action, there is the risk of becoming redundant to its clients and going out of business. As DICTU was founded by combining separate organizations and supporting various implementing agencies, this gives them many insights into the different organizations. This information puts DICTU in the position that they can help many organizations that face the same problems by providing a general solution. If DICTU were to go out of business because they become redundant to their clients, the different implementing agencies must manage their IT support. This will likely result in various organizations facing the same problems, but each organization creates their solution. This way of working is not sustainable or desirable. Therefore, in February 2021, they formulated a new business strategy in which they positioned themselves as a partner (“digitaliseringspartner”). By being a partner and supporting RVO and NVWA not only in today’s solutions but also tomorrow and the day after, DICTU can ensure its position and relevance to its clients.

their organization to, for example, the inspectors.

The type of policy, the suppliers, and the inspectors are all influenced by a dynamic context in which, e.g., the market releases new technologies or political issues arise. The different actors and parties are summarized in a schematic overview depicted in Figure 2.

The process looks simple; however, the proposed value at the end is often not reached. For example, the translation from proof of concept (created by the client) to the actual product is incorrect, or the product/service does not solve the problem (as intended). From a designer’s point of view, it is striking that DICTU is only

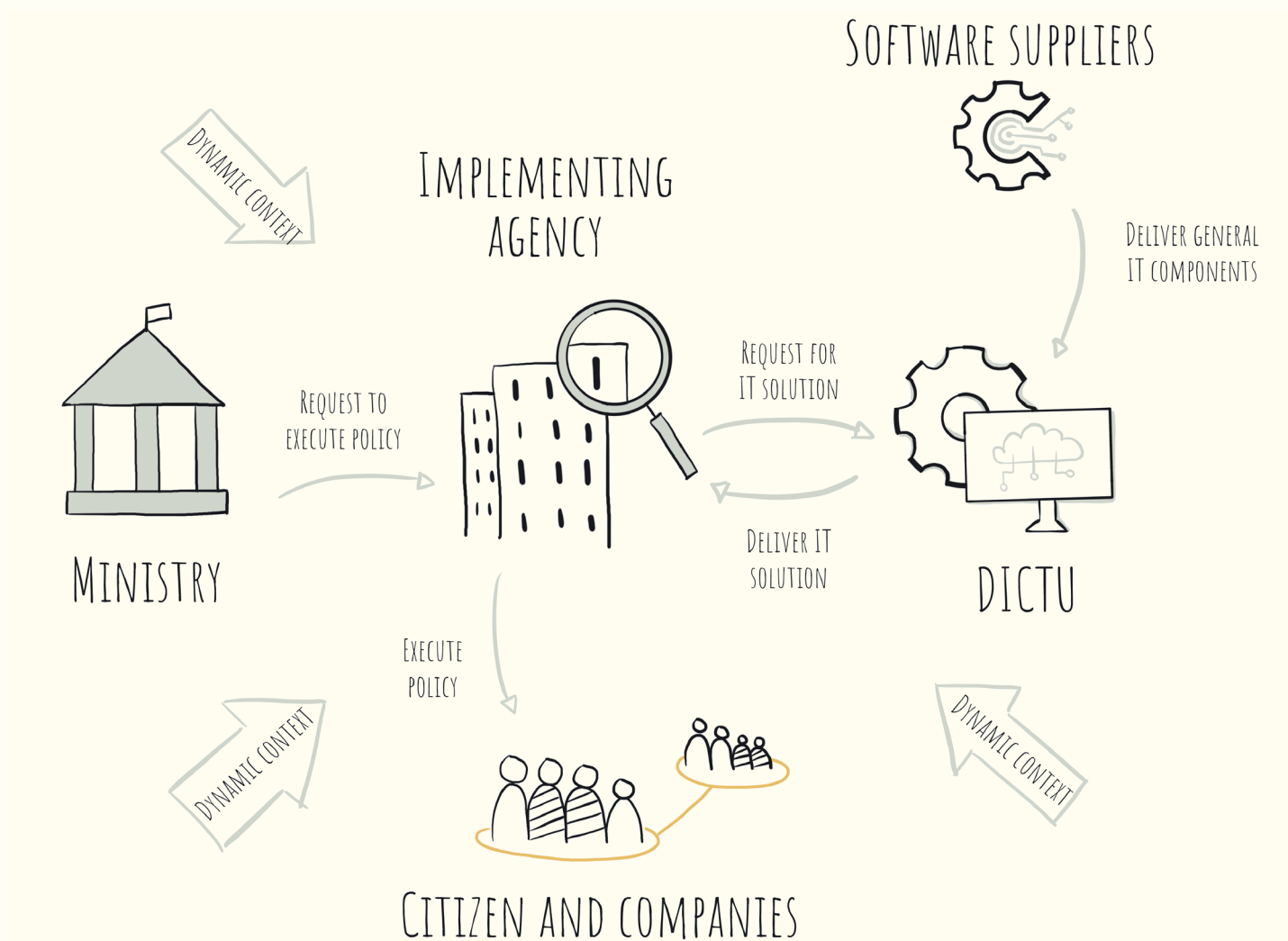


Figure 2: Schematic overview of the involved parties in the execution of a policy

involved in the realization phase of the project. Based on design principles, the co-evolution of the problem and solution space is fundamental to creating the right solution (Dorst & Cross, 2001). Including the stakeholders throughout the project and synchronizing them by formulating a clear understanding of the problem, goal,

and proposed solution can be of great value (Smulders, 2006). When done correctly, the exemplary product/service can be designed and created and has the potential to be effectively implemented and sustained in the final context. However, as this is currently not the case, it is interesting to investigate this situation further.

“FROM A DESIGNER’S POINT OF VIEW, IT IS STRIKING THAT DICTU IS ONLY INVOLVED IN THE REALIZATION PHASE OF THE PROJECT.”

1.1.2 SHORTCOMINGS

Innovation moves quickly, trends develop fast, and flexibility is crucial in responding to developments. As the implementing agencies (RVO and NVWA) focus more on innovation, their organization change to be able to work more flexibly and faster. This new way of working has implications for the questions they pose

at DICTU, which tend to focus on novel tech, expertise, and proper support. However, in the past few years, the implementing agencies had negative experiences when they tried to reach out to DICTU to help them in their innovation process. Where flexibility and adaptability are required, DICTU mainly provides slow

answers and support due to its bureaucratic organizational structure. For DICTU to stay relevant for its clients during the innovation process and deliver quality products/services, higher management decided that DICTU must change its way of working. Therefore, their business strategy is focused on changing their positioning to become a digitalization partner to the implementing agencies. However, there currently is little trust from the implementing agencies in DICTU that they can fulfill this role.

Adding to this, when DICTU is involved in the realization of innovation, it still happens that they do not create the right product to solve the actual problem. It is hypothesized that this is due to the lack of involvement by DICTU at the early stages of the innovation process of their clients, which is a result of the little trust the clients have in DICTU. This lack of involvement

1.2 INNOVATION

The literature states various definitions and terms around the topic of innovation. Oslo manual guidelines for collecting and interpreting innovation data define innovation as “a new or improved product or process (or a combination thereof) that differs significantly from the unit’s previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process).” (OECD, 2018, p. 20). Another widely used definition is by Rogers (1998) who defines it as “the process of introducing new ideas to the firm which result in increased firm performance.”

Although these are widely accepted definitions, they both lack the dynamic characteristics of innovation. Therefore, a personal definition of innovation is formulated, which can evolve based on the acquired knowledge and inspiration gathered throughout the project. The different iterations can be found in Appendix A. The final definition is: Innovation is the dynamic and iterative process of the generation, designing, and execution of a new product/process up until the integration of this novelty in

can translate to a lack of understanding of the actual context the final product/service is designed for. This makes it very difficult to even design the right product which fits in the context and results in an increased value in the client’s environment. In a way, the implementation of the final product is overlooked by both DICTU and the implementing agency, which can lead to a situation in which the product does not find its way to the user and/or the user will not use the product (as intended) and/or the user is unsatisfied with the product performance and usability. This finding complements the literature as it shows that the part about implementing a new product/service in an organization is often underestimated or overlooked (McAdam, 2005; Steiber & Alänge, 2015a; Steiber & Alänge, 2015b; Steiber et al., 2021).

an individual’s practice, which leads to a change in the environment. The different sections in this report, called *Intermezzo*, capture the iterative process of the co-evolution of the problem and solution space which also shows how this working definition is established.

Besides the various definitions, there are different ways to innovate—for example, digital, organizational, and technical innovation. Several papers show that organizational innovation is at the heart of technical innovation (Freeman, 1982; Leonard-Barton, 1988; Tushman, 1997; Teece, 2007; Volberda et al., 2013; Steiber & Alänge, 2015a). However, most research has been conducted on technical innovation (Birkinshaw et al., 2008; Ganter & Hecker, 2013; Steiber & Alänge, 2015a), resulting in many unanswered questions about organizational innovation. An example of such an unanswered question is how cross-disciplinary thinking could help the innovation process and how such a state of collaboration can be reached.

Research by Steiber and Alänge (2015a) tried to

answer some of these questions by developing a comprehensive model which shows the consecutive steps for innovation diffusion and the different factors influencing the diffusion. Although the model heavily relies on inter- and intra-organizational interactions, the description/explanation of these interactions is limited. This

1.3 PROBLEM DEFINITION

In this context, the innovation process is divided into several steps and passed through many departments at various organizations, which all focus on a different part of the solution/problem. Therefore, innovation projects often result in projects which are either unfinished or result in a solution for a non-existing problem. On the occasion that the problem is correctly identified and there even is a well-designed solution, the actual implementation and adoption of the product are not considered or, if they are, flawed.

From my Industrial Design Engineering background, I have learned (amongst other things) about stakeholder involvement, designing with and for the user, and Design Thinking. As this innovation process is divided into several steps and passed through many departments at various organizations, it looks like the innovation process is broken. Therefore, stakeholder involvement and stakeholder management would be a priority to align the different pieces of the process. However, little is known about the various interactions that contribute (positively or negatively) to the innovation process. Based on a purely theoretical perspective, the implementation of a product would become more successful when DICTU (as a stakeholder) is involved earlier in the innovation process. They would then better understand the actual problem or need the innovation is trying to solve.

This raises various questions about the intra-organizational interaction(s) (DICTU versus RVO/NVWA) during the innovation process. Who is interacting with whom? When in the innovation process is there an interaction? What

raises questions about how the interactions between the different parties influence the diffusion and implementation of innovation. Furthermore, there is little knowledge on even when an interaction between client, supplier, and end-user is beneficial in the innovation process.

is this interaction about? Can an additional/ altered interaction lead to an improved implementation? How can design help shape this additional/altered interaction to ensure better implementation?

Therefore, this graduation project aims to learn more about the interactions between DICTU and their client during the innovation process to seek a designerly approach to positively influence this interaction and make the implementation more effective. A literature review will be complemented by researching the context and conducting interviews. This creates a profound understanding of the innovation process and the different interactions between DICTU and its client, which helps determine where a(n additional) designerly interaction can be of value. One deliverable will be a schematic overview of the interactions within the innovation process in the given context. This schematic overview is used to define when and with whom an additional interaction could be of value for implementing innovation. The overview is complemented with a tool to not only give insights on the innovation process in the ecosystem of the said Ministries but also provide the possibility to transfer these insights to practice and influence the process.

“ ... TO LEARN MORE ABOUT THE
INTERACTIONS BETWEEN DICTU AND
THEIR CLIENT ... ”

INTERMEZZO #1: CO-EVOLUTION OF PROBLEM-SOLUTION

During a design process, one must be aware of their design environment, resources, and capabilities as they help interpret the assignment. It is not so much an objective entity but rather shaped and manipulated by the individual (Dorst & Cross, 2001). Defining and framing the design problem are key aspects of creativity (Christiaans, 1992). Therefore, several intermezzo sections are inserted throughout this report to reflect on the problem and solution space. These reflections on the co-evolution are complemented by personal reflections and insights gained from coaching sessions to give the reader a complete overview of particular reasoning. A final reflection of the entire project and process can be found in Appendix G.

In the same way as Dorst and Cross (2001), Maher et al. (1996) describe this iterative process of a design assignment as the co-evolution of the problem and solution space. Each exploration in the problem space helps structure and focus the solution space. Which, in its turn, helps sharpen the problem space. The goal is to create a matching problem-solution pair, see Figure 3.

The phenomenon of co-evolution of problem-solution also becomes apparent in this project. With each meeting I have, each paper I read, and each interview I conduct, I understand the problem and its prerequisites better. A specific example is that at the start of the project, I held tight to the innovation definition given by OECD and Rogers (see 1.2 Innovation), but as the project progressed and I learned more about the topic and made it my own, I felt that the OECD and Rogers definitions did not do justice to its true character. I could not have come to this insight right away; it only came after immersing myself in the literature and the DICTU organization and comparing the different sources through coaching sessions and internal reflections. I got the advice to keep a document with my working definition and occasionally revisit this document and reflect on it, this document can be found in Appendix A. Do I still agree with this formulation based on all the information I acquired so far? The starting point is my initial working definition for innovation formulated as: "Innovation is the dynamic and iterative process of using a product/process to change an individual's practice, which leads to a change in the environment."

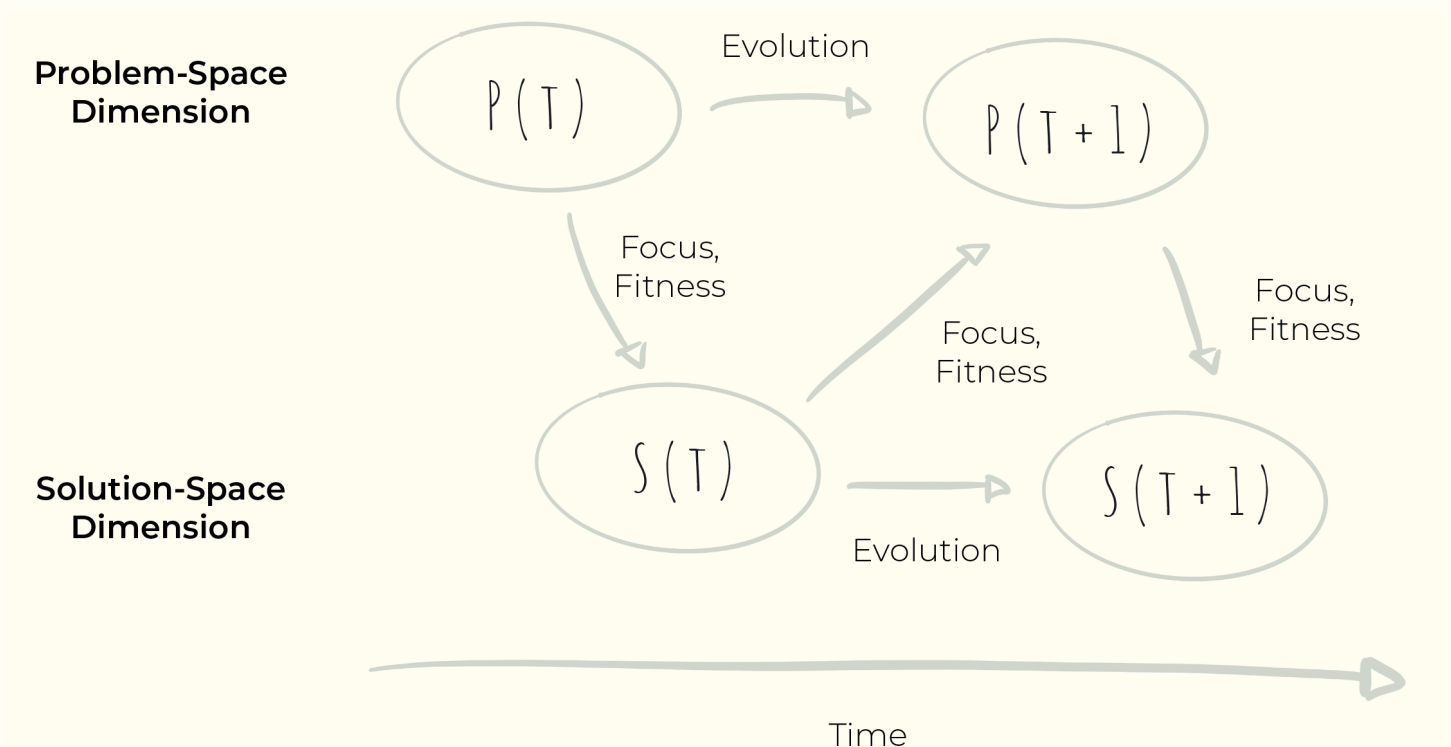


Figure 3: Co-evolution model based on Maher et al. (1996)

2. METHODOLOGY

The innovation process in the described context, see Section 1.1.1 looks uncomplicated and straightforward. However, the final product/service often differs from the intended/desired/expected outcome. Although the context seems uncomplicated, the innovation process stretches over various organizations, which all have their company vision, way of working, and values. Therefore, the problem is more complex than expected on a first glance. As design can help to cope with ill-defined and complex problems (Cross, 1982), this project is approached as a design problem. As the innovation process is complex, design can play a role in creating a better understanding of the problem.

A schematic overview is created to capture the insights, showing the current innovation process with the different stakeholders and interactions over time. The schematic overview is complemented with a tool that serves as a practical handle to structure an additional interaction in the innovation process to improve the implementation and sustaining of the final product/service.

There is currently little knowledge about the whole innovation process in this context or a theory to be verified within this context; therefore, the schematic overview is created by following an abductive approach (Kees Dorst, 2015; Haig, 2005). Within an abductive approach, the focus is on generating a hypothesis from the inference that indicates new or existing theory development (Kapitan, 1992; Conaty, 2021). The next step for future research could be to use a deductive approach to test the theory or develop the theory from data by using an inductive approach.

The first step in creating this overview consists of a literature review to discover what has already been done in the domains of innovation, implementation, and interaction. The literature review is complemented by field research to

see how (some aspects of) theory play out in this specific context. A specific case (Robotic Process Automation as a Service) within the context is chosen, and the various stakeholders connected to this project are interviewed. The interviews aimed to reconstruct a timeline and identify the various interaction moments. Each interview started with an introduction of the interviewee by asking about his/her role at the organization and within the project. Based on Sanders and Stappers (2020) first, the general topic of innovation was introduced by asking them what innovation means to them, how they define it, and why it is necessary at their organization. Then, the interview was more focused on reconstructing the case's timeline and identifying the various interaction points between stakeholders. The last set of questions was about reflecting on the final product and the process to see what went well and where there is room for improvement. The interview was concluded by asking the interviewee if (s)he had any questions for the interviewer.

The interviews were semi-structured, with general outlines and specific questions formulated. Based on the participant's role or answers, it was chosen to ask additional questions about a particular topic or further explore an interesting statement the interviewee made. This was based on intuition and curiosity to understand the interviewee's position on reasoning. Sometimes this led to interesting insights and an additional question to the guide for upcoming interviews. And sometimes, this led to a path that was not as relevant to the aim of this graduation, such that it was discarded during the analysis of the interviews.

Due to convenience, most interviews were held via Microsoft Teams, and all interviews were audio recorded after the participants gave verbal consent. From the audio recordings, the interviews were manually transcribed and anonymized for privacy reasons, see Appendix

B. The analysis had the aim to reconstruct the timeline of the project and identify the various interactions. Furthermore, the interviews gave a good overview of the various perspectives and reasons for making certain decisions and gave insights into various pain points. As the role of each interviewee was known, some common pain points could be distilled, which served as input for the creation of the tool.

Combining all the data from the observations and the interviews led to the creation of the schematic overview, and the identification of the various interaction moments. This overview is discussed and evaluated through expert interviews to determine the different options for altering an existing interaction/introducing an additional interaction to improve the implementation of innovation.

The second part of the project is to create and develop a tool that will function as a handle to realize/structure the (new) interaction, which will improve the innovation process in this environment, see Section 5.4 Design solution and Appendix C. This tool is created by synthesizing

the information from the literature review, the observations, and the interviews. From this, the tool's purpose is established, and various building blocks are created that form the outlines of the tool. The tool is evaluated and altered through expert and end-user interviews. The feedback is used to develop a final version of the tool for this project which can be used in future research.

As this project is focused on implementation and innovation, considering the implementation of the tool in the organization is an important deliverable. Therefore, additional research has been conducted in change management, and a strategy has been formulated to make the people at DICTU more aware of the complexity of innovation and the current lack of stakeholder involvement within the innovation process. The insights gained from the observations and the interviews helped understand the actual context and showed some possibilities and challenges. These insights were considered in formulating the change management strategy such that there was a tight fit between plan and practice.

INTERMEZZO #2: REFLECTION ON PROPOSAL

In my graduation proposal, I stated that I would create a framework for how the interactions themselves must look and a tool to help execute the framework. I created this proposal with little knowledge of the actual innovation process within this context. By immersing myself in the context and talking to various people, I quickly learned that there is little knowledge about and interaction between the different stakeholders in the current situation. Meaning that creating a framework on how the interaction itself must look like, without having an existing interaction within the innovation process, is of less value. Therefore, it is more valuable to investigate what the interaction should be about, who should attend to this interaction, and when the interaction is most valuable in the current process. Therefore, I altered the goal from creating a framework to creating a schematic overview of the interactions and the stakeholders

in the innovation process. This overview helps determine if an additional interaction is necessary or if modifying an existing one is more fruitful. Based on this information, a solution can be created which helps the stakeholders structure the interaction.

This is an important step I took when reflecting on the co-evolution of the problem and solution space. Different from what I initially thought that the interaction was the problem, this is not necessarily the case. The problem is that there is a lack of interaction which results in a lack of understanding of the context. The interaction can be a solution to get this understanding, where the tool can structure this additional interaction. This changes the view of the problem space, which I could not have foreseen before starting the project.

3. LITERATURE

As described in the introduction, research has been conducted in organizational development, and comprehensive models are constructed to capture and explain innovation diffusion. These models depict the various steps one must take, which could lead to the effective implementation of innovation. The innovation process concerns individuals and multiple roles, whereas current research often operates on high abstraction levels. Therefore, their models often lack details, for example, on the interactions between the different actors.

Three topics are especially relevant to this project; the first is innovation, described in Section 3.1. As stated in Section 1.2 Innovation, the literature presents various definitions, types of innovation, and different ways of engaging in innovation activities. Researching the different topics and nuances helps formulate a working definition and what innovation entails in the governmental context.

The second topic is implementation which is described in Section 3.2. Research states that this phase is often underestimated or overlooked (McAdam, 2005; Steiber & Alänge, 2015a; Steiber & Alänge, 2015b; Steiber et al., 2021), but what is essential to consider when engaging in such a process? Furthermore, various factors influence the implementation and adoption of innovation. What factors are particularly relevant to this project and can be considered preconditions?

The third topic is interaction which is described in Section 3.3. The literature shows that the task at hand or the (perceived) relationship between two parties influences the objectives and resource mobilization of the involved parties. This makes it interesting to learn more about the definition and clarity of a task and how relationships are established and maintained. This can provide inspiration on how to shape/alter future interactions or provide critical aspects that should be integrated in the tool.

3.1 INNOVATION LITERATURE

The literature describes various definitions of innovation. Two widely known definitions are from the Oslo manual guidelines for collecting and interpreting innovation data defines innovation as “a new or improved product or process (or a combination thereof) that differs significantly from the unit’s previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process).” (OECD, 2018 p 20). The other is a definition by Rogers (1998) who defines it as “the process of introducing new ideas to the firm which result in increased firm performance.”

When looking more closely to these two definitions, one can say they share common ground in the fact that an innovation is something new. This something new can either be a product or process, but both

definitions propose that it leads to a positive change as opposed to the current situation. The definitions differ slightly as Rogers mentions that innovation is the process of introducing the idea whereas OECD doesn’t contain a specific period or action. Considering this project, it feels that both definitions don’t fully contain the true meaning of innovation. Innovation is done by individuals and should be seen as an iterative process in which learning is crucial, either definition fails to mention the individual and the dynamic nature of an innovation process. Based on these points, a new definition of innovation is created and formulated as follows: Innovation is the dynamic and iterative process of the generation, designing and execution of a new product/process up until the integration of this novelty in an individual’s practise, which leads to a change in the environment.

3.1.1 DIFFERENT TYPES OF INNOVATION

There are various types of innovation; two important ones are technical innovation and organizational innovation. Technical innovation works with various types of technology to improve an existing procedure. Whereas organizational innovation is about a new or improved process or strategy used to change the way an organization works. The literature distinguishes between the two as technical innovation is most common and often clearly described, whereas organizational innovation is often less clear (Alänge et al., 1998). For technical innovation, companies have a formal position like R&D or innovation manager, and it is often possible to make accurate calculations on the return on investment. This is often not the case for organizational innovation as there is no market to buy an organizational innovation, and it affects how people work daily. In a way, organizational innovation is more tacit than technical innovation. Other research (Steiber & Alänge, 2015a) shows that by not having a formal position for organizational innovation, learning processes in the organization are hindered and subjective to the interpretations of early adopters. The success of organizational innovation is, therefore, heavily dependent on the commitment of top management and the intra-firm diffusion of the innovation, which is less the case for technical innovation (Steiber & Alänge, 2015a). However, although there are differences between organizational and technical innovation, the insights from studies on technical innovation can be applied effectively to a study of the diffusion of organizational innovation (Alänge et al., 1998; Steiber & Alänge, 2015a).

When diving more into organizational innovation, there is also process innovation. Empirical research by Mol and Birkinshaw (2009) shows that many business managers have difficulty differentiating between these two types of innovation. Therefore, they specified activities for process innovation as “strategic management (business practices and external

relations) and human resource management (workplace organization)” and organizational innovation as “leadership, culture, mechanisms for learning, and external and internal corporate communication.”

Working in organizational innovation can take on many forms; an example is digital innovation (Fitzgerald et al., 2013; Steiber et al., 2021). By digitizing or automating specific processes, workers will become responsible for a broader scope requiring them to understand the whole process better. They need to understand what implications certain actions have later in the process and solve problems ad hoc (Erol et al., 2016). Digitalization comes with a wide range of new tasks, requiring a new way of thinking (OECD, 2018, p39). The result is that the individual adopts a new way of working, which results in a change in the organization/environment.

“INNOVATION IS THE DYNAMIC AND ITERATIVE PROCESS OF THE GENERATION, DESIGNING AND EXECUTION OF A NEW PRODUCT/PROCESS UP UNTIL THE INTEGRATION OF THIS NOVELTY IN AN INDIVIDUAL’S PRACTISE, WHICH LEADS TO A CHANGE IN THE ENVIRONMENT.”

3.1.2 GOVERNMENTAL ORGANIZATIONAL INNOVATION

Organizational innovation can also be detected in the governmental environment. Over the last few years, the government has been working more digitally. It is now possible to submit a form via a website, and a governmental department can store data online for easy administration. Digitalization makes it easier to administer data, save money and bring services to the public.

For different types of business, one needs to go to different ministries and departments. This results in large organizations which are divided into silos. Different initiatives emerge worldwide to break down organizational silos and operate more cross-government (Pope, 2019). This report states that if a government were to organize itself as a platform, it would be able to deliver

“radically better services for the public [...] and to do so in a way that makes it simpler and faster for both civil servants and politicians, the private sector and non-profits, to meet people’s needs.”

A governmental ecosystem should engage in organizational innovation to determine what this could mean and how to realize it. As innovation is a dynamic and iterative process, there is value in working together and learning from each other to reach the desired result. However, a solid and typical “not invented here” culture in the governmental sector makes this somewhat difficult. It is, therefore, essential to break down these silos. Pope (2019) suggests fostering a culture where teams/employees are encouraged to think beyond their domain and invest in shared tools.

“AS INNOVATION IS A DYNAMIC AND ITERATIVE PROCESS, THERE IS VALUE IN WORKING TOGETHER AND LEARNING FROM EACH OTHER.”

3.2 IMPLEMENTATION LITERATURE

The formulated definition of innovation (see section 3.1 Innovation literature) encompasses the entire process of the generation, designing, and execution of a new product/process up until the integration of this novelty. However, it is still valuable to consider the process of integrating the new product/process and sustaining the change as a separate topic. Literature shows that implementation is about overcoming certain norms and changing the status quo so that the innovation (product/process) has a place in the organization (McAdam, 2005). It is an activity, and the success of the innovation is highly dependent on the effectiveness of the implementation process (McAdam, 2005; Steiber & Alänge, 2015a; Steiber & Alänge, 2015b; Balogun et al., 2015).

There are two other relevant terms besides implementation: diffusion and adoption. Diffusion is the “communication process through which an innovation travels or spreads through certain channels from a person, an organization, or any unit of adoption to another within a social system over time” (Kee, 2017). Secondly, adoption is about “an individual or organizational process that leads to the diffusion as a systemic process.” (Kee, 2017). So, implementation is the activity of how a particular innovation *can* find its place in the organization; diffusion examines the different perspectives of the market and context as a whole and *how* innovation can spread throughout an organization, and adoption focuses on *if* and *how* people (do not) adopt a certain innovation.

INTERMEZZO #3: DELICATE NUANCE

As there is such a delicate nuance to these three terms (implementation, diffusion, and adoption), I deem it valuable to specify what they mean in the DICTU context. First implementation in the DICTU context means if a product/service/process aligns with DICTU's strategic agenda and if there are enough resources to integrate the innovation and embed it in existing processes. Secondly, there is diffusion, which is about how innovation can spread through an organization. In DICTU's case, it has to do with the organizational structure and the hierarchy. From what layer in the organization must the message/introduction to the innovation come,

and who should be targeted? What means is used to disperse innovation? The last term is about adoption and focuses on if and how people (do not) adopt a particular innovation. Throughout the project, I saw that a change in the organization is realized by the individuals changing their way of working. This makes it so important to focus on the adoption of innovation because if the employees do not adopt a particular innovation, there will not be a change. Therefore, the part in my innovation work definition about "... up until the integration of this novelty in an individual's practice..." is of such importance.

3.2.1 INNOVATION IMPLEMENTATION

As mentioned in the introduction of this chapter, much research has been conducted into technical innovations, and various research states that organizational innovation is essential for long-term competitive advantages (Steiber & Alänge, 2015a). However, how organizational innovation should be created and diffused within/among organizations received less focus (Edquist, 1992; Birkinshaw et al., 2008; Ganter & Hecker, 2013). Research suggests that the theory and concept of innovation diffusion by Rogers (1983) could be relevant for improving implementation strategies as the acceptance

of new IT systems is equivalent to the diffusion of innovation (Kurupparachchi et al., 2002). The model depicted in Figure 4 describes the general project phases clarifying functions for each phase. However, it does not communicate anything about specific actions an individual or project team can take, how a particular actor is (not) involved in the process, or how there is (not) an interaction between various actors.

The following sections will detail the different activities concerning implementing a product/process and what factors influence this process.

3.2.1.1 STEPS PRIOR TO THE IMPLEMENTATION OF INNOVATION

Before implementing an organizational innovation, research by McAdam (2005) states that gaining legitimacy for the process and innovation is essential. In many organizations, this is often a complex and time-consuming task. He recommends first destabilizing the current legitimization by challenging the status quo. It is proposed to "soften this conflict by appealing to 'sympathetic resonances with other developments.'" This creates room for constructive discussion about alternatives with

employees and/or stakeholders. Due to this social interaction, a shared view can be created, which results in legitimacy. This legitimacy can be used as a stepping stone that can support the diffusion of organizational innovation.

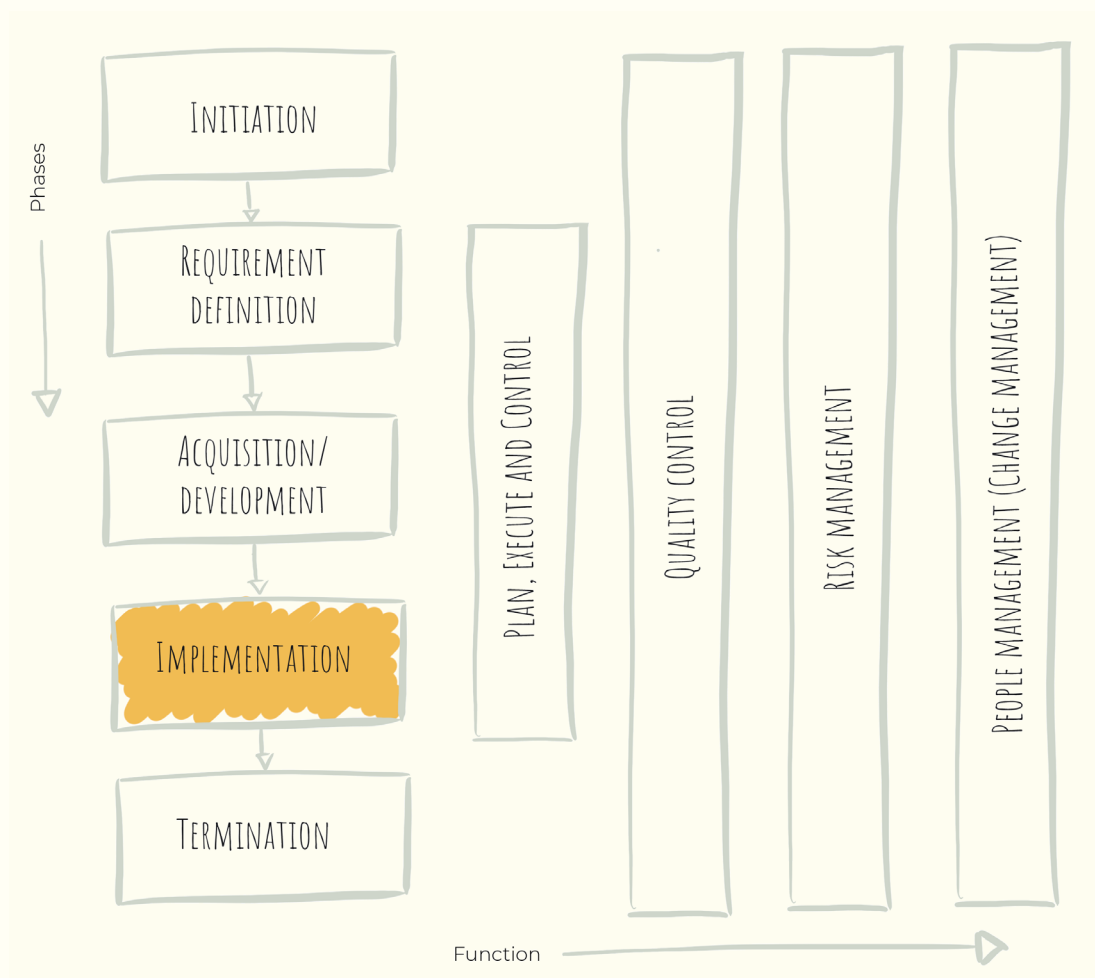


Figure 4: Different project phases and their functions based on Kurupparachchi et al. (2002)

“TO IMPLEMENT ORGANIZATIONAL INNOVATION, GAINING
LEGITIMACY FOR THE PROCESS IS ESSENTIAL.”

3.2.1.2 ORGANIZATIONAL INNOVATION DIFFUSION PROCESS

Based on an extensive literature review, Steiber and Alänge (2015a) created a comprehensive model to better understand the creation, diffusion, and sustaining of organizational innovations. The model, see Figure 5, consists of five steps: 1) Desirability – Triggers creating a desire to change 2) Feasibility – The search for new feasible solutions 3) First trial – Piloting 4) Implementing – Broader implementation 5) Sustaining – Sustainability of the transformation. The inner circle represents the internal context of an organization, such as top management and the board. The outer circle represents the external context and how knowledge and

experience come into the organization (Steiber & Alänge, 2015a; Steiber et al., 2021).

Two points become clear from this model. The first is that little detail is provided on how the implementation should look and what stakeholders play an important role in the process. Secondly, implementation is only the next to last step, whereas the literature also shows that the implementation of innovation needs to be more considered and noticed, and there could be value in considering the implementation of innovation earlier on in the process.

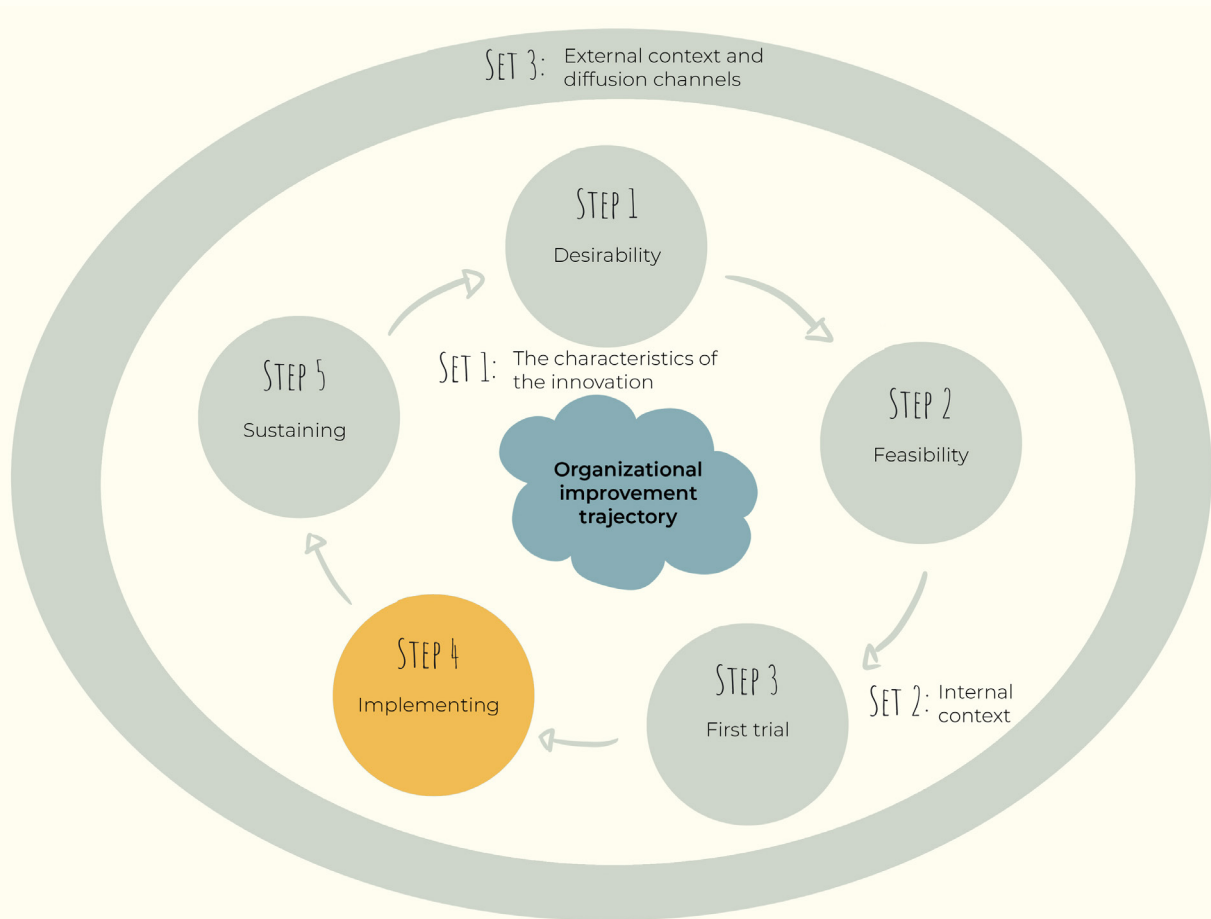


Figure 5: Analytical framework for the diffusion of innovation based on Steiber and Alänge (2015a)

3.2.1.3 FACTORS THAT INFLUENCE INNOVATION IMPLEMENTATION

Various factors influence the implementation and sustaining of organizational innovation. Buchanan et al. (2005) identified four sets of factors, which also influence each other, that play a role in sustaining organizational change:

- External context: factors such as turbulence and uncertainty in the environment
- Internal context: a firm's history and, therefore, its receptiveness to change
- Substance of change (e.g., whether the organizational innovation is perceived as important for the firm), change process, and timing
- Seven organizational factors (managerial, leadership, cultural, organizational, individual, political, and financial) that influence sustaining (factors that can be configured and interact in different ways)

For example, the board and top management (a factor related to the organization) play an important role in innovation sustainability (Alänge & Steiber, 2009). Their (past)

culture, commitment to innovation, and the organization's current or future trajectory can either limit or increase the internal inertia and resistance to change (Kim & Toh, 2018).

Important factors that can significantly negatively influence the sustaining of a transformation are a change in leadership, new economic conditions, and the board's commitment to the transformation (Steiber et al., 2021). For example, an exchange of CEO during the implementation of a more considerable organizational innovation decreases the chance of sustaining the transformation (Alänge & Steiber, 2009). Various research supports that adopting a flat organizational structure is best as this helps the organization to be more agile and flexible (Tabrizi et al., 2019; Steiber et al., 2021). This flat organizational structure is beneficial when an organizational innovation requires quick decision-making, adjustments, and close collaboration from various groups in the organization.

3.2.2 ASSESSING AN IMPLEMENTATION PROCESS

One way to assess the innovation implementation process is by looking at the three key elements: normative evaluation, legitimization, and conflict (McAdam, 2005). The normative evaluation compares the incoming innovation against the organization's status quo regarding the norms, working routines, and practices. Legitimization focuses on accepting and integrating or rejecting the proposed innovation at a team or organization level. Conflict can be constructive or destructive, which encourages/discourages innovation implementation. An example of constructive conflict is when a debate shows the different competing perspectives, leading to reconsidering

or reformulating the innovation (Van de Ven, 1986). This helps in creating legitimacy for the innovation, which encourages the implementation. On the other hand, conflict can also be destructive and lead to so-called "organizational anarchy" (McAdam, 2005). An example of this is when conflict arises when management decides to work with a particular innovation and impose this new way of working on the employees who are against it. The key elements described by McAdam (2005) can also be intertwined. For example, when the normative evaluation and legitimization process leads to a conflict that is both healthy and harmful (Brown & Duguid, 1999).

"CONFLICT CAN BE CONSTRUCTIVE OR DESTRUCTIVE, WHICH ENCOURAGES/DISOURAGES INNOVATION IMPLEMENTATION."

Ultimately, the research by McAdam (2005) shows that conflict is necessary for innovation implementation to "overcome normalizing and legitimizing organizational forces" and that

conflict can be used to assess the innovation implementation, see Figure 6. Conflict can even be used to determine the progress of the innovation implementation in the organization.

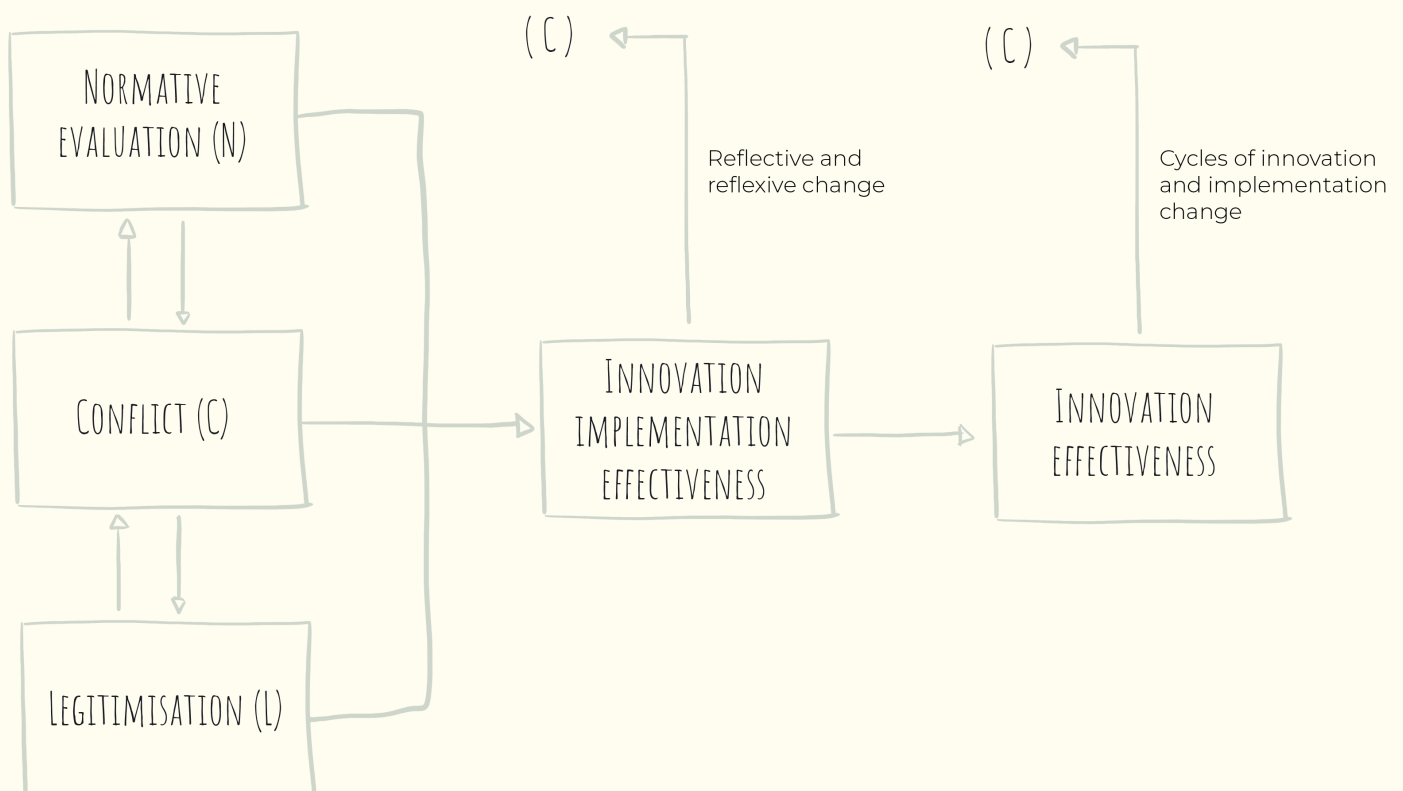


Figure 6: Theoretical constructs for innovation implementation based on McAdam (2005)

3.3 INTERACTION LITERATURE

Interaction can be viewed on two levels: a higher and more abstract level or a lower and more concrete level. For example, two parties are in direct contact with each other in the innovation process (high abstraction level) by, e.g., having regular meetings to discuss the project's progress (low abstraction level).

In essence, interaction is a form of communication or direct involvement with something or someone by which a relationship is established between two parties. The relationship between agency personnel and their client is like a personal relationship,

with the same identifiable phases from initiated, developed, maintained, evolved, and deteriorated (Grunig & Huang, 2000; Bruning & Ledingham, 2002). This same paper explains that by understanding the relationship between organizations, "practitioners can determine what actions should be taken in order to (a) maintain the relationship as it is, (b) restore the relationship to a previous, more desirable relationship phase, and/or (c) move the relationship to a more advanced phase." As a result, understanding the relationship helps shape and structure the (upcoming) low abstraction level interactions.

3.3.1 FACTORS INFLUENCING BUSINESS INTERACTION

3.3.1.1 CAUSAL AMBIGUITY

A paper by Laursen and Andersen (2016) states that the perceived task is critical in setting expectations for the supplier's role. It creates assumptions on relevant and critical issues, so in a way, "the task structure sets the rules of the game, which influence the subsequent interaction" (Abdel-Halim, 1983). A critical part of the task is causal ambiguity which describes the clarity of the target and the path (Robillard, 1999). Laursen and Andersen (2016) describe three degrees of causal ambiguity, see Figure 7. For each degree of ambiguity, they researched the roles and expectations before the first meeting, who attended the meeting, what type of interaction occurred, and what the outcome was. They concluded that there is a relationship between causal ambiguity and clarity of role,

which influences suppliers' focus during the interaction. Low role clarity and high causal ambiguity steer the interaction into clarifying the task and advancing the project. However, low causal ambiguity is only sometimes beneficial as it does not necessarily foster inter-firm alignment, which can also negatively influence the project, e.g., causing a delay.

Causal ambiguity is also related to resource mobilization (Laursen & Andersen, 2016). A high level of causal ambiguity results in little resource mobilization as it still needs to be determined what the activities will be and what is necessary to fulfill them. A low level of causal ambiguity activates knowledge assets and specialists related to the task.

"A CRITICAL PART OF THE TASK IS CAUSAL AMBIGUITY, WHICH DESCRIBES THE CLARITY OF THE TARGET AND THE PATH."

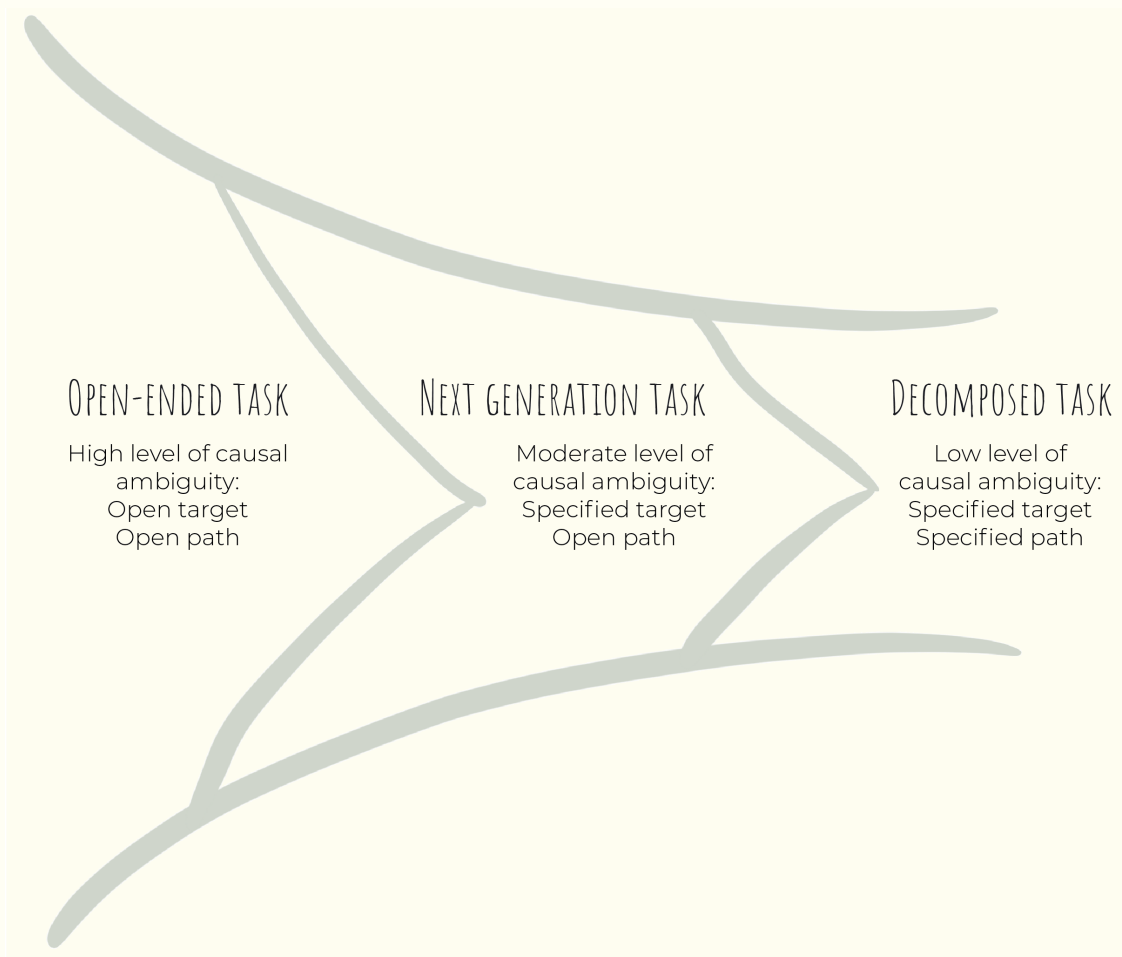


Figure 7: Three degrees of causal ambiguity based on Laursen and Andersen (2016)

3.3.1.2 INFLUENCING FACTORS

Research by Wynstra, Axelsson, and Van der Valk (2006), based on research by Håkansson (1982), identified several factors that affect the form and content of the interaction process. These factors can be classified into short-term and long-term aspects directly related to the interaction process. Short-term aspects are frequency, intensity, hierarchical and functional scope of the buyer-supplier contacts. The long-term aspects are the adaptation of activities and relation-specific investments in specific resources. Furthermore, four other groups of variables are defined in the paper. The groups are characteristics related to the atmosphere (e.g., degree of cooperation), general environmental factors (e.g., the number of alternative exchange partners), the characteristics of the organizations involved (e.g., marketing/purchasing strategy) and the characteristics of the actual product (e.g., degree of complexity).

Furthermore, a rapidly changing project team can hinder inter- and intra-organizational information exchange and retrieval. Guercini et al. (2015) researched how people prepare themselves for a meeting and what information sources they use. The paper presents three ways to retrieve information; first, consult formal company records. Secondly, consult personal notes from, e.g., previous interactions. Thirdly, consult third-party references when no (sufficient) information retrieval is possible from the first two methods. The management literature describes decision-making and action as the result of gathering and analyzing information (Dane & Pratt, 2007). However, when actors meet, elaborate and extensive information exchange and retrieval are often limited. So managers must act on incomplete information (Barnard, 1938). A changing team puts pressure on efficient and complete information documentation and exchange.

3.3.2 VARIATIONS IN INTERACTION

The IT components/products DICTU delivers to their clients can be seen as a service. The type of service a company delivers plays a significant role in the type of interaction. Wynstra et al. (2006) researched to better understand buyer-supplier interaction in business services and identified four different types of business services. Figure 8 maps the different types of services to their specific objectives, capabilities, and interfaces.

Especially the part about instrumental services is interesting for this explorative research as it encompasses DICTU's wish to be a partner to their clients. The research of Wynstra et al. (2006) points out that in this specific service, the

emphasis is on how the supplier's service will affect the client's processes. In other words, there should be an emphasis on how the service will be implemented, diffused, and adopted by the client's organization. However, in the current situation, this is often not considered.

The topics discussed in these interactions during the project are often about specific adaptations that must be made or changes in resource distribution. For this, the business development representatives on the client side and the process engineers on the supplier side should have a significant role in coming to effective service. This makes the nature of the business relationship rather functional and focused on effectiveness.

TYPE OF SERVICE	OBJECTIVES	CRITICAL SUPPLIER CAPABILITIES	CRITICAL CUSTOMER CAPABILITIES	SUPPLIER REPRESENTATIVES	CUSTOMER REPRESENTATIVES
COMPONENT SERVICES	The service should fit with the customer's final offering	Production capacity and quality Development capabilities (in case of specialized services)	Translating / communicating final customer demands (on ongoing basis) Synchronizing the supply of various service components	Marketing representatives regarding the supplier's own service "downstream" specialists (knowledgeable of the customer's final offering)	Buyer specialists regarding the service bought, and marketing representatives knowing the needs of the buyer's customer
SEMI-MANUFACTURED SERVICES	The buying company should be able to transform the service in the desired way	Production capacity and capability to maintain a stable quality Innovative capabilities (when used as an external expert and for strategic services)	Translating final customer demands Optimizing fit between internal and supplier's operations Synchronizing suitable contact interfaces between internal and the supplier's operations	"Production planning" and marketing representatives	Production and quality representatives
INSTRUMENTAL SERVICES	The service should affect the customer's primary processes in the desired way The service should fit with important characteristics of these primary processes	Business development and innovation Business and service production design services	"Implementation" skills: understanding what fits when, how and for whom	Product representatives, often including a team of consultants or process engineers	Business development representatives and affected internal customers
CONSUMPTION SERVICES	The service should support various core processes	Ability to supply the desired service and (if needed) adapt it to the specific situation of customer	Translating / communicating internal customer demands (on ongoing basis) Follow up on performance and user satisfaction	Marketing representatives	Buyers and internal customers

Figure 8: Classification of different types of business services based on Wynstra et al. 2006

3.3.3 RELATIONSHIPS

A relationship is a way in which two or more people/parties/things are connected and is established via interaction(s). Both inter- and intra-organizational relationships are essential to keep the company going. By having information on the type of (desired) relationship, a specific strategy can be built that contains appropriate content and relational messages (Bruning & Ledingham, 2002). During the early phases of building a relationship, the client and agency discuss their expectations and needs for the upcoming relationship. Research (Bruning & Ledingham, 2002) shows that to progress the relationship to a later stage; the agency should engage in specific behavior and follow-up activities illustrative of a good relationship. Examples can be being positive, open about upcoming plans, and personally and financially committed. Research by Guercini et al. (2015) also states that the interaction between client and supplier to solve problems has consequences for both the efficiency and development of the project.

There are five phases to describe relationship development:

1. Initiating – both parties present themselves in a positive, pleasant, understanding, and warm way
2. Experimenting – a search for common ground and interest. The communication is pleasant, relaxed, casual, and uncritical
3. Intensifying – both parties show a strong commitment to the relationship, and the communication becomes less formal
4. Integrating – both parties share the same attitude, opinion, and interests, there is much common ground, and both parties coalesce
5. Bonding – the relationship becomes institutionalized through some private or public ceremony

3.4 SYNTHESIS OF LITERATURE

The literature helped to better understand the broad topics of innovation, implementation, and interaction. A few findings from the literature are especially interesting to take along to the field research. First, the literature (McAdam, 2005) states that gaining legitimacy for innovation is vital in accepting it. Legitimization focuses on deciding to accept and integrate or reject the proposed innovation. There is currently little trust in DICTU by the clients (see Section 1.1.2 Shortcoming), so there is little legitimacy in DICTU's position as a digitalization partner. This is an important finding from the literature to use in the design and creation of the tool. How can the tool foster legitimacy for a process in which DICTU takes the partner role and helps overlook the entire process?

Secondly, from the model presented in the literature (Kuruppuarachchi et al., 2002; Steiber & Alänge, 2015a), see Figures 4 and 5, the implementation step is portrayed as transactional. It shows a process that linearly goes from one stage to the other. Adding to this, there is little detail on the actions one can undertake to fulfill this task or who the important actors are within such a step. Furthermore, the implementation of innovation is often underestimated and overlooked, and it is stated that there could be value in considering the implementation of innovation earlier on in the process (McAdam, 2005; Steiber & Alänge, 2015a; Steiber & Alänge, 2015b; Steiber et al., 2021). However, although considering the implementation earlier in the process could be beneficial, it still does not give any advice or

recommendations on how to do so. Therefore, it could be valuable to not view these steps as merely transactional but rather interactional steps. In which there is communication between the different parties to foster collaboration.

Thirdly, research by (Laursen & Andersen, 2016; Robillard, 1999) described causal ambiguity as a vital part of the task, which describes the clarity of the target and the clarity of the path. The level of causal ambiguity has implications, e.g., for the roles, expectations, and resource mobilization. However, an innovation process is uncertain and often lacks a clear target and path, especially in the experimentation phase. This is not necessarily negative, as this leaves room to explore and be surprised by the possibilities of a particular technology. So, on a project content level, having high causal ambiguity is acceptable and even beneficial for the innovation process. This ambiguity leaves room to co-evolve the problem and solution space and create a good product/service and the right one. However, on a project process level, having high causal ambiguity can be unbeneficial as it increases risk and leaves high

uncertainty. Therefore, the tool that is being designed should leave room to co-evolve the problem and solution space and explore—at the same time, leading to lower causal ambiguity when considering the project process.

Lastly, research (Wynstra et al., 2006) describes how the service an organization delivers to another organization shapes the interaction. Especially with the service that DICTU delivers (instrumental services, see Figure 8), the supplier (DICTU) must consider how the service will be implemented, diffused, and adopted in the client's organization. As described in Section 1.1.2, Shortcomings, the implementation of DICTU's products and how it affects their client's business is often overlooked or underestimated. However, from a theoretical point of view, DICTU is the designated party to take this responsibility. This shows that there is potential for DICTU to take on its natural position as a supplier, as described by Wynstra et al. (2006), and actively consider the implementation and diffusion of their products in their client's context such that they fit with the primary processes and the critical characteristics of these primary processes.

INTERMEZZO #4: DEFINITION OF INNOVATION

In the introduction, I formulated my first working definition of innovating: "Innovation is the dynamic and iterative process of using a product/process to change an individual's practice, which leads to a change in the environment." Throughout the project, I became more experienced with the context and more comfortable with the term innovation. As a result of the literature review and attending various meetings, I decided to revise my definition. I saw that innovation is a dynamic and iterative process with various steps; the generation, designing, execution, integration, and sustaining of a new product/process. All these steps contribute to the change in the environment. Therefore, I rephrased my working definition of innovation: "Innovation is the dynamic and iterative process of the generation, designing, and execution of a new product/

process until the integration of this novelty in an individual's practice, which leads to a change in the environment."

This also has consequences for the solution space. Dissecting the word "process" in several intermediate steps makes it possible to target a specific step in the innovation process. DICTU already works with project plans and specific steps for each stage (more on this in Section 4.4 Interviews), so the tool I am to design could be integrated into a specific step in one of the existing models. This will also be beneficial when considering the implementation and adoption of the tool itself.

4. FIELD RESEARCH

The next step in the project is to complement the literature with field research. Section 4.1 describes the initial interviews to better understand DICTU as an organization and its way of working. Section 4.2 describes some key observations and preliminary insights from these observations. Section 4.3 focuses on creating a stakeholder map to visualize the

context and show the connections between the various parties. In Section 4.4, the interviews conducted with various stakeholders for the case study are analyzed, and the results are presented. Section 4.5 gives an overview of the combination of the field research and its implications for the project.

4.1 DICTU'S WAY OF WORKING

Initial interviews were held with employees at different departments to better understand DICTU's way of working. The interviews were semi-structured and audio recorded to be transcribed and analyzed. From the interviews

and the observations, it became clear that DICTU works with several models and tools to structure and execute a project. One of them is the four phases model, which is depicted in Figure 9.

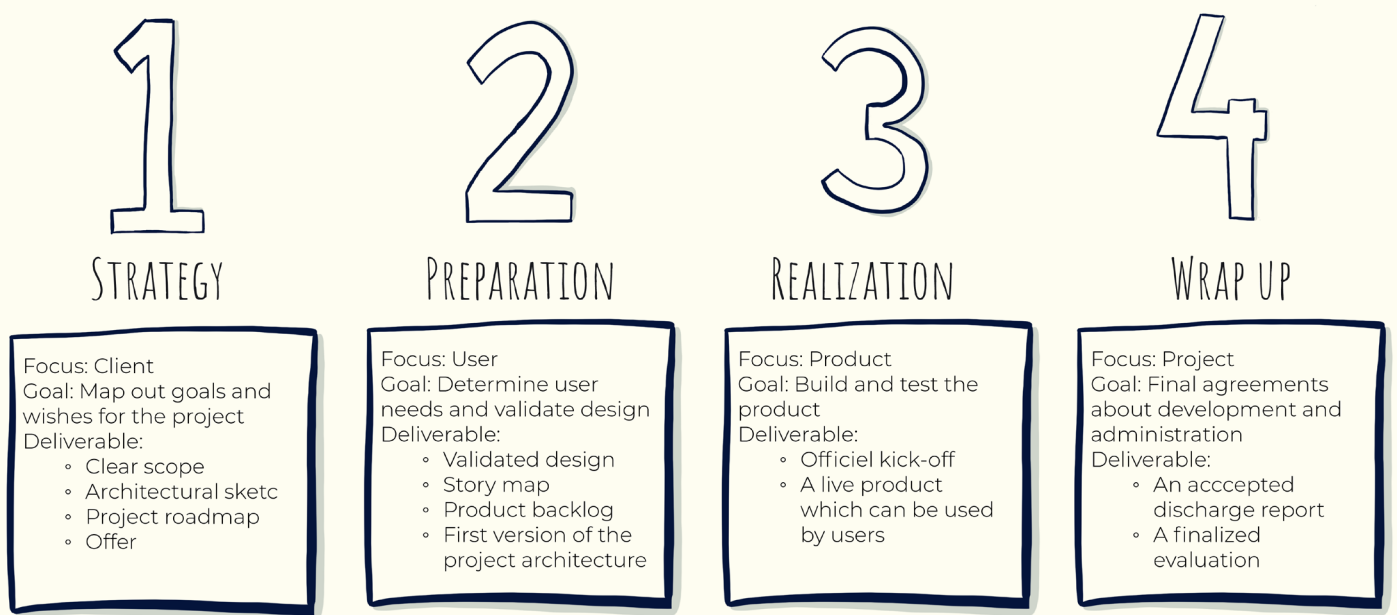


Figure 9: The four phases model to create a new product or application

Another model that provides employees at DICTU with structure and handles for innovation projects and projects that seek a generic solution for multiple clients is the Business Development Chain, see Figure 10. The model is developed to function as a handle to design,

develop and implement general services and innovations. It can be used for specific assignments and innovation projects originating from the organization itself. More information on the different deliverables, e.g., the 'tollgate templates,' can be found on DICTU's intranet.

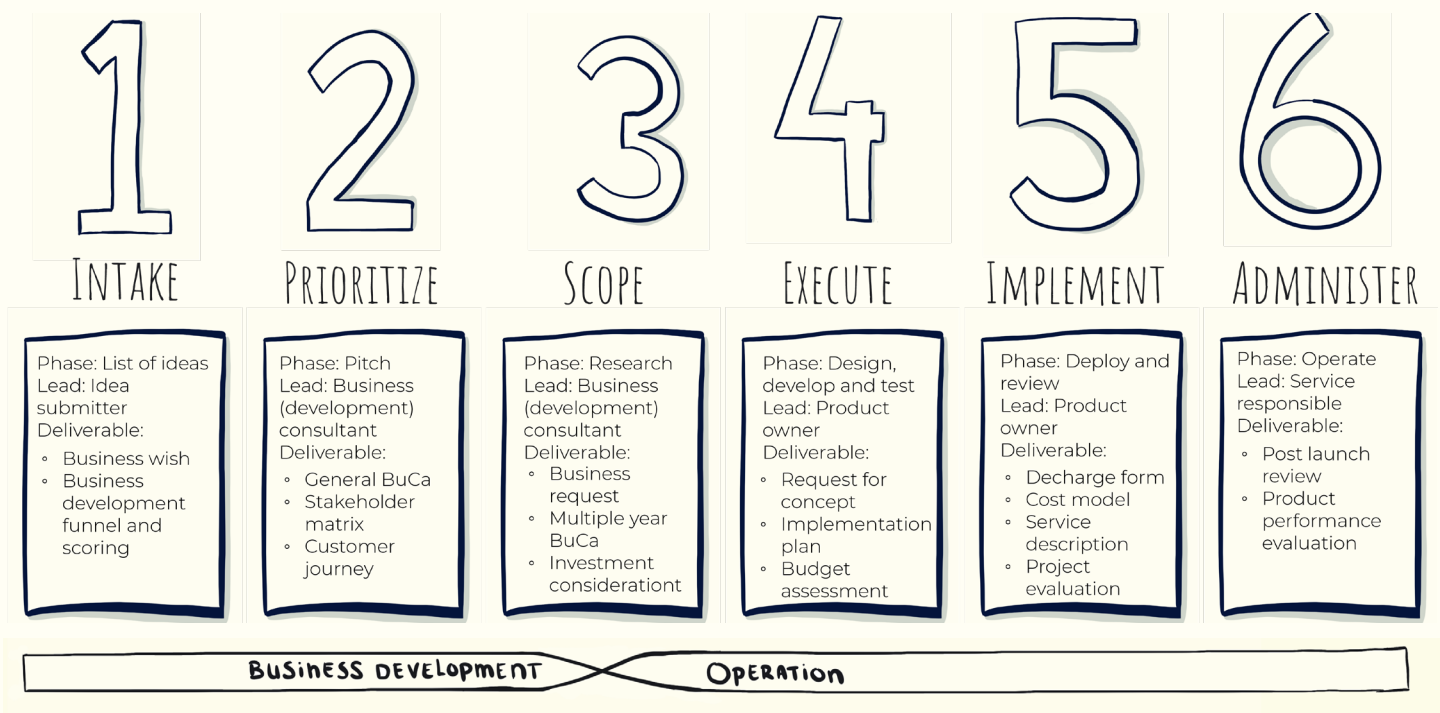


Figure 10: DICTU's Business Development Chain (BDC)

The literature (Kuruppuarachchi et al., 2002) describes the different phases of a project as initiation, requirement definition, acquisition/development, implementation, and termination, see Figure 4. When mapping the project steps from DICTU to the literature, the same steps can also be identified for the DICTU processes. See the first three columns of Table 1.

The interviews gave some additional background information, and it was mentioned that the division between the project steps is not as black and white as these models describe. Therefore, the different models are compromised into one simplified overview of three steps. See the last column in Table 1. The first step is to research the topic and the context, take the necessary preparation steps, and create a design. The second step is to realize and produce this design and develop it further when new things come to light. The third is to

deliver/implement the product to the client and wrap up the project by putting the product in administration and maintenance.

Although the general outlines of the various models tend to be the same, there are also variations in focus (both models describe different focus points and deliverables) and detailing (one describes more steps and deliverables than the other). For example, although a significant body of literature states that the implementation of a product defines the success of the product (Steiber et al., 2021), the four-phase model does not explicitly include this topic. In contrast, the BDC does mark it as an individual step. However, I believe it lacks the necessary detail to ensure a successful outcome. Another difference between the models is the focus on the user in the four-phase model compared to the focus on the business and the product in the BDC.

KURUPPUARACHCHI ET AL. (2002)	DICTU 4 PHASE MODEL	DICTU BD CHAIN	SIMPLIFIED OVERVIEW
Initiation	Strategy	Intake	Research, prepare and design
Requirements definition	Preparation	Prioritizing, scoping	
Acquisition / development	Realization	Execution	Develop and produce
Implementation	Wrap up	Implementation	Deliver / implement and wrap up
Termination		Administration	

Table 1: Different project phases literature versus DICTU

4.2 OBSERVATIONS AND PRELIMINARY INSIGHTS

In the first few weeks at DICTU, I attended various meetings to get acquainted with the company, the people, and the way of working. Based on this information and the literature, I

discovered a few common themes which share some common ground. They are described in the upcoming three sections.

4.2.1 POSITIONING

DICTU wants to partner with their clients and deliver not merely an IT building block but a complete solution or service. It is essential to consider the organization's individuals and help them change their thinking and working so the change is implemented across the organization and will sustain. To communicate and persuade the clients to trust DICTU as a partner, it is vital that the individuals in the organization deeply understand their role and company-wide positioning. Much comes down to preparing and communicating the transition and considering how the new business strategy translates toward the different parts of the organization. DICTU decided to take in an outside organization (Accenture) to help and guide them in this transition process.

Various employees voiced their concerns about the collaboration "There is enough expertise in-house, so why do we need another organization to help us?" To counter this argument, the director comments that there is much expertise in the organization already. However, bringing

all this expertise together so that DICTU can take on its role as a partner requires some extra help. This also resonated from another meeting where someone noticed that many people at DICTU partly know the project or the problem, but few know everything. From my outsider's perspective and based on the literature, I feel that there is quite some resistance, uncertainty, doubt, and anxiety to the proposed transition and Accenture because it is unclear to people what will change for them and when this change will happen.

The new business strategy and the trend of organizing a government more as a platform (Pope, 2019) require inter-organizational working and thinking. This means breaking down the silos and working more cross-departmental, which is already partly in line with DICTU's new company vision. Three essential factors to consider to realize change and work more together are understanding, trust, and commitment (Bruning & Ledingham, 2002).

4.2.2 ROLES AND RESPONSIBILITIES

The second theme concerns roles and responsibilities. At DICTU, there is a tendency to refrain from taking ownership of a particular service or task, resulting in unclarity in task division and expectations. This became clear indirectly during various meetings as there were discussions about who should take responsibility. However, it was also voiced directly with comments like, "There are a lot of

people walking around this building who are eager to help, but as soon as someone has to be responsible for something, we turn away."

Especially when transitioning towards a partner role, clarity on roles and responsibilities is vital on two levels. On an individual level, it is important to know who is responsible for what and whom you can address if there are, e.g., specific

questions on the service or plans for future development. On a second, more organizational level, it is important to clarify what you stand for and what type of service you deliver. Having clarity on the organizational-wide level will also help shape the responsibilities at the individual level. Ultimately, DICTU wants to be seen as a partner, but what does that even mean? DICTU is a so-called “full-service provider,” so they deliver what the client asks for. However, being a partner in the innovation process means considering the context and having a better overview and understanding. What can we do ourselves? What can we do together with the client? What can we let a public organization

take on? Having/creating this overview is key in fulfilling the role. Therefore this vision should be carried out in unity across the whole organization, which makes inter-organizational collaboration of such importance.

The strategic department is expected to aim the organization toward the desired future. However, other departments should give interpretation to this aim and change the way they work to reach this aim. Currently, there is no fixed plan or protocol for this, making it heavily dependent on the initiative of certain employees and prone to error.

4.2.3 CLIENT INTERACTION AND RELATIONSHIP

The third theme concerns the interaction and the relationship with the client. Various meetings with DICTU’s clients (RVO/NVWA) showed me they are open to working with DICTU. However, it currently takes up too much time and money where especially in innovation processes, efficiency and effectiveness are required. Statements like “DICTU is inflexible” and “DICTU is a very bureaucratic organization, so getting a reply to a simple question, takes a long time” are heard regularly. This results in clients who arrange experiments with new technologies internally and only turn to DICTU when a pilot proves successful. This means that DICTU is often presented with a rather technical request, as the client already figures out what the product should be able to do. Leaving little room for DICTU to think along on what the best solution can be to solve the problem their clients have. This automatically puts DICTU in a

position where they cannot take the partner role but merely execute an order. This puts DICTU’s current position at quite some risk as there is a threat that DICTU does not change quickly enough and might become redundant.

From my observations, DICTU tends to talk about its clients instead of with them. Additionally, clients voice their discontent about DICTU not being proactive, professional, and lacking flexibility. Clients voice their concerns by saying, “We want to work together, but we are faster when we work independently.” As previously described, the basis for this is that a good relationship requires understanding, trust, and commitment (Bruning & Ledingham, 2002). This observation shows that there is little understanding and trust between the different parties.

INTERMEZZO #5: WORKING PROCESS

Although the three steps identified in Section 4.1 DICTU’s way of working give a good overview of what happens in the DICTU context, there is a step before this. As determined in the previous sections, an innovation project often does not start at DICTU but at their clients. In this phase, organizations like RVO and NVWA follow their

innovation process in which they research and perform their pilots/experiments. Only when such steps are considered fruitful or present opportunity is it communicated to DICTU. So, prior to steps one, two, and three, step zero takes place outside DICTU. This process is depicted in Figure 11.

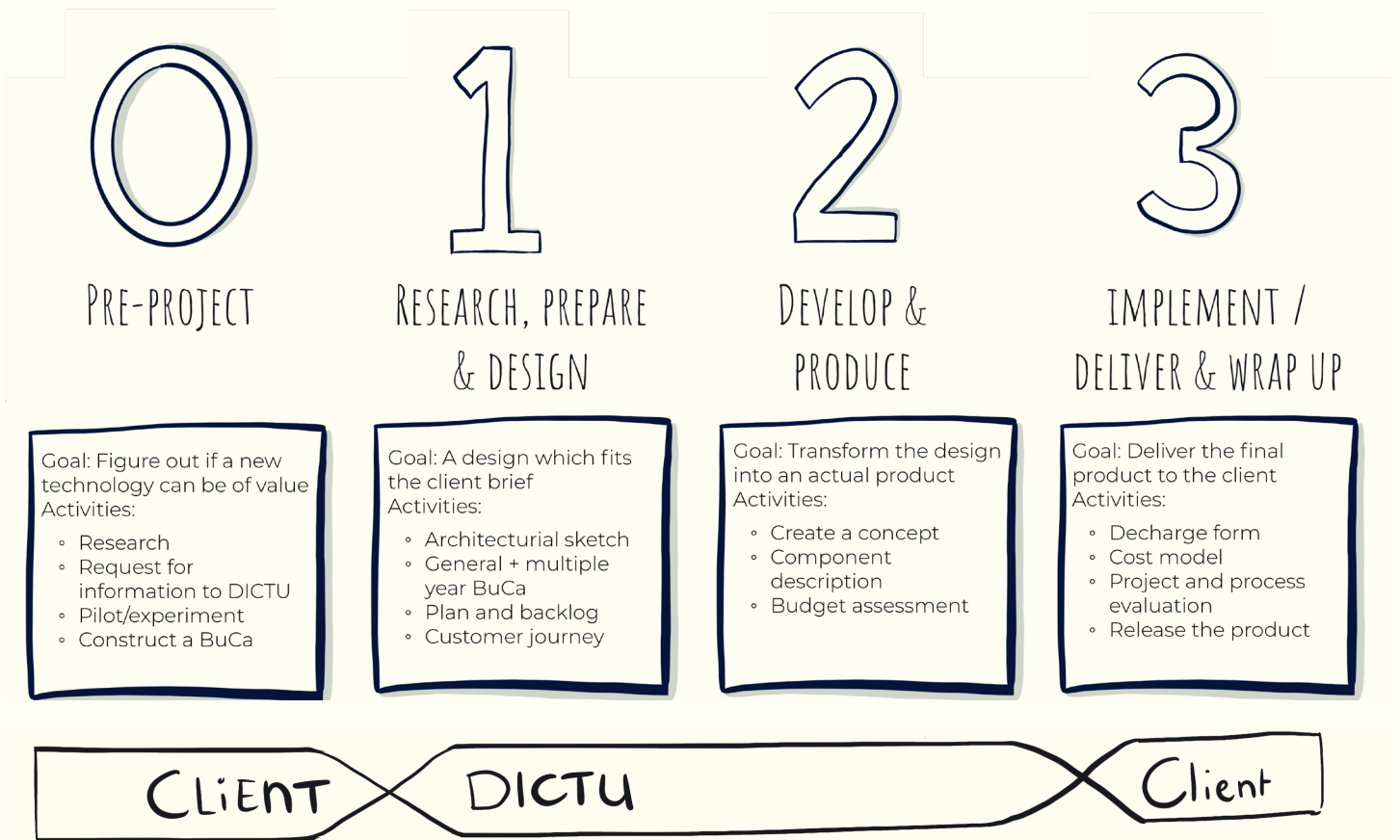


Figure 11: Synthesized overview of the four general steps in the process of generating and realizing an innovation

Whereas I thought that my framework and tool would be specific to the DICTU context, I now realize that DICTU is a supplier in a more extensive environment. This means that only trying to understand the DICTU context is not sufficient, as it could well be that an additional interaction somewhere in the more extensive environment is even more valuable. Therefore,

I expand the problem space by considering the innovation process at DICTU and looking at where the innovation starts, namely at the implementing agencies (RVO/NVWA). This also has consequences for the tool I will develop, as there are now more possible intervention moments, more actors, and more interests involved.

4.3 STAKEHOLDER MAP

The goal of a stakeholder map is to get a better understanding of the various stakeholders and their relations to each other. This is done by creating a visual overview of the key stakeholders, by classifying them into various categories (e.g., if they are primary, secondary, or tertiary stakeholders), showing if they are inside or outside the organization, and indicating their relation to each other (Mural, 2023).

Creating a stakeholder map of the innovation projects run at DICTU gives a clear overview of the different parties involved. It helps to

identify relevant parties to interview to acquire contextual information on the previously described problem. In the current situation, the different stakeholders can be classified on their input level to the final design (high, medium, low, affected by the product/service), see Figure 12.

The map shows that the product owner (DICTU), developers (DICTU), and the client (RVO/NVWA) are the most significant in creating the product. The client is influenced by their innovation department, which considers the wishes and

needs of the end user, which are partly shaped by the people affected by the design, namely the citizens. On the other hand, the developing party is directly linked to the suppliers of specific IT components, as they depend on what they can deliver to create the final product/service eventually. The relation manager provides low input for the design to the manufacturers as they can voice what their (potential) clients value. This view is shaped by other players in the market who can offer similar solutions.

This schematic overview reveals no direct link between the product owner (DICTU) and the end user or the people affected by the product/service. From a designer's point of view, this is

odd as the end user is often central in designing and developing a new product/tool/service. They will need to be able to work with or use a product/service; therefore, what they think, need, wish, or consider a pain point, is valuable information. As the innovation process is dissected, their needs travel across the silos and are translated via the innovation department to the client's brief.

To learn more about the innovation process and how DICTU can design products/services for a context they do not work themselves in, I deem it valuable to interview the product owner (DICTU), the client (RVO/NVWA), and the innovation department (RVO/NVWA).

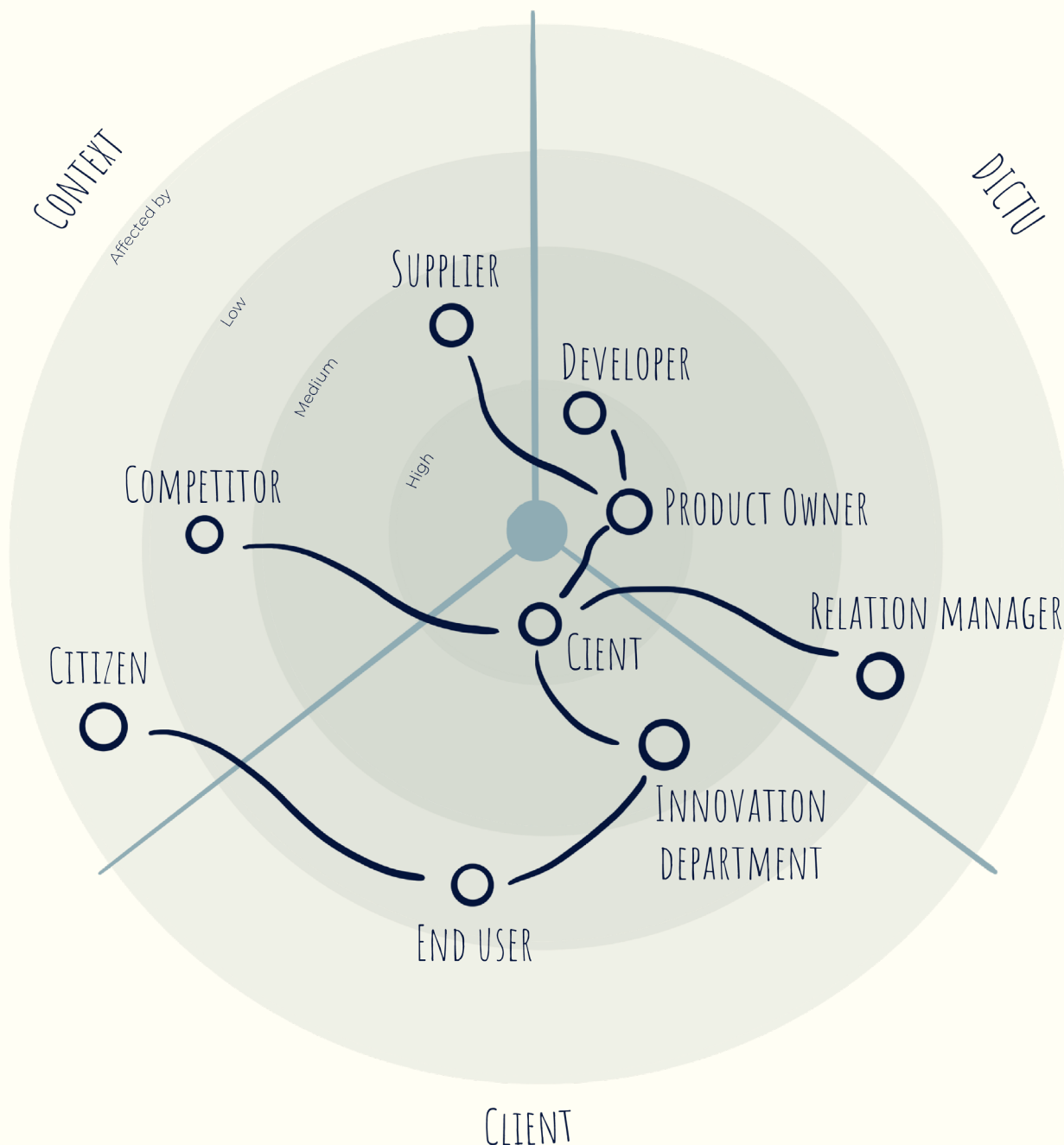


Figure 12: Schematic overview of the different stakeholders in the innovation process

INTERMEZZO #6: DIFFERENT STARTING POINTS

By creating a stakeholder map and looking at various project processes within DICTU, an innovation project in this ecosystem does not start simultaneously for the different stakeholders. Because DICTU is the supplier of IT components, they are not involved in the design phase of the final product, which means that they can only react to a project rather than help set up the project.

From a design point of view, this late involvement of DICTU is striking, as I expect early stakeholder involvement from all concerned parties. Regarding this project, I initially thought my additional interaction would be placed in the DICTU context. However, as this is not where the innovation project starts, adding something

to this context might not be significant enough. Therefore, I suspect that my proposed design solution will forge/structure interaction in the context of the client so, before DICTU officially accepts the project.

However, this does raise the challenge of operating in a foreign context. If the solution could be implemented in DICTU's context, DICTU can build on its own and pre-existing processes. It now becomes more reliant on the client's willingness and acceptance to integrate something new in their context. This influences the problem space as it now becomes broader compared to the initial problem space in which I thought the problem (and solution) would fit entirely in the DICTU context.

“FROM A DESIGN POINT OF VIEW, THIS LATE INVOLVEMENT OF DICTU IS STRIKING, AS I EXPECT EARLY STAKEHOLDER INVOLVEMENT FROM ALL CONCERNED PARTIES.”

4.4 INTERVIEWS

The project that is used for the case study is Robotic Process Automation (RPA). This technology is used to automate a particular task. Especially low-complex, labor-intensive, and repeating tasks are ideal to automate. This often leads to higher accuracy, lower costs, and less time spent executing the task. The entire project is depicted in Figure 13 but follows the same steps as in Figure 11. It starts with the pre-project (step 0), when in 2019, RVO and NVWA saw the possible benefits of RPA to their organization and decided to experiment with this technology. After piloting with KPMG to create a Proof of Concept (PoC) in 2019, they turned to DICTU to request to build the infrastructure (a platform) on which RVO and NVWA could build their robots. DICTU was also experimenting with the

technology for its organization and created a project after receiving the request to build the platform.

When the project reached DICTU, the preparation phase (step 1) started and consisted of mobilizing the organization, hiring developers to build the platform, and setting up a core team to gather feedback on the various iterations. Via weekly core team meetings, the platform's status was shared, questions were asked, and the design was refined along the way (step 2). In January 2022, the platform was finished, and the robots were migrated. Currently, the platform is considered a service to DICTU's clients. It is adequately maintained and further developed based on feedback and new software

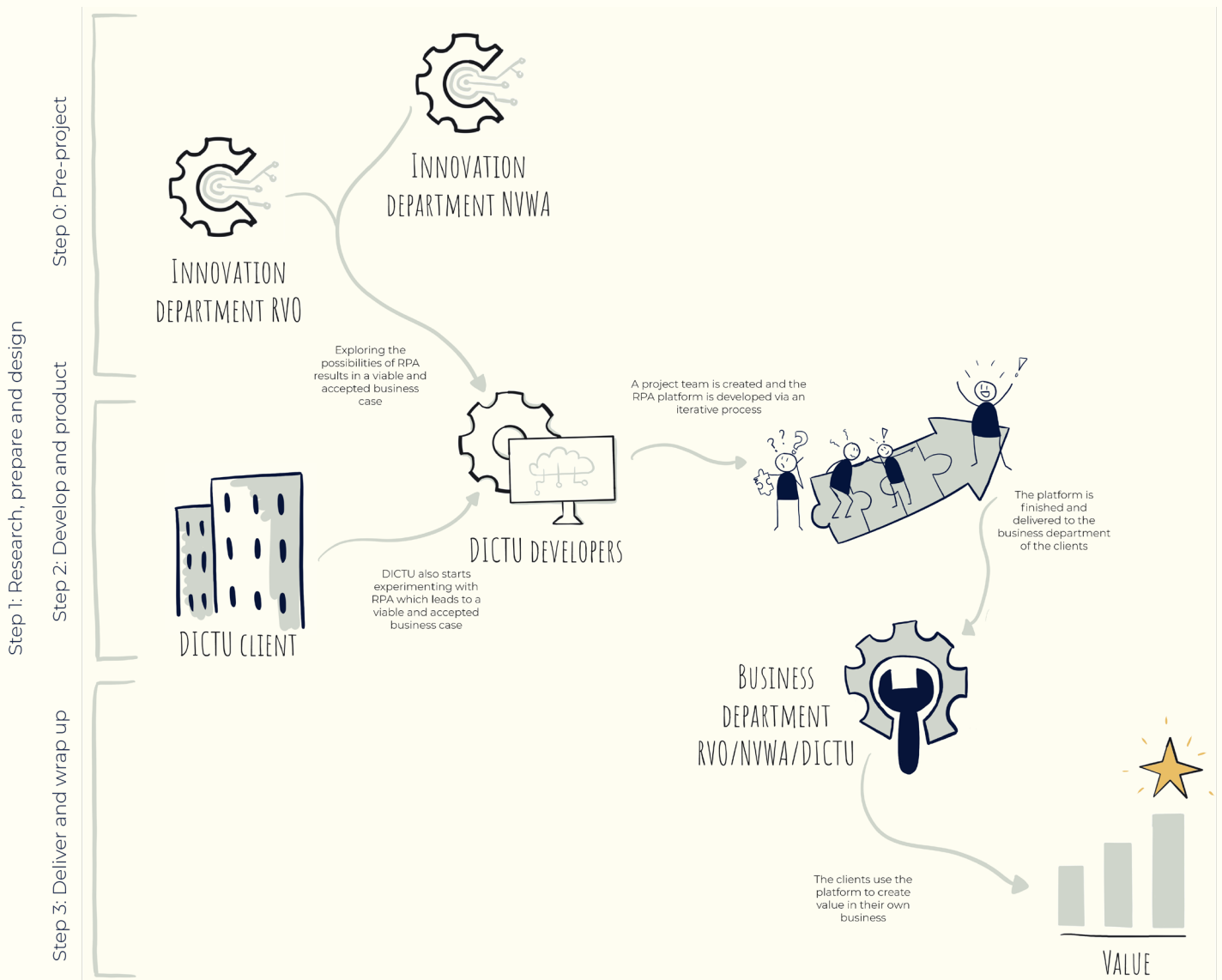


Figure 13: Schematic overview of the Robotic Process Automation (RPA) project

updates (step 3). This technology was new for both the clients and DICTU, so that it can be seen as an innovation process. It was only apparent that there was value in using robots to execute specific processes. However, it needed to be clarified how this technology would be used in the organizations. The most important parties contributing to realizing this project are the

development team (DICTU as the supplier) and the clients (DICTU, RVO, and NVWA). This aligns with the innovation process overview in Figure 2; see Chapter 1. Context. I conducted interviews in each of these directions to learn more from the various perspectives of the actors involved in this process.

4.4.1 INTERVIEW DICTU SUPPLIER

Based on the interview with the DICTU-supplier party for RPA-aaS, the following timeline can be constructed, see Figure 14.

In 2019 DICTU received a wish from their own business to automate a process requiring much manual labor. At that time, it was impossible to automate that process as the available

application did not have the proper functionality. This raised the question of developing a new platform from which specific processes could be automated. DICTU's regular clients (RVO and NVWA) were also experimenting with building robots to automate certain processes to increase efficiency. As a supplier of IT solutions to their clients, DICTU created one general platform that

would apply to all three clients (core team: RVO, NVWA, and DICTU).

The DICTU supplier team did internal brainstorming to create a list of functional requirements, and they challenged these with the core team from which a final set of requirements was composed. “We then presented and discussed the requirements, which led to adjustments based on the client’s wish.” This method was chosen because the clients were also new to the software, making it difficult to ask them what they wanted. So, the service was first considered from a manufacturing and supplier point of view and used that information and expertise to make a draft or rough outline before challenging and validating this with the client. This validation step was considered very important because “... if the client says, ‘we want to have it differently,’ and you do not do it, there is a high chance that you invest time and money into building the platform, but the client does not accept it.”

The platform is built in several steps and validated in regular core team meetings. For the migration phase, a fixed protocol was used, and the timespan was discussed with the clients beforehand to ensure high continuity of day-to-day business. The plan was visualized in a PowerPoint presentation and presented in the core team meetings. As the moment of migration neared, steps were made more concrete to see what parts needed more attention. “Then you make it very concrete to see where the gaps are, those cases you discuss with the client to say, ‘this is the way we can

migrate.” It was said that when the project progresses, at some point the migration period becomes more fixed. “Then you slowly start generating and composing the plan, which becomes more fixed when you reach the migration date.”

One crucial lesson drawn by DICTU from this project is to gather various experts in one group as early as possible when a problem arises. This makes it easier to figure out the core problem and construct and validate the solution. This already shows the value of stakeholder involvement in practice.

In line with the stakeholder map, from this interview, it becomes clear that DICTU indirectly receives the needs and wishes of the end user via their client. This construct is because DICTU has insufficient knowledge of the organization and business of the client to know or find the right end users to talk to. As was said, “That would not add value as I do not know the client’s internal organization.”

However, at the end of the project, the NVWA concluded that it was too difficult for them to create their robots on the platform, so they instead hired DICTU to do this for them. What it is like to work on the platform and create the organization’s robots has been communicated and explained throughout the project; however, “it is not the case that we said at the beginning of the project, ‘this is not going to work out for you guys.’” However, throughout the project, you wonder if they will pick up the pace necessary for working with RPA.”

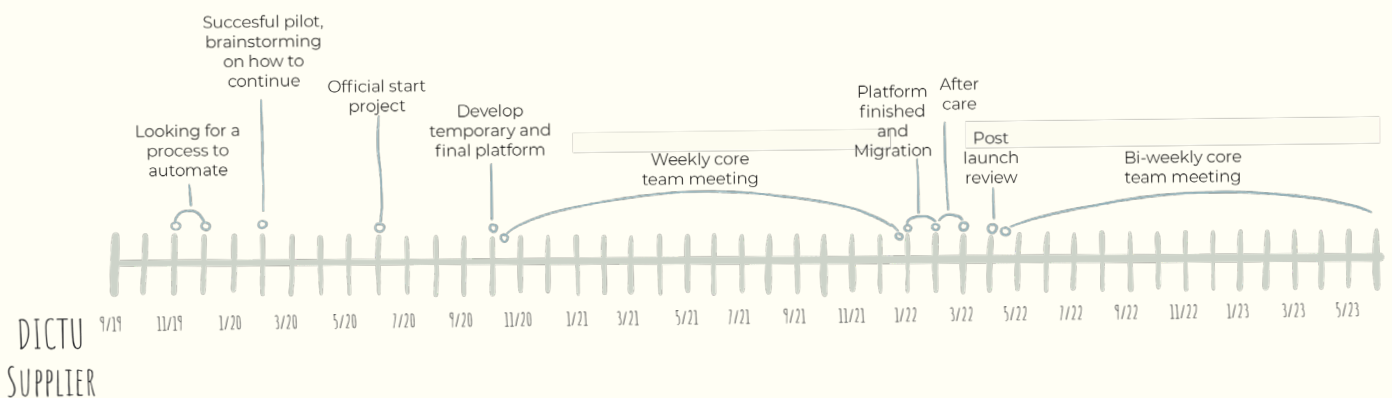


Figure 14: Timeline RPA-aas project from the DICTU supplier point of view

In hindsight, this situation could have been foreseen by more actively considering the implementation and adoption phase at the start of the project. This belief is grounded on the theory that by facilitating front-loading, design,

and manufacturing problems are earlier on identified and the costs (in resources and time) to fix these problems will be less compared to finding out these problems at a later stage in the project (Thomke & Fujimoto, 2000).

4.4.2 INTERVIEW DICTU CLIENT

Based on the interview with the DICTU-client party for RPA-aaS, the following timeline can be constructed, see Figure 15. The DICTU manufacturing team was looking for an internal process that required much manual labor to automate with RPA. When a suitable process was found, it took a while to figure out the assignment and procurement process. After this, an experiment of eight weeks started, which had the positive outcome that it appeared to be relatively easy to build a robot and automate a process.

In the meantime, the DICTU client paid another ministry a visit who was already working with RPA, from which they learned that “it does not result in fewer employees but instead to an increase in quality and more time for people to other work.” It made them even more enthusiastic. However, as the pilot robot already took on some work from the business, there was a wish to let the temporary platform (on which the pilot robot was built) exist. This caused some disturbance at DICTU as the technology and product were new, so providing the correct administration took some time.

Throughout the development process, the DICTU client and supplier gave various presentations to the management teams to inform them of

the technology and the developments. It was proposed that being transparent and informing higher management would help rule in favor of the RPA development team. Furthermore, this same transparency played a considerable part in realizing the development of the final platform as it is. “I think that because of that [transparency], there now is a platform which is highly accepted by us, the RVO, and the NVWA.”

Overall, the DICTU client is very satisfied with the final product. However, the application of the final product is not quite as expected. During the first pilot and the sales pitch, it was communicated (by the software supplier) how easy it is to develop and build a robot and how it makes the organization run more efficiently. Only when the platform was released did the DICTU client learn that working with it and building robots is more complex than anticipated. “In hindsight, it is logical that the pilot was so successful because we put three developers on it full-time for eight weeks.”

Again, in hindsight, this situation could have been managed differently by actively considering the implementation and adoption of the platform and technology in the organization at the start of the project by facilitating front-loading (Thomke & Fujimoto, 2000).

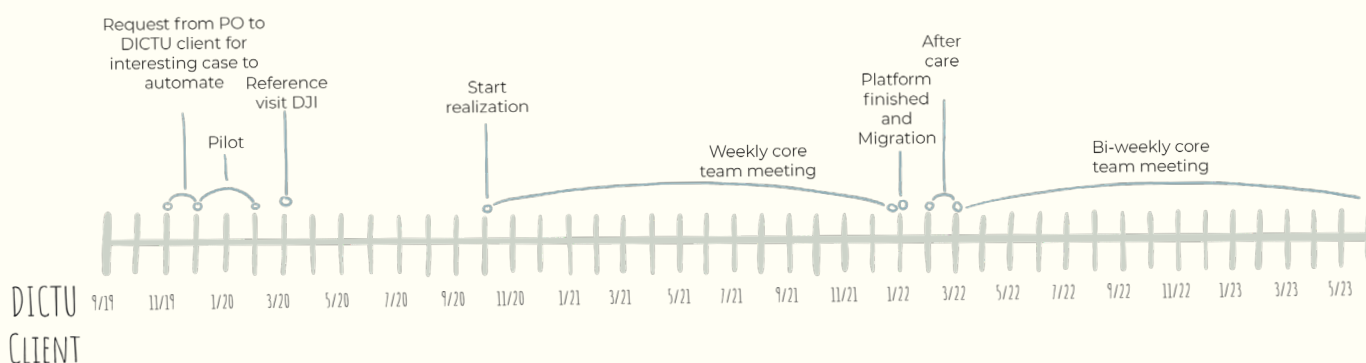


Figure 15: Timeline RPA-aaS project from the DICTU client point of view

4.4.3 INTERVIEW RVO CLIENT

4.4.3.1 INNOVATION DEPARTMENT RVO

RVO aims to innovate as they notice the world changing and to execute policies created by various ministries successfully; it is essential to experiment and leverage technologies to operate in this world. For this, they founded their internal innovation department in which they try to find proper solutions that solve the problems their clients face. "We need to have one central place to check if an idea, which can be good nonetheless, solves a problem in the first place and see if it also targets the most urgent problem." RVO identifies five steps in its innovation process; the first is researching the problem space from which you create an idea. Then you create a prototype, validate the prototype, and finally implement the product. The innovation department focuses on the first four steps, after which a business case is constructed. A supplier is contacted to realize and deliver the product if the business case is accepted. This party is often already involved in the fourth step (validation) to gather input from a technical and architectural point of view. The reason to involve DICTU in this step is to ensure the proposed product will also work in its infrastructure. It was mentioned that RVO can and wants to do a lot in-house or hire an external organization to deliver the technology they seek; however, they are bound to the DICTU infrastructure. This results in an, to RVO, undesirable truck system between RVO and DICTU. However, it is difficult to go from a validated design to producing the product "... to take the step from innovation to executing needs to happen more. It has nothing to do with the

technology; it is attitude and behavior."

For RVO, the RPA project started with two people from KPMG who gave a presentation to the CIO of RVO. They saw potential in this technology and directed it to the innovation department. Experiments and pilots had to be conducted to further experiment with RPA and see how it could be of value to RVO. For this, a software environment was necessary. DICTU would ideally arrange this, but this was impossible as DICTU was looking for a technical request rather than a functional one. "So, I had to deliver a technical request to DICTU stating what type of product I would want, but I do not know what I want. I know the technology exists, but I do not know what I want." To bypass this, RVO decided to publish a public call for tender to find a software supplier who can deliver a complete software package with two consultants who can experiment with RPA and create robots for them. Eventually, during the pilot, the software needed to communicate with DICTU applications. As DICTU was administering these applications, their help was needed to realize this. This involvement originated from a practical point of view. "So in that phase of the project, DICTU was involved. Not in the phase in which we brainstormed if and how RPA could mean something for us." Following this path, it made that no one at RVO him/herself worked with the RPA software. However, the results were promising, so it was decided to investigate further the necessary steps to realize RPA.

4.4.3.2 CLIENT RVO

Based on the interview with the RVO-client party for RPA-aaS, the following timeline can be constructed, see Figure 16. After the successful pilot with KPMG, it took quite some time before the business case was approved at RVO, and the

project was officially started with DICTU. In the meantime, RVO formed a team who could work with RPA and received support from KPMG to train their employees. With intermediate steps, the platform was built and delivered over 1.5

years. One reason for this slow development was that the internal organization of DICTU needed to be more experienced with RPA, which made certain types of policy challenging to execute. For example, certain policy states that a person should execute an action; a robot is not a person, so the policy does not work in this case. This caused a delay which led to frustration "... if they were an external party, I would have terminated the contract. Moreover, I actually did investigate the possibilities to create an environment to make the robots in without DICTU's help." These internal procedures that DICTU must follow often result in a slower pace than desired for the projects.

Throughout the project, RVO went to two other organizations for inspiration and knowledge on RPA. It also allowed room to see how this technology works in practice and learn from others' mistakes. On the one hand, this was seen as valuable as it gave some insight into how to work and apply RPA in the business. It helps to see new possibilities; "It is always good to get your inspiration for these types of technology from other organizations." On the other hand, it helped transition from thinking about how RPA could be used to shed some light on some practical matters. How and what type of

specifications are necessary when you build a robot? What types of applications and actions are suitable to automate? What preconditions must you consider?

Before the delivery and implementation of RPA at RVO, the RPA team informed the organization of the value and application of the technology. High management support was seen as a great help in accepting the technology. "I went to top management and gave a presentation about RPA, nothing too technical, but they must know what it is and why it is important."

Since the platform has been delivered to RVO to optimize their business, "We mainly focus on the internal RVO client to see if there are still interesting and potential robot ideas that we can realize." Every other week the core team still has meetings to discuss further developments and discuss operational topics. Other than that, there is little interaction between RVO and DICTU about RPA. This is an advantage as it allows RVO to move more quickly and with fewer parties per transaction. "When the RVO team can do everything in-house, you do not have the formal handoffs you do have with a client-supplier relationship."

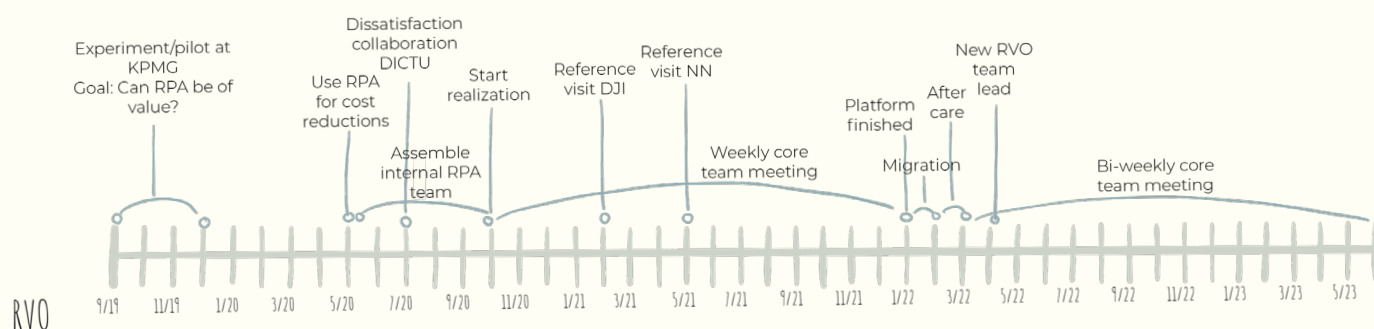


Figure 16: Timeline RPA-aas project from the RVO client point of view

4.4.4 INTERVIEW NVWA CLIENT

4.4.4.1 INNOVATION DEPARTMENT NVWA

Five years ago, the NVWA appointed an innovation manager to create an internal department that focuses on innovation and ensures that the NVWA stays relevant to their

business. This can be either an inspector or a lawyer. They created their innovation process. The first step is the intake, which the innovation department tries to make as low a threshold as

possible. They do this to capture as many ideas as possible and to mitigate the risk of missing brilliant ideas. The next step is to gather more information on the problem and solution. This can be done by observing someone on his/her day job, talking to someone, or researching. From this, a design or prototype is created and tested against some ethical and architectural criteria. After this, a decision is made on whether to continue the project. Once decided to continue the project, other parties (e.g., DICTU) are considered to help in the realization. NVWA deliberately does not involve DICTU during the design and prototyping process as “from experience, we learned not to ask them. With DICTU, you have the standard answer of ‘we cannot, we should not, and we do not.’” This also concerns the fact that DICTU requires a

specific question before they can undertake action. However, the request and end goal are often unclear, especially in an innovation project. Therefore, the NVWA is inclined to contact DICTU in the experimentation phase of innovation.

For the NVWA, the RPA project started with a question from their business to turn a physical inspection into a digital one. This process was perfect for automating as it had a lot of repetitive steps. Together with KPMG, this pilot was realized, and a viable business case was written and approved. As the final product should run on the Cloud Workplace (a cyber secure online workspace administrated by DICTU), the final product had to be created by DICTU.

4.4.4.2 NVWA CLIENT

Based on the interview with the NVWA-client party for RPA-asS, the following timeline can be constructed, see Figure 17.

From the successful pilot, NVWA contacted DICTU to start a project officially. The project was initially set up to develop an NVWA-specific platform. Later, the project scope was broadened by DICTU to create one generic platform for the NVWA, RVO, and DICTU (client). However, this was not clearly stated but relatively smoothly interwoven in their meetings. “In my conversations with DICTU, it slowly became clear that a specific platform was inconvenient, and we would also benefit from a collaborative solution.” A shared solution/platform is often beneficial for clients as they can then split the costs for the development. Once the project was officially transformed from specific to generic, a core team was assembled to discuss requirements. The NVWA could take their initial requirements with them to these meetings and continue the design process with the other core team members.

During the developing period, DICTU hosted two sessions for the NVWA to educate their

employees to work with the platform and create their own robots. After 1.5 years, the final platform was released and migrated, and a period for extra monitoring and aftercare was set up. However, the NVWA quickly realized that creating their own robots is difficult “... gradually we learned that we aren’t robot builders. We don’t have people with these skills and don’t want to.” A few months after the go-live moment, the NVWA and DICTU reached an arrangement in which DICTU builds the robots for the NVWA.

In hindsight, it is remarkable that the NVWA creates a formal request to DICTU to create a product they can eventually not work with. By realizing the implications of the new product and what it requires of the business, a more deliberate choice could have been made for this project. It could have led to a better training program or not even partaking in the design and development of the platform and only asking DICTU to develop robots for them. Therefore, if the implementation and adoption of the platform were considered more actively, this could have led to a different decision.

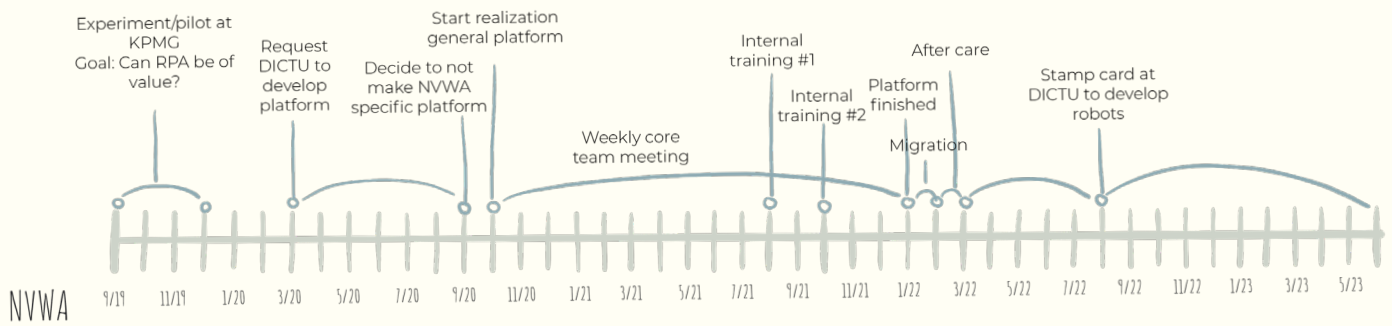


Figure 17: Timeline RPA-aaS project from the NVWA client point of view

INTERMEZZO #7: CLIENT SYSTEM

I spoke with the heads of the innovation department of RVO and NVWA. From this, I got the crucial insight that the client I depicted in Figure 2, Section 1.1.1 Ecosystem, does not reflect the actual situation properly. I came to see that the client is more of a client system which also consists of different departments and divisions. This makes the innovation process even more complex and sequential than I thought. I came to see that an innovation project starts at the innovation department when they either receive an idea from their own business, come across a new technology (application), change in the environment, or other influencing factors. From this, an iterative project is conducted, which follows the Design Thinking principle. The result is a business case, and once approved, a project team within the organization is found to realize and scale the innovation. Only when RVO/NVWA needs DICTU for assistance/support in the realization phase is DICTU involved in the innovation process. As many applications work in an IT environment created by DICTU, it sometimes happens that DICTU must enable a specific feature such that the pilot/experimenting phase at RVO/NVWA can take place, hence the dashed line. The schematic overview of this process is depicted in Figure 18.

Again, from a design point of view, it is striking that so many different teams and transition moments result in discontinuity and a prolonged trajectory. There is no moment for the stakeholders to combine the different perspectives, limitations, and obstacles and

create a uniform language on the problem and solution. This creates a feeling of a broken innovation process.

Furthermore, an innovation process can start from the business when, e.g., a co-worker has an idea on how to improve a certain process or use a new type of technology. (S)He submits the proposal to the innovation department, and together the exploration phase is started, from which the business case is created. Once the case is approved, a project team is formed to realize and scale the solution. This can be, but not necessarily, in the same department where the problem/idea was posed.

Again, from a design point of view, it is striking that the people who should realize and scale the final product (project team) do not seem to be in contact with the context in which the product will eventually work. As the two teams consist of different people, transitioning from the experimentation phase to the actual project feels like a hard transition. Therefore, I would say that the solution should facilitate an interaction in which a common language is established between all stakeholders within this innovation process. This aligns with research on the interface of New Product Development and Production (Smulders et al., 2002; Smulders, 2006) in which the transition between design and volume production is investigated to create a smooth transition. It is found that the employees at the different departments, also have different mental models from which they

view a task. By interacting, these different mental models are synchronized. It is said that “the actors synchronize their individual mental models in such a way that some new knowledge or insight is developed that forms a

compromise between the two mental models. This new insight or new knowledge draws the incongruous mental models together.” (Smulders, 2006).

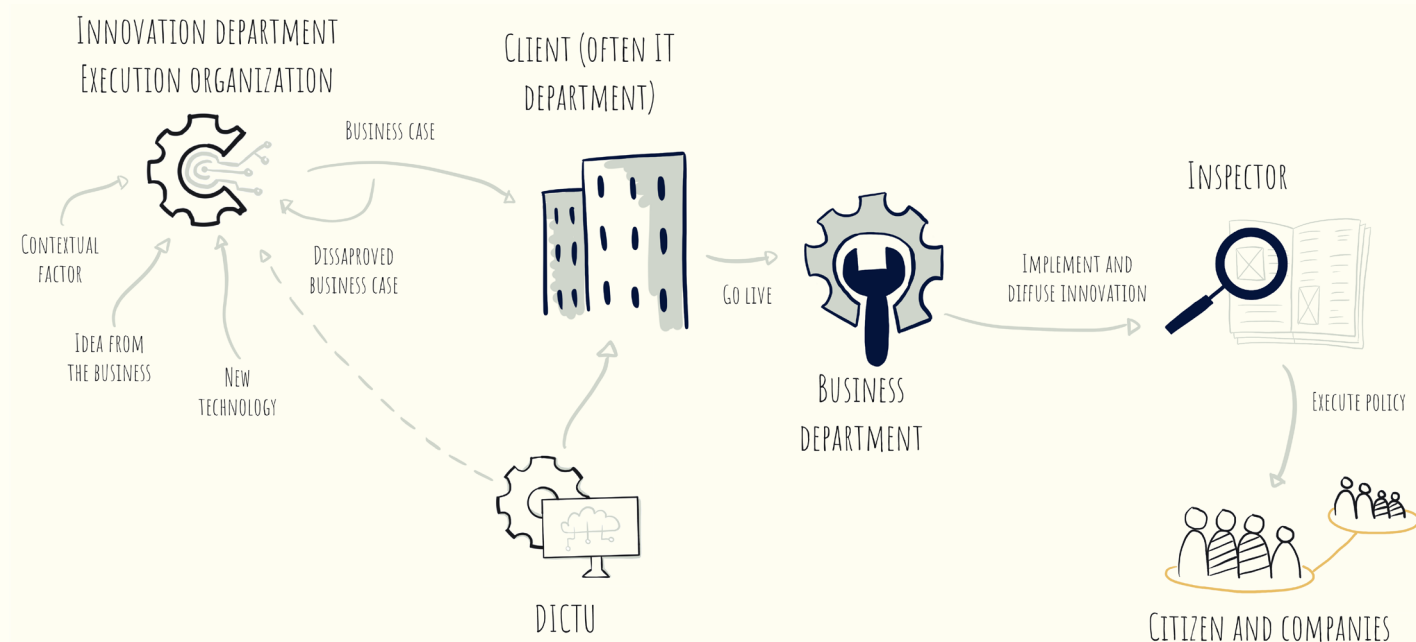


Figure 18: Schematic overview of the current situation with the involved parties in the innovation process

4.5 SYNTHESIS FIELD RESEARCH

Based on the interviews and the field research, it becomes clear that DICTU must design and develop a solution for a problem they are not familiar with. They often create a good product based on the brief they receive from the client, in which they follow an iterative process to have room for additional findings and feedback. However, as the client is also relatively far removed from the context in which the product will be placed and was not involved in the experimentation phase in which the product was created, it is challenging to create a good product and the right one to solve the problem. Therefore, the proposed tool should help bridge the gap between the various stakeholders and create a common language on the problem and the solution.

These insights point towards an additional interaction at the start of the innovation process such that DICTU is involved in the innovation development and is close to the context in

which their product will eventually be used. This means I propose that there could be value in including DICTU (as the supplier) in the process in which the clients construct their requests based on the need of the user/context. This can help both organizations (DICTU and their client) understand the underlying need and, thus, what a solution can be. However, there is little knowledge (both in the literature and at DICTU) on what such a process should look like and when inter/intra-organizational interaction is needed between the different actors. By creating a schematic overview to capture the current design, development, and implementation process in this context, I can further investigate when a designerly intervention or addition is necessary/beneficial.

The upcoming section will explore these directions in more detail, which serves as input for creating the tool.

5. DESIGNERLY INTERACTION

At the start of this report (Figure 2, section 1.1.1 Ecosystem), a concise overview of the innovation process is presented. Based on the literature, interviews, analyses, and field research, the schematic overview can be recreated to

give a detailed overview of the process, the stakeholders involved, and where there is an interaction between the different parties, see Figure 19.

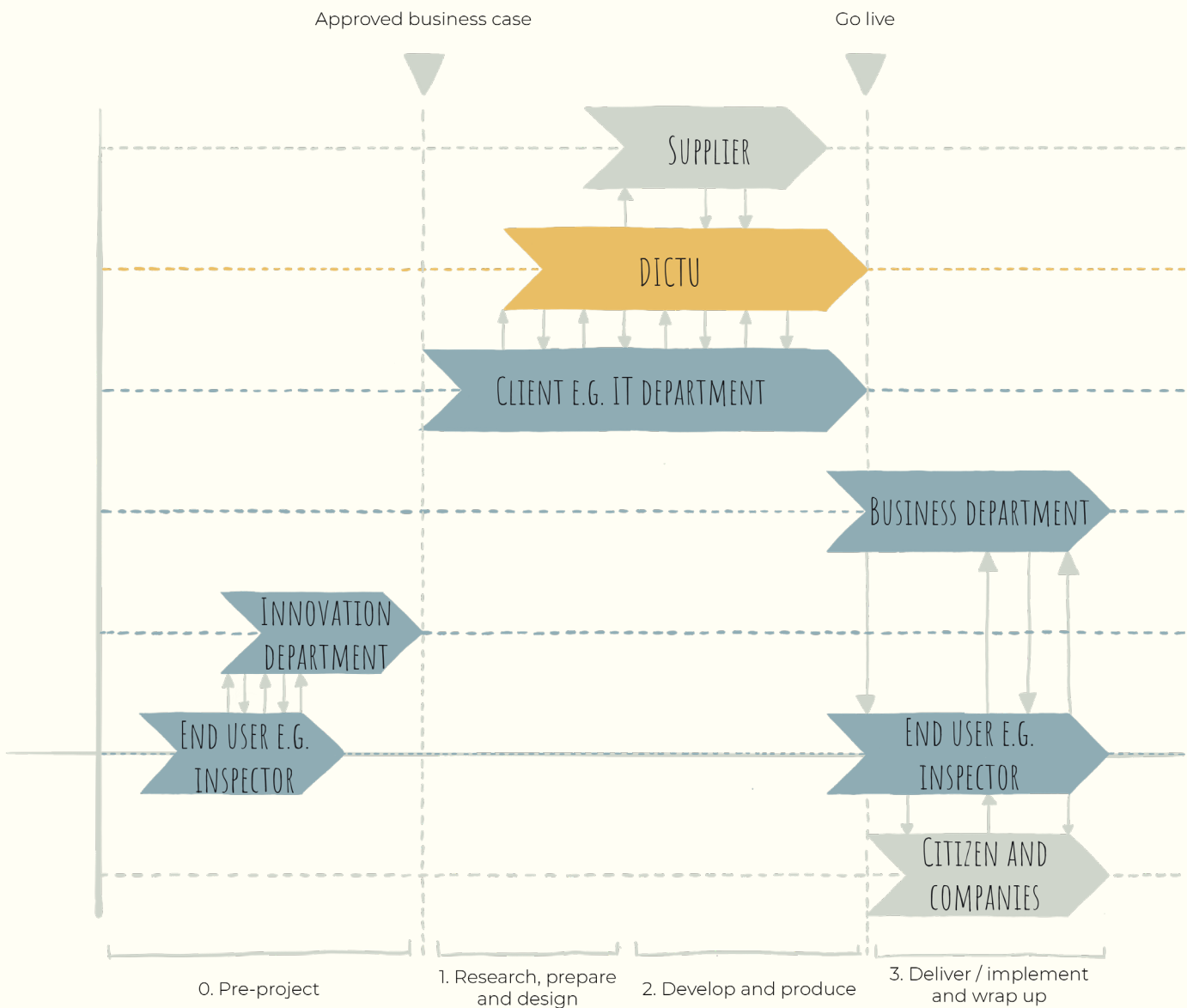


Figure 19: Innovation process overview of stakeholders and important activities

Section 3.1 Innovation literature, presents the working definition of innovation: Innovation is the dynamic and iterative process of the generation, designing, and execution of a new product/process up until the integration of this novelty in an individual's practice, which leads to a change in the environment. A few crucial points become apparent when critically analyzing the process depicted in Figure 19 from the working definition perspective.

First, the figure shows no direct interaction between the developer (DICTU) and the end user (e.g., RVO developers and inspector). This results in a properly designed product by DICTU, but not a product that necessarily solves the problem. As the information channel is broken down into separate parts and spread over different departments, DICTU only receives the transferred message via their client. The message is prone to various interpretations by

spreading the information and might not reflect the context correctly. In other words, DICTU is very far removed from where the actual problem occurs or where the final product should find its place in the organization. Making it a broken innovation process, whereas the working definition clearly states the importance of examining the context. There is no connection between DICTU and the context; the client is far removed from the actual context and the place where people will work with the solution. From a given brief or signed offer, the project is started, and the solution is designed, developed, and iterated over time. This often results in a product that fits the design brief but only sometimes solves the problem.

Second, as the problem and solution are passed over to various stakeholders and organizations before it even reaches DICTU, it is difficult to grasp the whole meaning and implications of the project as much relies on interpretation. It can be said that this resembles a design problem, which is “ill-defined, ill-structured, or ‘wicked.’ They are not the same as the ‘puzzles’ that scientists, mathematicians, and other scholars set themselves.” The innovation process in this context is sequential and almost linear, where there is great value in evolving the problem and solution more dynamically

and iteratively. As the working definition states, “Innovation is the dynamic and iterative process ...” Therefore, it seems that DICTU and the other partners in the ecosystem found themselves with a design problem. To cope with an ill-defined problem, one must learn (and have the confidence) to define, redefine, and change the problem in the light of the solution (Cross, 1982). Therefore, the tool to be designed will have the goal of helping DICTU (and the other partners in the ecosystem) create a structure to help them navigate through this design problem and create a good product and the right one. The tool is at the heart of design, combining the exploration and evolution of the problem and solution space.

This chapter will further explore the value of design in an innovation process from which the tool is created. Section 5.1 will explore the value of design in this process in more detail. Section 5.2 analyses various options for additional interaction to influence the innovation and implementation process positively. Section 5.3 investigates various challenges based on the literature and observations, which serve as input for the design of the final tool, which is presented in Section 5.4. The tool is evaluated in Section 5.5, and Section 5.6 describes how the tool should be applied and implemented.

5.1 VALUE OF DESIGN

When considering the entire innovation process over time, see Figure 19, I can already see traces of this designerly way of working as they work with iterations and design sprints to be more flexible. DICTU values the client’s wishes and integrates their feedback into better products/services through an agile working method. However, agile working focuses on finding a solution to the predefined problem. This leaves the problem space relatively untouched, whereas this is exactly where the product should eventually find its place to make the innovation effective. Design Thinking, on the other hand, does focus on creating a better understanding of the problem by including empathy for the user

to create a profound understanding of their way of working, pain points, needs, and obstacles. Design Thinking tries to understand the problem, whereas agile focuses more on the solution. In other words, “Agile is a way of working/planning and design thinking is a way of finding out the answer to a certain hypothesis to know what to build. It can live inside of the agile planning framework.” (Hotjar, 2022)

As DICTU is already trying to work agile, it shows that they are open to iterate, learning from their clients, and adjusting the design on the go. It shows they are open to letting the solution evolve throughout the process.

Therefore, it is probable that they are also open to iterating on the problem space so that they design not only a good product but also the right one. If DICTU understands the context, it can improve the design and help prepare the client to organize and execute the implementation of the product.

Various methods, principles, frameworks, and tools can be used to work more designerly. An example is to create a profound understanding of the customers'/users' (unmet) needs. This can be done by engaging users throughout the design and development process. It is proven that the risks and uncertainties linked to innovation processes are minimized, allowing the design team to gather first-hand data about the context they are creating a product for (Naiman, 2021). Design Thinking is a popular

and well-known method that teams can use to understand their users, challenge various assumptions, redefine and reframe problems and create innovative and creative solutions to prototype and test (Siang, 2022). An important prerequisite for using Design Thinking as a designerly approach is that the designers should be open to seeing it as a non-linear and iterative process. In which one constantly reflects on the outcomes of the individual steps, which serve as input for the next. The next step does not have to be the next step in the predefined process, it can well be that the input guides the designers back to a previous step. In essence, this is very much in line with the earlier described co-evolution of the problem and solution space (Dorst & Cross, 2001) in which the learnings from one step serve as input for the (re)defining of the next.

5.2 DESIGN IN THE INNOVATION PROCESS

There is still the question of when this designerly way of working should be used to acquire the desired results. As this project focuses on the various interactions between stakeholders during the innovation process,

the aim is to link the designerly working to an (existing) interaction. The following sections will investigate the various options on how and when this can be done.

5.2.1 DESIGNERLY INTERACTION IN THE INNOVATION PROCESS I

The first option is when the project is still in its experimentation phase in the innovation department at the client, see Figure 20. User needs are being investigated, and possible realization techniques (e.g., different types of technology) are being researched. DICTU can experience the context in which the final product is placed, which gives them more insight and knowledge of the problem space. Once the project reaches DICTU in an official project format, they can use these insights into the problem space to create a good product and the right one.

This interaction can take the form of partaking in pilots organized by the client's innovation department to understand the solution's purpose and problem. It could also help determine what

role DICTU could play and what type of support they need earlier. This gives DICTU a chance to prepare for when the request eventually lands with DICTU. They can look at their organization to see if they already have the expertise or need to hire people and see if the potential project is something for their renewed business strategy.

“ ... PILOTS ORGANIZED BY THE CLIENT'S INNOVATION DEPARTMENT TO UNDERSTAND THE SOLUTION'S PURPOSE AND PROBLEM. ”

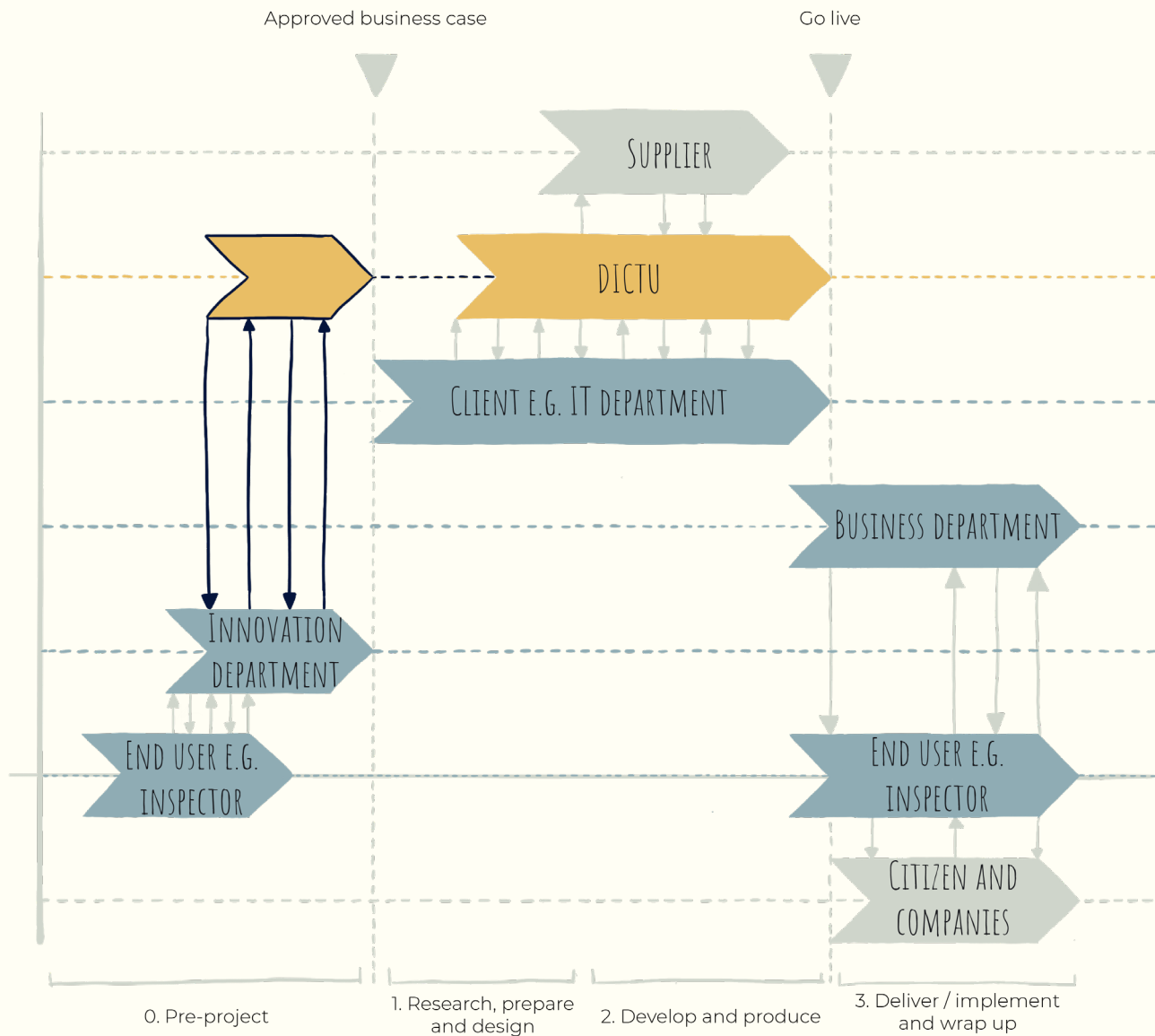


Figure 20: Additional interaction in the innovation process option 1

5.2.2 DESIGNERLY INTERACTION IN THE INNOVATION PROCESS 2

In the RPA case, DICTU creates an IT component that allows developers at RVO to create their robots, so there are two end users, which makes the second option for the additional interaction consist of two parts, see Figure 21. The first one is between the end user (e.g., an inspector at RVO) and DICTU, and the second one is between the business department (e.g., a developer at RVO) and DICTU. As they play a key role in working with the product by using the IT components to create the business-specific products, it is valuable to include them earlier in the project.

the innovation department of their client and talk with/observe end users and stakeholders. This makes the context more explicit and can help give insights into certain design choices' implications. It requires initiative from DICTU to closely monitor its clients' portfolios and investigate the context of the promising topics that show up.

An additional interaction can thus be for DICTU to research the context parallel with

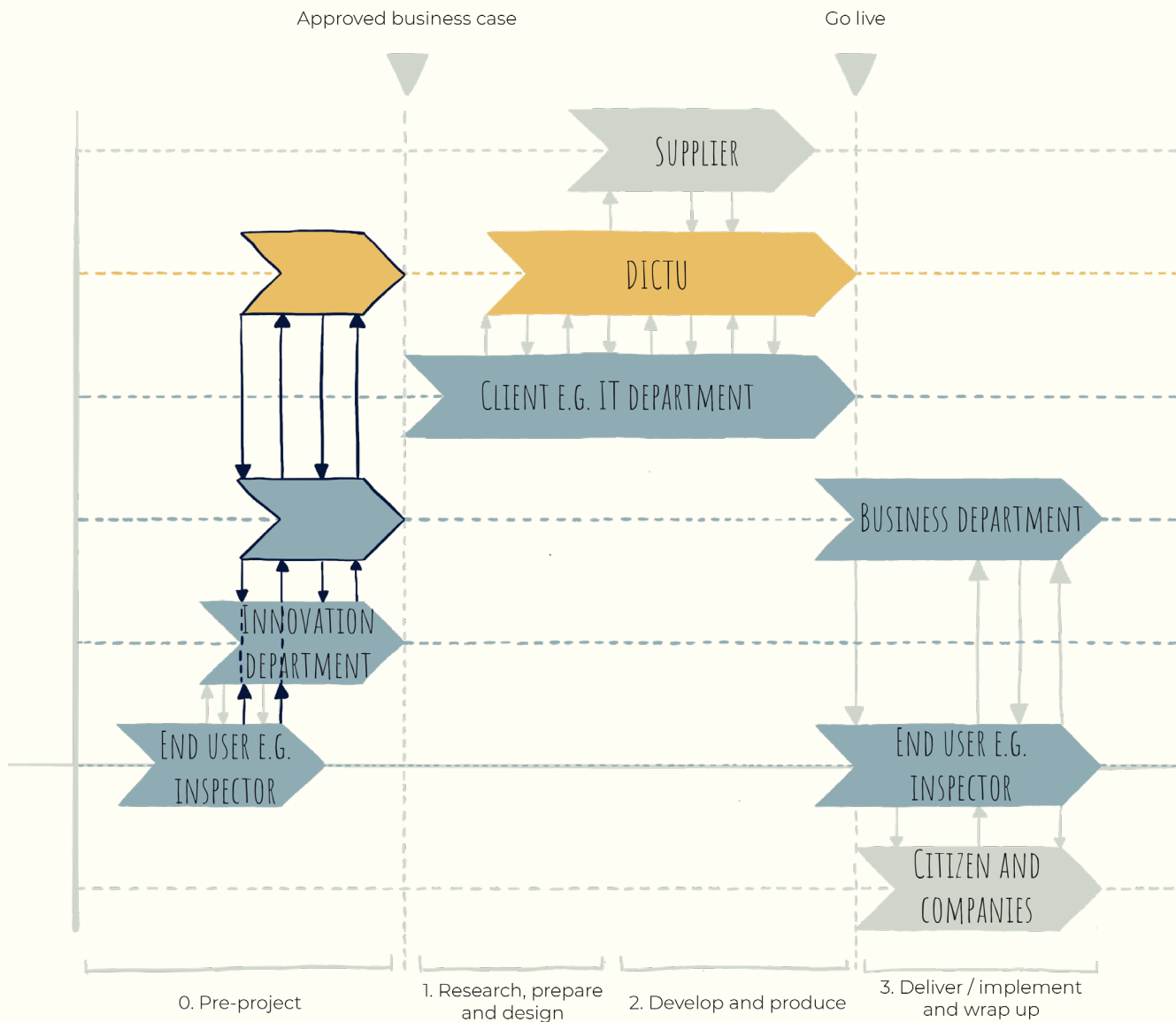


Figure 21: Additional interaction in the innovation process option 2

5.2.3 DESIGNERLY INTERACTION IN THE INNOVATION PROCESS 3

The third option is for DICTU to combine the perspectives of the different stakeholders to create a profound understanding of the problem and solution space, see Figure 22. Based on this information, DICTU has better insight into why specific technical requirements are important

and what functional needs there are. They can acquire this information by contacting the innovation department, talking to their employees, reading specific documentation, and investigating the context by talking with/observing end users and stakeholders.

5.2.4 DECIDING ON THE ADDITIONAL INTERACTION

In short, the three options are:

1. Additional interaction between DICTU and the client's innovation department while the project is still in its experimentation phase with the goal of understanding the problem space.
2. Additional interaction between DICTU and the end users/stakeholders by interviews/observations while the project is still in the experimentation phase with the goal of better understanding the problem and solution space.
3. Additional interaction between the DICTU and the involved stakeholders to create a shared vision of the problem and solution space to create a good and the right product.

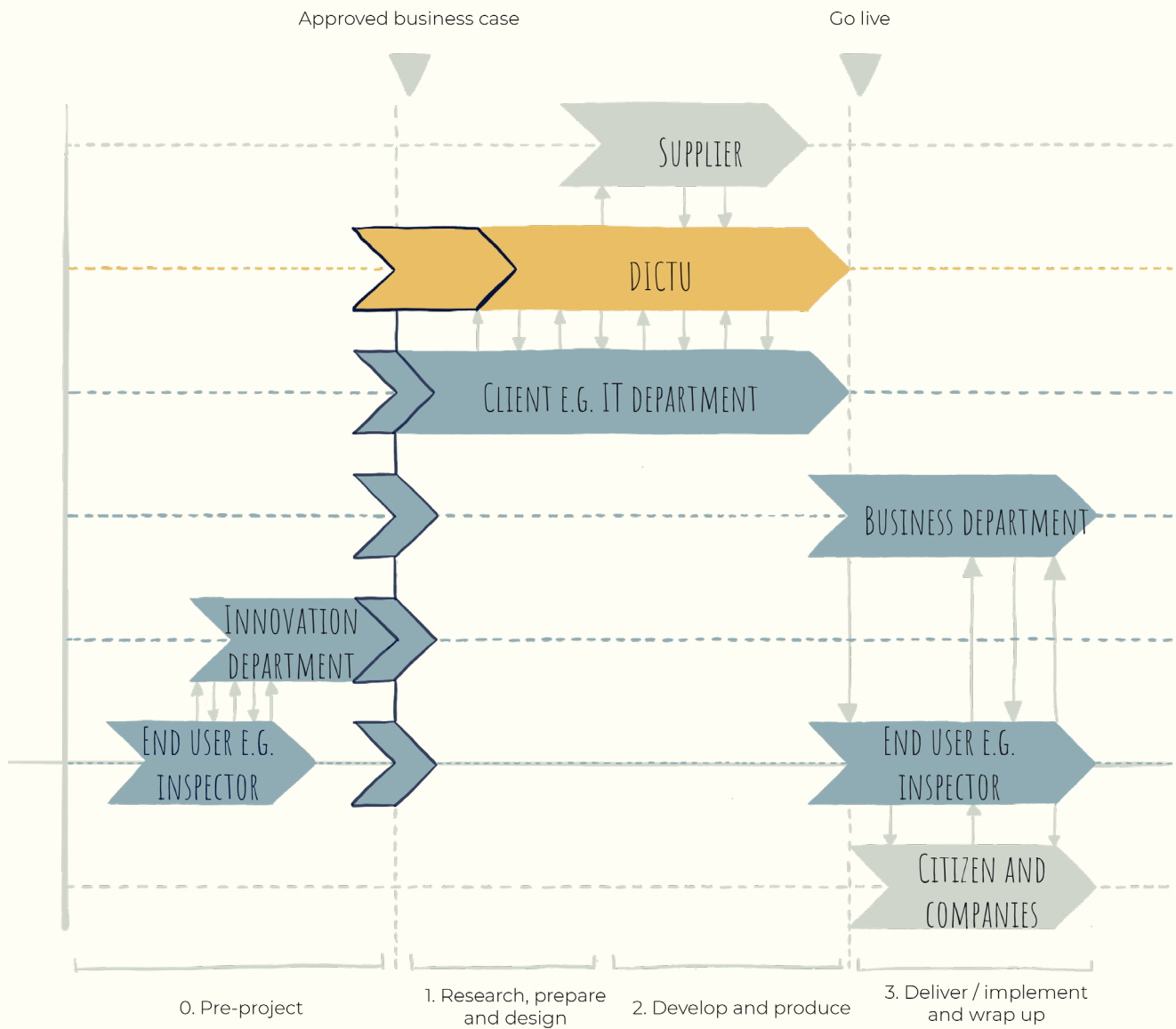


Figure 22: Additional interaction in the innovation process option 3

One risk that the first two options share is that it requires an investment from DICTU in the form of time and resources for a project which might not even end up with DICTU. This investment has no risk with the third option as the project is already set for DICTU. However, options one and two greatly benefit that the project and outcome remain open, so DICTU can show their expertise to guide and advise their client. Giving them the power and intel to shape a specific project in such a direction that DICTU can greatly serve their client or anticipate the request that will eventually land on their doorstep by, e.g., educating employees on a particular topic in their organization or experimenting with a technique required for the realization of the project.

When considering the implementation of a product and the current context, I would say

that the third option would be most promising as it helps to create a shared vision of the project's outcome and includes the various perspectives of people who have worked on the project thus far. Including their expertise but also considering the end of the project is a promising option for high success of implementation. However, as the interaction might result in modifications in the design (as the goal is to create a deeper understanding of the problem and solution space, there is a chance that they co-evolve), the project cannot be official yet. As that would make modifications to the project challenging. Therefore, I propose an additional, designerly interaction right before the project is officially accepted at DICTU to create a profound understanding of the problem and solution space.

The causal ambiguity is low at this point as

there is a clear path and target. However, an innovation project often has high causal ambiguity as the path and the target are unclear and uncertain. This leaves room to explore, be surprised, and come to new inventions. From this, a more precise task and path can be defined. By creating an additional interaction with low causal ambiguity, DICTU

5.3 CHALLENGES

Over the project, the literature, interviews, and various analyses indicated prerequisites for the tool's design. The first one is that the tool should focus on conveying a sense of trust and professionalism by DICTU. In the interviews, it was often mentioned that DICTU needs to be more professional and flexible. This is also partly because there is a tendency to refrain from taking ownership over a particular service or task, which results in unclarity about task division and expectations. Literature states, "three essential factors to change and working more together are understanding, trust and commitment" (Bruning & Ledingham, 2002). If DICTU has a better overview of the entire innovation process and not merely their part in executing an order, this might convey a sense of reliability, strength, and trustworthiness.

In line with this, it is also essential that the tool fosters working across silos and brings various stakeholders together. As innovation is a dynamic and iterative process, there is value in working together and learning from each other to reach the desired result. However, a solid and typical "not invented here" culture in the governmental sector makes this rather difficult. It is, therefore, essential to break down these silos, Pope (2019) and foster a culture in which teams/employees are encouraged to think beyond their domain. The proposed tool should help realize this by structuring an additional interaction with various stakeholders across different organizations.

As stated in the literature, the implementation and sustaining of innovation are often underestimated and overlooked (McAdam,

can gain legitimacy for its position and expertise and show its clients the potential of taking on the partner role. This can serve as a stepping stone to have the legitimacy and the trust of the clients to work not only with low causal ambiguity tasks but also the high ambiguity tasks that are so distinctive for innovation projects.

2005; Steiber & Alänge, 2015a; Steiber & Alänge, 2015b; Steiber et al., 2021). Therefore, the tool should help the involved stakeholders consider not only the design and realization of the product/service but also the implementation and sustaining of it.

Another prerequisite is that the tool should be easily understood and explained. As many people are working at DICTU from external organizations, the continuity at the organization could be better. Therefore, the tool should be easily understood and applied to one's work to make it sustainable. Furthermore, the literature review states that a rapidly changing project team can hinder inter- and intra-organizational information exchange and retrieval (Barnard, 1938). Therefore, the tool should be easily understood and explained and have a clear format, making documenting the findings and the outcome of the tool easy. This will have a positive effect on inter-organizational information exchange and retrieval.

Clients value a fast, flexible, professional organization to help them with their IT needs, which is especially important in innovation. Unfortunately, this sense of urgency is not engrained in DICTU's culture, which causes friction between the various parties.

One obstacle is that the tool relies on interacting with the DICTU project leader and the other stakeholders. However, because the project is not officially accepted at DICTU, it is not always clear which project leader might take on the project. However, DICTU is working on its positioning with Accenture, see Section

4.2.1 Positioning, and redefining the roles in the organization to be more prepared and can undertake action more quickly. This also makes it possible to quickly find a potential project leader to set up the designerly interaction.

Another obstacle is that there are no fixed protocols for approaching a project, there is much room for interpretation, or people get creative and create their way of working. This might result in less acceptance of the designed tool. Although, based on all the research, there is value in an additional designerly

interaction. Therefore, there should be a good balance between structure and openness for interpretation to ensure the tool will be used. This is also in line with Cross (1982), who states that “the designer has to learn to have the self-confidence to define, redefine and change the problem-as-given in the light of the solution that emerges from his mind and hand.” The people at DICTU are not trained designers so to help them, there should be some guidance, which still leaves room to grow more confident in evolving the problem and solution space. Again, a balance between structure and freedom.

“... IT IS ALSO ESSENTIAL THAT THE TOOL FOSTERS WORKING ACROSS SILOS AND BRINGS VARIOUS STAKEHOLDERS TOGETHER.”

5.4 DESIGN SOLUTION

As explained in Section 5.2.4, the proposed design solution (tool) will be placed right before the project is made an official project at DICTU. Based on the previous section, the tool should help define the problem and solution space and create a common language between the stakeholders. It should focus on understanding the now (problem space) and the future/ambition (solution space) and define a path to realize the ambition. This leads to a decision on how to continue the project.

Therefore, the five main building blocks that define the outlines of the tool are the following:

1. Now – It is essential to clearly define the initial problem space, know the current situation, and who the involved parties are.
2. Ambition – The second block is about ambition and is focused on the solution space. As the tool also tries to positively influence the implementation and sustaining of the final product, both short-term and long-term future is important.
3. Reflection – To reflect and take a step back to evaluate. The tool will help the

team better understand the root cause of the problem and see if the proposed solution solves it. This step can be repeated as often as necessary, showing the iterative character of design and the co-evolution of the problem and solution space.

4. Path – When the gap between the ‘now’ and ‘ambition’ is clear, the path to overcoming this gap can be shaped, specified, and defined.
5. (no)Go – The last block is to decide how to continue the project. Based on the building blocks, all stakeholders better understand the problem and solution space and what the project means and will mean to their context. Based on this, a grounded decision can be made to continue, alter or discard the project.

As the tool is a structure for additional interaction and helps to navigate to a more explicit goal supported by the different stakeholders, the name for the design is “Zegiswijzer.” It comes from the combination of speaking (Dutch “Zeg”) and a signpost (Dutch “Wegwijzer”). The following sections will discuss these building blocks in more detail.

5.4.1 NOW

The general focus for the first block is to create a better understanding of the current situation. What problem are we trying to tackle, and who is/will be involved in this project? Figure 23 depicts the entire building block.

The first step will be to create a clear problem definition. IDEO (a global design company) created a Design Kit with various practical tips, workshops, and templates that help people apply human-centered design in any context. To formulate questions to help the stakeholders create a clear problem definition, I used the workshop “Frame your design challenge” as inspiration (IDEO.org, n.d.). From this, I constructed the following questions:

- What is the problem that we are trying to solve?
- What person/party has the problem?
- Who will use the final product to solve the problem?

The second step is to consider the stakeholders involved in this project. As the people involved in the project represent various parts of the context, creating a visual overview of these different parties is valuable. So, who are the stakeholders, and what are their possible connections? This is captured in a clear overview of the stakeholder matrix. The specific questions which help construct this overview are the following:

- Which stakeholders are involved in this project? Who has what role? (Does every party have a representative?)
- Which connections are there between the different stakeholders? (Tip: Consider the stakeholder with the problem; which connections does (s)he has? Which connections are not there but could be valuable? How do we forge those connections?)

“THE GENERAL FOCUS FOR THE FIRST BLOCK IS TO CREATE A BETTER UNDERSTANDING OF THE CURRENT SITUATION.”

5.4.2 AMBITION

The second block focuses on ambition and helps the stakeholders visualize and discuss the future once the project is finished. Important to note is that in this block, two different types of ‘future’ will be defined. Both the ‘go-live’ moment in which the product/service becomes available to their clients and the moment after the go-live in which the product/service is (hopefully) adopted by the organization. What do these futures look like? When can we say that we have been successful? Figure 24 depicts the entire building block.

The first step will be to define the result of the project. The following questions will help the stakeholders construct their vision:

- What did we accomplish at the end of the project?
- When can we say that the designed service is a success?
- Besides a good service, what else do we need to accomplish this success?

The second step focuses on the product/service itself and has two goals. The first is by discussing with the various stakeholders, the different expectations become clear, and a common language is established. Secondly, this step touches upon the problem-solution fit to ensure the proposed solution solves the problem. For this step, I used (Backer, 2022) as inspiration to formulate relevant questions:

- What is the product/service? (Tip: Insert visual material!)
- How does the product/service solve the problem?

The third step helps define success with the prerequisites of the project. The following questions help the stakeholders in this process:

- What is the timeline to realize this success?
- With this timeline as prerequisite, when are we satisfied?

“THE SECOND BLOCK FOCUSES ON **AMBITION** AND HELPS THE STAKEHOLDERS **VISUALIZE** AND DISCUSS THE **FUTURE ONCE THE PROJECT IS FINISHED.**”

5.4.3 REFLECTION

As mentioned, an essential design point is the co-evolution of the problem and solution space. This segment helps the stakeholders reflect on the earlier defined problem/need. Based on the conversations and the different perspectives, does the problem definition reflect the entire problem? Once the problem is altered/reflected upon, it is valuable to take another look at the problem definition and the actual context to get a more profound understanding

of the situation. The simplified version of the Customer Forces canvas is used (Maurya, 2017) to describe the customer’s context, desired result, anxieties, and habits that hold them back from adopting change. The final step of this phase is to define how the proposed solution solves the identified problem explicitly. It can well be that this triggers another round of reflection and repeating this phase one or more times. Figure 25 depicts the entire building block.

“... IT IS VALUABLE TO TAKE **ANOTHER LOOK** AT THE PROBLEM DEFINITION AND THE ACTUAL CONTEXT **TO GET A MORE PROFOUND UNDERSTANDING OF THE SITUATION.**”

5.4.4 PATH

The fourth building block focuses on the path from the ‘now’ to ‘ambition.’ Creating a rough path and indicating the milestones and risks makes it easier to determine when and where (extra) support and means are necessary. By having more insight into the entire project plan (so not only the execution of the rather technical design brief, see Section 4.2.1 Positioning), all stakeholders consider the implementation phase at the end more deliberately. Figure 26 depicts the entire building block.

The first step will be to define the task clearly. The literature shows that the perceived task is critical in setting expectations (Laursen & Andersen, 2016). One crucial part of the task is the causal ambiguity which describes the clarity of the target and the path (Robillard, 1999); see Figure 7 in Section 3.3.1.1 Causal ambiguity. This same principle is used as a base and results in the following questions:

- What will the road look like to fulfill this project? What are the most important milestones?
 - What is the start of the project?
 - Where are we now?
 - When are we live?
 - What is the implementation and adoption phase? What actions must the client undertake to accept the end product?
- What is the path after we go live? How do we make sure the product will find its place?

The second step is related to the risks during the different stages of the project.

- What will be difficult points *during* the project, and how will we mitigate/solve these?

5.4.5 (NO)GO

The last block focuses on summarizing the tool's insights and deciding whether to accept the project. Figure 27 depicts the entire building block.

The first step is to list the various agreements and responsibilities and determine the type of relationship and way of working. It builds on the last question of the previous block and creates clarity on the expectations. The following questions will help the stakeholders:

- What are the critical aspects of our collaboration?
- Who is responsible for what part? (Tip: Look back at “Stakeholders and Connections”)

The second step focuses on creating a summary of the filled-in template by focusing on the three most important factors. The first one is if the project is in line with each stakeholder's tactical and strategic aims for the long term. A more grounded decision can be made by having a better long-term overview. The second factor is the problem-solution fit, if the proposed

- What will be difficult points at the *go-live* of the product/service, and how will we mitigate/solve these?
- What will be the problematic points *after* the project is finished, and how will we mitigate/solve these?

The third step concerns causal ambiguity as it relates to resource mobilization (Laursen & Andersen, 2016). The following questions will help the stakeholders reflect on the (available) resources and support.

- What do we need to execute the task? Do we have the necessary resources/support? (If not, how will we get these/what is the alternative?)
- What do we need to make sure the product/service will find its place in the organization? Do we have the necessary resources/support? (If not, how will we get these/what is the alternative?)

solution solves the problem. The third factor is to check whether the client has the resources and capacity to take on the product once it is finished. This results in the following three questions:

- Is the project aligned with each stakeholder's long-term tactical and strategical agenda? (Tip: Look back at “Stakeholders and Connections”)
- Is the product/service a solution to the earlier-mentioned problem/need? (Tip: Look back at “Problem/Need”)
- Does the client have the means and capacity to receive and use the product/service?

In the last step, the actual decision is made, and the stakeholders are presented with a checklist:

- We make the collective decision to ...
 - Accept this project.
 - Alter the project and revise this tool.
 - Put the project on the waiting list.
 - Reject this project.
 - Other: ...

1. NU

Dit onderdeel gaat over het in kaart brengen van het doel van het project en de stakeholders

Stap 1 is het helder krijgen van het probleem dat wordt opgelost / op welke behoefte wordt ingespeeld. Dit helpt het project goed te kaderen.

Stap 2 helpt een overzicht te maken van de betrokkenen binnen het project en welke connecties er (mogelijk) zijn tussen de verschillende partijen.



1.1 PROBLEEM/BEHOEFTE

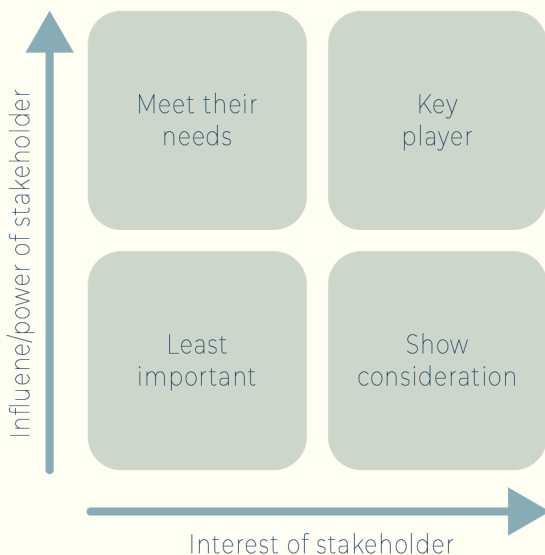
Wat is het probleem dat we proberen op te lossen/op welke behoefte proberen we in te spelen?

Wie heeft dit probleem/behoefte?

Wie gaat uiteindelijk werken met de nieuwe dienst?

1.2 STAKEHOLDER & CONNECTIES

Welke partijen/personen zijn betrokken bij dit project? Wie draagt welke pet? (Is elke partij ook vertegenwoordigd?)



Welke connecties zijn er tussen de verschillende partijen? (Tip: sta even stil bij de persoon die het probleem/behoefte heeft, welke connecties heeft hij/zij? En welke connecties zijn er nog niet, maar kunnen wel erg waardevol zijn? Hoe realiseren we die connectie?)

2. AMBITIE

Het tweede onderdeel gaat over de ambitie en het in kaart krijgen van de tijdlijn.



Stap 1 richt zich op de verandering van de huidige situatie en de situatie nadat het project is voltooid. Wat is veranderd? Wanneer zijn we tevreden?



Stap 2 focust zich op het visualiseren van de beoogde oplossing.



Stap 3 helpt het ideale plaatje te schetsen en in kaart te brengen wat ervoor nodig is om het beoogde succes te behalen.

2.1 DOELSTELLING

Wat is er bereikt als dit project is afgerond?

Wanneer kunnen we zeggen dat de dienst een succes is?

Wat is er naast een goede dienst nodig om dit succes te behalen? (Kennis, uren, training, ...)

2.2 OPLOSSING

Wat is de dienst die wordt gemaakt? (Tip: Voeg beeldmateriaal toe!)

Hoe lost de dienst het probleem op?

2.3 TIJDSPAD

Wat is het tijdspad om de beoogde doelstelling te realiseren?



Met het tijdspad en budget als voorwaarde, wanneer zijn we tevreden?

3. REFLECTIE

De workshop helpt gezamenlijke taal te creëren over het probleem, de oplossing en het doel. Je leert van elkaars perspectief wat invloed kan hebben op het eerder geformuleerde probleem en/of oplossing.



Stap 1 is het opnieuw bekijken (en aanscherpen) van de originele probleem definitie.



Stap 2 helpt om het probleem verder te begrijpen vanuit een klant perspectief.



Stap 3 gaat over de oplossing, lost het voorgestelde product het probleem op?

3.1 PROBLEEM/BEHOEFTE

Kijk nog eens terug naar het probleem/de behoefte gedefinieerd bij "Probleem/Behoefte", is iedereen het nog eens met de definitie? Zo nee, wat is dan de nieuwe probleem definitie?

Is iedereen het nog eens met de eerder gedefinieerde klant en gebruiker? Zo nee, wie is dan de nieuwe klant en/of gebruiker?

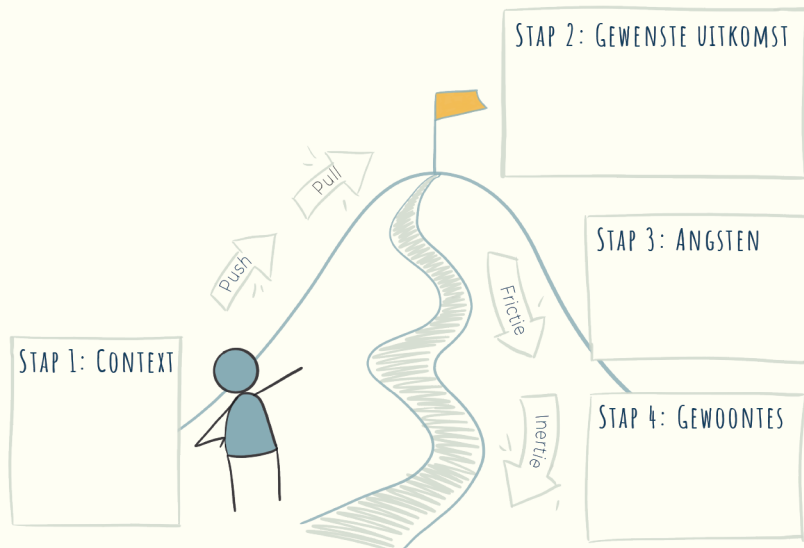
3.2 KLANTGERICHT INNOVEREN

Stap 1: Wat is de belangrijkste trigger voor de eindgebruiker om het product te gaan gebruiken?

Stap 2: Wat is de gewenste uitkomst voor de klant?

Stap 3: Wat wordt gezien als risico om de dienst te gaan gebruiken?

Stap 4: Welke gewoontes heeft de gebruiker nu die het gebruik van de dienst bemoeilijkt?



3.3 OPLOSSING

Lost de dienst gedefinieerd bij "Oplossing" het probleem daadwerkelijk op? Zo nee, wat is het ontwerp voor de dienst?

BLIJF DEZE STAP
HERHALEN TOT ER GEEN
NIEUWE INZICHTEN MEER
AAN HET LICHT KOMEN.

4. PAD

Het vierde onderdeel gaat over hoe de ambitie gerealiseerd kan worden.



Stap 1 focust zich op het specificeren van de opdracht en het helder krijgen van het pad wat leidt tot het beoogde resultaat.



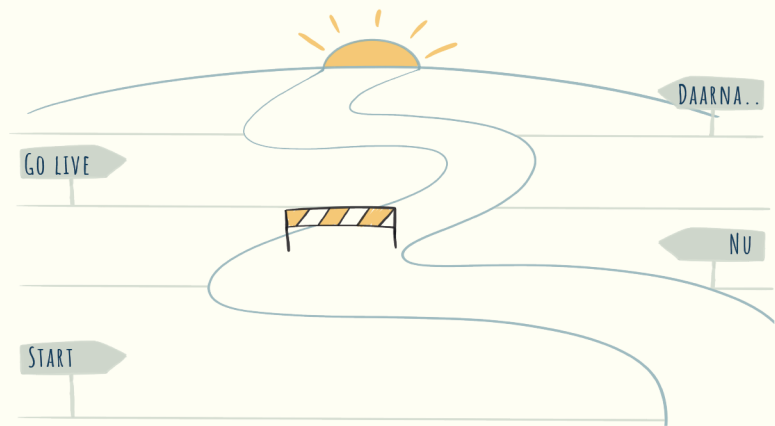
Stap 2 gaat over de risico's en wat er op voorhand al verwacht kan worden over het hele project.



Stap 3 focust zich op de middelen die nodig zijn om de opdracht uit te voeren. Welke middelen zijn er beschikbaar en wie regelt wat?

4.1 OPDRACHT

Wat is het pad dat we gaan bewandelen?
Wat zijn de belangrijkste milestone?
Wat is de start van het project?
Waar staan we nu?
Waar zijn we live?
Wat betekent de implementatie en adoptie fase? Welke acties onderneemt de klant zodat ze het eindproduct goed kunnen ontvangen na afronding van het project?
Hoe ziet het pad eruit nadat we live zijn? Hoe zorgen we dat de dienst landt en wordt gebruikt binnen de organisatie?



4.2 RISICO'S

Wat zullen moeilijke punten worden tijdens het project en hoe lossen we dit op/proberen we dit te voorkomen?

Wat zullen moeilijke punten worden bij de go live van de dienst en hoe lossen we dit op/proberen we dit te voorkomen?

Wat zullen moeilijke punten worden nadat het project is afgerond en hoe lossen we dit op/proberen we dit te voorkomen?

4.3 MIDDELEN & SUPPORT

Wat hebben we nodig om de opdracht uit te voeren? En hebben we deze middelen/support tot onze beschikking? (Zo niet, hoe komen we daar dan aan/welk alternatief is er?)

Wat hebben we nodig om te zorgen dat de dienst landt en wordt gebruikt binnen de organisatie? Hebben we deze middelen/support tot onze beschikking? (Zo niet, hoe komen we daar dan aan/welk alternatief is er?)

BLIK NOG EENS TERUG OP DE VORIGE STAP. IS IEDEREEN HET ER NOG MEE EENS?

5. (NO)GO

Het laatste onderdeel gaat over het maken van de beslissing om het project al dan niet aan te nemen.

Stap 1 focust zich op het concretiseren van de verwachtingen en de samenwerking.

Stap 2 gaat over het samenvatten van de sessie.

In stap 3 wordt er een gezamenlijke beslissing genomen om al dan niet samen door te gaan.



10



10



5

5.1 AFSPRAKEN EN VERANTWOORDELIJKHEDEN

Wat vinden we in de samenwerking belangrijk om op te focussen?

Wie is eigenaar van welk onderdeel? (Tip: bekijk nog eens het onderdeel "Stakeholders en connecties")

5.2 CHECKLIST

Sluit het project aan bij de lange termijn tactische en strategische agenda van elke stakeholder? (Tip: bekijk nog eens het onderdeel "Stakeholders en connecties")

[Ja] / [Nee], want ...

Is het product/de dienst een oplossing voor de eerder geschetste probleem/behoefte? (Tip: bekijk nog eens het onderdeel "Reflectie")

[Ja] / [Nee], want ...

Heeft de klant de middelen en capaciteit om het eindproduct aan te nemen en in gebruik te nemen?

[Ja] / [Nee], want ...

5.3 BESLISSING

De gezamenlijke beslissing is om:

dit project te accepteren

aanpassingen te maken en opnieuw deze tool in te vullen

project op wachtlijst

het project niet te accepteren

anders:

5.4.6 INTEGRAL SOLUTION

A challenge mentioned in Section 5.3 Challenges states that it is important that the tool be easily understood and explained and that it can deal with an organization that has many changes in personnel due to the hiring of external employees. Therefore, to provide DICTU with

a complete solution, the preparation phase of the workshop and the evaluation afterward are also considered. The following two sections will provide more detail on these two additional phases.

“... IT IS IMPORTANT THAT THE TOOL BE EASILY UNDERSTOOD AND EXPLAINED.”

5.4.6.1 PREPARATION

Prior to the session, each participant is expected to prepare themselves. The preparation questions help the participants reflect on the project and formulate their views which are later discussed in the plenary. The topics about the problem, the success, and collaboration are addressed in the first set of general questions every participant fills out. The questions are listed below and depicted in Figure 28.

In the last step, the actual decision is made, and the stakeholders are presented with a checklist:

- General information
 - Name
 - Role within the organization
 - Role within the project
- Goal of the project
 - What problem are we trying to solve?
 - What is the goal of the project?
 - Who is going to work with the proposed solution?
- Envisioned result
 - What does a successful project mean to you?
 - What is vital with the collaboration of this project to reach the envisioned result?

- What are the proposed/assumed risks within this project?
- Closing
 - Describe how the service will influence your way of working. For example, will you get extra tasks due to the new service (e.g., administrative tasks)? Or will you receive fewer tasks (e.g., the service makes you can work easier/faster, so you have more time for other tasks)? Do you need to learn new things to work with the service to use it properly? ...

A second set of specific questions is based on the participant's role to ensure the stakeholder is well-informed about his/her role and can discuss uncertainties with colleagues before the session. An example of stakeholder-specific questions is listed below and can be found in Figure 29.

- Problem definition
 - What is the goal of the project?
 - How does the service solve the problem?
- End product
 - What is the end product? What does the end product look like? (Tip: Insert visual material!)

- Means
 - Are there enough means to take on the project?
 - What do you need to properly accept the final service?
 - Collaboration
 - What is essential for you in a future collaboration? Who are the most critical stakeholders in this project?
- The entire tool with all the preparation questions and the various iterations made in constructing the tool, can be found in Appendix C.

4. APPENDIX

Vorbereidende vragen per stakeholder (groep).

7. EINDGEBRUIKER (KLANT):

Probleem definitie

Wat is het doel van het project?
Hoe lost de dienst het probleem op?

Eindproduct

Wat is het eindproduct?
Hoe ziet het eindproduct eruit? (Tip: Voeg beeldmateriaal toe!)

Samenwerking

Wat is voor jou belangrijk in een eventuele toekomstige samenwerking?

8. AFDELING WAAR DIENST OPEREERT (KLANT):

Probleem definitie

Wat is het doel van het project?
Hoe lost de dienst het probleem op?

Eindproduct

Wat is het eindproduct?
Hoe ziet het eindproduct eruit? (Tip: Voeg beeldmateriaal toe!)

Middelen

Zijn er genoeg middelen om het project aan te nemen?
Uren, mankracht, etc.
Wat heb je nodig om de dienst goed in ontvangst te kunnen nemen?

Samenwerking

Wat is voor jou belangrijk in een eventuele toekomstige samenwerking?

Figure 28: Preparation questions

3. EVALUATIE

Na het invullen van de tool en het maken van een beslissing, is het belangrijk ook te evalueren op het proces. Wat ging er goed? Wat kan beter? Dit helpt in het verbeteren van de tool en het proces.

Ten slotte, voor documentatie en informatie overdracht is het belangrijk dat er een samenvatting komt van de workshop. De verantwoordelijkheid van het opstellen en versturen van de samenvatting, ligt bij de facilitator.

De evaluatie vragen kunnen worden gesteld tijdens de afsluiting van de sessie, of er kan voor gekozen worden om de stakeholders naderhand een vragenlijst toe te sturen.

Evaluatie vragen:

1. De sessie
 - Wat sprak jou het meest aan in deze workshop? En waarom?
2. Het doel
 - Het doel van deze workshop is om gezamenlijke taal te creëren over het probleem, de oplossing en het doel. In welke mate is dit doel bereikt?
 - a. Dit doel is niet bereikt.
 - b. Dit doel is enigszins bereikt.
 - c. Dit doel is voldoende bereikt.
 - d. Dit doel is helemaal bereikt.
 - Eventuele toelichting: (Wat droeg vooral bij aan het bereiken van het doel, en/of op welke manier zou het doel nog beter bereikt kunnen worden?)
3. De vervolgstappen
 - Hoe ga je de inhoud van deze workshop toepassen na de workshop? Welke concrete stappen ga je zetten? Wat zijn jouw individuele verantwoordelijkheden? Wat kunnen anderen van jou verwachten?
4. Feedback
 - Welke feedback (complimenten en tips) wil je tenslotte nog geven?

Figure 29: Evaluation questions

5.4.6.2 EVALUATION

After filling out the tool, there are questions to evaluate the session, outcome, the future steps, and there is room for feedback. The facilitator can choose whether these questions are addressed during the session and have a plenary discussion or sent out as a questionnaire after the session for an individual evaluation. The questions are based on a standard set of questions created by Bridge2Learn (n.d.). The proposed questions for the evaluation are listed below and depicted in Figure 29.

- The session
 - What was most interesting about the session? And why?
- The goal
 - The workshop's goal is to establish a common language on the problem, the solution, and the goal. To what extent was this goal reached?
- Room for elaboration: What contributed to reaching the goal? Or how can the goal be reached better in future workshops?
- Future steps
 - What will you do to use the insight from this workshop in your day-to-day job?
 - What concrete steps will you take?
 - What are your responsibilities?
 - What can others expect from you?
- Feedback
 - Which feedback (compliments and tips) do you want to give?

5.5 EVALUATION AND CRITIQUE

An essential part of design is evaluating the design with (potential) end users and stakeholders. By evaluating the proposed solution, one can learn what works and does not work for their stakeholders, giving more insight and knowledge on the problem space. Which,

in their turn, gives new input to develop the solution further. For this, several interviews with various stakeholders were arranged to discuss and critique the design solution and learn from their experience, expertise, and view.

5.5.1 INTERVIEW WITH CLIENT

As the tool is placed on the interface between DICTU and the client, an important evaluation interview is with the client. This interview mentioned that “it is valuable to have one moment in the process in which everybody, both DICTU and client, refocus on the project's goal. This will create structure, clarity and gives a sense of involvement.” However, the interviewee was skeptical about the timing of the solution “If you use the tool only to check if DICTU should accept the project, aren't you too late then for

the client?” From the client's point of view, this is understandable. However, when considering it from a DICTU point of view, they currently do not have the trust and legitimacy (yet) to be involved earlier in the innovation process. By placing the design tool on the interface between the two organizations, see Figure 22, this trust and legitimacy can be established, which can be a stepping stone to more involvement in the innovation process. In line with this statement, it was also mentioned that

“... we need to collaborate more to accomplish successful innovation.” Another important point the interviewee mentioned is that the solution’s benefits are only noticeable at the end of the project. However, at the start, it already requires a particular investment from DICTU (and the client). It might be challenging to overcome this first hiccup and communicate the value of this initial investment.

“ ... WE NEED TO COLLABORATE MORE TO ACCOMPLISH
SUCCESSFUL INNOVATION. ”

5.5.2 INTERVIEW WITH A DESIGNER

An interview was conducted with a fellow Strategic Product Design student to include another design perspective. It was said that the tool could help a great deal in transparency and clarity and give awareness to other organizations on what DICTU needs. However, it was mentioned that the tool might take too long to fill out. There are some questions, and with various stakeholders, it might take much

The last mentioned point was how DICTU should communicate this tool to their clients. Introducing it as an experiment to a new working method was suggested. It was mentioned that “... if you see it as an experiment and make it open for feedback and alterations, you create co-ownership and solve the problem together.”

time to reach an answer after a discussion. This comment helped to revise the tool again critically. What questions are redundant or too difficult to answer? Therefore, it resulted in a tool that is as concise as possible and has a time indication for each of the separate steps. It would take around 4 hours to complete, including breaks. Experimenting with the tool should prove if this time is acceptable or not.

“ ... THE TOOL COULD HELP A GREAT DEAL IN
TRANSPARENCY AND CLARITY ... ”

5.5.3 INTERVIEW WITH COLLEAGUES FROM THE STRATEGIC DEPARTMENT

From the evaluation of the two members of the strategic department, it became clear that there should be a clear link to reality, to practice. Based on their experience, they said that it always helps to make things visual; it helps get a clear understanding of what an idea means. It also makes it easier to discuss specifics, as all meeting members look at the same image instead of the one they have in their heads. Therefore, the preparation assignment for the meeting now includes asking for images/videos of the product (in use).

In general, it was said that this tool could be of high value as, when done correctly, there is value in bringing people together. This tool provides enough structure to guide the meeting. However, it needed the cyclic character of design thinking and an agile working method. Both colleagues mentioned there is value in this way of working, so the tool should also be in line with this. Therefore, the block about reflection was created and inserted. Between Ambition and Path, to create a deeper understanding of the problem, the solution, and how they (do not) fit.

There was also an essential comment on the timing of the tool, as was said in the interview with the client (see Section 5.5.1 Interview with client). The proposed timing might be too late for DICTU to take on a proactive character. This comment was addressed by explaining that currently, DICTU has no position in the innovation process other than executing the client's wish. The step to being proactive and

taking on the partner role is too great to do in one go. Therefore, by using this tool to become familiar with the innovation process and create a deeper understanding of the different roles and implications of the innovation, DICTU can establish trust and legitimacy. Which can then serve as a stepping stone to becoming more proactive and a partner. More on this in Section 5.6.2 Roadmap.

“... CREATE A DEEPER UNDERSTANDING OF THE DIFFERENT ROLES AND IMPLICATIONS OF THE INNOVATION, DICTU CAN ESTABLISH TRUST AND LEGITIMACY.”

5.5.4 INTERVIEW WITH DICTU PRODUCT OWNER

A product owner from DICTU also evaluated the Zegiswijzer. The insights gained by this project about stakeholder involvement were confirmed. “We work like this, but we should be doing it otherwise. We must be involved at the start and talk, with our clients, about the future.” It was said that the tool does ask the right questions and provides a good structure. However, the product owner was still skeptical as only actual experimentations with the tool could prove if and how it could help.

He also expressed concern about the ownership of the Zegiswijzer within DICTU. From his experience, he sees that projects lacking ownership tend to fail as the organization is challenging to change. “If you want to make a change, you need to devote your time and effort to it to make it happen.” To mitigate this risk, Chapter 6 details change management and how to enhance the chance of successfully implementing the Zegiswijzer and sustaining this change.

5.5.5 EXPERT INTERVIEWS

Two experts from the Technical University of Delft also evaluated the tool. Both experts expressed concern about the timing during the interviews with the other stakeholders. However, when explaining the roadmap and showing that trust and legitimacy could be established by first working on the interface between the two organizations, which could then serve as a stepping stone to becoming more proactive and taking on the partner role, it was seen as logical and promising reasoning. Valuable insight is created by not only considering the short term

but placing this intervention at the interface between the two organizations and seeing what this can mean in the long term.

Another comment was about the timeline created with the Zegiswijzer by the stakeholders. The tool focuses on the now, the go-live moment, and what happens afterward. However, it needs to take the past into account. What did people already do to come to this point? What lessons were learned? When did the project even start? It showed that not only the track from this point

on is essential, but it also takes the past into account. It resulted in some alterations in the creation of the timeline in the second block.

Thirdly, the question of who will pay for the tool and the experimentation was raised. In essence, the Zegiswijzer works on the interface between

INTERMEZZO #8: DESIGNING THE TOOL

In creating and developing the tool, there have been many small steps in the co-evolution of the problem and solution space. As there were several elements I wanted the stakeholders to discuss, the most obvious format for the tool would be a workshop. This format fits with the proposed goal of the additional interaction, and due to the time constraint, I chose not to investigate possible formats further.

By synthesizing all the information I had gathered thus far, I quickly came to the outlines for the tool by naming the building blocks (Now, Ambition, Path, and (no)Go) and the general structure for each building block. I tweaked the general structure even further by constantly revising the literature overview, insights from the interviews, definition of innovation, and observations. This led to my first initial framework, which I presented to two members of the strategic department. I used their feedback on linking the tool to the actual context and trying to capture the iterative character of such a process and updated the tool. This resulted in adding a fifth block placed in the middle which helps reflect and alter the problem/solution if and when necessary.

The interview with the client helped me see the bigger picture in which my tool would be placed. I envisioned a roadmap from using this tool to being a partner, but I needed to include a part on how I would do this. This interview inspired me to approach the tool's implementation as an experiment to co-create and receive support from other parties. This conversation was very different from the other interview, and it made me realize that, indeed,

DICTU and the client; they will both pay (hours) to test and develop the tool. However, as DICTU wants to be seen as a partner, they should take the lead and therefore spend the most hours on the development and implementation of the tool.

a person's background has so much to do with how they look at this problem and the solution I propose.

For this reason, I also wanted to talk to a fellow Industrial Design student who was unfamiliar with my project. Her view on the project and solution helped me fine-tune the tool. Explaining my reasoning from a designer's point of view on how I constructed this tool was valuable. She also understands me as she is familiar with these principles.

This process of constructing and fine-tuning the tool went quite fast, as there is time pressure now on finalizing the project as the deadline is approaching. It feels good to see that I can quickly synthesize such an enormous amount of information and create a solution that considers the various prerequisites and goals. However, as this process went quickly, there could have been various forms of this tool that all followed the prerequisites and goals. This is also what design is about. Creating a design based on the problem analysis but not claiming it is the only option.

“... I CAN QUICKLY SYNTHESIZE
SUCH AN ENORMOUS AMOUNT
OF INFORMATION AND CREATE A
SOLUTION ...”

5.5.6 SYNTHESIS

This gives a clear overview and reflection of the elements considered in developing the Zegiswijzer and how the tool solves particular

challenges. The information from the interviews and the previously stated challenges has been divided into separate sub sections.

5.5.6.1 INTERVIEWS

The interview points were considered and used to iterate on the tool. The final version of the Zegiswijzer is presented in the previous section, 5.4 Design Solution. The important point is that placing the tool on the interface between DICTU and its client creates a sense of trust and legitimacy. This can best be done by communicating the tool as an experiment to learn together and continue developing the tool through collaboration. This co-creation will help establish ownership at DICTU and their client, which will help get support and acceptance.

The iterative process of co-evolving the problem and solution space is captured in the step on reflection. It is tried to let the tool be a mere structure while leaving room for the participants to experiment and formulate their interpretation of the structure. It can also be seen as a way of educating various people (both at DICTU and on the client side) and a designerly way of working.

The tool should be used in an interactive format to make it engaging and open for collaboration. Therefore, Miro or Microsoft Whiteboard are good options. The final design can be used as a template in both applications, and participants

can use sticky notes and place them on top of the template. The template can also be printed, and real sticky notes can be used to answer the questions, whereas they can be used offline.

A problematic point will be to convey people (from DICTU and the client) to invest time in this new way of working as the results are not directly noticeable. For this reason, the plan to communicate the tool as an experiment applies to this obstacle. It shows that DICTU is also learning and is open to other perspectives. However, because of this, DICTU should portray itself as a professional organization that takes this experiment seriously. To reach this, the people at DICTU must understand why this additional designerly interaction is of such value. This understanding should become more widely spread throughout the organization. Section 6.2 Change Management Strategy will go into more detail on how this understanding can be fostered such that it leads to change. If this understanding is created, more people at DICTU can spread the knowledge to convey to their clients the value of co-evolving the problem and solution space and show that using the tool can help.

5.5.6.2 PREVIOUSLY STATED CHALLENGES

Section 5.3 described several challenges based on the literature, interviews, and analyses. It was stated that some essential prerequisites are that the tool should focus on conveying a sense of trust and professionalism by DICTU. The current tool does so as DICTU takes the initiative to work on the innovation process by having a structure from which the entire project and implementation process is mapped out. Adding to that, having a clear overview of the various

stakeholders and making clear agreements creates a sense of ownership of the project. It proves that DICTU has an overview of the process, which, if done correctly, leads to trust and a sense of professionalism.

Another prerequisite is that the tool should foster working across silos and bring stakeholders together. This is accomplished to some degree as the tool is used on the interface between

DICTU and the client. However, the end goal is that DICTU will also partake in, e.g., pilots done by the client. The strategy to be involved in the dynamic innovation process is presented in Section 5.6.2, Roadmap.

The literature states that the implementation and sustaining of innovation are often underestimated and overlooked (McAdam, 2005; Steiber & Alänge, 2015a; Steiber & Alänge, 2015b; Steiber et al., 2021). As the tool provides a structure to let the various stakeholders consider not only the project itself but also the period afterward in which the innovation must find its place in the organization, the first steps to considering the implementation and sustaining of the innovation are taken. Especially questions in the Ambition block about the timeline and the block in which the path is defined help the various stakeholders consider the implementation and sustaining of the innovation and what means and support they need to reach this goal.

Another prerequisite was that the tool should be easily understood and explained. Therefore, the tool is delivered in a complete booklet with an introduction to the tool, an explanation for each of the parts/questions, and a template that can

be used for the workshop itself. There are specific preparation questions for each stakeholder (group) and an evaluation form afterward to reflect on the process and the project.

An important prerequisite is about being fast, flexible, and professional. Throughout the interviews, this was often mentioned. This tool does not immediately increase the tempo or flexibility of DICTU. However, the desired result is that it will do so. It is impossible to immediately address this point, as DICTU (and the client) must learn to work with the tool and make it their own. However, it is proposed that after some time, the fluency of use increases, and specific pain points are earlier on detected and mitigated. Eventually, this will lead to a higher tempo and being able to be more flexible and adjust the project over time.

One previously mentioned obstacle is that there are few fixed protocols and much room for interpretation. This might result in less acceptance of the designed tool. However, this was considered while designing the tool. It was tried to create a good balance between structure and open for own interpretation. Engaging in the experimentation phase can evaluate if this is the case and how the tool could be altered to reach this objective.

“IT PROVES THAT DICTU HAS AN OVERVIEW OF THE PROCESS, WHICH, IF DONE CORRECTLY, LEADS TO TRUST AND A SENSE OF PROFESSIONALISM.”

5.6 APPLICATION

In an ideal scenario, innovation projects are more seen as design projects in which early stakeholder involvement is highly valued and the co-evolution of the problem and solution space is honored to better consider the implementation of innovation in context. However, as noted before, this is currently not the case as the innovation process is broken over various organizations and departments, and implementation needs more consideration. Legitimization is an essential factor in

innovation implementation (McAdam, 2005). As working with the Zegiswijzer could be seen as organizational innovation, legitimization is also essential in this context. Currently, DICTU lacks its clients' trust, which makes them stuck in its position as “merely a supplier party.” To change this and establish a way of working in which DICTU and clients work together to innovate the ministry, DICTU must earn trust and gain legitimacy.

5.6.1 ROADMAP CONSTRUCTION

A roadmap can be defined as a “a visual portrayal of design innovation elements plotted on a timeline” (Simonse et al., 2015). These elements include user values, new products/ services, market segments, technology applications, and touchpoints. In essence, a roadmap is composed of the “three basic characteristics: it is (A) a visual portrait of the organization’s future innovations, (B) outlined by user value, product-service, market and technology elements, (C) plotted on a timeline”

and structured by a future vision and three horizons which form the path on realizing the future vision (Simonse, 2017), see Figure 30.

For this project, it is chosen to make a simplified roadmap portraying how the Zegiswijzer can be used to reach the desired future vision via the three horizons. The following sections will describe these. The chapter concludes with a section overviewing the future vision and the three horizons.

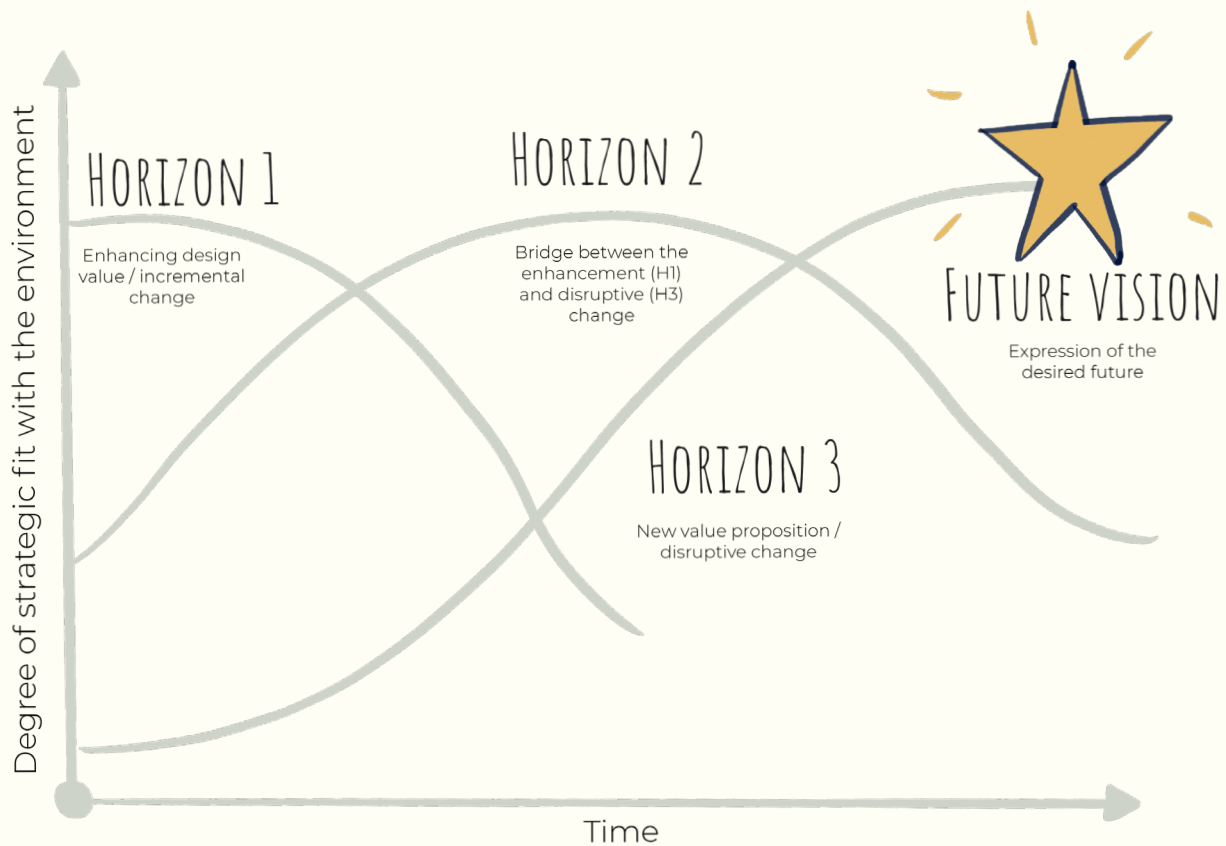


Figure 30: Visual overview of the essence of a roadmap, based on Simonse (2017)

5.6.1.1 FUTURE VISION

The future vision is an expression of the desired future, and it provides a strategic reference point. “Unlike a goal, a vision aims to establish a tension between ‘what is’ and ‘what could be,’ to provide direction for the innovations on the roadmap that lead to it.” (Simonse, 2017; Ziegler, 1991). A strong future vision has four distinguished properties. It has clarity and is immediately understood, captures the value drivers, materializes the vision by an artifact,

and is desirable and attractive.

The future vision for this context can be formulated as follows: To create, develop, deliver, and implement valuable products/services in the Ministry of EZK/LNV, the projects are organized around close inter- and intra-organizational collaboration to create a profound understanding of the context facilitated by DICTU who makes use of the Zegiswijzer, a

designerly tool which helps consider the various stakeholders throughout the project. It takes the four properties in the following way:

- Clarity: The future vision describes the experience of what a project in the future state looks like in this specific context by highlighting the inter- and intra-organizational collaboration.
- Value drivers: Throughout the interviews and field research, it became clear that an additional interaction could help create more integrated solutions that fit the context. Furthermore, it was mentioned that DICTU should express more professionalism. By taking the lead and facilitating this collaboration, DICTU can show the other organizations that they can be seen as a partner in the innovation process. Lastly, a critical value from the literature on innovation is that innovation encompasses the entire process of creating, realizing, and implementing it.
- Artefact: The future vision mentions the Zegiswijzer and explains that it is a designerly tool that helps consider the various stakeholders throughout the project.
- Magnetism: The future vision captures desire and attractiveness as it is formulated in an active and energizing way. It is almost tangible, and readers can relate the future vision to their way of working and imagine how this will play out for this.

“... THE PROJECTS ARE ORGANIZED AROUND CLOSE INTER- AND INTRA-ORGANIZATIONAL COLLABORATION TO CREATE A PROFOUND UNDERSTANDING OF THE CONTEXT ...”

5.6.1.2 HORIZON 1: ZEGISWIJZER ON THE INTERFACE BETWEEN DICTU AND CLIENT

The first horizon envisions a strategic scenario with a continuous flow of enhancing design value to the current environment. It can be seen as incremental changes, but it is essential to reuse existing modules, processes, and functions (Simonse, 2017).

The focus for horizon one is on using the Zegiswijzer on the interface between DICTU and the client to show that they are actively working on improving the transition from creating the innovation to realizing it. By challenging the status quo by communicating the value of collaboration, as opposed to the traditional silo working, which is typical for the governmental context (Pope, 2019), DICTU is working towards gaining legitimacy for its new position described in the future vision. Using the

tool and slowly working on legitimacy builds on the existing process of evaluating a client's request before accepting it. Now, a formal client request is assessed based on a set of criteria by the Department of Customer Relations. This department can request the outcome of the Zegiswijzer as a prerequisite in deciding whether to accept the request.

As the proposed design solution operates on the interface between DICTU and its client, both parties must have ownership over the proposed way of working. The various evaluations also mentioned this; see Section 5.5 Evaluation and Critique. Therefore, I propose that DICTU communicates working with the tool as an experiment to improve their service provision. It should be clear that DICTU wants to learn

from its clients to create a new process that works and fits within the pre-existing structure and processes. By seeing this as an experiment and being open to feedback, clients can think along and, in a way, co-create this process. This

can create support for the final solution that is being created and implemented. DICTU shows strength and commitment to this process by initiating it and already showing a starting point from which it can be further refined.

5.6.1.3 HORIZON 3: PARTNER IN INNOVATION

The third horizon is about the strategic scenario with a state of growth in the long term. “It is a disruptive innovation scenario with a new value proposition that inhibits the potential to displace the system of the first strategic life cycle” (Simonse, 2017). It entails new (user) value(s), and the future vision is the end point of this scenario.

The disruptive innovation scenario is when DICTU takes the partner role in the innovation process. By now, they have shown that they can be trusted and have a good overview of the entire innovation process. Being a partner means early involvement (sometimes even initiated by the client) and co-evolving the problem and solution space together. By having a profound understanding of the context and being able to foresee certain implications an innovation has on its client’s business, DICTU can

take on the partner role they deserve. They can help their client construct training programs, hire people, and estimate the necessary hours/actions to implement a product successfully. In short, they are not merely a supplier organization but are seen as a true partner. For this, cross-organizational collaboration is a fundamental factor. However, due to the earlier developments of working on DICTU’s legitimacy and their involvement and desire to learn about the client’s business, there is fruitful ground on which this collaboration is possible. More on this when Horizon 2 is described in the next section.

By having this profound understanding of the actual context, the future vision can be realized in which DICTU has a facilitating role to foster inter- and intra-organizational collaboration to create, develop, deliver, and implement valuable products/services in the Ministry of EZK/LNV.

5.6.1.4 HORIZON 2: LEGITIMACY AND TRUST

As Horizon 2 is the bridge between the enhancement (H1) and disruptive (H3) change, it is described last. It formulates a strategic scenario of user-centered value creation and is in between disruptive and enhancement change (Simonse, 2017).

Horizon 2 is focused on DICTU to establish trust and legitimacy for its position. As the Zegiswijzer will help DICTU and clients create a smoother transition, the next step is to take a more active role in the innovation process to understand the context better. Especially at the start of an innovation project (which is in the client space), DICTU should show this proactive attitude. They can, for example, partake in pilots organized by the client’s innovation department or help

define the problem statement by learning from the context. To gain legitimacy for its position as a partner, DICTU must show its willingness to learn from its clients before undertaking action. In a way, they challenge the status quo by not merely executing their client’s request but observing where this request is coming from to develop a good product and the right one. By challenging the status quo and proving that this new way of working is valuable, DICTU gains legitimacy for their new position and establishes trust between them and the client.

When the context and business are better understood, DICTU can progress to the next horizon (H3) and cast its perspective on the innovation project to advise and collaborate with the client.

5.6.2 COMPLETE OVERVIEW OF THE ROADMAP

I envision a future in which valuable products/ services are created, developed, delivered, and implemented in the Ministry of EZK/ LNV by organizing the projects around close inter- and intra-organizational collaboration to create a profound understanding of the context facilitated by DICTU makes use of the Zegiswijzer. This designerly tool helps consider the various stakeholders throughout the project.

This future vision is realized by first using the Zegiswijzer on the interface between DICTU

and its client to challenge the status quo of silo working, which will lead to an incremental change in the current scenario. Disruptive change is when the clients consider DICTU a partner in innovation, leading to realizing the future vision. The bridge between incremental and disruptive change is proactively engaging in activities to create a profound understanding of the client's business and gain legitimacy and trust for their position.

This roadmap is depicted in Figure 31.

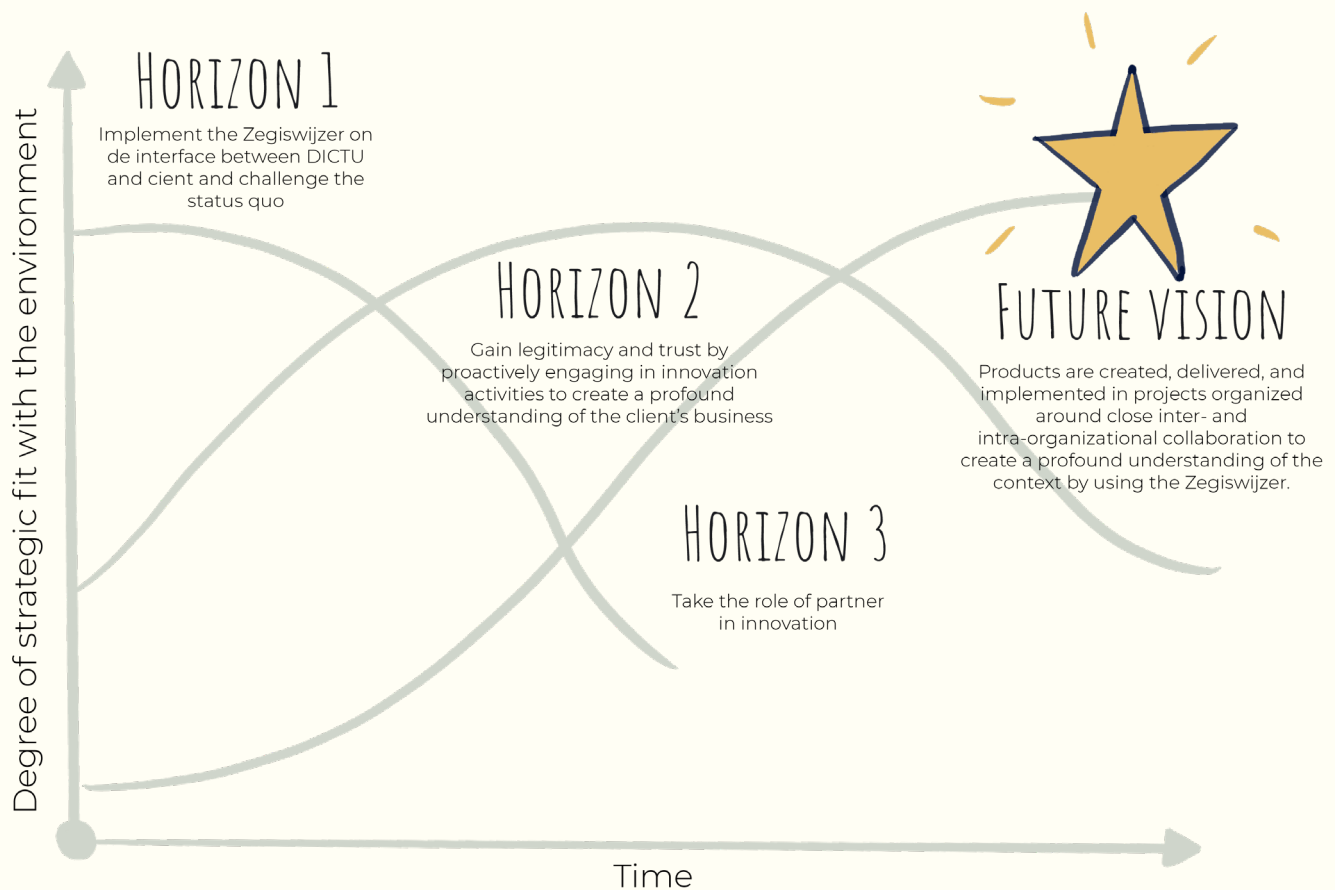


Figure 31: Roadmap Zegiswijzer

6. CHANGE MANAGEMENT

The goal of this graduation project is to not only create a design that structures interactions in the innovation process between DICTU and their client to influence the implementation of innovation positively but also to communicate the insights gained throughout the project and raise awareness for this topic. Accomplishing this result requires DICTU employees to change how they work and view innovation. Research states that one must gain legitimacy for the process before undertaking action for implementation and organizational innovation (McAdam, 2005). Therefore, considering change management tactics is of such value to let this new way of thinking and working find its place in the organization.

Literature states the importance of change management as our constantly changing environment affects all organizations (Todnem By, 2005). The success of managing change defines the success of change and is to be approached proactively (Balogun et al., 2015). Various models are created to explain an organizational transition and how to execute change. Examples are the Ten Commandments for Executing Change by Kanter et al. (1992) or Kotter's Eight-Stage Process for Successful Organisational Transformation (1996). However,

often these models consider the change for an organization as a whole, whereas eventually, it is realized by the sum of the individuals. The general steps of the models do present some proposed plan, but it lacks specific handles or elements to realize the change at an individual level. Prosci, an organization focused on change management based on the vision that company-wide change happens one person at a time (Prosci, n.d. e), does capture this individual and personal aspect in the change management process. They propose that the technical and people side should develop alongside to lead to increased value, see Figure 32. This is very much in line with results from other research, which confirms the interaction between the technical systems/artifacts and the social systems in change processes (Cummings & O'Connell, 1978; Tichy, 1983; Langstrand & Elg, 2012; Bayerl et al., 2013). Research from Tichy (1983) and Alänge (1992) investigated this interaction. It stated that "the cultural and political systems and the technical design (social and technical systems) need to be considered simultaneously" (Steiber & Alänge, 2015a).

To support organizations to work with the people side within change, Prosci developed a model which follows the same general

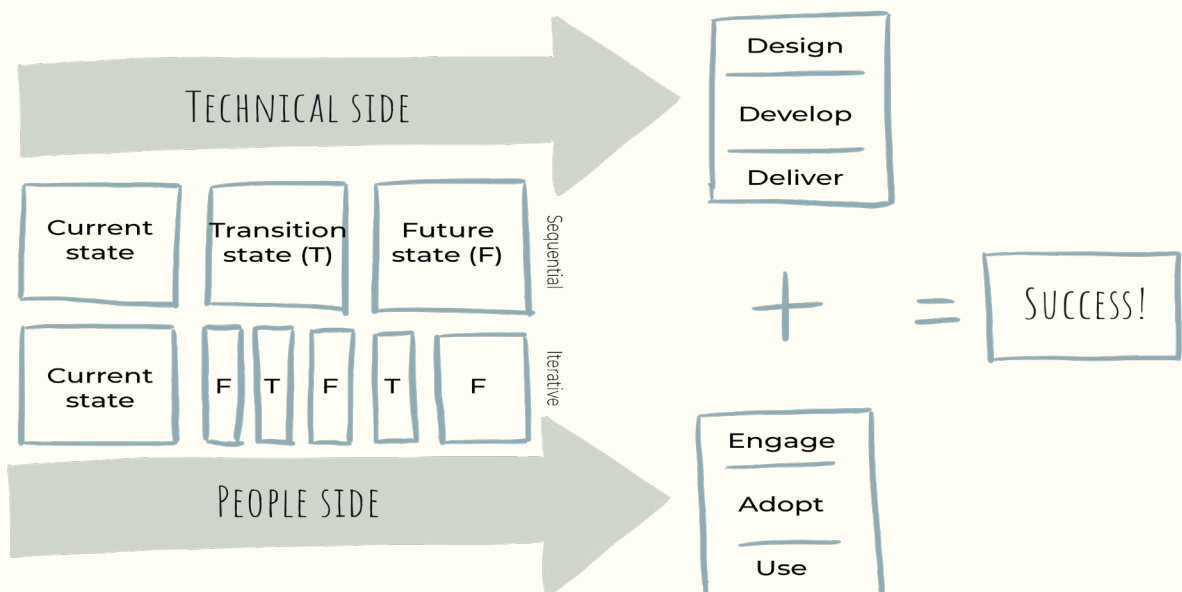


Figure 32: Unified value proposition for successful change based on prosci, n.d. F

steps (prepare approach, manage change, sustain outcome) as presented in the literature (Kuruppuarachchi et al., 2002; Steiber & Alänge, 2015a), however, at the core of these steps Prosci emphasizes individual change, see figure 33.

Section 6.1 will go into more detail on the key players for this change. Section 6.2 will present and describe a proposed strategy to realize the change.

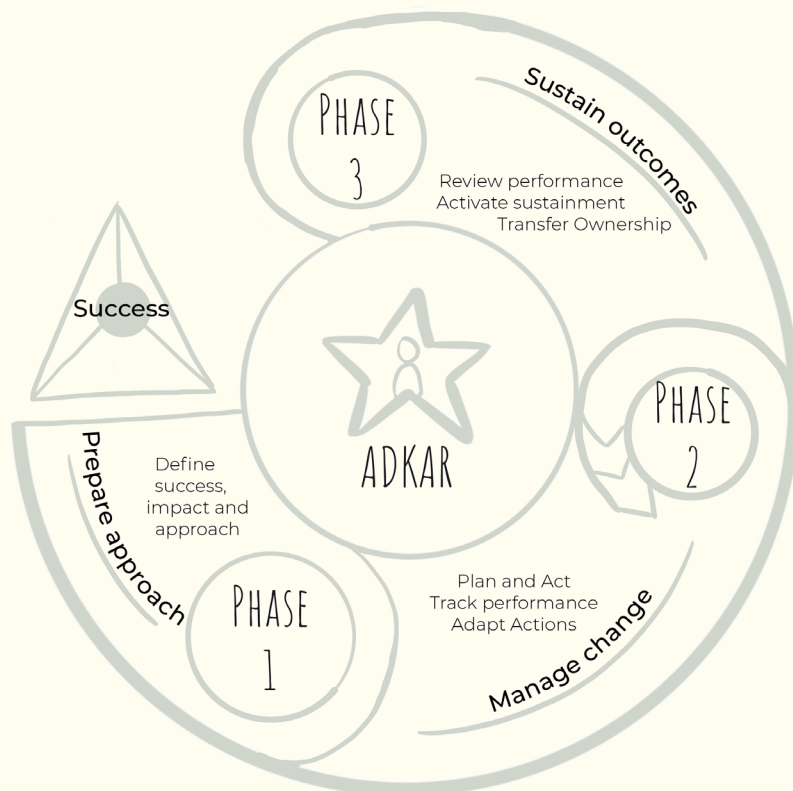


Figure 33: Prosci model for organizational change at an individual level based on Prosci, n.d. a

6.1 KEY PLAYERS

6.1.1 MESSAGE CARRIER

Various bodies of literature (Agostini & Filippini, 2019; Steiber et al., 2021; Alänge & Steiber, 2011; Steiber & Alänge, 2015a) state that top management involvement and their visible support is essential to implement organizational innovations, which also complements the results from Prosci, see figure 34. Therefore, the change management strategy should include people in higher management to advocate and distribute the insights across the organization.

Literature shows that it is valuable when managers act as mediators in decision processes (Erol et al., 2016; Adolph et al., 2014) as they thereby reduce the distance between them and the employees, which helps in reaching a wider distribution of the decision, and it increases employee participation to the decision (Shamim

et al., 2016; Schuh et al., 2014). Figure 35 depicts the organogram of DICTU. Research shows that higher management should take an active and open role in the change to make it effective. For this specific project, the change is mainly realized in the operation department, where projects are executed and interaction occurs between DICTU and client. Therefore, Richard Wiersema is an important stakeholder. He should mainly focus on raising awareness that DICTU needs to change its way of working to serve the clients in the innovation process better.

All this information aligns with the outcome of a session with the strategic department (Section 6.2.1.1 Awareness), where it was mentioned that the strategic, tactical, and operational levels must be considered to realize change.

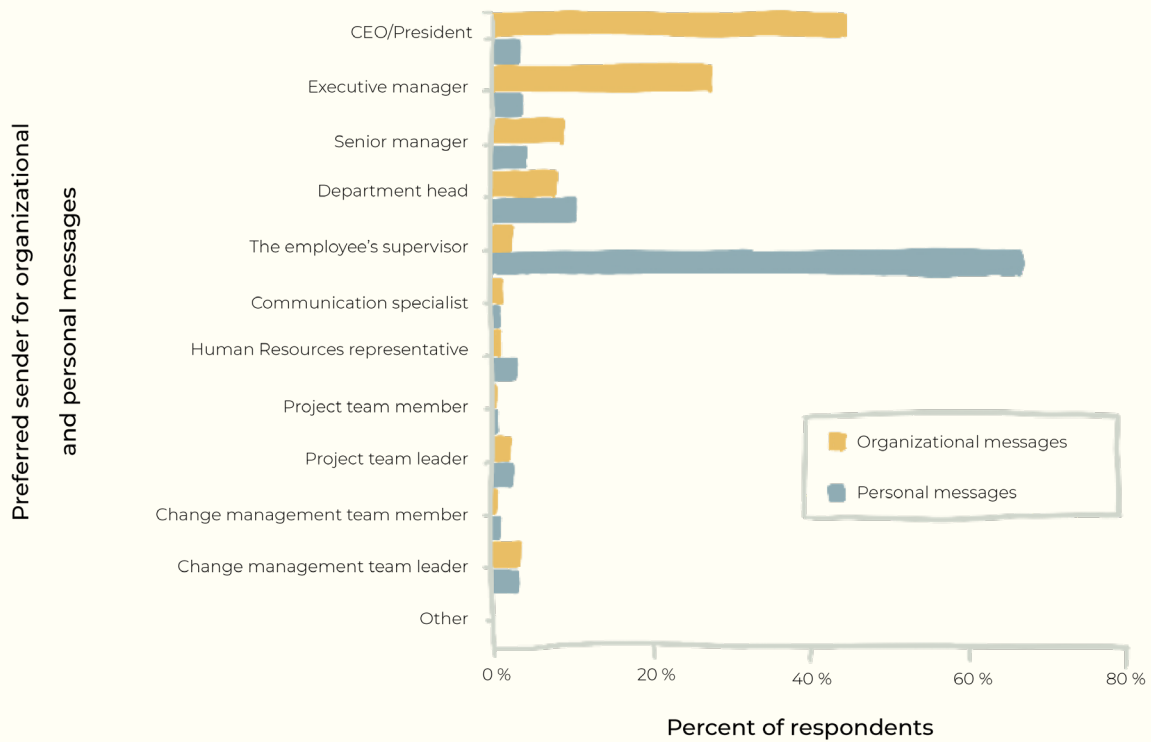


Figure 34: Preferred sender for organizational and personal messages based on Prosci (n.d. c)

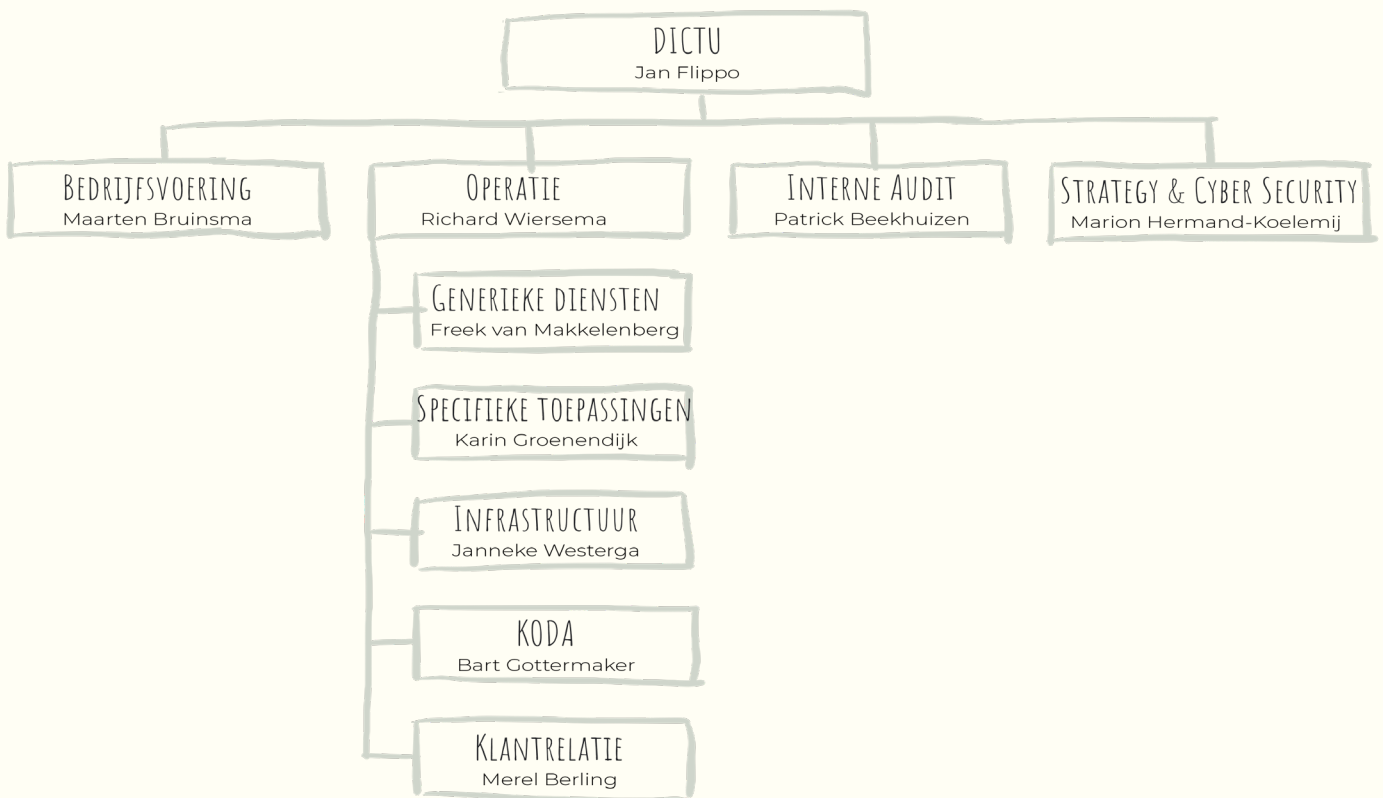


Figure 35: Organogram DICTU

6.1.2 EXECUTION PARTY

As explained earlier, the organizational message about change and the value of the new way of working and approaching a project should be done by higher management. However, the

insights and the Zegiswijzer should eventually find their place at the execution parties as they design, develop, and implement products for DICTU's clients. As taking on a project falls under

the Department of Customer Relations, Merel Berling is important. The execution of the project falls under the Department of Generic Services and Specific Applications, which makes Freek van Makelenberg and Karin Groendijk also important.

In the case of organizational innovation, interpersonal networks are the main channels for diffusion, making it essential to look at the organization from this network perspective (Frambach & Schillewaert, 2002; Steiber & Alänge, 2015a). This makes it important to consider not only the top-down diffusion of the innovation but also the bottom-up.

6.2 CHANGE MANAGEMENT STRATEGY

6.2.1 BUILDING BLOCKS

Prosci identified five building blocks (ADKAR) that individuals must have to make a change successfully (Prosci, n.d. b; Prosci n.d. c), 1) Awareness of the need to change 2) Desire to participate and support the change 3) Knowledge on how to change 4) Ability to implement the desired skills and behaviour and

5) Reinforcement to sustain the change.

The following subsections will discuss each building block and formulate actions to be executed to change the strategic department at DICTU and gain legitimacy for the schematic overview and tool.

6.2.1.1 AWARENESS

The first block in the model is about awareness and focuses on the need to change. Based on my interviews, I learned that clients value flexibility and expertise regarding innovation. Currently, DICTU focuses on regular projects instead of innovation projects, whereas the execution organizations are engaging more and more in innovation projects. Therefore, for DICTU to remain relevant in the future, it is necessary to change and adapt DICTU's way of working to facilitate and support their clients in innovation projects. McAdam (2005) talks about gaining legitimacy for the change before implementing the innovation. This can be done by challenging the status quo, which creates room for constructive discussion and presents alternatives.

I challenged the status quo at the Strategic Department by organizing a workshop for the Strategic Department on "Innovation." As many people talk about innovation and even more so as DICTU's clients engage in innovation projects,

it felt like a buzzword. The workshop, see Figure 36, aimed to create a common language on "What is innovation?" And "Is there a difference between innovation and to innovate?" I asked the participants to write down their definitions/keywords on innovation individually and discussed this plenary to distill common themes. Afterward, I presented my definition of innovation, see Section 3.1, and we checked if this definition summarized the common themes.

The definition of innovation included everything from idea generation to sustaining innovation and challenging the status quo. Thinking about what happens after realizing or developing a product is not standard. After presenting my definition, several people mentioned that the implementation and sustaining of innovation are indeed vital. Otherwise, resources have gone to waste.

The second step is to raise awareness not only on the topic of innovation but also on DICTU's



Figure 36: Pictures of the first session “Innovation versus to innovate”

current role in the innovation process in the Ministry of EZK and LNV ecosystem. Awareness of the current role and situation makes the problem clear and shows DICTU’s need to change. Therefore, I organized another session to discuss DICTU in context, see Figure 37. In this second workshop, I illustrated the innovation process, see Figure 2, (section 1.1.1 Ecosystem) and explained DICTU’s role. Then, I gave them an assignment: one was the client (who has a rather technical request), and the other was the contractor who should create a design based on the client’s request. Afterward, both parties were asked to reflect on the design process based on a few guiding questions. The answers and

insights were discussed in a plenary setting. See Appendix D and E for all the materials used for these sessions.

Several people mentioned that it was difficult to fulfill the design challenge because information about the “why” was missing. Why is this even the client’s request? Why are the technical specifications like this? What functional requirement does this technical specification fulfill? In a non-fictional scene, I asked them whom they would pose these questions, and many said, “The client.” I countered this question with, “But how do you know that the client knows what is necessary?” This sparked some



Figure 37: Picture of the second session “DICTU in context”

reflection and thought, and somebody said, “The end user. You must ask and involve the end user.” Moreover, it was precisely this point that I was trying to reach. In the current situation, there are too many transitions between teams, people, and organizations; things get lost in translation or forgotten. As there is no real moment in the current innovation process where all stakeholders attend the same meeting, reaching a common language and formulating clear expectations on the project is difficult.

I presented my stakeholder map, see Figure 12 (section 4.2 Stakeholder map) and elaborated on the different interactions in the innovation process based on my research. It became clear that there is currently no moment in the innovation process where each (representative of a) stakeholder is present at the same time. However, as the people said in the session, there is great value in collaborating and involving the

stakeholders throughout the project.

Based on the results from both sessions, there is awareness of innovation and DICTU’s need to change to remain relevant to their clients when they engage in innovation processes. However, more than awareness in the strategic department is needed. Other people from the organization who work with the clients and develop products should also be made aware. Therefore, at the end of the graduation project, I present my project, the insights, and how the Zegiswijzer can help structure interaction between DICTU and the client to understand the client’s problem/need better. I invited various people from various divisions to make them aware of the problem that DICTU is facing and a possible solution. The presentation and the Q&A afterward help raise awareness for this topic and communicate the need for a different approach.

6.2.1.2 DESIRE

The second block concerns the desire to participate in and support the change. For this, it is important that the employees of the Strategy Department and the employees of Operation can relate the need to change to their way of working. Once it becomes clear what the

proposed change means for an individual, it becomes easier to apply this into practice. See Appendix F for all the questions and results.

To spark this internal desire to participate in the change, I will pose weekly questions near the

coffee machine in the Strategy Department and the Operational Department for people to answer, see Figure 38. This will help in individual reflection and make the need to change more personal.

The first three questions were posed during the same period as the first session (see Figure 36). By asking questions related to the session, it is a preparation such that the employees already get familiar with the topic and have a chance to think about it beforehand. The three questions asked are:

1. When did you last have coffee with someone from another department?
2. What is innovation?

3. What is innovation in your day-to-day job?

As we discussed and agreed on the definition of innovation, there is some common language and interest. The next step is to spark individual reflection on how to apply these insights on innovation (session 1) and stakeholder involvement (session 2) into practice. Therefore, the following questions are formulated and presented in the format shown in Figure 38.

4. For whom do you innovate?
5. Do you ever speak with the person/department/end-user you innovate for? Why (not)?

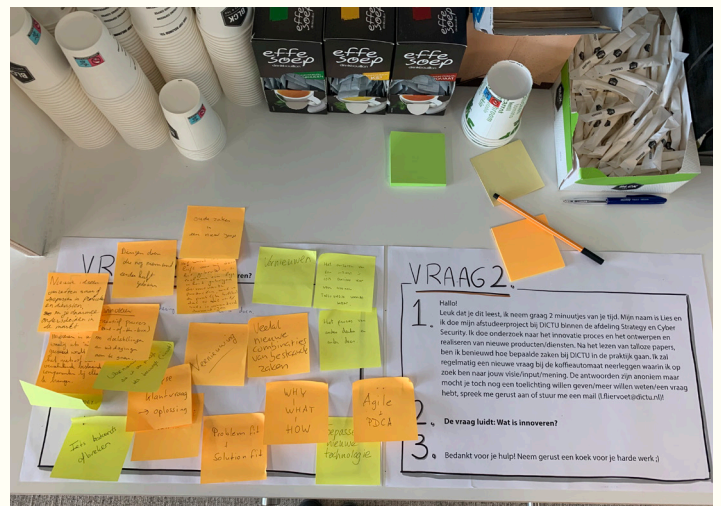
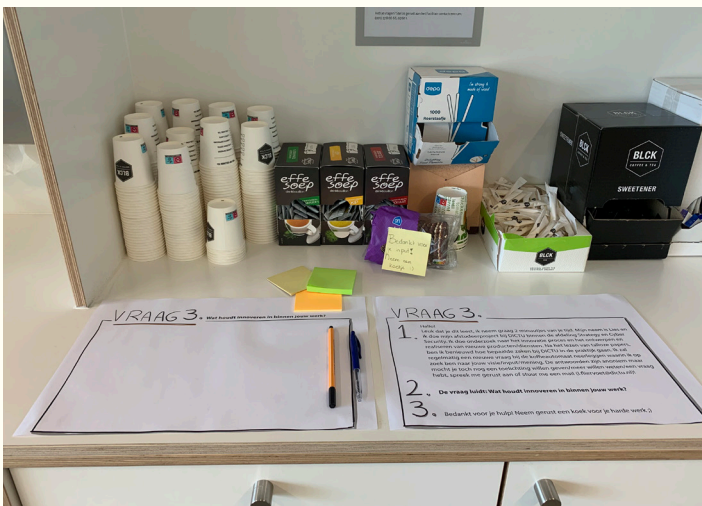


Figure 38: Example of a pictures posed at the coffee machine at DICTU

6.2.1.3 KNOWLEDGE

Having the awareness and desire to change is not enough; the employees should be equipped with additional knowledge on how to translate the proposed way of working into their day-to-day work and incorporate it into their standard way of working. The schematic overview of the innovation process, see Figure 19, already gives some additional insights and knowledge, but it still needs to be translated into practice.

To figure out what knowledge and format would be preferred by the team, I sent out a questionnaire. The first question was to reflect on the sessions and the questions and formulate their main personal insight and how these insights can be applied to practice. The answers were:

- Innovation and innovating are more complex and fragile than I initially thought. We need to steer innovation better and make it possible.
- Innovating is the whole process from head to toe. This can be applied to practice by repeating the goal as a practical solution, which should be desirable to the client.
- It is essential to have even more detailed conversations with, e.g., the client to discover what they truly need and want. This can be applied by asking more questions to understand the client and check if what you have heard was meant.

- It is essential that all stakeholders in the innovation process have shared visions and definitions. Organizing the process and actors well around the content within the innovation process is imperative. Therefore, the various definitions and problem statements should be made clear at the start. It is important not to start executing to order immediately.
- Before starting a project, take a step back and ask yourself: Which (social) goal do we want to achieve and why?
- This can be done by reflecting and not merely executing the order. The thing we usually do.
- Innovation and to innovate are two different things. There can be more awareness when working on these topics.
- More content-level knowledge about a particular subject or process in which the project is located
- Knowledge about seduction/temptation in the innovation management sector. How can you ensure that all
- stakeholders have a shared vision/ definition? How do you foster the belief
- to take on this project together? More insight into the collective interests of the stakeholders
- How you can cultivate and reinforce an innovative mentality

It was asked what knowledge/information people would still need to apply these insights to practice. The general results are that the people see themselves already having much knowledge on the topic, but there are still some specific parts of information they would like to receive:

- A method and environment that gives me the space to apply the insights
- Knowledge of the innovation processes of the DICTU clients

6.2.1.4 ABILITY

The fourth building block is about the ability to implement the desired skills and behavior. For this, it was mentioned that they need the following:

- Room and support. The environment needs to be innovation-friendly and show potential. Otherwise, innovation will be incidental
- Do innovation together with colleagues
- Awareness and a core team with like-minded people with a collective vision of what innovation should be.
- Cultural change within the organization, more focus on customer experience

The follow-up question was how people would like to receive this information/additional knowledge. What people mention as necessary is that it should be interactive and be available on various means so the person himself can decide what works best for him. Especially a workshop format helps in experiencing the knowledge in practice and makes it easier to discuss experiences with colleagues.

Based on the results, I suggest organizing a workshop about change management and innovation in which practical assignments on stakeholder management are constructed. This can help translate the intentions the individuals formulated into executable goals. These workshops should be organized for the people of the strategic department and the product owners.

The Zegiswijzer comes into play, combined with the workshops described in the previous section. In an evaluation I organized with an important Product Owner within DICTU, it was mentioned that people must experiment with the tool. Test it out and be able to adjust it based on their learning from the experiment. A culture should be established where employees feel the room and freedom to experiment and learn. Having this culture allows them to apply the theory into practice and make working and using the tool their own. This can then help to implement the tool further in the organization.

6.2.1.5 REINFORCEMENT

The last building block is sustaining the change by reinforcement; this increases the likelihood that a change will be continued. This can be done by giving presentations on important events on the schematic overview and the tool.

There should be a focus on how others can apply this knowledge and the tool to their work. The presentations can be complemented with articles and videos, which can be posted on the Intranet.

6.2.2 PLAN AND TIMELINE

For a successful implementation, creating a clear strategy to manage the change is beneficial by mapping the different milestones to the initiative's lifecycle (Prosci, n.d. d; Prosci, n.d. f). Figure 39 depicts this strategy.

The project started in March 2023 and ends in July 2023, after which the DICTU Strategy Department can take on it. The project is shaped by a dense research period in which literature and interviews were used to learn more about the context. Throughout this period, I had many conversations with the people operating in this ecosystem, varying from colleagues in the strategy department to developers in the operation department and from client and project managers to the heads of innovation at various organizations. By having genuine conversations and showing mutual interest, I could convey my insights in an informal and low-key way. This has already helped in raising general awareness for the topic of innovation and what DICTU's role is within this whole process.

As I learned more about the context and understood DICTU's role better over the project, I also felt that what I discovered during this project could be of great value

to the organization. To ensure the insights I gained would be used to improve DICTU and how they create and deliver their products/services, I decided to take more calculated steps in addressing the topic of innovation and conveying these insights. Around May, I started posting weekly questions near the coffee machine to let people think about carefully selected topics in a low-key and low-intrusive way. These questions were complemented by two interactive guided sessions in which the members of the Strategy Department discovered the themes of innovation and stakeholder management by themselves (see Section 6.2.1.1 Awareness and 6.2.1.2 Desire).

All these bits and pieces, from the different questions at the coffee machine to official meetings to informal lunch break conversations and the sessions I organized, helped create a fruitful ground on which my end project and presentation could land. This makes the environment aware of my insights, and I hope it sparked joy and motivation to take my work to the next level. The next level would be to execute the step about knowledge (Section 6.2.1.3 Knowledge) and organize/shape a training program that helps formulate goals and execute them to realize the change.

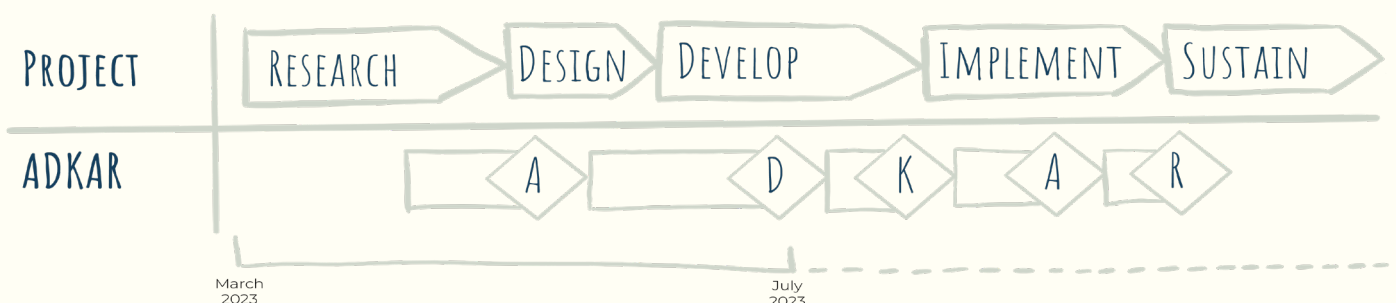


Figure 39: Timeline and ADKAR milestone identification

7. DISCUSSION AND FUTURE WORK

There is already much knowledge available in the literature on which this project builds. The schematic overview and the tool make use of this knowledge and try to capture the practical application of this knowledge. However, this translation from literature to practice results in some discussion points. Sections 7.1, 7.2, and 7.3

critically reflect on the literature and discuss the practical application of it to the Zegiswijzer. Section 7.4 discusses a few elements concerning the structure and process of the project. Each section presents a few recommendations for future work.

7.1 CLOSE THE LOOP ON INNOVATION LITERATURE

The “not invented here” culture is important when discussing organizational innovation in the governmental context. Pope (2019) suggests breaking down the silos and fostering a culture where teams and employees are encouraged to think beyond their domain and invest in shared tools. The tool created in this project, see Section 5.4 Design solution, focuses on intra-organizational collaboration. However, the part about inter-organizational collaboration needs to be explicitly considered. Various meetings and

interviews mentioned something about the “not invented here” culture also existing within DICTU and is a significant point. The chapter about change management describes a strategy to communicate and implement the tool. However, it does not explicitly take the existing culture into account. Future research could investigate this aspect of culture and silo working more closely and see if and how the tool helps break down these silos.

7.2 CLOSE THE LOOP ON IMPLEMENTATION LITERATURE

Implementation is about overcoming certain norms and changing the status quo so that innovation has a place in the organization (McAdam, 2005). This project mainly focused on overcoming certain norms and challenging the status quo at DICTU and how they view innovation and their role in the innovation process. However, as the tool operates on the interface between DICTU and its client, the norms and status quo should also be challenged to speak of successful implementation. Based on the various conversations and Excellent Innovation training (organized by RVO), I can already see the RVO challenging the status quo. However, the organizations are big, and change takes time. So, the success of the tool's implementation depends on the willingness and collaboration of DICTU's clients. Additionally, RVO is only one of DICTU's clients, so although

the RVO is open for challenging, this might be different for the other clients. It could be beneficial to have more insight into how other organizations view innovation and what they see as a possible way of collaboration.

When reviewing the schematic overviews provided by Kuruppuarachchi et al. (2002), McAdam (2005), and Steiber and Alänge (2015a), the implementation phase is constantly depicted as a single block within the whole process, see figures 4, 5 and 6. This aligns with the project processes run at DICTU. While conducting the literature review and combining it with a design perspective, it is concluded that implementing innovation should not be a block that follows the other phases. Instead, it should be underlying and continuous to the other phases and incorporated into the whole

process. In the schematic overview depicted in Figure 19, the Zegiswijzer helps consider the implementation earlier in the process. However, it is still one moment in time instead of the proposed and desirable continuous approach. It is hoped that the tool sparks some reflection on the value of considering the implementation earlier in the process. Although this is fundamental, the tool does not guarantee this reflection.

Section 3.2 Implementation literature describes the three terms of diffusion, implementation, and adoption (Kee, 2017) and the nuance the three definitions hold. This nuance is clear when describing the terms more clinically; however, when applying them to practice, the lines get blurrier. The question is whether and how the distinction between these terms is relevant, how this can best be integrated into the schematic overview depicted in Figure 19, and how this translates to the Zegiswijzer. Future research can focus on describing different actions related

explicitly to diffusion, implementation, and adoption. This information can then be used to enrich future models that try to describe the (innovation) process, as has been tried by Kurupparachchi (2002), McAdam (2005) and, Steiber and Alänge (2015a), see Figures 4, 5 and 6.

A following point of discussion is that although the literature states several internal and external factors that influence the implementation of organizational innovation, these factors were only considered indirectly. For example, the internal context refers to a firm's history and, therefore, its receptiveness to change (Buchanan et al., 2005). DICTU was founded by combining existing organizations into one collective organization, which would do the IT support for other organizations within the ministry. Future research could also investigate this process to see what did and did not work and use those insights for the implementation strategy of the designed tool.

7.3 CLOSE THE LOOP ON INTERACTION LITERATURE

Laursen and Andersen (2016) state that the perceived task is critical in setting expectations for the supplier's role. The current tool and its preparation questions cover the topic to some extent as they help the stakeholder reflect on the project and the desired result (reflection on 'target'). When the tool is filled out in a collaborative session, the path is further specified and defined, which helps to reflect on the 'path.' Therefore, causal ambiguity (Robillard, 1999) is somewhat considered. However, by trying to specify these points, it almost assumes that all tasks are either Next generation tasks or Decomposed tasks, see Figure 7. Therefore, the question of the tool's applicability to open-ended tasks still needs to be answered. Future research could determine if and how the tool differs for open-ended, next-generation, and decomposed tasks.

Research by Wynstra, Axelsson, and Van der Valk (2006), based on research by Håkansson

(1982), identified several factors that affect the form and content of the interaction process. Three groups of variables are 1) characteristics related to the atmosphere (e.g., degree of cooperation), 2) general environmental factors (e.g., the number of alternative exchange partners), and 3) the characteristics of the organizations involved (e.g., marketing/purchasing strategy) and the characteristics of the actual product (e.g., degree of complexity). Especially the first two groups are especially interesting as the tool is expected to be used in an online meeting. Due to the Covid-19 pandemic, much work moved online and remained online even though the restrictions to work at the office were lifted. How this online setting might influence the outcome, as opposed to an offline setting, was not investigated. The outcome of an online versus offline event might differ in perceived engagement, commitment, and sense of accountability. An online format was chosen due to convenience when bringing

many stakeholders together. However, the possible downsides of this choice were not deliberately considered.

Although the relationship between DICTU and the client differs per client, this variation was not considered when designing the tool. However, the existing relationship can significantly

influence the likelihood of accepting/rejecting the tool and gaining insights. For example, how DICTU communicates the experimentation of the tool and the willingness to collaborate and continue developing the tool to deliver better quality products and services might be received differently by one client than the other (Bruning & Ledingham, 2002).

7.4 POINTS OF DISCUSSION REGARDING THE PROJECT

There are also some points to discuss regarding the project itself. For example, brainstorming to develop a means for the tool could have been improved. Choosing the look and feel of a tool in an online workshop is straightforward. Options like tangible artifacts that individuals could use in a meeting were not considered. This might have led to an undiscovered, better-suited alternative to the final format shown in Section 5.4 Design solution. However, during the evaluation of the tool, it is mentioned by various participants that the chosen mean is convenient, effective, and functional.

A second point of discussion is that most literature and field research point towards actions and details for the first steps of the process when influencing the implementation of an innovation. Therefore, these steps at the start of a project seem to affect the implementation of the product indirectly. However, this has been a grounded assumption, but this project does not specify what factors and details at the start of a project contribute (positively or negatively) to the implementation.

The third point of discussion is that this solution is created based on much information from RVO. They showed interest in the project and were eager to help. There were many conversations with various people at RVO, and their views are much considered while designing. However, the final solution is not specific for RVO and DICTU but for DICTU and all their clients. Given the limited time and resources and the fact that RVO is DICTU's biggest client, this is acceptable. However, an essential next step is

to involve the other clients more deliberately in this experiment. It could well be that the tool is tailored to the different clients to serve them well and make sure the fit between DICTU and client processes is considered. However, this should be investigated.

The last point of discussion is that the innovation departments of the RVO and NVWA also have trust issues within their organization. They, too, need to gain legitimacy for their position, show innovation's value, and follow a designerly approach to execute these projects. This can be an opportunity as well as a threat. It is an opportunity as it puts DICTU and the innovation department on the same side, making them work together to reach this legitimacy. It can also be a threat as it is more difficult to persuade the various organizations and to gain the legitimacy needed to change and fulfill the future vision. Future steps could further investigate if and how a collaboration between DICTU and the client's innovation departments could be fruitful and desirable.

“IT COULD WELL BE THAT THE TOOL IS TAILORED TO THE DIFFERENT CLIENTS TO SERVE THEM WELL AND MAKE SURE THE FIT BETWEEN DICTU AND CLIENT PROCESSES IS CONSIDERED.”

8. CONCLUSION

The innovation projects in the Ministries of EZK and LNV often start at the implementing agencies (e.g., RVO and NVWA). Only when the experimentation phase of the innovation results in a viable business case is DICTU contacted to realize and scale the prototype into an actual product/service. DICTU buys individual components from their (market) suppliers, constructs the right element internally, and delivers this to RVO/NVWA organization. RVO/NVWA, in turn, finalize, implement, and diffuse the product further in their organization to, for example, the inspectors.

Shortcomings in this process are that the final product DICTU develops is only sometimes in line with the client's expectations, that the realization process takes longer than intended, or that the implementation and the implications of the product are overlooked or underestimated. Multiple organizations and departments are involved in the innovation process, which dissects it, leaving it a broken process. From a design point of view, this dissection is challenging as stakeholder involvement and collaboration are crucial to finding the fitting solution to the problem.

The topics of implementation, interaction, and innovation are discovered by consulting the literature. Observations and interviews with various stakeholders within this ecosystem complement the literature. By combining all information acquired from literature research, observations, and interviews, the general outlines of the innovation process within this context were constructed, see Figure 17.

By co-evolving the problem and solution space, the problem was framed as lacking interaction with all stakeholders on the interface between DICTU and their client. To positively influence the innovation process and contribute to the effectiveness of implementing a new product/service, it is proposed to organize an additional

interaction with all stakeholders before the product/service is realized. For this, a tool is created to help structure this additional interaction. It consists of five steps in which the problem is defined (1) and the ambition is formulated (2). By combining the perspectives of the different stakeholders, it is possible (and likely) that the problem definition and ambition are altered and refined. The step on reflection (3) is repeated as often as necessary. Afterward, the path (4) to go from problem to going live of the product and the following period is constructed. Based on this information, a decision (5) can be made on whether and how to continue with the project and realization of it.

This tool will be communicated to the clients as an experiment in which DICTU is developing a way of working towards innovation that also fits their client's way of working. By not superimposing the tool but having an open attitude and the actual desire to learn from their clients, the likeliness of the client accepting the tool is higher. Once the tool finds its place on the interface between DICTU and the client, a sense of trust and commitment is established. DICTU can undertake action to participate more in the experimentation phase of the client's innovation department. In this way, DICTU can learn from the context in which the final product they realize will find its place. It is proposed that this will positively influence the realization and implementation of the innovation.

Although the Zegiswijzer is evaluated with various stakeholders and updated according to their feedback, the tool should be tested on a real innovation project between DICTU and their client to learn if and how it adds value to the process.

9. EPILOGUE

As described in the preface, I started this project with an interest in innovation and the implementation of innovation and to investigate if and how design can help improve this process. In the past semester, I immersed myself in the literature and context, and only now, when reflecting on the entire process, do I see the true value and potential my work holds. Throughout this process, I learned how to use a designerly approach to create a better understanding of the problem and solution space. It made me an expert on this topic, and I am excited to use

this knowledge in my future career to help various organizations learn more about the context they operate in and how they can use this knowledge to create the right product and consider the implementation, to actually make a change. See Appendix G for the elaborate personal reflection.

By working in this context, I see we still have a long way to go, but I am excited about the journey.

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