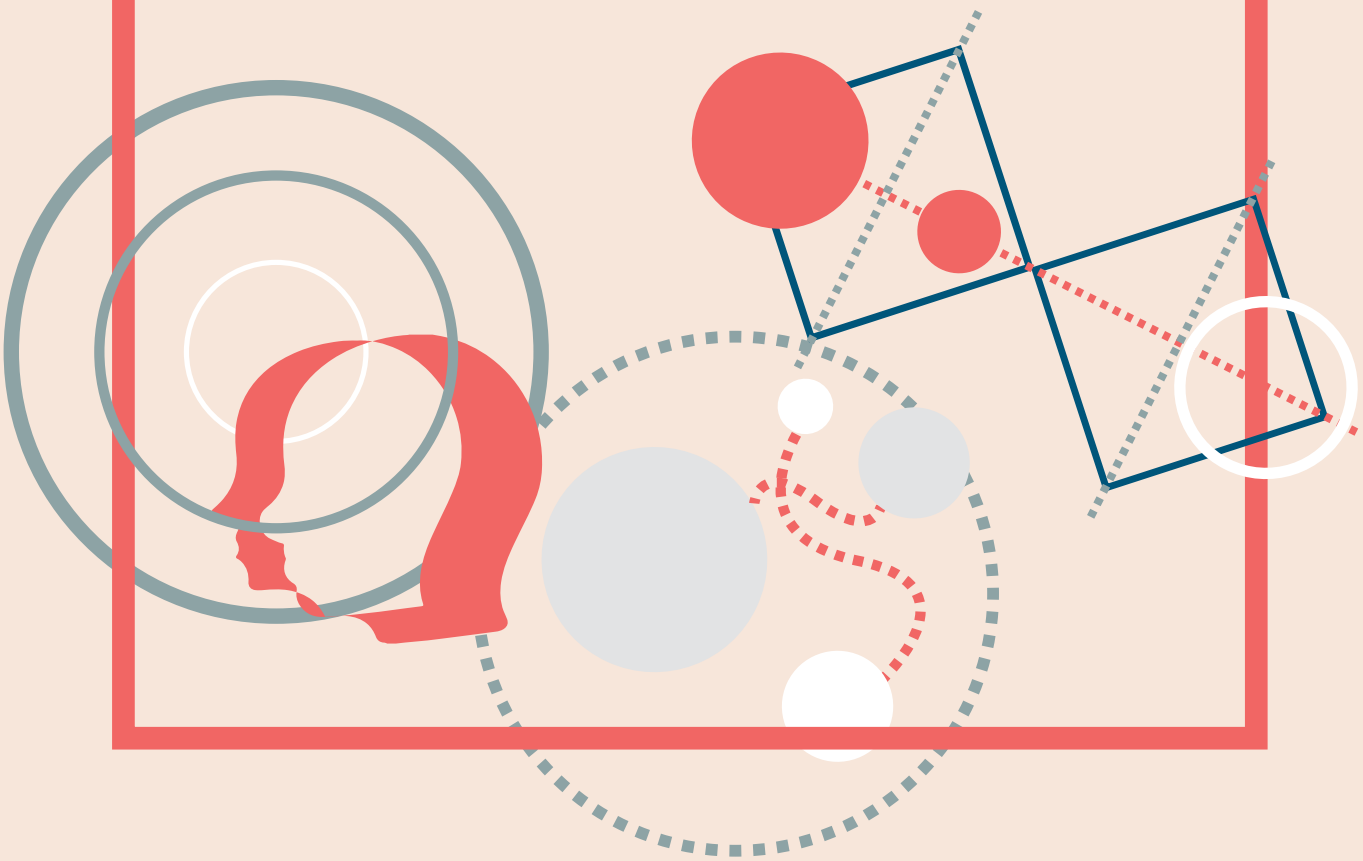
Adopting a systemic design perspective within a design thinking practice

Master thesis by **Vinodha Suresh**



Appendix

Adopting a systemic design perspective within a design thinking practice

Master thesis by **Vinodha Suresh**
September 2020

VANBERLO x TU Delft

Table of Contents

DESIGN FOR our future

3982

TU Delft

IDE Master Graduation

Project team, Procedural checks and personal Project brief

This document contains the agreements made between student and supervisory team about the student's IDE Master Graduation Project. This document can also include the involvement of an external organisation, however, it does not cover any legal employment relationship that the student and the client (might) agree upon. Next to that, this document facilitates the required procedural checks. In this document:

- The student defines the team, what he/she is going to do/deliver and how that will come about.
- SSC E&SA (Shared Service Center, Education & Student Affairs) reports on the student's registration and study progress.
- IDE's Board of Examiners confirms if the student is allowed to start the Graduation Project.

USE ADOBE ACROBAT READER TO OPEN, EDIT AND SAVE THIS DOCUMENT

Download again and reopen in case you tried other software, such as Preview (Mac) or a webbrowser.

STUDENT DATA & MASTER PROGRAMME

Save this form according the format "IDE Master Graduation Project Brief_familyname_firstname_studentnumber_dd-mm-yyyy"
Complete all blue parts of the form and include the approved Project Brief in your Graduation Report as Appendix 1 !

** chair Dr. Ir. Mieke van der Bijl-Brouwer dept. / section: DOS

** mentor Prof. dr. Pieter Jan Stappers dept. / section: HCD

2nd mentor Philémonne Jaasma

organisation Van Berlo

city Eindhoven country The Netherlands

comments (optional)

Chair should request the IDE Board of Examiners for approval of a non-IDE mentor, including a motivation letter and c.v.

Second mentor only applies in case the assignment is hosted by an external organisation.

Ensure a heterogeneous team. In case you wish to include two team members from the same section, please explain why.

Procedural Checks - IDE Master Graduation

TU Delft

APPROVAL PROJECT BRIEF

To be filled in by the chair of the supervisory team.

chair Dr. ir. Mieke van der Bijl-Brouwer date 18 - 03 - 2020 signature Mieke van der Bijl-Brouwer Digitally signed by Mieke van der Bijl-Brouwer Date: 2020.03.18 10:28:00 +01'00'

CHECK STUDY PROGRESS

To be filled in by the SSC E&SA (Shared Service Center, Education & Student Affairs), after approval of the project brief by the Chair.
The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total: 31 EC

Of which, taking the conditional requirements into account, can be part of the exam programme 31 EC

List of electives obtained before the third semester without approval of the BoE

YES all 1st year master courses passed

NO missing 1st year master courses are:

name date 20-3-2020 signature CB

FORMAL APPROVAL GRADUATION PROJECT

To be filled in by the Board of Examiners of IDE TU Delft. Please check the supervisory team and study the parts of the brief marked **.
Next, please assess, (dis)approve and sign this Project Brief, by using the criteria below.

- Does the project fit within the (MSc)-programme of the student (taking into account, if described, the activities done next to the obligatory MSc specific courses)?
- Is the level of the project challenging enough for a MSc IDE graduating student?
- Is the project expected to be doable within 100 working days/20 weeks ?
- Does the composition of the supervisory team comply with the regulations and fit the assignment ?

Content: APPROVED NOT APPROVED

Procedure: APPROVED NOT APPROVED

comments

name Monique von Morgen date 30-3-2020 signature MvM

Personal Project Brief - IDE Master Graduation

TU Delft

The role of visualization in a systemic design process — project title

Please state the title of your graduation project (above) and the start date and end date (below). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

start date 16 - 03 - 2020 14 - 08 - 2020 end date

INTRODUCTION **

Please describe the context of your project, and address the main stakeholders (interests) within this context in a concise yet complete manner. Who are involved, what do they value and how do they currently operate within the given context? What are the main opportunities and limitations you are currently aware of (cultural- and social norms, resources (time, money, ...), technology, ...)

VanBerlo is a strategic design and innovation agency based in Eindhoven, The Netherlands. One of their departments, named Design for Transitions, applies theory and knowledge from different fields such as change management, organizational design, systems thinking and transition design to solve complex problems that lie in the realm of societal challenges. They work in a multidisciplinary team of designers who come from industrial design, visual communication, UX design to strategic design. The typical client base they cater to are municipalities, service providers and government agencies.

As a team, they are currently in the process of building theory and tools that can support their efforts of tackling societal challenges. While addressing a problem of this nature, their focus is greater on the first three phases of their Design thinking process - explore, scope and understand, where they deep dive into the context without necessarily formulating a solution in mind. This often results in several co-creation workshops with clients/actors who have a stake in the problem and who's input is necessary to enrich the problem space. The outcome in these projects are commonly delivered in the form of visualizations. These artifacts not only prove to be a tangible deliverable at the end of a strategic project but also act as a way for the clients to gain traction within their own organization, hence making 'visualization' a significantly important part of the process.

From an organizational point of view, VanBerlo also aims to build capacity to tackle complex problems not only within their own team but also broaden it to other traditional departments of design such as product design whom they often are in close collaboration with. Being in an infant phase of developing this new knowledge, they are looking for ways to dive deeper into and embed concepts from systems thinking and transition design into their current Design Thinking process.

This presents an opportunity to explore the ongoing efforts in the emerging field of systemic design*,that combines systems thinking with designerly capabilities (such as visualization), to support and advance VanBerlo's process, methods and tools for its designers.

(*Systemic design is a growing field that aims to bring key designerly competencies of human centeredness, reasoning, research methods and visualization to complex, multi stakeholder service systems. The goal of it is to help designers describe, map, propose and eventually reconfigure these systems (Jones, 2014))

References:
- Jones, P. H. (2014). Systemic design principles for complex social systems. In Social systems and design (pp. 91-128). Springer, Tokyo.

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Introduction (continued): space for images

image / figure 1: VanBerlo Agency

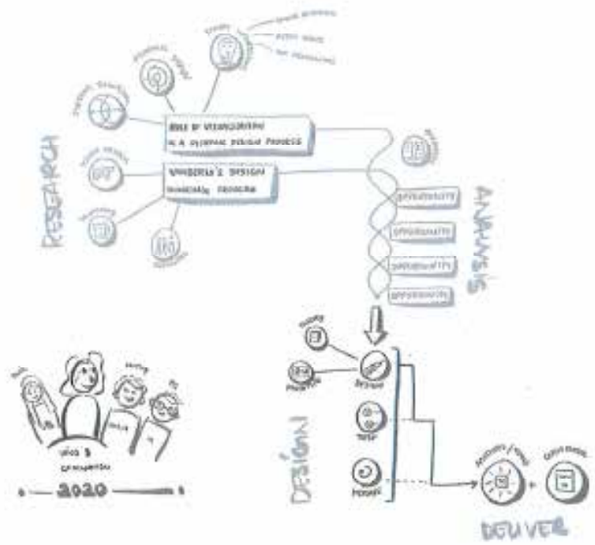

image / figure 2: Project Overview

PROBLEM DEFINITION **

Limit and define the scope and solution space of your project to one that is manageable within one Master Graduation Project of 30 EC (= 20 full time weeks or 100 working days) and clearly indicate what issue(s) should be addressed in this project.

In order to build capacity in dealing with complex problems through a systemic lens, new or enhanced tools and methods will need to be introduced into VanBerlo's way of working. The research scope of the project will focus on the practice and role of visualization in solving complex problems, that is evident in systemic design, to enhance VanBerlo's design thinking process. This approach can impact research, synthesis, co creation or collaboration activities that are performed in the first three phases of their six phase design thinking process, which will be studied.

In systemic design, methods such as GIGA mapping (Sevaldson, 2011) and synthesis mapping focus on visualizing a system to create visual narratives that help designers and stakeholder groups to generatively gather a collective understanding of the context, frame the problem space and recognize the potential for design. (Jones & Bowes, 2017). Visualizing systems, apart from being crucial to sense making, also present some opportunities to be investigated. One, this practice not only helps in synthesizing data but also has the potential to guide the data gathering and research process in multi-stakeholder settings. Two, systems often have a dynamic nature that cannot be represented as a moment in time. An exploration of representing dynamic systems could lead to novel ways of sense making and visualizing them. Three, designers have the ability to recognize human insights on different levels (NADI Model, van der Bijl Brouwer, 2017), which when effectively represented or visualized, can be leveraged in designing for relationships. These are some of the potential direction that can emerge from the initial research to advance the existing systemic design practices and deliver value through proposed tools/methods to VanBerlo.

- Sevaldson, B. (2011). GIGA-Mapping: Visualisation for complexity and systems thinking in design. Nordes, (4).
- Jones, P., & Bowes, J. (2017). Rendering systems visible for design: Synthesis maps as constructivist design narratives. She Ji: The Journal of Design, Economics, and Innovation, 3(3), 229-248.

ASSIGNMENT **

State in 2 or 3 sentences what you are going to research, design, create and / or generate, that will solve (part of) the issue(s) pointed out in "problem definition". Then illustrate this assignment by indicating what kind of solution you expect and / or aim to deliver, for instance, a product, a product-service combination, a strategy illustrated through product or product-service combination ideas. .... In case of a Specialisation and/or Annotation, make sure the assignment reflects this/these.

Study VanBerlo's design practice and identify opportunities to enhance their way of working by integrating the knowledge from systemic design and the insights from research into the role of visualization in solving complex problems.

The outcome of the project could potentially result in a new method, tool or guide that is derived from investigating the current practices in systemic design and exploring new opportunities that can enrich these practices. The tool or method could support collaborative activities amongst designers and stakeholders to gather data, probe inquiry and synthesize it for achieving a collective understanding of the problem space.

The final deliverable will also be accompanied by a knowledge deck that outlines the theories from systems thinking and systemic design and guides VanBerlo's designers on how to best implement the toolkit/methodology in their projects. This can support the capability building efforts for solving complex problems that are already being undertaken within the team.

Personal Project Brief - IDE Master Graduation

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PLANNING AND APPROACH **

Include a Gantt Chart (replace the example below - more examples can be found in Manual 2) that shows the different phases of your project, deliverables you have in mind, meetings, and how you plan to spend your time. Please note that all activities should fit within the given net time of 30 EC = 20 full time weeks or 100 working days, and your planning should include a kick off meeting, mid-term meeting, green light meeting and graduation ceremony. Illustrate your Gantt Chart by, for instance, explaining your approach, and please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any, for instance because of holidays or parallel activities.

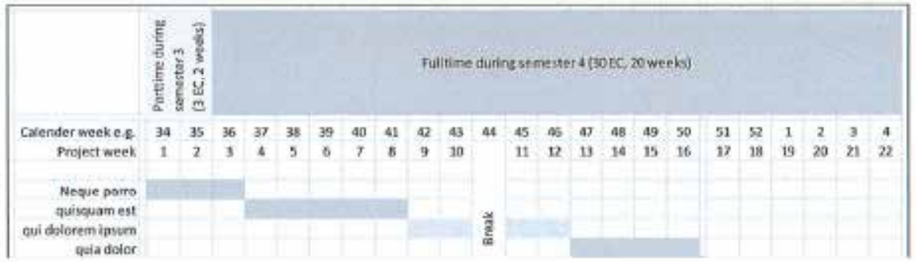
start date 16 - 3 - 2020 14 - 8 - 2020 end date

TO PLACE YOUR GANTT CHART IN THIS AREA:

- **SAVE THIS DOCUMENT TO YOUR COMPUTER AND OPEN IT IN ADOBE READER**
- **CLICK AREA TO PLACE THE GANTT CHART**

PLEASE NOTE:

- **DO NOT IMPORT XLS OR ANYTHING LIKE THAT, MAKE SURE TO USE AN IMAGE**
- **GANTT CHART WILL SCALE TO FIT AUTOMATICALLY**
- **NATIVE RATIO IS 16:10**
- **IF YOU EXPERIENCE PROBLEMS, COVERT YOUR GANNT CHART TO PDF AND TRY AGAIN**



Phase 1: Research
The research will be pursued in two parts. Part 1 : Deep dive into the systemic design literature and current practices of visualization to identify new opportunities. Conduct qualitative interviews with Systemic Design practitioners and students who have undertaken the SOD (Systems oriented design) course. Part 2: Investigate VanBerlo's way of working by studying past projects and interviewing designers on their design practice to identify points of intervention (Could be research practices, problem framing, co-creating with stakeholders, facilitation, evaluation or selection of solution).

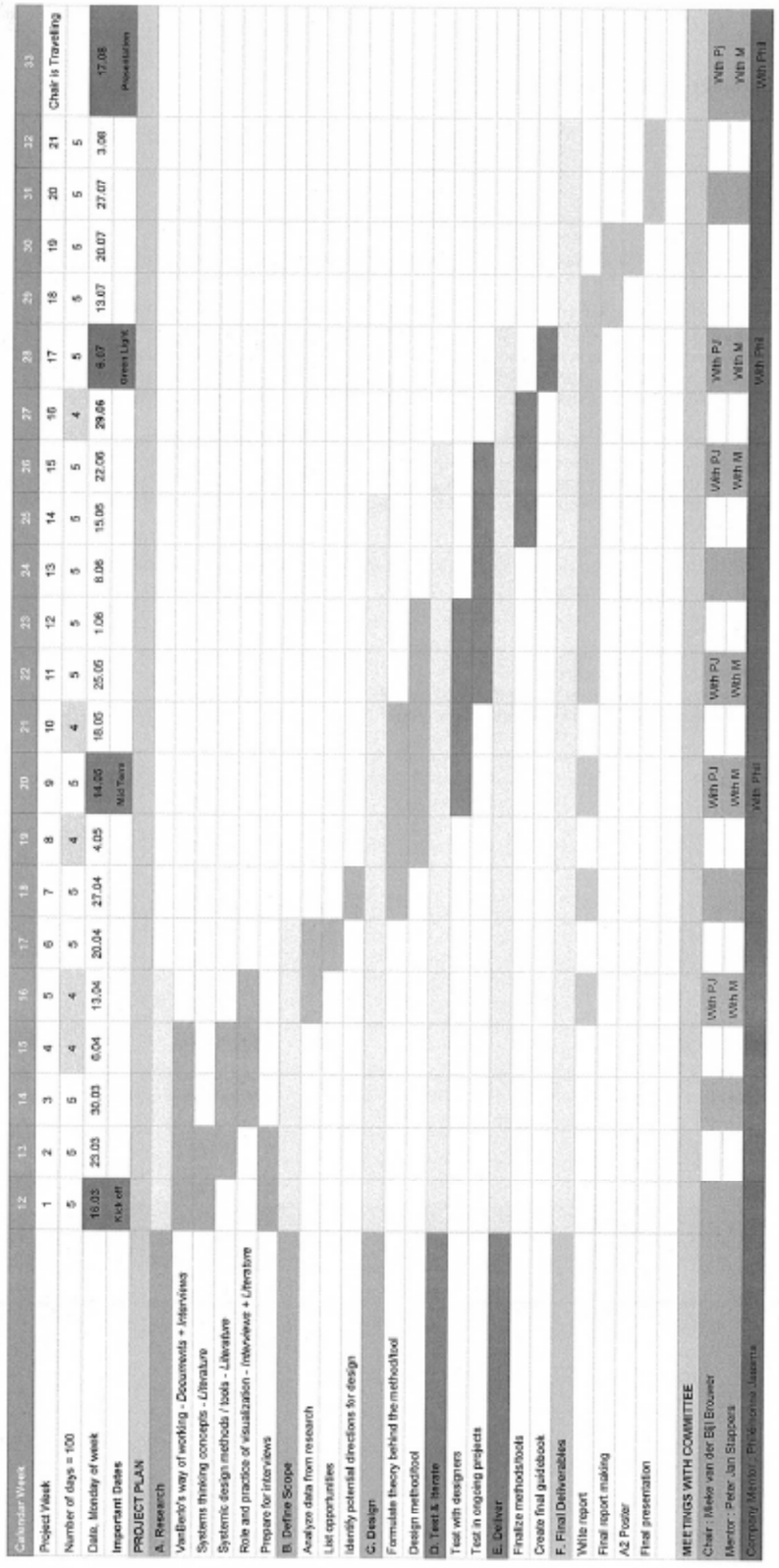
Phase 2 : Scoping
Insights from research will be analyzed. By identifying potential points of intervention in VanBerlo's process where systemic design and visualization could deliver the highest value, the next directions for the design phase will be formulated.

Phase 3: Design and test
Devise a methodology or toolkit based on the research findings that aligns with VanBerlo's way of working. Test the toolkit/methodology with designers in the team and in different stages of ongoing live projects. Revise and iterate on the proposed methodology/toolkit.

Phase 4 : Deliver
Create a guide to disseminate the knowledge on theory behind the method/tool and practical applications of it. Finish the report and create deliverables for the final presentation.

Initials & Name V. Suresh Student number 4772369

Title of Project The role of visualization in a systemic design process



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Personal Project Brief - IDE Master Graduation

MOTIVATION AND PERSONAL AMBITIONS

Explain why you set up this project, what competences you want to prove and learn. For example: acquired competences from your Msc programme, the elective semester, extra-curricular activities [etc.] and point out the competences you have yet developed. Optionally, you can also indicate which personal learning ambitions you explicitly want to address in this project, on top of the learning objectives of the Graduation Project, such as: in depth knowledge on a specific subject, broadening your competences or experimenting with a specific tool and/or methodology; .... Stick to an more than five ambitions.

During my bachelors I attempted some challenging projects, from designing for street side vendors to rethinking public spaces in slums, that led my interest as a designer grow in the field of social innovation. Wanting to learn more about how to handle complexity in such contexts, last summer I undertook a course offered by Acumen and IDEO which applied knowledge from systems thinking as a means to tackle societal and environmental challenges. This made me curious and I dived into the topic to explore and find the position of design in systems thinking.

It led me to study the emerging practice of systemic design and I wanted to build competency in it and potentially contribute to this growing field. The electives Deep Dive and Contextmapping also shed light for me on designing for the public sector that further strengthened my motivation to pursue my interest in this field. Having undertaken a research project on human centered design under Mieke, I wanted to continue exploring this topic and discover its role in systemic design.

I was lucky enough to be introduced into VanBerlo and I am eager to go back to working in the professional field to learn from and grow with fellow designers.

To sum up my ambitions:
1. Build expertise in systemic design
2. Pursue a career in social innovation
3. Facilitate the practice of visualization as a means of change
4. Work under people I admire and learn from - Mieke and PJ

FINAL COMMENTS

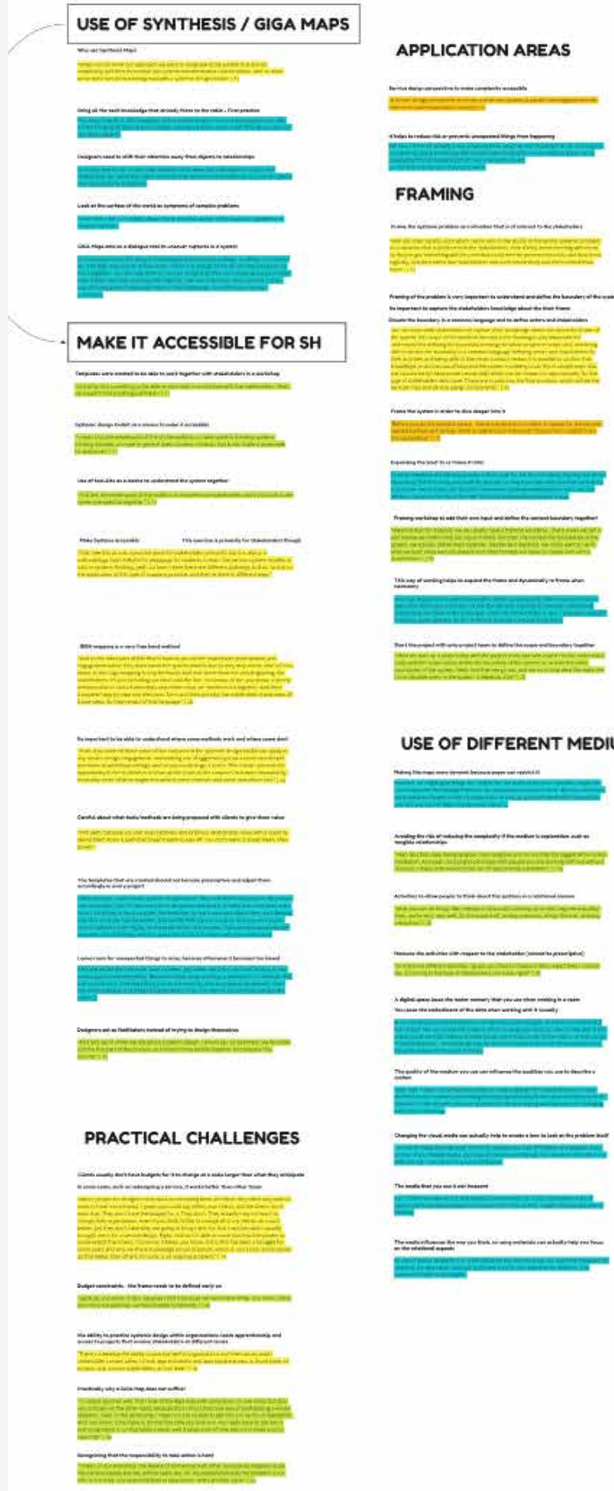
In case your project brief needs final comments, please add any information you think is relevant.

Initials & Name V. Suresh Student number 4772369

Title of Project The role of visualization in a systemic design process

Appendix B: Categories from interviews with systemic design practitioners

As stated in the report, 8 practitioners, students and academics were interviewed. At this point in the project the focus was still explorative. These categories also helped shape the opportunity areas.



Appendix C: Booklet prepared to interview designers on two cases

VANBERLO's
Design Practice

Vinodha Suresh
Graduate Intern - DvT

Dear fellow designer,

I'm Vino and I'm currently pursuing a research to learn about VanBerlo's design approach and practice in ***designing for complex, multi-stakeholder problems.***

For you, this booklet is a means to reflect on your current design practice, specifically through the lens of a selected project. There is no 'wrong way' to fill in the booklet. All the information in here will help me guide our future interview and its your own valuable perspective that I'm seeking for.

For any questions, you can write to me on v.suresh@vanberlo.nl.

Thank you for your time and efforts and I look forward to our discussion! :)

Project Details

A nature of a complex problem can be determined by observing the following factors in it:

Societal *complexity - There are evident relations between humans and other humans/institutions that are central to the problem situation*
Technical complexity *- The presence of physical elements such as products, materials, technology or constructed facilities.*
Interrelatedness *- The problem is influenced by the presence of other different systems in place (Eg: Political, economical)*

Indicate the presence of these factors in the project selected on the scale below : (0 - Not present at all, 5 - Fully Present)

0 1 2 3 4 5
Societal Complexity

0 1 2 3 4 5
Technical Complexity

0 1 2 3 4 5
Interrelatedness

Describe the project scope in 2-3 sentences:

What was the duration of the project and your role:

Who were the direct and indirect stakeholders in this project? Indicate them:

- *Who were most impacted by the outcome of the project? (Indicate this category by adding a circle around them)*
- *Who was responsible for executing the solution? (Indicate this category by underlining the stakeholder)*

Project Timeline

Draw out the project over this time line. (The next page is also dedicated to this)

1. Indicate the different **phases** undertaken in the project. Within each phase, mention the **steps** and the **duration of each phase**.

2.What was the **goal of each phase? Who was involved** in the phases or steps?

3.What were the **methods, practices and tools** employed in the phases or steps?

4.What was the **outcome** of each phase or step? In **what form** was it produced?

Phase

Steps

Goals

Who was involved?

Methods/Practices/Tools

Outcome

Form

Reflection Moment

Thank you for your time in filling this booklet! This section, apart from the project chosen, can also refer to other experiences you've had while tackling projects of such nature.

Mention **three most challenging moments** during the project journey

1.

2.

3.

How were they tackled? What **practices, methods or tools** were most useful here?

Did you **reframe the problem from its original brief** during the project? Can you state a few instances?

If you could redo the project, what would you **change in your approach?**

If you could redo the project, what would you **enhance or do more of?**

Appendix D: Instructions on templates for Case A

Workshop 1 was planned for a duration of 2.5 hours with 4 designers from the DfT team. The goal of this workshop was to set the initial frame of the challenge, map the data gathered so far and to ideate on new initiatives that could be presented to the client. As preparation the initiation team (client) shared some documents beforehand such as the report on the trial case, current capacity of the airport, the planned developments in the region and planned initiatives that already could be a part of the potential challenge outcome.

These documents were reviewed and the workshop was planned around the data at hand. In the number of hours that the project allowed, it was not possible for the team to conduct their own research but since each of the designers had worked on similar projects on development of the region, they could use their knowledge within this context as well. Each participant in the workshop was given a homework assignment to review parts of the document shared the client and to already add this data into 4 categories within a Miro board :

Category 1 : Set up of the Airport (List all information that illustrates infrastructure, capacity, capabilities etc of the Airport or anything related to it)
Category 2 : Value Airport delivers (List data that indicates how the airport is providing value, in what way/from and to who? It could be direct or indirect value)
Category 3 : Ongoing and Planned Developments in the Region (List data that provides information on the ongoing and planned developments being undertaken in the region + developments planned related to the Airport)
Category 4 : Indicators of change (List data that shows a change occurring or a need for change. Why are new developments being undertaken? What is the need for the Airport to change?)

Workshop 2 was planned for 2 hours as a follow up where some results from the previous workshop were synthesized and mapping of new data was conducted to trigger new explorations.

Interventions within Case A : Workshop 1

EXERCISE: DE-BRIEF THE BRIEF

1. Purpose: The first exercise was to allow for a discussion on what the initial frame of the challenge to emerge. In this case, the output was set by the client as the design of initiatives but the need for or the value that the initiatives would serve was still fuzzy and could be explored in different ways. Since the team that joined the workshop was working together for the first time on the challenge, this step allowed them to share their views on the frame of the challenge and to arrive at a common understanding of the same.
2. Questions to reflect: What are the goals of the client? Are they goals related to the project overall or to the benefit of their own organisation? Why do they think these goals are important? What are they seeking to achieve? How do we begin an inquiry into the challenge? What are some initial directions that emerged from reading into the documents shared by the client?

TEMPLATE A: SYSTEM INFLUENCE MAP

1. Purpose: The overall purpose of the project was to explore how the airport could add value to the region. Hence the first exporative exercise was to map what impact the airport currently has and on what levels from individual, organisation, ecosystem to societal. Both negative and positive impacts were mapped that could be translated into potential value or desired value for the region.
2. Questions to reflect: How does the presence of the airport impact the region negatively or positively? Does it also reflect what needs to change and at what level? What are some hidden or indirect impacts that can be observed? Who are the most affected stakeholders? Are there institutions such as universities or ecosystems such as the start-up ecosystem that are affected? In what ways as a society can the impact be mapped eg: Sustainability?

TEMPLATE C: SYSTEM VALUE MAP

1. Purpose: The next mapping exercise was to dissect the impact recognised into value offered: Current or desired. The positive impact was mapped as the current value that the airport offers while the negative impact was turned into a desired value that the airport can offer. The aim was to identify the relationships between the different elements within the airport system (services and touchpoints), the value they deliver and who they provide this value to. The mapping could begin on any of the four levels and this allowed for opening up the exploration. For instance, starting on the ‘to who’ level could trigger an exploration for how kids are getting value or can gain value through the presence of the airport. After an exploration of the current elements (services, touchpoints) available within a system, the discussion switched to an ideation where potential new initiatives (services or touchpoints or combining multiple services or touchpoints) were brainstormed in the same filled template.
2. Questions to reflect on: What are the core capabilities that the airport offers? What is a latent potential that can be leveraged? Who is currently not benefiting but could gain value by introducing new initiatives? Who could it benefit indirectly or directly? What does this benefit look like? What are the values that are desired, such as a feeling of community, that can materialize into

initiatives?

Interventions within Case A : Workshop 2

TEMPLATE B: SYSTEM CONTEXT MAP

1. Purpose: Inorder to explore the context outside of the airport and to identify a shift in developments from the past to present to future, the current template was designed. It probed the participants on what are the indicators for change and how the surrounding environment could trigger new roles for the airport.
2. Questions to reflect on: In what ways has the airport developed from the past to its current state? What developments in the region as a whole are important indicators of change? What are planned or future developments and what desired needs do they indicate? How is the context changing and what new role does the airport play?

The explorations in this template were again used to brainstorm on new ideas of initiatives that were mapped on the intervention template 3.

After the second workshop, the resulting ‘initiatives’ that were generated were synthesized to identify four pillars to which they offered value (Template D). These pillars were : Economy (contributing to economic growth), Community (providing value to the citizens and neighbourhood), Infrastructure (supporting the development of new infrastructure) and Innovation (fostering knowledge sharing and collaboration for new innovation). The brainstormed initiatives along with the values they serve were mapped on to this ‘kansenkaart’. It could help visually recognise where value was being generated and what spaces remained empty that could also be explored further. For instance, how could an initiative that was fostering innovation also benefit the community?

TEMPLATE D: STAKEHOLDER VALUE MAP

1. Purpose: The final template was designed to dissect stakeholders within the context. The aim was to recognise potential stakeholders who gain value from contributing to the initiative, those who benefit as a result of the initiative or by participating in them.
2. Questions to reflect on: Who are the stakeholders that will gain value from this initiative? Is this value an outcome such as entertainment or is it a value derived as a result of participating in the initiative such as networking or knowledge sharing? Who will be responsible for executing these initiatives? What could be their motivation to join?

Appendix E: Instructions on templates for Case B

Interventions within Case B : Workshop 2

TEMPLATE G: JOURNEY MAP

1. Purpose: This was a sequential map to understand the different stages and activities that occurred in the event. Until now the focus was on the commercial interests of the client organisation within the project and how their business might be impacted by the future trends. But this exercise was set to gather a zoomed out view of the event overall and what hidden stages, activities, stakeholders are performing in this process.
2. Questions to reflect on: When does the event really begin and end? What are some core activities that are performed within the event? What are visible activities and invisible or not at the surface of the event? Who are some stakeholders getting indirectly impacted? Eg: City residents or local businesses or hospitality industry. In what ways are people experiencing this event?

TEMPLATE F: FRAMING THE CHALLENGE

1. Purpose: To understand overall what factors are currently impacting the event. Typically the question that is introduced: “what factors are essential to the success of the event” is a guiding question that should be formulated collaboratively with the team, because it sets the inquiry into the challenge. However in this case the question was formulated before the workshop with the designer and deemed suitable for this open exercise. The other aspect was to understand why is it important for the client organisation to change (internally) and what factors (externally) are driving or indicating this change.
2. Questions to reflect on: What are some insights gathered so far that indicate influencing factors critical to the event? Why is there a need to change? Are the client goals wishes or desires or is it a real need? How is the external context developing around the event that is pushing this need for change?

TEMPLATE H: ICEBERG MODEL

1. Purpose: The iceberg model was used as a template to dissect the factors that had been recognised. From the previous template 5 factors were chosen such as “changing media landscape”, “shift in the spirit of the sport”, “excitement in the race” and so on. These factors were mapped either at the pattern or trend level and the activity was to probe further into what elements are within the world facilitating this shift. For instance the way people consume media was changing due to the presence of new service providers like netflix. The furthest level that was explored was how people’s mental models about these factors are shaping the shift.

2. Questions to reflect on: What are some events that are evidence for the state of the race? Are there patterns that indicate trends over time? What elements within the context of racing (such as services, institutions etc) are promoting these patterns? Lastly, what is the mental model of spectators, organisers and viewers? How has it changed or is changing?

TEMPLATE I: STAKEHOLDER GOALS AND VALUES

1. Purpose: The exercise was to shift the end user focus so far in the explorations to the overall stakeholders who are part of the system. The journey map was used to identify all potential stakeholders within the race and to identify what goals they serve and value that they derive from the event. For instance, for a cyclist the higher goal was to win the race but the value they were seeking for was pride or team work. It was important to distinguish the benefit for each stakeholder to participate in the event and their inner motivations. This data was then mapped into a view of how each stakeholder interacts with the other to achieve these goals and values.
2. Questions to reflect on: Who are the selected stakeholders within the scope of the project? What are their goals and drivers to contribute in the event? What do they seek to achieve? What are their inner motivations and values? How do they achieve these goals and values in relation to each other?

This last mapping along with the important factors identified in template 4 were used for further explorations within the future equity exercise and acted as starting points for speculating potential future scenarios.

Appendix F: Evaluation interview after the workshop

The evaluation of the interventions with the designers was conducted on aspects:

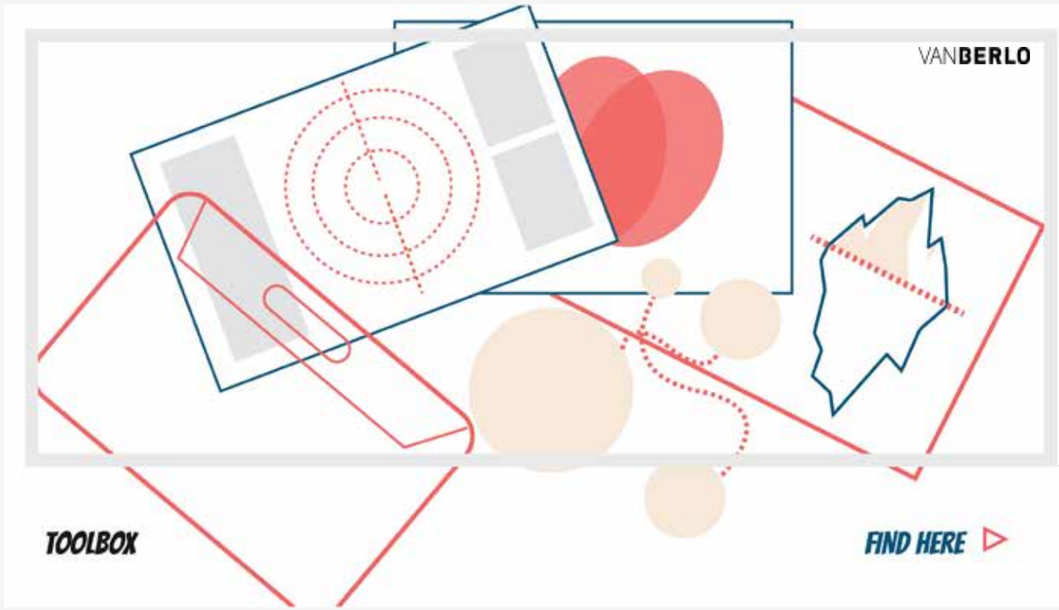
Design of the templates:

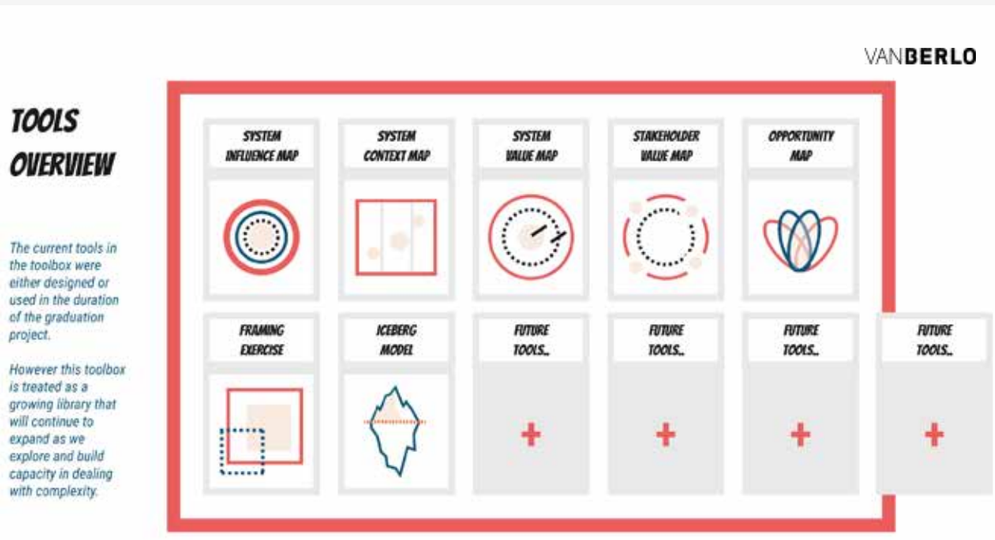
1. How easy or hard was the use of these templates?
2. Was there clarity on the purpose of the template?
3. Was it clear how the templates applied to each exercise?

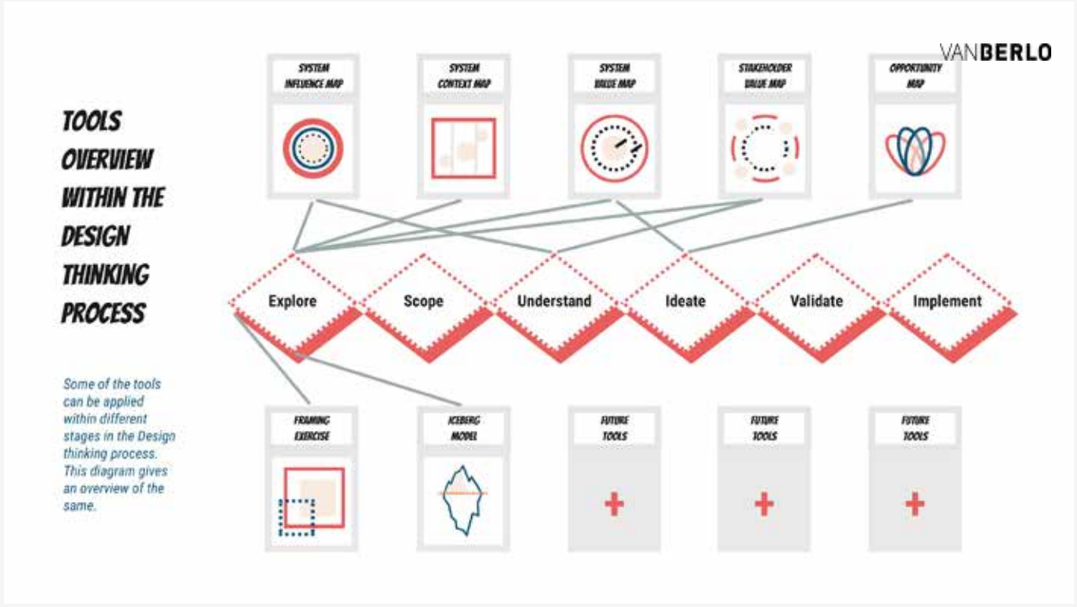
Reflection on the approach:

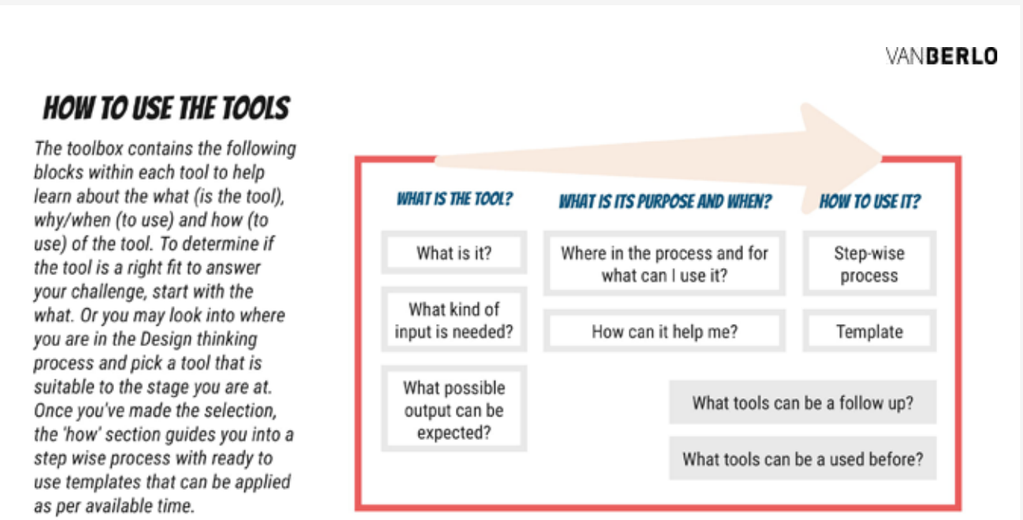
1. How is this approach similar or different to your typical way of working within the design thinking process?
2. What new perspectives emerged within the workshop? What do you think triggered this perspective?
3. Were there insights emerged that you were surprised by?
4. How were the templates useful in understanding and exploring the challenge?
5. What value do you see in applying these templates to other contexts?

Appendix G: The Systemic Design Toolbox (MIRO)









EXAMPLE TOOL : COVER PAGE

VANBERLO

Back to Tools Overview

Suggested tools that can be used prior

EXAMPLE TOOL TITLE

Suggested tools that can be used after

TOOL TITLE

TOOL TITLE

TOOL TITLE

TOOL TITLE

Explore

Scope

Understand

Ideate

Validate

Implement

This indicates that the example tool is well suited for these stages

EXAMPLE TOOL : WHAT IS IT?

VANBERLO

WHAT IS THE EXAMPLE TOOL?

This section explains what the tool is...Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum

WHAT KIND OF INPUT IS NEEDED?

- Lorem ipsum dolor sit amet
- Lorem ipsum dolor sit amet
- Lorem ipsum dolor sit amet
- Lorem ipsum dolor sit amet

EXAMPLE TOOL TITLE

WHAT OUTCOMES CAN BE EXPECTED?

- Lorem ipsum dolor sit amet
- Lorem ipsum dolor sit amet
- Lorem ipsum dolor sit amet
- Lorem ipsum dolor sit amet

EXAMPLE TOOL : PURPOSE OF THE TOOL

VANBERLO

WHAT DOES IT OFFER WITHIN THE STAGES OF THE DT PROCESS?

Explore

This section explains how the tool can it benefit within this stage of the Design thinking process

Ideate

This section explains how the tool can it benefit within this stage of the Design thinking process

HOW CAN IT HELP ME?

This section will tell you a bit about what the tool offers:

- Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nam hendrerit nisi sed sollicitudin pellentesque.
- Nunc posuere purus rhoncus pulvinar aliquam. Ut aliquet tristique nisl vitae volutpat.
- Nulla aliquet porttitor venenatis. Donec a dui et dui fringilla consectetur id nec massa.
- Aliquam erat volutpat. Sed ut dui ut lacus dictum fermentum vel tincidunt neque.
- Sed sed lacinia lectus.
- Duis sit amet sodales felis.
- Duis nunc eros, mattis at dui ac, convallis semper risus.
- In adipiscing ultrices tellus, in suscipit massa vehicula eu

EXAMPLE TOOL : STEP WISE PROCESS

VANBERLO

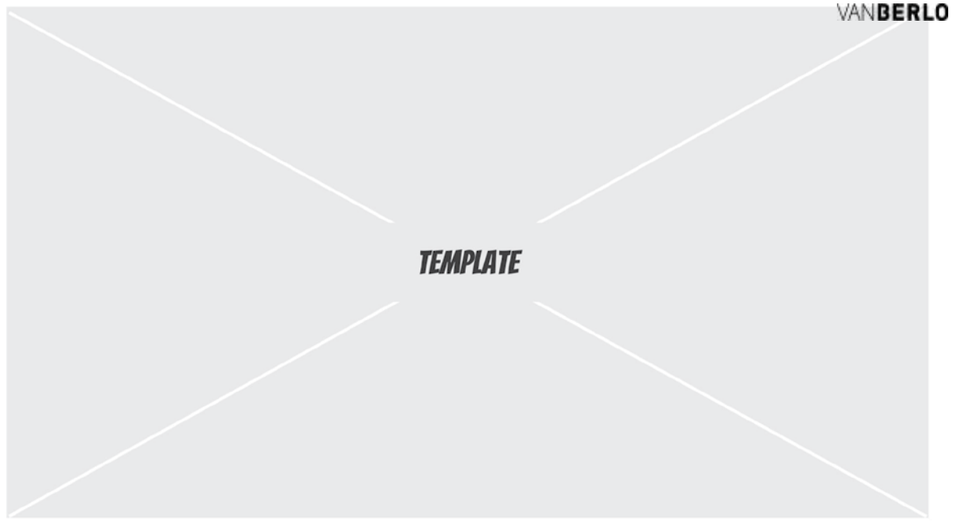
STEP-WISE PROCESS

1. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nam hendrerit nisi sed sollicitudin pellentesque.
2. Nunc posuere purus rhoncus pulvinar aliquam. Ut aliquet tristique nisl vitae volutpat.
3. Nulla aliquet porttitor venenatis. Donec a dui et dui fringilla consectetur id nec massa.
4. Aliquam erat volutpat. Sed ut dui ut lacus dictum fermentum vel tincidunt neque.
5. Sed sed lacinia lectus.
6. Duis sit amet sodales felis.
7. Duis nunc eros, mattis at dui ac, convallis semper risus.
8. In adipiscing ultrices tellus, in suscipit massa vehicula eu

A visual representation of the ways in which the tool can be used

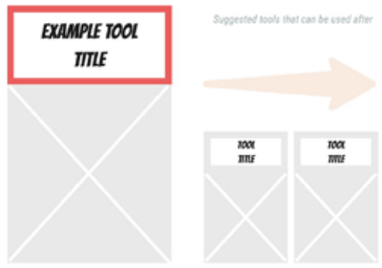
EXAMPLE TOOL : TEMPLATE

VANBERLO



EXAMPLE TOOL : END PAGE

VANBERLO

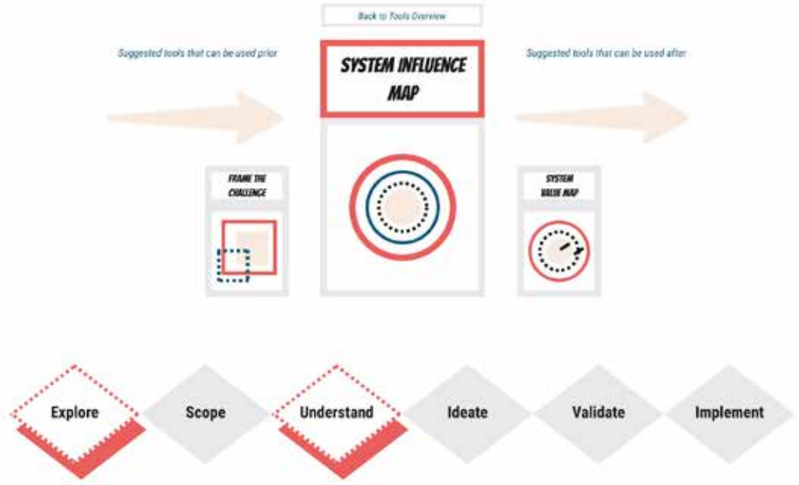


GLOSSARY & FURTHER LINKS

- **Term:** Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua
- **Link:** Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua
- **Term:** Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua

SYSTEM INFLUENCE MAP: COVER PAGE

VANBERLO



SYSTEM INFLUENCE MAP : WHAT IS IT?

VANBERLO

WHAT IS THE SYSTEM INFLUENCE MAP?

A system influence map is a visual representation of the direct or indirect and positive or negative effect or influence of a sub-system (eg: Hospital, Airport etc) or a problem (eg: food waste) on a larger system (eg: City). This impact is observed on different levels of the system ranging from individual, organisational, eco system to societal. The map aims to trigger new explorations of how the problem or impact of a sub-system* (of interest) takes shape at these different levels within the larger system.

WHAT KIND OF INPUT IS NEEDED?

- Knowledge about the context (Eg: PESTEL Analysis)
- Reports, trends and data that support how the problem or the impact of a system is present and growing
- Stories or viewpoints of those who are part of the system or are experiencing the problem

WHAT OUTCOMES CAN BE EXPECTED?

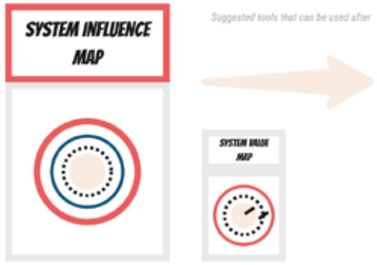
- A visual mapping of the positive or negative effects or influences that currently arise from the sub-system or problem on a larger system

SYSTEM INFLUENCE MAP : TEMPLATE

VANBERLO

SYSTEM INFLUENCE MAP : END PAGE

VANBERLO

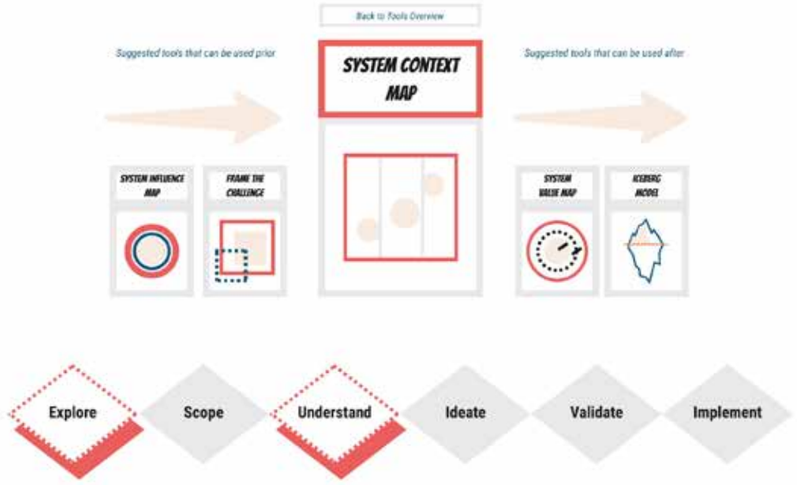


GLOSSARY & FURTHER LINKS

- **System:** A system is a group of components that are united by an intended purpose. For eg: A system can be at a larger scale, such as a government or at an organisational scale, such as a company or even at a micro scale, such as a mechanism within a product.
- **Sub-system:** A sub-system is a set of components that form a system and the sub-system as a whole is also the component of a larger system. For example: Exams are a sub-system within the school system.

SYSTEM CONTEXT MAP: COVER PAGE

VANBERLO



SYSTEM CONTEXT MAP : WHAT IS IT?

VANBERLO

WHAT IS THE SYSTEM CONTEXT MAP?

A system context map is an exercise to map the developments that are occurring over time within the context in a system. These developments can either help to explain why the problem phenomena is occurring or to recognize emerging initiatives that are finding ways to address the problems at hand. The map explores past developments or events that have already occurred, present developments that are ongoing and future developments that are planned or are speculated to occur.

WHAT KIND OF INPUT IS NEEDED?

- Knowledge about the past, present and future developments within a context
  - Trend research
  - Market analysis
- Competitor scan / global benchmark

WHAT OUTCOMES CAN BE EXPECTED?

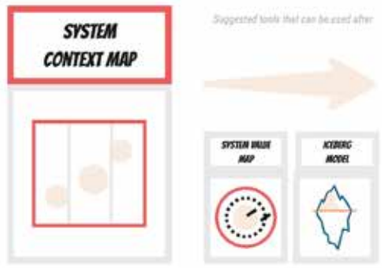
- A visual map of which developments have occurred within the context in the past, present and future.
- An understanding of ways in which a problem is evolving / developing (Eg: Growing shrinking) and being addressed at present in the context

SYSTEM CONTEXT MAP : TEMPLATE

VANBERLO

SYSTEM CONTEXT MAP : END PAGE

VANBERLO

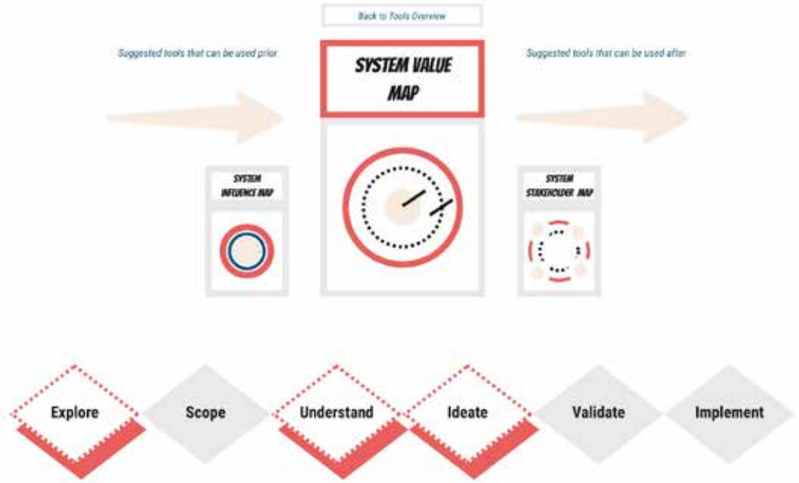


GLOSSARY & FURTHER LINKS

- Check the Rich Context tool in the systemic design toolkit for further inspiration! (https://www.systemicdesigntoolkit.org/)

SYSTEM VALUE MAP : COVER PAGE

VANBERLO



SYSTEM VALUE MAP : WHAT IS IT?

VANBERLO

WHAT IS THE SYSTEM VALUE MAP?

A system value map is a visual representation of the value generated within a system. It maps the relationship of how organisations deliver direct and indirect value through multiple infrastructures* to a diverse set of stakeholders within a system. It also helps to recognize where opportunities lie for value creation. However, It is not a map of value flow between actors in a system or a value proposition canvas.

WHAT KIND OF INPUT IS NEEDED?

- Knowledge about the context
- Key stakeholders and their purpose within the system
- Different infrastructural elements that enable value creation
- Stakeholders who are gaining value: directly or indirectly
- The aims and interests behind the activities or involvements of stakeholders

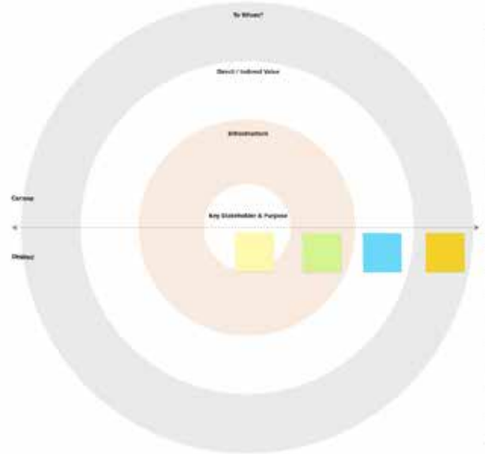
WHAT OUTCOMES CAN BE EXPECTED?

- A visual map of ways in which value is generated through the system from key organisations to diverse stakeholders within a system
- Proposal for new value creation by creating new infrastructure such as services, products, experiences and so on.

SYSTEM VALUE MAP : TEMPLATE

VANBERLO

SYSTEM VALUE MAP



SYSTEM VALUE MAP : END PAGE

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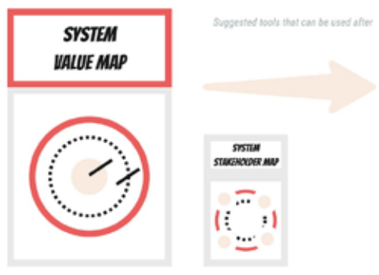
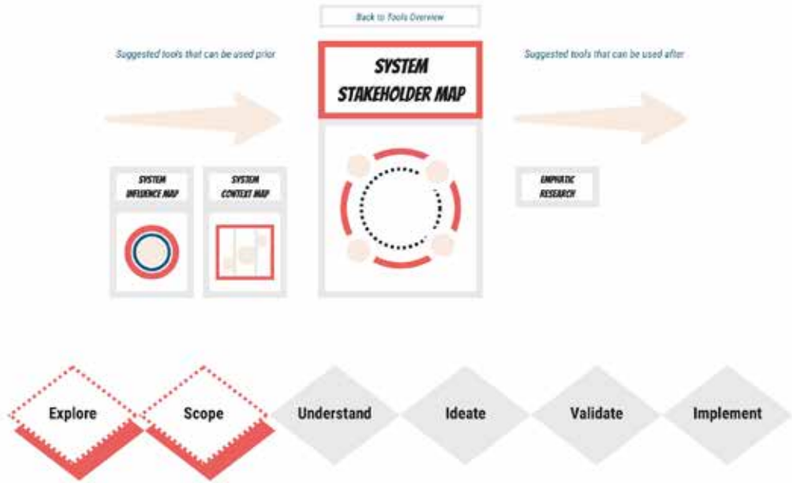


GLOSSARY & FURTHER LINKS

- **Infrastructure:** An infrastructure within this tool can be described as a mechanism through which value is generated. It can range from a product, interface, services to platforms. For example, community events, car sharing service, digital products etc.

SYSTEM STAKEHOLDER MAP : COVER PAGE

VANBERLO



SYSTEM STAKEHOLDER MAP : WHAT IS IT?

VANBERLO

WHAT IS THE SYSTEM STAKEHOLDER MAP?

A system stakeholder map is an exercise to identify and map stakeholders within the context. These stakeholders are either key actors who are contributing to the problem/solution or those who are affected by the problem/solution.

WHAT KIND OF INPUT IS NEEDED?

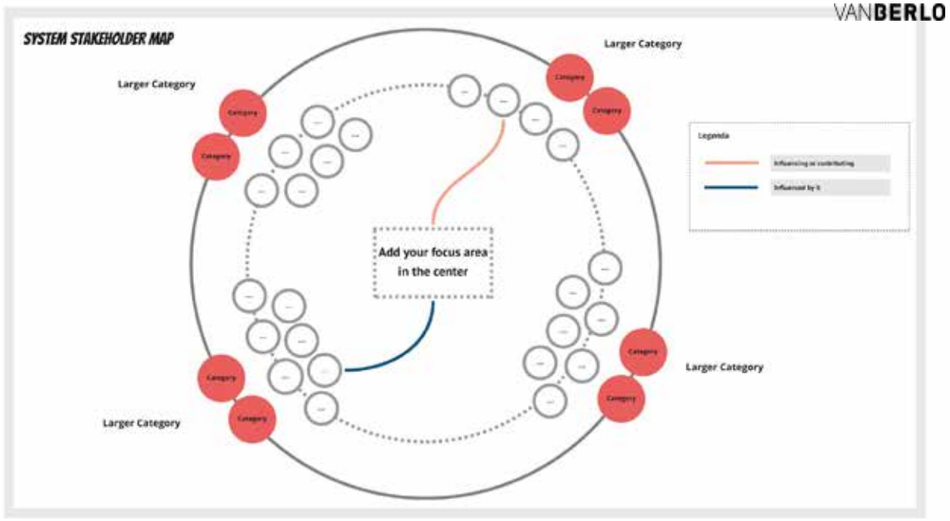
- Key stakeholders and their role
- Depending on the depth of exploration, there might be a need for expertise on local knowledge of stakeholders within a system

WHAT OUTCOMES CAN BE EXPECTED?

- A visual map of how diverse stakeholders are positioned within a problem, challenge or solution space
- Identify who is to the context or influencing it and in turn who is getting affected because of it

SYSTEM STAKEHOLDER MAP : TEMPLATE

VANBERLO



SYSTEM STAKEHOLDER MAP : END PAGE

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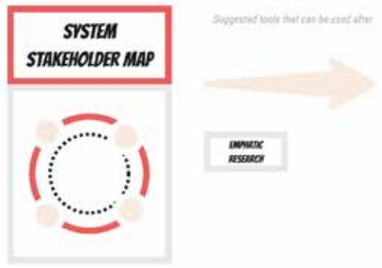

GLOSSARY & FURTHER LINKS

- NA

OPPORTUNITY MAP : COVER PAGE

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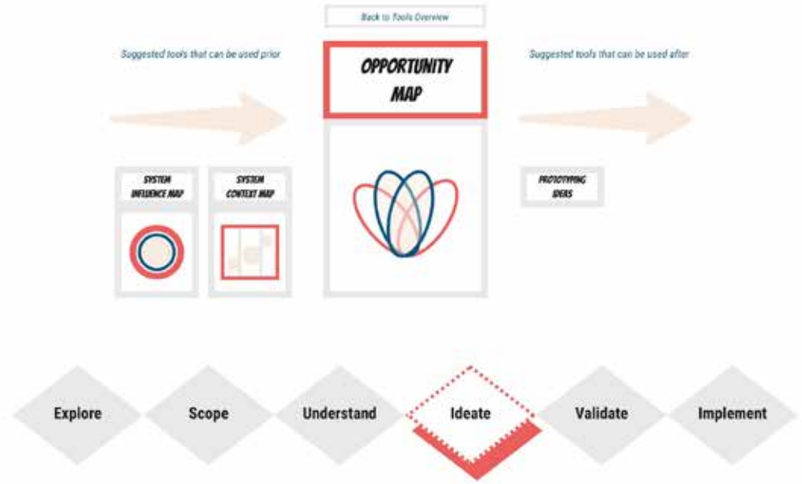


OPPORTUNITY MAP : WHAT IS IT?

VANBERLO

WHAT IS THE OPPORTUNITY MAP?

An opportunity map is a visual tool that combines selected lenses (Eg: Economy, Community etc.) within a context to explore relationships between them (lenses) and to formulate goals or solution spaces through these lenses. It can be used to map where existing efforts are being made and what new areas (Eg: Providing economical and community value) within the context hold potential for exploration and new innovation.

WHAT KIND OF INPUT IS NEEDED?

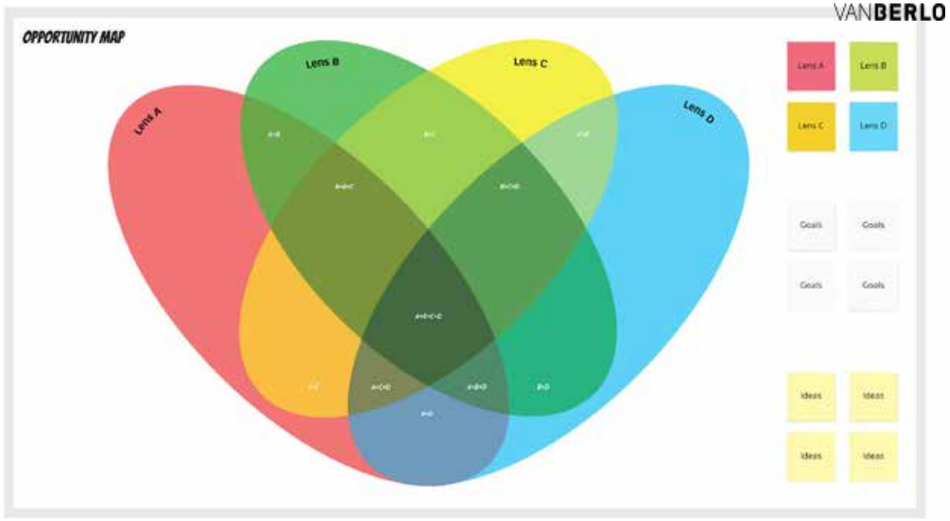
- Desired goals or outcomes to be achieved within a project

WHAT OUTCOMES CAN BE EXPECTED?

- A visual map of where within the context efforts are being made to generate value
- New goals or ideas that fit into potential new solution spaces

OPPORTUNITY MAP : TEMPLATE

VANBERLO



OPPORTUNITY MAP : END PAGE

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GLOSSARY & FURTHER LINKS

- NA

FRAMING EXERCISE : COVER PAGE

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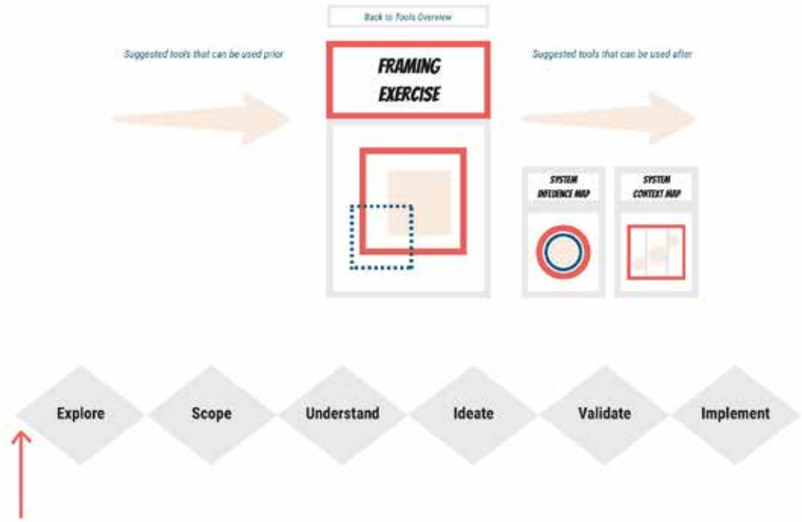


FRAMING EXERCISE : WHAT IS IT?

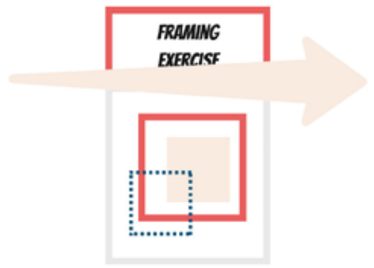
VANBERLO

WHAT IS THE FRAMING EXERCISE?

This is a reflection exercise to be used at the start of the project. It helps answer some critical questions that are necessary to guide the challenge at hand. By making the problem frame explicit and enriching it with knowledge (such as the need for change) can open up new ways of investigating the problem space at hand.

WHAT KIND OF INPUT IS NEEDED?

- A briefing with the client



WHAT OUTCOMES CAN BE EXPECTED?

- A shared understanding of the brief

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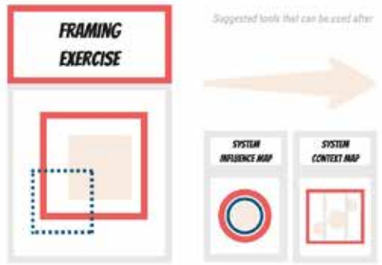


GLOSSARY & FURTHER LINKS

- NA

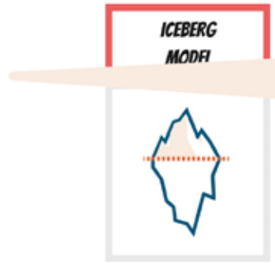
VANBERLO

WHAT IS THE ICEBERG MODEL?

The Iceberg model is a tool within systems thinking that probes an analysis of the problem on four levels. The levels start by looking at the evidence of the problem, recognising it as a pattern, identifying the underlying system structures that are contributing to the presence of the problem and lastly understanding that mental models that continue to shape the structures as they are.

WHAT KIND OF INPUT IS NEEDED?

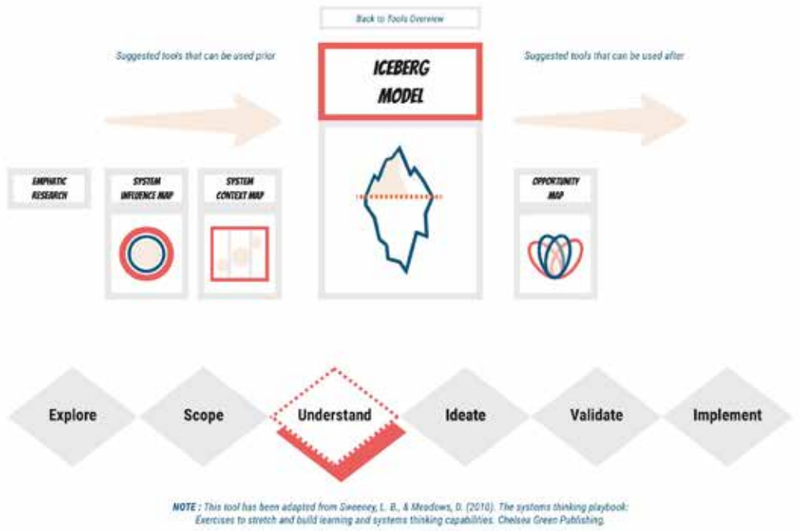
- Knowledge about the problem
- Knowledge about the context
- Experiences of those who are part of the system



WHAT OUTCOMES CAN BE EXPECTED?

- Leverage points*

VANBERLO



NOTE : This tool has been adapted from Sweeney, L. B., & Meadows, D. (2010). The systems thinking playbook: Exercises to stretch and build learning and systems thinking capabilities. Chelsea Green Publishing.

VANBERLO

WHAT DOES IT OFFER WITHIN THE STAGES OF THE DT PROCESS?

To investigate a problem using these four levels and to further deepen the understanding of the system

HOW CAN IT HELP ME?

The iceberg model can

- Enrich the understanding of the problem on deeper levels
- Identify interventions with increasing leverage as we investigate deeper
- Help describe the problem by the means of the model

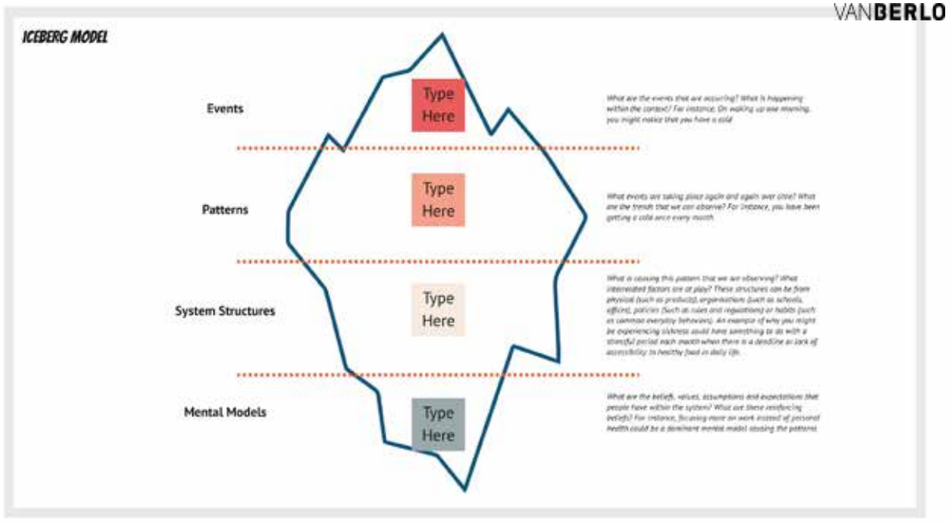
VANBERLO

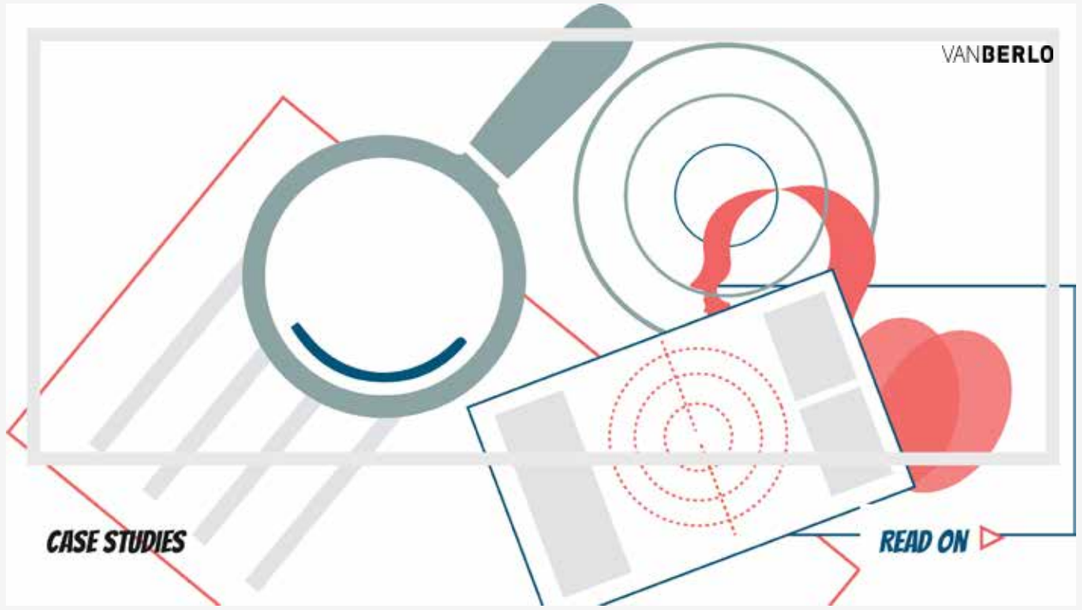
Suggested tools that can be used after

GLOSSARY & FURTHER LINKS

- **Leverage Points:** Leverage points are considered to be places within a system where a small shift can create big changes at large. These are considered to be acupuncture points of the system where strategic interventions can create long lasting, positive change.

VANBERLO





Appendix H: Questions for evaluation on the toolbox

Usability

Introduction to Systemic design section

1. How useful was the information in understanding what systemic design is?
2. Please explain your rating
3. How well do you understand when and where this approach fits?
4. Please explain your rating
5. Were there questions that you were unanswered while you were reading through this section? State them below.

Tools Section : Selection of tools

1. How useful was the overall approach in making a selection on the tool?
2. Please explain your rating. (what parts were most helpful?)
3. To what level were the tool description and details helpful?
4. Please explain your rating
5. Do you have any suggestions to improve the tool box structure?

Overall

1. If you were to use it within an upcoming project, where would you start?
2. What parts are inspiring or interesting to you?

Desirability

1. How would you rate the ‘desirability’ of this toolkit within your organisation?
2. Please explain your rating.
3. What kind of pains or needs does it solve for?
4. How do you think the toolbox and its content is relevant for your area of expertise?
5. Please explain your rating
6. How and when might you use this toolkit within your practice? What role can the toolkit play internally and externally?
7. Which kind of projects can this approach be suitable for? Could you state an example? Upcoming projects or applicability of it.
8. How different or similar is this approach to your general way of working?
9. If you were to see the toolbox grow, what would your vision for it be?
10. Any final comments, compliments and suggestions?