



BIAS

Exposing Hidden Values through Facilitating
Subjective Data Representation

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Introduction

BIAS has been the result of a first-year masters project at Faculty of Industrial Design at Eindhoven University of Technology. This report illustrates the process over the period of one semester in which three students have worked together with Telos [13] and the municipality of Helmond.

The project was executed within the context of data usage in municipalities and knowledge institutes and focused on generating debate about this topic in a broad sense.

The concept of *Transformative Practices* (TP) [6] has been a main driver throughout the process. It is described as: "*shared relative steady ways of living and working with others (Wittgenstein, 1933), including specific configuration of actions, norms*

and knowledge (Freeman et al., 2011) and related tools and environments, focused at addressing our societal challenges, by transforming (elevating) our personal and social ethics and related behaviour through designing new ways of interaction with each other and the world" [6].

Within this project the act of making and prototyping has been a means to incite discussion about the role of data in society, touching upon values, ethics and underlying principles that can be the start of a changing perception of data usage in different contexts.

The report will go deeper into the concept of *BIAS*, but most importantly it will illustrate the process of this design project.



Figure 1 Discussions during Demo Day set up

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EXTENDED SUMMARY

In today's society, data has become a valuable asset for decision making processes in governments and municipalities [10]. The increase of data generation and usage for practices that affect our everyday lives (e.g. policy making), has been our starting point to critically look at what data is, how it is used and how it mediates our relation to the world around us. *BIAS* questions the objectivity of data and explores how data can be a material for fruitful discussion and debate without de-contextualising it. Instead of focusing on the objectivity of data, the tool explores the value of subjectivity in the act of data representation, data sharing and data interpretation in the context of decision making processes in municipalities.

BIAS has been developed within the context of Telos, a knowledge institute connected to the University of Tilburg. Telos plays an important role in collecting, analyzing and packaging big data sets for municipalities within the Netherlands [13]. Their mission is to monitor sustainable development using the *Telos Method* [14]. The *Telos Method* states that sustainable innovation processes will always need to balance three main capitals: *Ecological, Economical & Socio-Cultural* [14]. Through statistical reports, Telos provides

recommendations on national and regional developments. The data in these reports are structured within multiple levels of data clustering: 130 measuring points, are grouped into 20 datasets, which are in their turn divided into the three main capitals.

By critically examining the data presented in these reports, subjectivity was found in the way data is processed and presented. The mathematical model of Telos, for example, is one of the many ways data can be processed. Data collection and translation into any kind of interpretative visual can never be 100% neutral [4]. Telos tries to counter this by stating that they want to be as objective as possible. But one can question: is it a bad thing to show subjectiveness within data? Could there be a way in which this subjectivity can be perceived as a valuable addition for the discussions and debate around issues like urban or regional development?

As Telos works together with municipalities, the project explored the way municipalities process the information presented in the reports. Together with the municipality of Helmond, we explored the questions described above. It became apparent

that the extensiveness of Telos' reports, while being of importance, was not particularly useful for inciting debate around concrete cases because of the lack of context provided. This illustrated an opportunity to explore the value of exposing different (personal) perspectives concerning the data of Telos.

With our tool *BIAS*, data is not used to represent an 'objective truth' about the world around us, but is used as material for discussion. *BIAS* emphasises the positivity of our biases (our subjectivity) and uses this as a strength to incite debate and discussion. *BIAS* aims to give people the opportunity to visualize their own take on the Telos data, contextualising the data in the way it is interpreted and can be used. *BIAS* acts as the extra layer to the Telos report and helps municipalities to interpret big datasets with the aim of stimulating debate and discussion to expose hidden values.

How does BIAS work?

BIAS is a tool that consists of a visual combined with a tangible controller. The controller is made up of 6 sliders, and is used to manipulate the visual to express different relations between the

data points that are visualised on the screen. The data points within the visual represent the 20 'stocks' from the *Telos Method* [14]. The stocks are intuitively coupled to 5 different sliders. This stimulates exploration and opens up room for debate when the tool is manipulated by either an individual or a group of people. With the sliders one can model their own perspective regarding the relationships, placement and size of the data points (using the 6th slider). When the personal data landscape is completed it can be printed on transparent paper which allows for comparison with different landscapes of perspectives. By comparing the perspectives new discussions arise and a useful layer is added to the Telos report, where the value of the data points can be discussed, and where different opinions about the relations between data points could help in discussing new policy or decisions. Through *BIAS*, policy makers can find common grounds in the data and discuss their differences in perspectives openly.



Figure 2 Visual of BIAS

PROCESS VISUALISATION with TP Activities

#1 FRAMING p. 8

Position & Frame // Collect & Analyse // Communicate

<p>Connections DATE: 13 September 2019</p>	<p>Creative Exploration Timeline DATE: 20 September 2019</p>	<p>Making Sense - Reflection Week DATE: 20 September 2019</p>	<p>Pixel perfect? DATE: 1 October 2019</p>	<p>Physical indicator picker DATE: 1 October 2019</p>	<p>What made me...? DATE: 4 October 2019</p>
<p>Telos Meeting Preparation DATE: 13 September 2019</p>	<p>Where am I? DATE: 18 September 2019</p>	<p>(Missing)Links?: Telos-Citizens... DATE: 20 September 2019</p>	<p>Kruidenwijzer > interacting in a... DATE: 1 October 2019</p>	<p>Universal Values Schwartz DATE: 1 October 2019</p>	<p>Inspirational Paper - DataCatcher DATE: 3 October 2019</p>
<p>Reflection Timeline DATE: 13 September 2019</p>	<p>Reflection First Weeks DATE: 18 September 2019</p>	<p>Design Sprint: From Overview L... DATE: 24 September 2019</p>	<p>Bad data is worse than no data DATE: 1 October 2019</p>	<p>Pixelate DATE: 1 October 2019</p>	<p>Coach Meeting: Matter of Pers... DATE: 1 October 2019</p>
<p>Reflection week 1 & 2 DATE: 15 September 2019</p>	<p>Telos Meeting 1 Corné Wentink DATE: 17 September 2019</p>	<p>Reflection week 3 DATE: 25 September 2019</p>	<p>Reflection week 3 DATE: 29 September 2019</p>	<p>Telos Data Visualization - Pixels DATE: 1 October 2019</p>	<p>Soft data vs hard data DATE: 1 October 2019</p>

#2 FINDING DIRECTION p. 10

Reflect & Learn // Organise & Collaborate // Shift Lenses // Act & Experience

Design Direction: Data not as a...
DATE: 9 October 2019

Reflection week 4 & 5
DATE: 9 October 2019

Design for Happiness deck
DATE: 10 October 2019

Fluid Assemblages - UID cours...
DATE: 10 October 2019

#4 PROTOTYPING A PHYSICAL MODEL OF THE TELOS METHOD p. 12

Act & Experience // Envision & Create // Reflect & Learn

Design Sprint: Tensions of Telo...
DATE: 18 October 2019

Telos Meeting 2 John Dagevos
DATE: 16 October 2019

Perspectives within Telos
DATE: 16 October 2019

Paper: Press Play - Fluid Assem...
DATE: 14 October 2019

Implementing Interesting Intera...
DATE: 18 October 2019

The mathematical model of Telos
DATE: 18 October 2019

De Correspondent - Ontcijferen...
DATE: 21 October 2019

"Raw Data" is an Oxymoron
DATE: 21 October 2019

#5 DEVELOPMENT OF CONCEPT #1: DATASTREET & REDEFINING DIRECTION p. 14

Shift Lenses // Reflect & Learn // Act & Experience // Envision & Create // Communicate // Position & Frame

Project Overview
DATE: 7 November 2019

Reflection on our Process
DATE: 5 November 2019

MidTerm Demo Day Concept: T...
DATE: 5 November 2019

VISUAL TANGIBLE TELOS MET...
DATE: 22 October 2019

Coach Meeting Pierre
DATE: 7 November 2019

What is Space to Act?
DATE: 11 November 2019

How is Telos presenting its data...
DATE: 11 November 2019

Design Space
DATE: 11 November 2019

#6 SUBJECTIVITY AS THE MAIN VALUE & DEVELOPMENT FIRST ITERATION OF BIAS p. 17

Act & Experience // Envision & Create

Post MidTerm Meeting - Points ...
DATE: 19 November 2019

Midterm Demo Day
DATE: 15 November 2019

First iteration demonstrator
DATE: 14 November 2019

Concept Development - Showin...
DATE: 13 November 2019

Intersubjectivity
DATE: 21 November 2019

of Subjectivity - C
DATE: 21 November 2019

Qualitative Data and the Subjectivity of 'Objective' Facts in Parker
DATE: 21 November 2019

Meeting Pierre & Tom
DATE: 22 November 2019

Second iteration Prototype
DATE: 12 December 2019

Workshop Helmond
DATE: 12 December 2019

Meeting 2 John Dagevos
DATE: 4 December 2019

Meeting Goitske Marsman - M...
DATE: 28 November 2019

#9 FINAL DEMONSTRATOR: HELMOND p. 22

Envision & Create // Immerse & Empower // Act & Experience

#8 RE-ITERATION OF BIAS AND WORKSHOP WITH MUNICIPALITY OF HELMOND p. 20

Position & Frame // Reflect & Learn // Envision & Create // Organise & Collaborate

#7 VISITING MUNICIPALITY OF HELMOND & PRESENTING CONCEPT TO TELOS p. 18

Immerse & Empower // Organise & Collaborate // Reflect & Learn

#3 MEETING DIRECTOR TELOS p. 11

Communicate // Immerse & Empower // Collect & Analyse

PROCESS STEP BY STEP

#1 Framing

What & Why

Telos hasn't worked with students from the Transformative Practices squad before, so we took some time to understand their method, values and goals. The first weeks we conducted research on Telos and tried to put that in context with the project. Meeting with a researcher from Telos, gave us the opportunity to ask about their vision on working together with students. We also mapped the different relations between the municipality, citizens, and Telos, and we tried to highlight points for design opportunities.

Since we were given the approach of essential details we decided to do a short design sprint to get an overview of the data system of Telos and try to make this visible & tangible, we also looked into interaction possibilities with the data and look into what types of data are available.

Outcome

We improved our understanding of the Telos context and its relations to municipalities and citizens. Next to that, we did research into what kind of data is out there and how it is visualized.

Being able to zoom in and out by pixelating the data and cooperation as a way of sensemaking of data are two main outputs of this first framing and exploring.

A general leading idea was the shifting of perspectives from the abstract (overview Telos) to the concrete (interactions with this data). By displaying the systemic view in a tangible way, we could explore smaller interactions within this system and look into some details of those interactions.

Insights & Reflection

There is an indirect form of feedback from citizens to the municipality (through Telos) but also a direct form of feedback from citizens towards the municipality.

Telos pointed us at a need for tools that connect citizens with their municipality through use of the Telos data. From our meeting with the researcher from Telos we found that Telos is data driven and that there might be little space for the discussion about data. We were wondering if they would keep in mind that this data is also a representation, which means that it is not entirely objective. In the past, Telos hosted more interactive sessions to

discuss the reports they provided, but it seemed like this was not an integral part of their approach anymore. Through this it became apparent that the relation between citizens and Telos is not an active one. Citizens mainly function as a data source.

Building on these insights we wondered how we could use ambiguity, values and the tensions between the individual and community in our design. What is the gap between soft and hard data, and how can we use the discussion around the subjectivity or objectivity of data?



Figure 3 Exploring Data Visualisations, using filtering

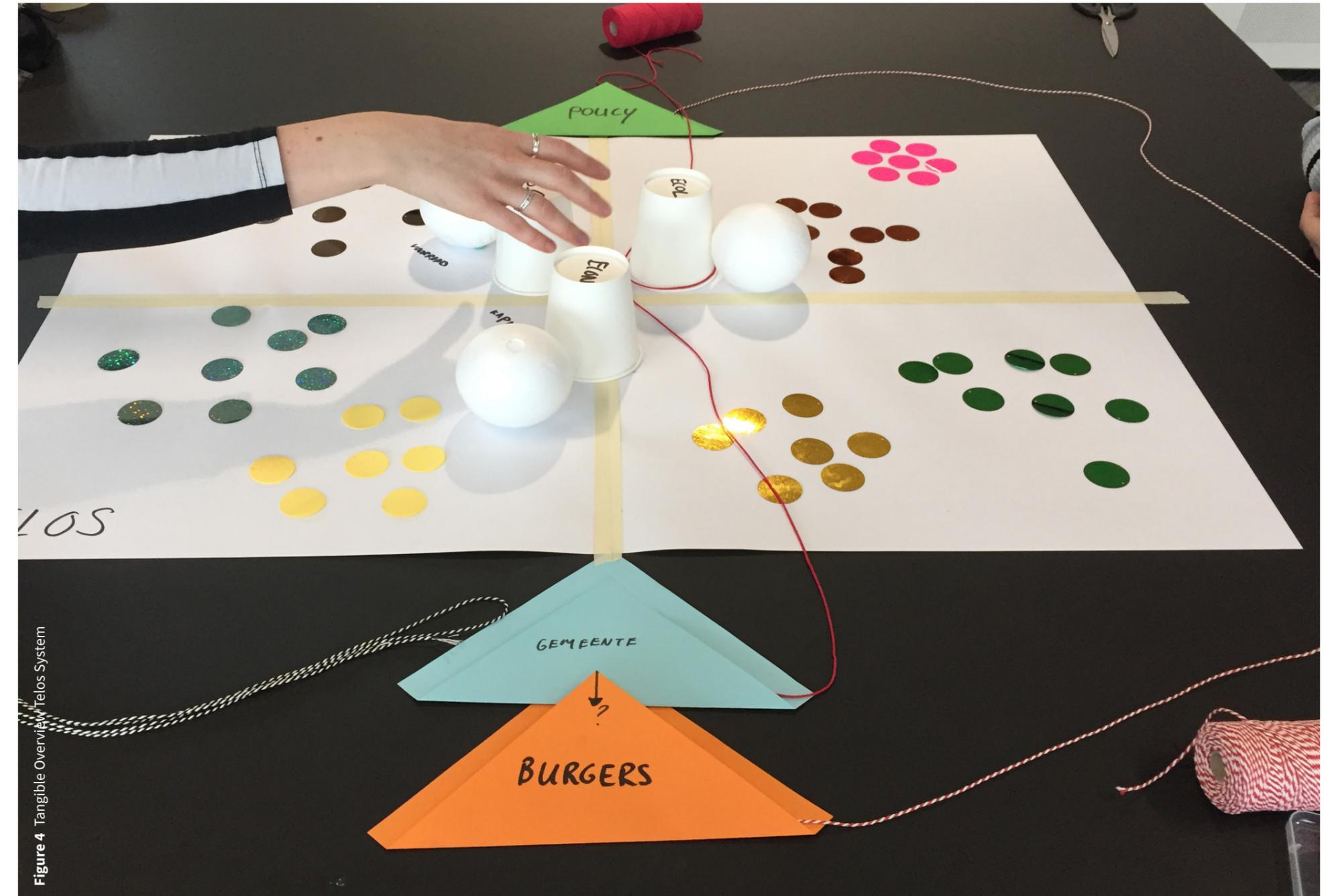


Figure 4 Tangible Overview Telos System

#4 Prototyping a Physical Model of the Telos Method

Insights in Telos' Mathematical Model

The way Telos processes their data is through a well structured mathematical model. The model aims at interpreting the data for sustainable development, this means that growth has to be balanced between the three capitals, these are Economical, Ecological, and Socio-Cultural. They base their model on the legacy of the commission Brundtland [2]. Next to balanced growth over the three capitals, development has to be sustainable over multiple generations and growth cannot impact other areas (municipalities, provinces, countries) in a negative way.

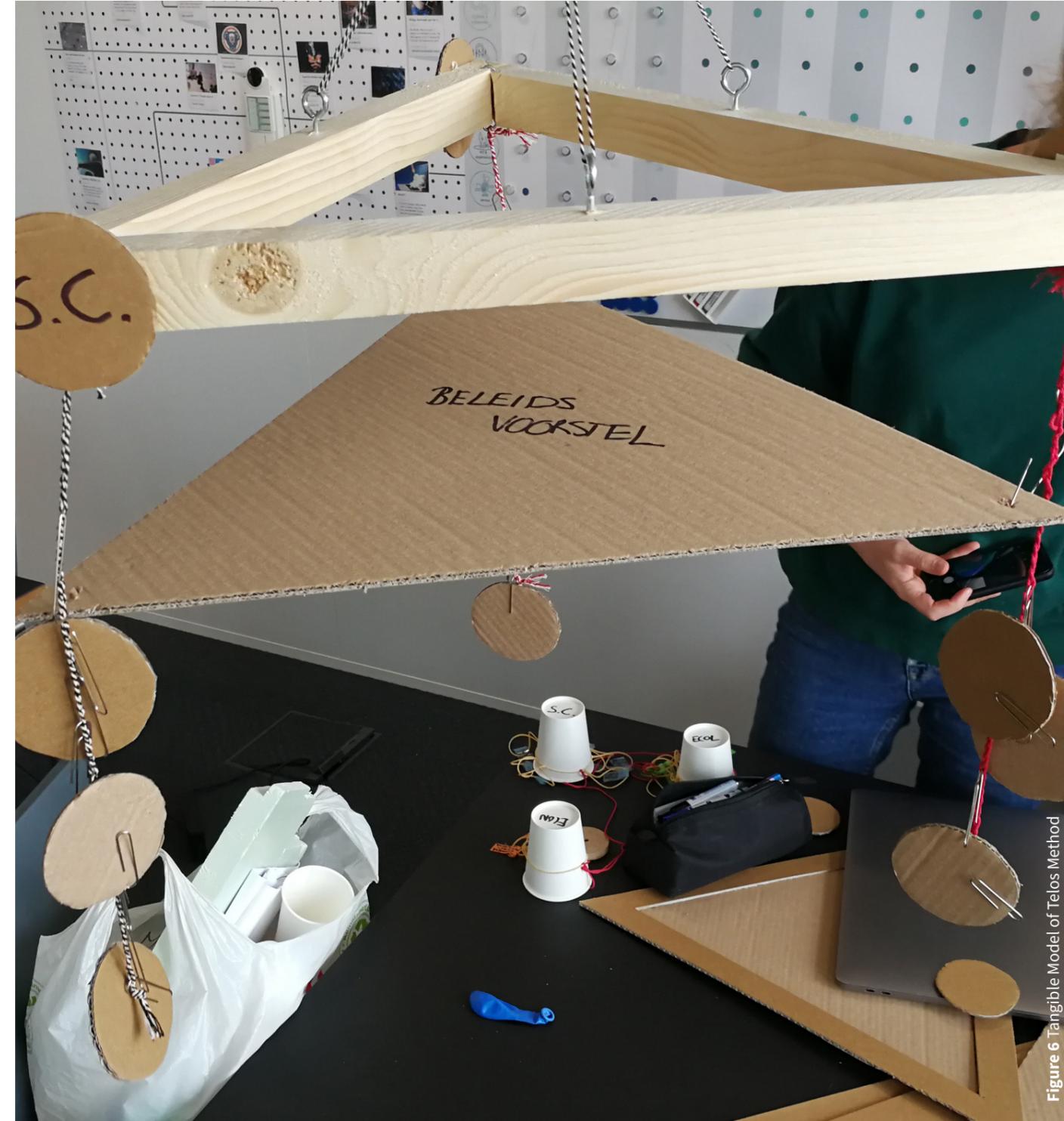
They emphasise that the three capitals in which they divide their findings is far from a representation of what the 'truth' looks like, since in reality those three capitals are strongly connected and intertwined. They state that nowadays the economic rationality is the dominant rationality in the political agendas. They argue that this asks for a division in which the interconnectedness between the economical and the social capitals are visualised. They also state that many of the interesting developments in

sustainable innovation happen on the overlapping or touching areas of the three capitals. But to create an easier overview of what is happening they do not play within this overlap and define developments by assigning them to one of the three capitals.

What we see in this model is that there are a lot of assumptions and shortcuts made to make the model work. But in reality it therefore only displays a boiled down version of what is really going on. In their statements on the mathematical model Telos acknowledges to be normative, subjective and ambigüe in their processing of the data.

Prototyping a Tangible Telos Model

With the insights we gained from the director of Telos and the analysis of the mathematical model we visualised the Telos Method and prototyped around the tensions between the three capitals: Socio-Cultural, Economical and Ecological. What are the tensions between those three capitals used by Telos? By doing this we also asked ourselves how we could make the Telos method accessible for policymakers and citizens and if it is possible



to through making the Telos method tangible, we could bridge the gap between policymakers and citizens.

Our main goal for this prototype was therefore finding “the space to act” with the data provided within the Telos Method.

Outcome

We prototyped on three different levels, the first being policymakers. In our session for policymakers we found the spaces to act to be around playing with tensions in data, working with hypothetical policy evaluation and a retrospective analyses after policy implementation as well as combination of the hypothetical and retrospective analyses. The second level was focussed on citizens, with this perspective we explored how value can be put into certain data points to express importance and how data can be used for an informed policy debate. The final level was the interplay between citizens and municipalities, where focussed on a common way to explore complexity in data from different perspectives.

Reflection

Through the prototyping session we came to the following questions: What is the added value of having the Telos method tangible? How to include the tensions in a meaningful way? And what is the function of the tool we aim to design? Answering these questions became essential in the following weeks.

In this period we realised that we needed to move away from the Telos method in a literal sense, and shift our focus back to what data actually does or means. This shift of attention was needed for us to be able to dive deeper into the concept of using data as a means to generate discussion, and most of all, generate space to act.

Through our conversation with the director of Telos and by analysing the model we came to the conclusion that data is not 100% neutral and that there is subjectivity in the way Telos presents their data. From this perspective that data is not neutral and that there is always subjectivity in data.

Figure 6 Tangible Model of Telos Method

#5 Development of Concept 1 & Redefining Direction

What & Why

After our meeting with Telos and our explorations concerning the Telos Method itself, we focused on engaging citizens in the practices of Telos, and prototyped a first concept: the DataStreet. Our main aim with this concept was the creation of a narrative alongside the data that Telos presents, where citizens were empowered to visualise their perception and experience of their neighbourhood or street. We were curious how this data could be useful for Telos, and whether it could create a different perception of what data could be.

Outcome

Prototyping the concept of the datastreet uncovered flaws and intentions that were not aligned at all. It emphasised the complexity of the system that we were designing in and the openness of the context in which we still had to find our way. Reflecting on this, together with Pierre, helped us in clarifying the different paths that we could pursue. By making several decisions, a clear overview of our design space/landscape could be created, pinpointing exactly the area where we wanted to intervene.

Insights

The discussion we had with Pierre helped us in discovering why we soon felt that our concept of the Datastreet did not feel right, although we were not exactly sure why. We had lost our initial intention (designing for debate), and instead focused on the user experience side of the data that Telos creates. By being able to define our design landscape, we had two directions in which we could go: we either could focus on creating new kinds of input for Telos in which citizens would be considered to be a form of experts with coupling them directly to the data that Telos would represent. The other option was to focus on different ways of output, where we would propose new ways of presenting the results of the data as a piece of discussion.

Although our initial response was to focus on the input of the data (that was our intention with the DataStreet), we realised we were more drawn to the reflection and discussions that policy makers or citizens could have on the data presented. Our focus was drawn to the act of sense-making of data within municipalities, aiming to create more space to empower constructive debate and space to act accordingly. We thus decided to focus on

proposing new ways of presenting the results of the data as a piece of discussion.

Reflection

The creation of the DataStreet was clearly steered by our first meeting with the director of Telos, in which his vision on engaging citizens in their practices was emphasised. We immediately jumped on this, but soon discovered this was not in line with our intention in the first place (see part2 FINDING DIRECTION). The transformative practices helped us in feeling empowered to make the decision to go for a critical, yet constructive approach.

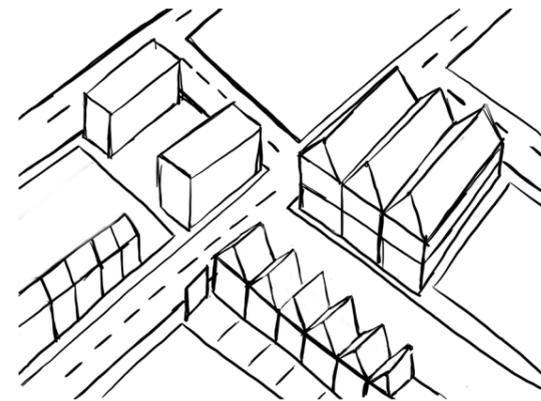


Figure 7 Concept #1 Datastreet Exploration

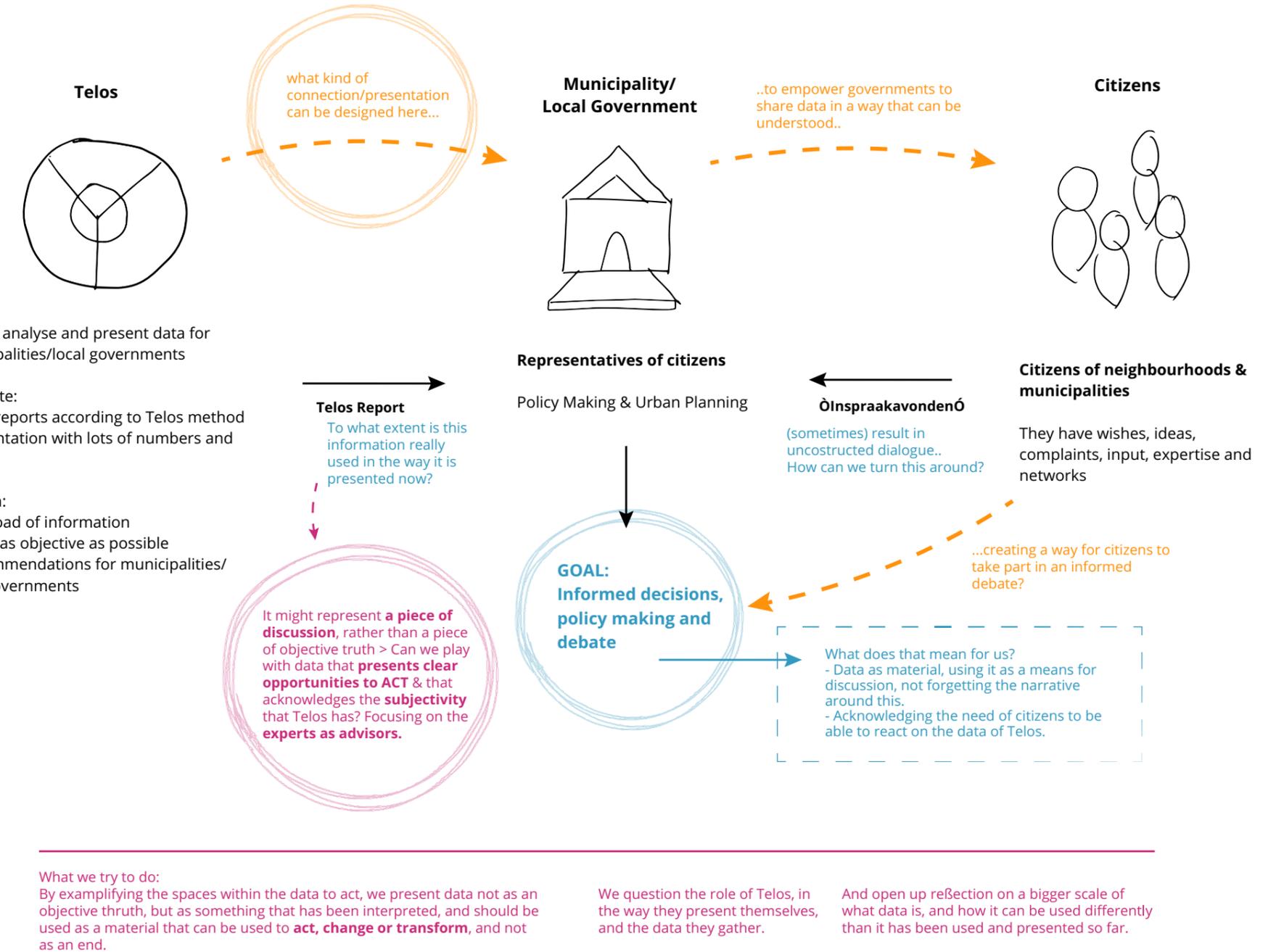


Figure 8 Stakeholder Overview, Relations and possible Design Space



Figure 9 First iteration of BIAS, presented on MidTerm Demo Day

#6 Subjectivity as Main Value & Development of first Iteration of BIAS

What & Why

Having exemplified the political (subjective) aspect within the data representations of Telos, we prototyped a first iteration proposing a new way to interactively visualise data and initiate discussions and debate in which this subjectivity plays a vital role. Our main aim was to be able to visualise a space for action.

Outcome

The first iteration of BIAS, consisting of a projection of 130 data points (randomly clustered in several groups) and a tangible controller, allowed users to manipulate the relations between de clusters of data shown in the visual. We incorporated several elements within the controllers like time & scale that had respectively a zooming and fading effect on the data points. We focused on trying to create a context of the data points by creating space for the exploration of different relations between the data clusters. However, we were not sure yet what this actually contributed yet. For the sake of receiving as much feedback as possible during the MidTerm Demo Day we left the functionality of our prototype quite open.

Insights

We realised that we did not want to create a design that would visualise a representation of the 'truth', but that we wanted to create a visual that would spark debate: a discussion piece. We were curious how this would be perceived within Telos, and decided to present it as: objective with openness of interpretation and means for discussion and debate.

Reflection on the space to act that was created within this prototype

The space to act in this iteration, was the possibility of creating one's own perspective with the data at hand, creating an opportunity for users to sketch a dataset that might help in explaining or arguing for something. By explicitly focusing on the fact that data can be used in a way that will support various opinions, thoughts and explanations (often created before actually looking at data about a specific city), we created the means to talk about the data in a way that allows for disagreement, discussion and debate.

Reflection on the openness of our design

At this stage we were struggling with the right balance between openness of our design and to

what extent it would be useful to pre-program relationships between data points. Having not yet explored the tool in the context of a concrete case, made it very hard to wrap our head around this balance. An entirely open system meant that the user would be confronted with 130 indicators, and had to make sense of this from scratch, which would be an overload of information to process. Creating a system with pre-programmed relations might be restrictive on one hand, but might be useful in exploring different relations and pushing users outside of their comfort zone, possibly eliciting reflections within the user when seeing relations that they did not imagine before on the other hand.

Reflection on the interaction of the system

We realised that the sliders with its information on the panel, and the visual with information on the screen are two different elements through which users could express themselves. Questions were asked what the result of the interaction was, the visualisation on the screen, or the position of the sliders. This was something we did not think about beforehand, and something that we took along when testing and prototyping the second iteration of BIAS.

#7 Visiting Municipality of Helmond & Presenting Concept to Telos

What & Why

Via Telos we got in touch with the Coordinator Intelligence & Analysis of the municipality of Helmond. After creating the first iteration of BIAS, we were facing some challenges regarding finding the right balance of openness in our design. Feedback from the municipality helped us in finding this balance. Shortly after presenting the first iteration to her, we also presented it to the director of Telos.

Outcome

First of all, we asked her a lot of questions to get a better hold of the view on data from a municipality's perspective. These answers confirmed earlier assumptions and added new insights. When discussing the way data is processed within the municipality she already mentioned the need for a different type of interaction with data. We got a clear direction for further development of BIAS and were given the opportunity to test the next iteration in a group setting.

When presenting BIAS to the director of Telos, he was positive about the overall concept. He agreed that moving away from indicators to stocks would

be a good option, since otherwise people would be drowned in the information. He also suggested to look at the goals, which was a new insight that we did not get from the municipality in Helmond.

Insights

The municipality of Helmond collects data based on a question. They decide what data can answer the question and present what is needed and feasible. This means that a lot of data is cancelled out when answering a question, since they simply don't provide it. When showing BIAS it quickly became clear the the level of indicators is too complex and that it is not suitable for debate. She proposed to look into the level of stocks, since it is more suitable for debate. Now, the indicators are grouped in clusters and are connected. When moving to stocks, it is good to stick to the connection of clusters. The way one can interact with the design allows for an inviting prototype that evokes the sensation of control.

The director of Telos had a harder time understanding what we were trying to do and kept on going back to connecting the stocks to the three capitals. However, he was still able to project his own perspective on our concept, which is exactly

what we would like to facilitate. It is obvious that his perspective will not change, but for us it is a challenge now to still create a tool where others can also put their perspective as an alternative for Telos/the director of Telos. It can be useful to be more extreme in the way we present the 'subjectiveness' of data.

Reflection

From these two meetings we learned that we needed a consistent story to take someone along the train of thought in which we emphasize subjectivity as a valuable addition to the data reports. We also realised that we needed to think about the relation between the data points that we presented in the visual, what do these relations mean and how are they of value for the discussion?

The director of Telos emphasised the value of roleplay and working with heterogeneous groups of people instead of people that have the same interest: however, this does not mean that people with the same interest have the same perspective, so therefore we keep our focus on the personal interpretation of data.

When talking about the establishment of goals for sustainable development we noticed that for cities, villages or even on a national level they are all constellated after talking to a lot of different partners. However, Telos is not really clear what this exactly entails and how they do this. The goals play a very important role in establishing the indicators, which in their turn determine what is being measured. Therefore, Telos has created a power position, which might be dangerous.



Figure 10 Second iteration of BIAS, used during workshop at the municipality of Helmond

#8 Re-iteration of BIAS and Workshop with the Municipality of Helmond

What & Why

The meeting with the municipality of Helmond provided us with input for a re-iteration of our concept. In the first iteration of BIAS, we used all 130 indicators, grouped in intuitively created clusters, with the aim of creating some chaos in the arranged system of Telos. With the feedback from the Coordinator Intelligence & Analysis of Helmond and the director of Telos we made the second iteration of BIAS, in which we used the 20 stocks to represent the Telos data. We decided to use circles instead of clusters to visualize the stocks because it created a cleaner and more readable visual. To focus on the interpretation and one's own value on the data points, we decided not to work with the time and scale knobs anymore. Instead, we added two sliders. The in total five sliders allow for influencing the position of the intuitively connected data points.

Outcome

We tested this re-iteration within the municipality of Helmond. Three members from the Data Intelligence & Analysis team and two program managers were present during this two-hour workshop. We discussed an urban development case that Helmond is currently working on. A

sports and school campus will be developed next to a deprived neighbourhood in Helmond and is ought to make the area more social, more sustainable and more appealing to live in. We used this case as an example and divided the five participants in two groups. One group modelled their data landscape from a social perspective and the other from an (ecological) sustainability perspective. During the constellation of their different perspectives, discussions were held to explain why certain data points were or were not included in the visual. Afterwards, we held a general discussion by comparing the visuals which were printed on transparent paper, so they could be placed on top of each other.

The data points were intuitively connected which caused discussion when manipulating BIAS. First reactions to not being able to control all data points separately were that it was somehow limiting in creating their actual perspective. When talking about this, they noticed that having to compromise in the placement of data points was actually an addition to the discussion in itself. What the participants missed in the visualization of the data points was the possibility to alter the size of the circles, to be able to express importance.

Overall, the participants saw BIAS as a positive addition to the report of Telos. It was stated that the dynamic nature of the tool is a big contrast with the staticness of the report, which makes the data more comprehensible. The space to add personal values and perspectives to existing data creates the extra layer that triggers the discussions that otherwise would be ignored. As one of the participants stated: *"This discussion might be of more value than the report"*.

Reflection

We decreased the different types of interactions in the second iteration of BIAS in order to focus on the interpretation of data. We noticed that the focus was on the visual output rather than the input of the sliders. The discussions that arose during the workshop were valuable and gave the public officials a new perspective on how subjectivity can be used in the discussion for policy making.

By focusing on the interpretation of data and the discussions that arose from that, we did not integrate the optimal interaction in this iteration of BIAS. We previously had an option to alter the sizes of the clusters, but decided to remove that.



Figure 11 Comparing Perspectives during workshop at the municipality of Helmond

The public officials felt like this was lacking and could have improved the creation of their own perspective on data. The relations between the circles are another point of improvement in the

next iteration. Currently, this was done intuitively and the participants did not agree with some of the connections, although it made them think better about the placing of the data points.

#9 BIAS: Final Demonstrator

For the Demo Day, we built a final demonstrator in which we implemented the insights we gathered from the final session with Helmond. The improvements consisted of upgrading the build quality of the controller since the previous versions were constructed out of foam board. The new build is constructed from laser-cut MDF and the internal electronics are re-organized to eliminate the looseness of some of the connectors experienced in the previous prototypes.

In the visual, we adapted the text size so all text would be uniform, and it would not provoke discussion on the meaning of the text-size difference. We also added a zoom function to the controller to demonstrate the need for the ability to alter the size of some of the circles.

Reflection

Looking back on our implementation of subjectivity, we can argue that with BIAS we also put our own subjectivity in the data. This is done by for example deciding on using the stocks as the representation of the data, but also in the way, we intuitively connected the stocks to the five sliders and deciding on the movement that is possible in the data landscape. By setting the rules of what

is possible with our tool we influence the process that results from the use of the design. In this, we tried to find a balance between what is pre-set and what is left open for interpretation. This was essential to give the user the ability to express their subjectivity, but at the same time constrain them to create uniformity in the expressed subjectivities. There is a balance in this between designing something with a specific purpose and leaving room for interpretation in the design. In this case how much subjectivity is useful for the creation of fruitful discussions. If there is too much or not enough, it will have a negative effect on the outcome.

By working with electronics and building a digital/physical interface we were also lead by constraints in feasibility, this had a direct influence on the interaction possibilities we could create. Our ambition was sometimes constrained by our technological abilities and skills or the possibilities of the software we used. Because of this, we had to choose feasibility over interaction possibilities.

Because Telos was unable to attend the Demo Day we have one more meeting planned at their office to present our end result.



Figure 12 BIAS controlled through sliders

DISCUSSION

At the beginning of the semester, we were presented with a lot of different theories & approaches for us to use throughout the process. These included: *intuitive inquiry for design*, *perceiving the invisible*, *community facilitated debate by embodied data sharing*, *embodied interaction*, *participatory sensemaking*, *essential details*. Since there were quite a lot, it became apparent that we could not include them all in our process.

During the first weeks, we managed to do small design exercises, where we used our intuition to explore specific interactions that could represent certain tensions and frictions in the context of data interpretation and sense-making. Throughout these explorations we tried to work with *participatory sensemaking* [7] and *essential details* [9]. Regardless of that, we did not consistently pursue this throughout the process, and did not manage to bridge these qualities with the context of Telos. The values we retrieved from essential details approach felt not compatible enough with the context of Telos. We think now, that we felt that the impact of our interventions would be bigger if we would be driven by the context of Telos, instead of by the theories. This might be true in the

sense that it was probably easier in engaging Telos and the municipality of Helmond in our process, but on the other hand, the theories could have provided us with new inspiration for our design. We kept them in the back of our head, but soon we were driven by the opportunities presented in the context of Telos, rather than the opportunities within the context of the theories & approaches. In hindsight, the way we explored tensions through essential details unconsciously influenced the way tensions were implemented in our final design. This showed in the way created tension with connecting multiple circles to one slider, in order to limit the user's ability to express themselves and having to navigate the tensions within our design, and in the way we assigned movements to the groups of circles.

Nevertheless, by continuously asking ourselves questions to grasp the fundamentals of what we were designing for, we demonstrated that we consciously did use the *Transformative Practices Framework* [6]. Working from the context of data we asked ourselves questions like: How does the use of data mediate our relation with the world? What is the role of data and how can we use data as material to engage in our world in a more social way, where data is considered to be closer to ourselves, rather than a representation

of the world that we might not even recognize? From this, we came upon the theories concerning subjectivity [11,12], with the most relevant one being *intersubjectivity* [16]. This focuses on experiences that are shared between multiple people, and especially how experiences are mediated by technologies, by social interactions, and by the experience itself [16]. Intersubjectivity was not one of our initial theories, but presented itself along the way as it defined more clearly what we were hoping to achieve with BIAS. It provided us with ingredients to reflect on how we had been using subjectivity within our process.

The constellation of individual perspectives has been our interpretation of using subjectivity in the process of data representation and by stimulating the exploration of these perspective, we showed the value of this sort of subjectivity in these practices. However, this meant that we did not integrate the subjectivity of the data points itself and the underlying assumptions in the way things are measured and calculated. This was a conscious choice, since our aim was to incite debate about content that could affect policy making practices within municipalities. However, it might be a nice direction that could be explored further in the future.

The final aesthetics of interaction within BIAS have been a topic of discussion, that we touched upon during reflective sessions within the process. Choosing for the tangible aspects of the sliders (that were developed during the first prototype of the DataStreet), created a way for us to quickly test our new concept in which we aimed to explore the value of subjectivity in data representation. Throughout testing with both Telos & the municipality of Helmond, we discovered that the aesthetics of the control panel provided an accessible way to introduce them to new data representation possibilities. Other ways of interacting with the data have been discussed, for example, using a Kinect© [15] (using body movement) to control the data. This would have been a logical follow up, especially when BIAS started to play a facilitating role in group discussions within Telos and Helmond. A more embodied interaction [3] could have been beneficial for social interaction during discussions & debate, in particular when discussions evolved around personal values and backgrounds. To conclude, we experienced a switch from theory focussed design to context driven design quite soon in our process. In retrospect we see that the complexity of the way Telos processed its data took a lot of our focus, since we were intrigued by the tensions that we uncovered concerning the

objectiveness or subjectiveness of data, and the different perspectives that were present within an organisation like Telos. This shows in our final result, in which BIAS is not an end in itself, but a start for discussion & debate within organisations like Telos and municipalities about the role of data in society. To conclude, we experienced a switch from theory focussed design to context driven design quite soon in our process. In retrospect we see that the complexity of the way Telos

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Figure 1.3 BIAS

REFLECTION - SAM VAN DER HORST

In this reflection, I am looking back at the past semester and the project, I will reflect on the team, the output and outcome, the overall process, the transformative practices squad and Industrial Design, and transformation and transformative practices.

After taking a break from studying for a year I made a well weight decision to start my master at the faculty of Industrial Design, one of my main motivations was the possibility of working within the realm of transformative practices. I feel that within the faculty or even the academical design world this small group of students and teachers is very ambitious in trying to find ways in which real impact can be created. Working with transformative practices for me is working in a field that focuses on solutions for future problems, by being critical and finding methods and solutions that stimulate action and not only create awareness. I feel that within this context I am able to create real impact, even when it is often hard to measure this impact. One essential part of becoming more involved within the community for me were the weekly lectures, assemblies, and social gatherings. The structure helped me to voice my opinion and learn from others

about what it means to be a designer working within transformative practices. I believe this is something that is of value to all the members of the squad and I think that this structure would stimulate learning and promotes the building of a community in other squads too.

Another structure that was valuable to both me and my team was the task of leaving traces. Over the years I experience that my process is driven by intuition, the problem with this is that you often lose control of your process because the intuition blocks you from recording steps, with the traces I found a way to capture my intuition and use it in a group setting. Next to helping me track my intuition it also helped me to keep track of the overall process of the group. When one of us was unable to attend a meeting you could catch up through the traces.

Within this project, I took an ambitious role in focusing on programming and electronics. During my bachelor's this has never been a strong point, for there was always someone that was more motivated or trained to perform this task. I have developed my skills in coding and working with electronics to a level that I feel confident to

work with this in future projects, and also think in solutions that include electronics and digital solutions.

Being the first student group working with Telos, a lot of our time was invested in exploring the context of Telos and their intentions. Speaking with two Employees of Telos with both a different perspective challenged us to explore what their intentions were and how these perspectives defined the needs of Telos. It illustrated that a client often never really knows what it wants or needs and what can be of value to them the most is not the end result, in the form of a product, but the change in mindset that the process brings. In the case of Telos being that subjectivity in data is not something to be afraid of, but that it can be used to explore the data on a different level.

The overall process in this project was one of organized chaos, starting off with a theory focused approach in which multiple explorative design sessions were central to explore the values of essential details in data. Struggling with this, there was a switch to a deeper exploration of the context of Telos and their relation with municipalities. This was not a conscious shift in approach but

happened rather intuitively in which we switched from the complexity of the theories to the complexity of Telos. Looking back this shift has allowed us to have a process that has more impact.

This semester has given me the confidence that I made the right decision in coming back to Industrial Design. I have been able to implement the skills I have developed during my bachelor's and further develop the ones that I felt were not up to par. I feel that I am capable and well equipped to work on new projects by myself in the coming semesters.

REFLECTION - ROSA VAN DER VEEN

The set-up of the Transformative Practices squad triggered me to reflect on my perspective and my role as a designer. Especially the Friday assemblies were a very nice way to unpack questions and uncertainties about theories, approaches or other broad topics, transcending the topic of our project. So far, working with the TP model mainly functioned as an attitude for me. However, throughout this semester, it became clearer how TP is contributing to a new emerging design research field. Although these new insights left me with more questions than I already had, it provided me with new reflections about the M1.1 project, my role as a designer and own work in general.

Within my work, designing is about exploring the boundaries of how we can do things differently, with the aim to incite debate and discussion. I am interested in the big picture and the complex matters within society to uncover the ethical dimensions of those. My main take away from this semester is the value of bridging the 1st person perspective with the 3rd person perspective when working within these wicked situations. As we are moving into a more value-based paradigm [1], the complexity of the matters that we face today is constantly increasing. At the first sight this seemed

quite contradictory: this value based paradigm (which I tend to connect with mainly 1st person perspective), is in quite some contrast with these complex matters, where we often tend to take a 3rd person perspective when trying to grasp or even predict matters within such systems. Through the complexity of the project this semester, but also by being able to take part in the workshop for Rijkswaterstaat, this connection suddenly made sense for me in a very practical and concrete way. An obvious connection that I can take with me more consciously in my future work.

Throughout the semester, working within a team was challenging, but also a lot of fun and useful for my development. With all of our own perspectives on what designing is and can be used for, it was sometimes a struggle to align ourselves and express our intentions around the project. While navigating these tensions was frustrating at times, it became useful in becoming aware of my own perspective. My pitfall was that since I like working with the complexity of these kinds of processes, I pushed for keeping this complexity in our process, which also, made me the one who often had to guide in what to do next. There have been moments in which I felt I was pushing too much,

and I realised that I had to take a step back. Within the project, we did several small design exercises, where we used our intuition to explore specific interactions that could represent certain tensions and frictions from a first-person perspective. However, we did not manage to fully bridge these qualities with the context of Telos, which has been all about the third person perspective. I think it would have been valuable to see what we could have done in specifically in terms of essential details & embodied interaction when exploring the values of subjectivity & ambiguity of different perspectives and thus bridge this first-person perspective with the third person perspective in that way. This also showed in the outcome of our design. Although I am very happy about the direction that we took, I think that there are improvements to be made in the way we represent the ambiguity that the topic of subjectivity and different perspectives brings forward. The design as it is now, feels quite safe for me. Having said this, we were able to include Telos as well as the municipality of Helmond in our process of exploring the value of subjectivity, in a context where this is not common at all. We had a lot of good responses, revealing the value of the direction that we took. In retrospect, it might

even have been beneficial that our design was quite simple in the way of interacting with it (using the sliders), because the discussion was brought back to the value of being able to model one's own perspective on the datasets represented, which was our main intention.

As already stated in the report, we were driven by the opportunities of the context of Telos and the municipality of Helmond. Although I think that we definitely worked with the TP framework in the way we critically examined the context and tried to uncover the ethical dimensions within, I feel that the approaches & theoretical frameworks that were presented to us in the beginning of the semester could have helped us in gaining a completely new perspective on the matter. This is something that I would like to take with me next semester, and see whether, and if so how, I can use some of the approaches and theories as starting point for my research. Having said this, I experienced the amount of theories & approaches that we started with as simply being too much to be able to really dive into and explore them thoroughly. A stricter selection based on the applicability would have been very useful in the beginning.

Next semester I will start my research project at RISE Research Institutes of Sweden, where I will be focusing on one of the three shifts – scale, impact, role of construction - that we have described within the CDR paper, concerning the state of design research in the continuously increasing complexity of the context we design for. Within the contexts of TU/e, UID and RISE, I will explore the topic of impact, where again, in essence, bridging personal values (1st person perspectives) with the complexity of today's societies (3rd person perspectives) will be at the core of my activities.

REFLECTION - *MILOU WEERTS*

After receiving my bachelor's degree at Industrial Design I decided upon taking a gap year in order to reflect on my role as a designer. It felt like I was lacking a clear vision and I wanted to explore my interest in business development. When starting with the ID master after the gap year, I wanted to challenge myself and do a project that tackles a societal challenge in which I can play with different perspectives, since I had never done that before. The abstract nature of the design brief and the complexity of (Telos) data made me feel quite uncomfortable and forced me to learn new ways of dealing with challenges like this. I am used to straightforward projects with a well defined framework, so adapting my usual way of working took some time. Sam, Rosa and I had a lot of discussions on what data actually means and how we can add value for a company like Telos while also making them question their own beliefs. I have to say that I was quite skeptical throughout the first weeks of the project, because I was unable to see the bigger picture of what we wanted to accomplish within this squad. Not making a design that meets your clients' needs but a critical design that makes them question certain actions and values.

One of the things I struggled with during my final bachelor project was not having well-argued design decisions in my concepts/prototypes. I tend to go to creating a concept and testing it too soon and often forget to think through the meaning behind the actions and output of it. Having the different theories and approaches as guideline for the project was a good starting point, but we were soon driven by the context of Telos rather than the theories. I personally had a hard time matching the given theories and approaches to the abstract concept of data, so concentrating on the context of Telos was the 'safer' option for me. In hindsight, it would have been better to work within the given constraints to challenge myself to think about how the concept can fit into different types of understandings. However, not complying to the given theories really helped us keeping the goal of the project open and allowed us to redefine it. This openness gave us the space we needed to get to a deeper understanding of Telos and the tensions it has within.

Although that diving deeper into the Telos Method eventually led to disclosing an interesting way to go, we also got influenced by it at some point. We got sucked into the Telos Method and

restricted ourselves too much when looking for opportunities. The coach meeting with Pierre right before Midterm Demo Day was essential, in my opinion, for getting in touch with our own values and ideas again. From this point onwards we had a clear direction and were able to make a lot of decisions based on our intuitions. Sometimes it felt like we did this even too much, but because of the thorough research it made sense to do so. Looking back, it would have been better to meet in the middle and substantiate the intuitive decisions more.

All in all, I can say that I got a better understanding of the value of the Transformative Practices framework within a design process. Asking the right questions to be continuously aware of the fundamentals that you are designing for helped me getting a hold on why I am designing and how I can translate that into meaningful concepts. Forcing myself into getting lost in complexity was frustrating sometimes, however the outcome, BIAS, feels like touching upon an interesting subject that is relevant. This semester contributed to grounding me as a designer and added a new layer to my vision on design.

ACKNOWLEDGMENTS

We would like to thank Pierre Lévy and Tom Djajadiningrat for their coaching and advice throughout the process, the Transformative Practices Squad for the inspiring environment to work (but also enjoy), and our stakeholders Telos and the municipality of Helmond for their flexibility and their willingness to participate in this explorative process.

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Appendice A - Consent Form



Informed consent

Researchers:

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Project Coaches:

- Pierre Lévy (p.d.levy@tue.nl)
- Tom Djadjadiningrat

Project: Telos participatory & embodied sensemaking of city data

In this project three master students explore how to develop a tool to interact in an embodied/tangible way together with local governance, with the data that Telos is normally sharing with their clients. What role should data have? Which new perspectives on the role of the municipality can such a tool bring? How to obtain participatory sensemaking regarding policy making processes? And can this tool be used at a larger scale at various cities and municipalities? Within this semester (September 2019 – January 2020) these types of questions will be explored and further defined.

We need your help

We ask for your support with this project through a semi-structured interview and a small demo where you are able to explore a prototype.

Thank you for reading this information sheet and for considering taking part in this research.

Participant's Statement

- I have read the notes written above and the Information Sheet and understand what the study involves.
- I understand that if I decide at any time that I no longer wish to take part in this project, I can notify the researchers involved and withdraw immediately.
- I consent to the processing of my personal information for the purposes of this research study.
- I agree that the research project named above has been explained to me to my satisfaction and I agree to take part in this study.
- I agree that my data, after it has been fully anonymized, can be shared with other researchers.
- I understand that the information I will submit might be published in a MSc dissertation and the results may be presented in academic publication and/or conference, workshops and/or

teaching material. Confidentiality and anonymity will be maintained, and it will not be possible to identify me from any publications.

- I have been made aware and understand that conversations during this study will be video- and audio-recorded. The recordings will not be made public and will only be available to the researchers.
- The audio files will be transcribed anonymously. Names will be changed to numbers.
- The data will not be used for commercial purposes.

For the following, please circle “Yes” or “No” and initial each point.

- I agree for the audio- and video- recording to be used by the researchers in further research studies.

YES / NO initial: _____

- I agree for the audio- and video- recording to be used by the researchers for teaching, conferences, presentations, publications, and/or thesis work

YES / NO initial: _____

- I agree photos can be taken during the interviews, to be used in the final report

YES / NO initial: _____

I hereby declare that I, (name participant) understand the procedure and agree to give consent to use information obtained through interviews to the students Sam van der Horst, Milou Weerts and Rosa van der Veen

Participant

Date:

Signature:

Researcher

Name:

Date:

Signature:

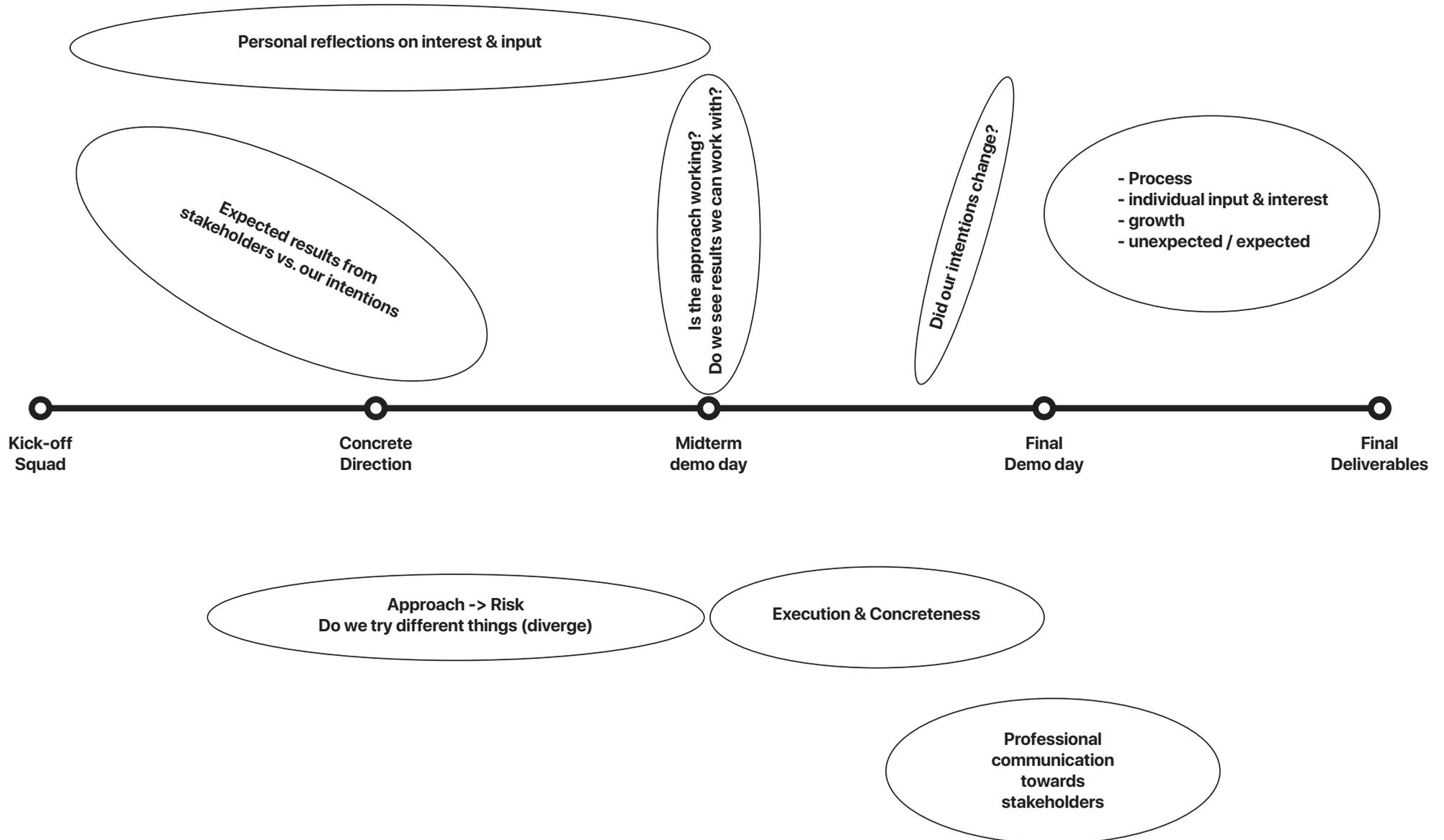


Appendice B - Business Cards



Appendice C - Reflection Timeline

PROJECT REFLECTION TIMELINE



Appendice D - MidTerm Demo Day Poster

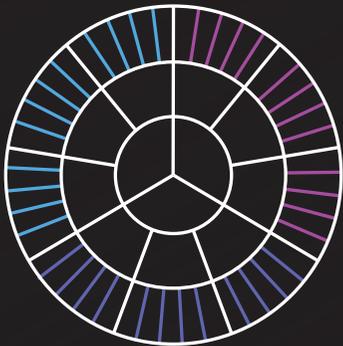
Sensemaking in City Data // Exploring Subjectivity in Data

Rosa van der Veen, Sam van der Horst, Milou Weerts

Client: Telos, a knowledge institute that gathers and analyses data for municipalities and local governments around The Netherlands.

Data

Telos receives their data from different sources like CBS, GGD and other sources within The Netherlands.



Telos Method

Telos translates all of the received data into 126 indicators, which are classified into three capitals: Social Cultural, Economical and Ecological. This classification and analysis is referred to as the Telos Method. The processed data is presented in long reports, in which Telos gives recommendations to the government or municipality. Telos states that they try to stay as objective as possible when presenting the information towards their client.

Concept

We aim to question the role of Telos in the way they present themselves and the data they gather. Rather than focusing on the objectivity of the data, we explore the role of the inherent subjectivity of data.

By exemplifying the spaces within the data to act, we present data not as an objective truth, but as something that has been interpreted. We aim to present data as a material that can be used to act and/or change rather than an end product. In this way, Telos can open up reflection on a bigger scale of what data is, and how it can be used differently than it has been used and presented so far.

By creating chaos in the order Telos created, we try to push the limits of how subjectivity can be expressed within data representation and used in a meaningful way.

Opportunity

When translating data into the Telos method, a layer of interpretation is added by classifying it. However, the results are presented in a way that it seems like an objective truth.

What if we can play with the representation of data that presents clear opportunities to act, and acknowledges the subjectivity of data? Presenting the data in such a way that subjectivity is embraced and used as a strength, opens up opportunities for informed debate and discussions.

Aim



Telos

What kind of connection/ presentation can be designed here...



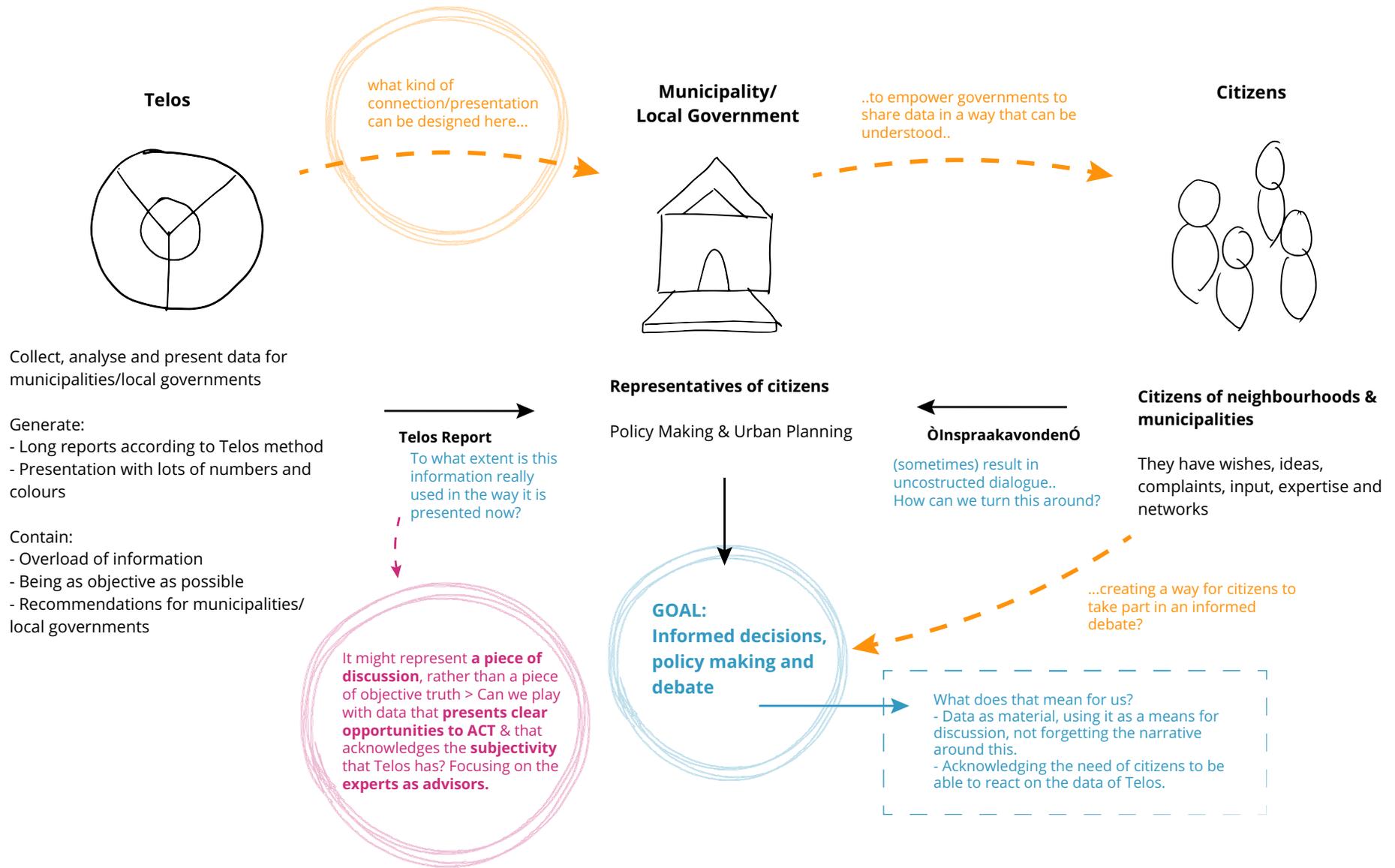
Municipality

...to empower governments to share data in a way that can be understood



Citizens

Appendice E - Stakeholder Overview & Relations



What we try to do:
By exemplifying the spaces within the data to act, we present data not as an objective truth, but as something that has been interpreted, and should be used as a material that can be used to **act, change or transform**, and not as an end.

We question the role of Telos, in the way they present themselves, and the data they gather.

And open up reflection on a bigger scale of what data is, and how it can be used differently than it has been used and presented so far.

Appendice F - Demo Day A4 Poster



M1.1 / DP / Transformative Practices

Community Debate Facilitated by Embodied Data Sharing

**BIAS: Exposing
Hidden Values through
Facilitating Subjective
Data Representation**

As data is becoming increasingly important for decision making in municipalities, we ask ourselves what this data actually means. With BIAS, we explore the value of subjectivity in the act of data representation and data sharing, to facilitate informed debate and constructive discussions. Can one's subjectivity (values, background and role in society) be of value when interpreting data? Our tool allows for interpretation of sets of data through being able to model one's own perspective regarding the relationships of these data points. As an addition to Telos' statistical data reports, BIAS uncovers hidden values which facilitates constructive debate.

Intersubjectivity

Intersubjectivity focuses on experiences that are shared between multiple people, and especially how experiences are mediated by technologies, by social interactions, and by the experience itself. How does the use of data mediate our relation with the world? What is the role of data and how can we use data as material to engage in our world in a more social way, where data is considered to be closer to ourselves, rather a representation of the world that we might not even recognise?

TP & Data Enabled Design

For us, the Transformative Practices approach is about asking the right questions to grasp the fundamentals of what you are designing for. Trying to understand what data is, how it is used, and how it relates to the world, has been our starting point. We also worked with the approach of Data Enabled Design, where getting nuanced contextual and experiential insights is at the core. We focused on the relationship between quantitative and qualitative data, in which we found the role of subjectivity to be a useful tool in making this connection.



Students: Sam van der Horst, Rosa van der Veen, Milou Weerts // **Coaches:** Pierre Lévy, Tom Djajadiningrat // **Experts:** Gooitske Marsman (Gemeente Helmond) & John Dagevos // **Client:** Telos

Data als Materiaal voor Discussie

Sam van der Horst

Rosa van der Veen

Milou Weerts

Coaches: Pierre Lévy and Tom Djajadiningrat
Contact personen Telos: John Dagevos en Corné Wentink

TU/e

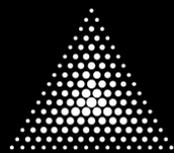


Ons startpunt

Het bevragen van **waardes** en **onderliggende begrippen** die ten grondslag liggen aan de representatie van data.

Wanneer is iets waarheid en kunnen we data als waarheid beschouwen?

Dit doen we samen met



telos brabant's centrum voor
duurzame ontwikkeling

Gemeente	TOTAALSCORE			SOCIAAL- CULTUREEL KAPITAAL		ECOLOGISCH KAPITAAL		ECONOMISCH KAPITAAL	
	Score	Rank	Ontwikkeling	Score	Rank	Score	Rank	Score	Rank
Groningen	54.1	37	▼ 2	50.2	245	50	186	62.0	4
Gulpen-Wittem	50.3	199	▲ 16	50.9	231	56.6	33	43.3	322
Haaksbergen	53.1	74	▼ 7	54.8	104	53.2	107	51.3	89
Haaren	51.9	124	▲ 8	56.8	47	51.4	154	47.5	217
Haarlem	52.4	102	● 0	52.9	169	47.7	249	56.5	21
Haarlemmermeer	48.5	268	▲ 9	47.4	298	40.2	352	57.9	13
Halderberge	48.5	268	▲ 2	50.9	231	48.8	228	45.8	264
Hardenberg	50.3	196	▼ 4	52.8	172	51.4	154	46.7	241
Harderwijk	52.0	120	▲ 14	55.6	77	46.8	267	53.5	47
Hardinxveld-Giessendam	49.4	226	▼ 17	54.8	104	45.8	297	47.6	214
Harlingen	46.6	317	● 0	49.1	270	43.5	328	47.3	224
Hattem	52.8	79	▲ 39	58.6	12	53.4	101	46.5	248
Heemskerk	50.8	179	▲ 2	53.3	153	54	86	45.2	283
Heemstede	53.5	55	▼ 12	58.2	20	56.1	39	46.3	253
Heerde	53.7	50	▼ 7	56.1	61	56.6	33	48.4	180
Heerenveen	52.1	116	▼ 16	49.2	268	52.9	116	54.1	38
Heerhugowaard	48.1	281	▲ 3	53	164	43.7	327	47.7	212
Heerlen	45.2	336	▼ 1	41.5	350	49.4	206	44.8	289
Heeze-Leende	54.7	16	▲ 8	55.3	84	57.2	26	51.6	83
Heiloo	53.3	65	▼ 15	58.1	22	53.2	107	48.5	178
Hellendoorn	53.7	49	▼ 20	56.9	43	52.3	132	52.0	75
Hellevoetsluis	43.6	352	▲ 2	49	276	40.8	345	41.0	346
Helmond	44.8	343	▲ 7	42.7	345	45.5	303	46.3	255

Onze rol

Dus concreet zijn wij bezig met het herontwerpen van, of het bieden van een toevoeging aan het huidige Telos rapport.

Hierin zijn wij aan het werk met de volgende elementen:

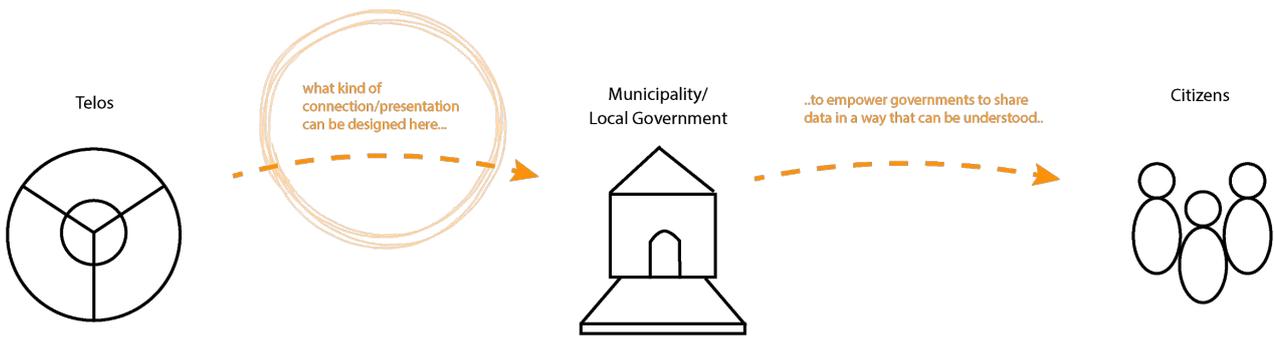
- Subjectiviteit
- Context
- Perspectieven
- Discussie & debat

Doel

Data...

...als materiaal om verschillende perspectieven te kunnen belichten (met de daarbij komende waardes, begrippen, achtergronden en belangen.

...als materiaal om constructief debat te kunnen voeren over beleidsvoering en de keuzes die daarbij gemaakt worden.



Collect, analyse and present data for municipalities/local governments

Generate:
 Long reports according to Telos methods
 Presentation with a lot of numbers and colours
 Overload of information
 Being as objective as possible
 Recommendations for local governments/municipalities

Telos Report
 To what extent is this information really used the way as it is presented now?

Representatives of citizens
 Policy Making & Urban Planning



"Inspraakavonden"
 Results in (sometimes) unconstructed dialogue.. How can we turn this around?

Citizens of neighbourhoods & municipalities

They have wishes, ideas, complaints, input, expertise and networks

...creating a way for citizens to take part in an informed debate?
 What does that mean for us?
 - Data as material, using it as a means for discussion, not forgetting the narrative around this
 - Acknowledging the need of Citizens to be able to react on the data of Telos

Data als Materiaal voor Discussie

Sam van der Horst
Rosa van der Veen
Milou Weerts

Coaches: Pierre Lévy and Tom Djajadiningrat

TU/e

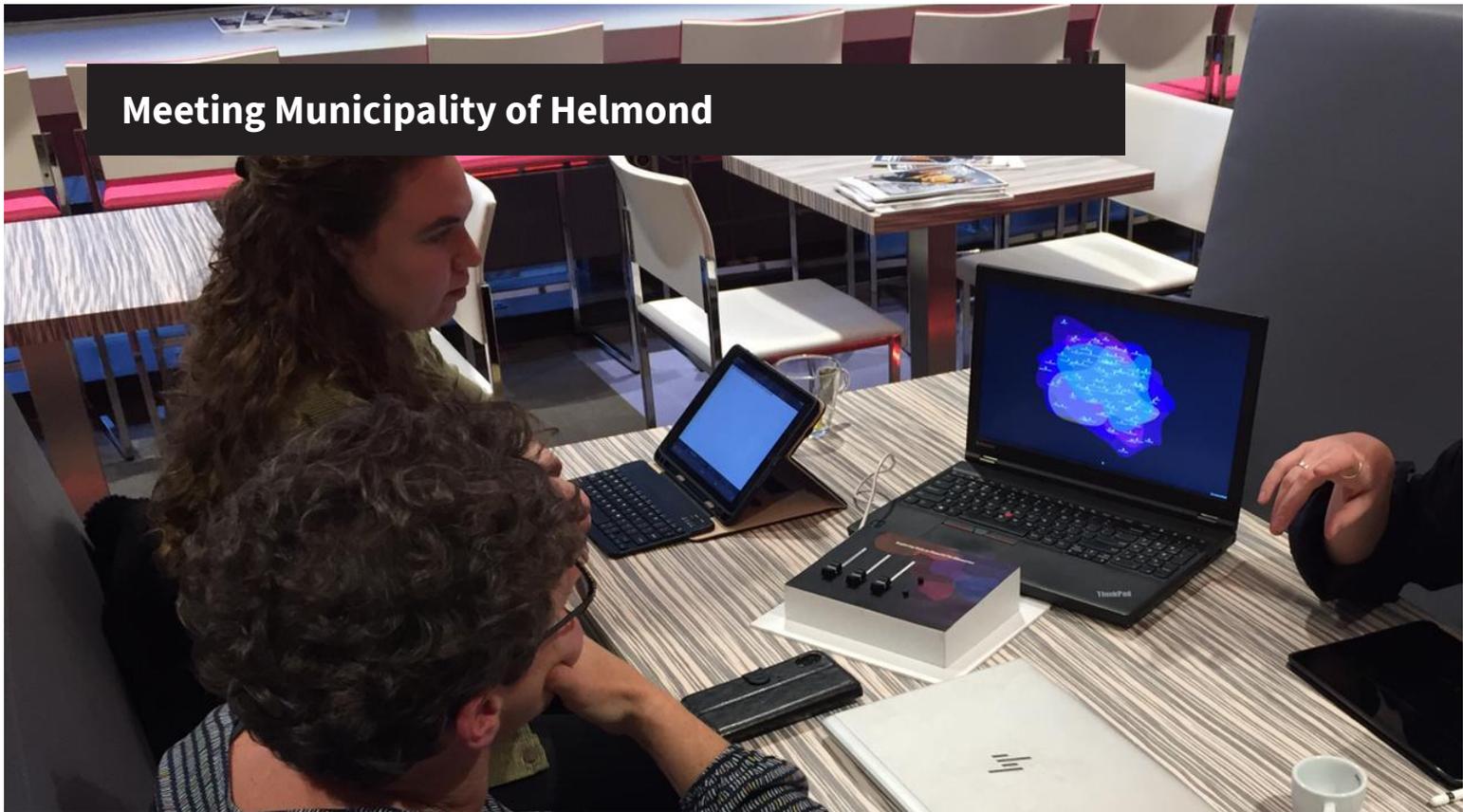


Ons startpunt

Het bevragen van **waarden** en **onderliggende begrippen** die ten grondslag liggen aan de representatie van data.

Wanneer is iets waarheid en kunnen we data als waarheid beschouwen?

Meeting Municipality of Helmond



Doel

Data...

...als materiaal om verschillende perspectieven te kunnen belichten (met de daarbij komende waardes, begrippen, achtergronden en belangen).

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Data als Materiaal voor Discussie

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Contact personen Telos: John Dagevos en Corné Wentink

TU/e



Ons startpunt

Het bevragen van **waardes** en **onderliggende begrippen** die ten grondslag liggen aan de representatie van data.

Wanneer is iets waarheid en kunnen we data als waarheid beschouwen?

Dit doen we samen met



telos brabant's centrum voor
duurzame ontwikkeling

Gemeente	TOTAALSCORE			SOCIAAL- CULTUREEL KAPITAAL		ECOLOGISCH KAPITAAL		ECONOMISCH KAPITAAL	
	Score	Rank	Ontwikkeling	Score	Rank	Score	Rank	Score	Rank
Groningen	54.1	37	▼ 2	50.2	245	50	186	62.0	4
Gulpen-Wittem	50.3	199	▲ 16	50.9	231	56.6	33	43.3	322
Haaksbergen	53.1	74	▼ 7	54.8	104	53.2	107	51.3	89
Haaren	51.9	124	▲ 8	56.8	47	51.4	154	47.5	217
Haarlem	52.4	102	● 0	52.9	169	47.7	249	56.5	21
Haarlemmermeer	48.5	268	▲ 9	47.4	298	40.2	352	57.9	13
Halderberge	48.5	268	▲ 2	50.9	231	48.8	228	45.8	264
Hardenberg	50.3	196	▼ 4	52.8	172	51.4	154	46.7	241
Harderwijk	52.0	120	▲ 14	55.6	77	46.8	267	53.5	47
Hardinxveld-Giessendam	49.4	226	▼ 17	54.8	104	45.8	297	47.6	214
Harlingen	46.6	317	● 0	49.1	270	43.5	328	47.3	224
Hatterum	52.8	79	▲ 39	58.6	12	53.4	101	46.5	248
Heemskerk	50.8	179	▲ 2	53.3	153	54	86	45.2	283
Heemstede	53.5	55	▼ 12	58.2	20	56.1	39	46.3	253
Heerde	53.7	50	▼ 7	56.1	61	56.6	33	48.4	180
Heerenveen	52.1	116	▼ 16	49.2	268	52.9	116	54.1	38
Heerhugowaard	48.1	281	▲ 3	53	164	43.7	327	47.7	212
Heerlen	45.2	336	▼ 1	41.5	350	49.4	206	44.8	289
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Onze rol

Dus concreet zijn wij bezig met het ontwerpen van een toevoeging aan het huidige Telos rapport waarin er waarde gegeven kan worden aan de relaties tussen data.

Hierin vergroten wij de waarde van het subjectieve deel van de Telos data interpretatie. We noemen dit: Objectiviteit met openheid tot interpretatie en discussie:

- Persoonlijke subjectiviteit binnen de interpretatie van data
- Context waarin data wordt geïnterpreteerd
- Perspectieven die verschillende dingen zullen opmerken in bestaande data
- Discussie & debat stimuleren door de subjectiviteit te illustreren

Rol van data

Data speelt een steeds grotere rol in beleidsvoering en het 'meten' van hoe goed of hoe slecht een gebied/stad er aan toe is

Meer medewerkers binnen gemeenten die data aanleveren en selecteren voor beleidsvoerders

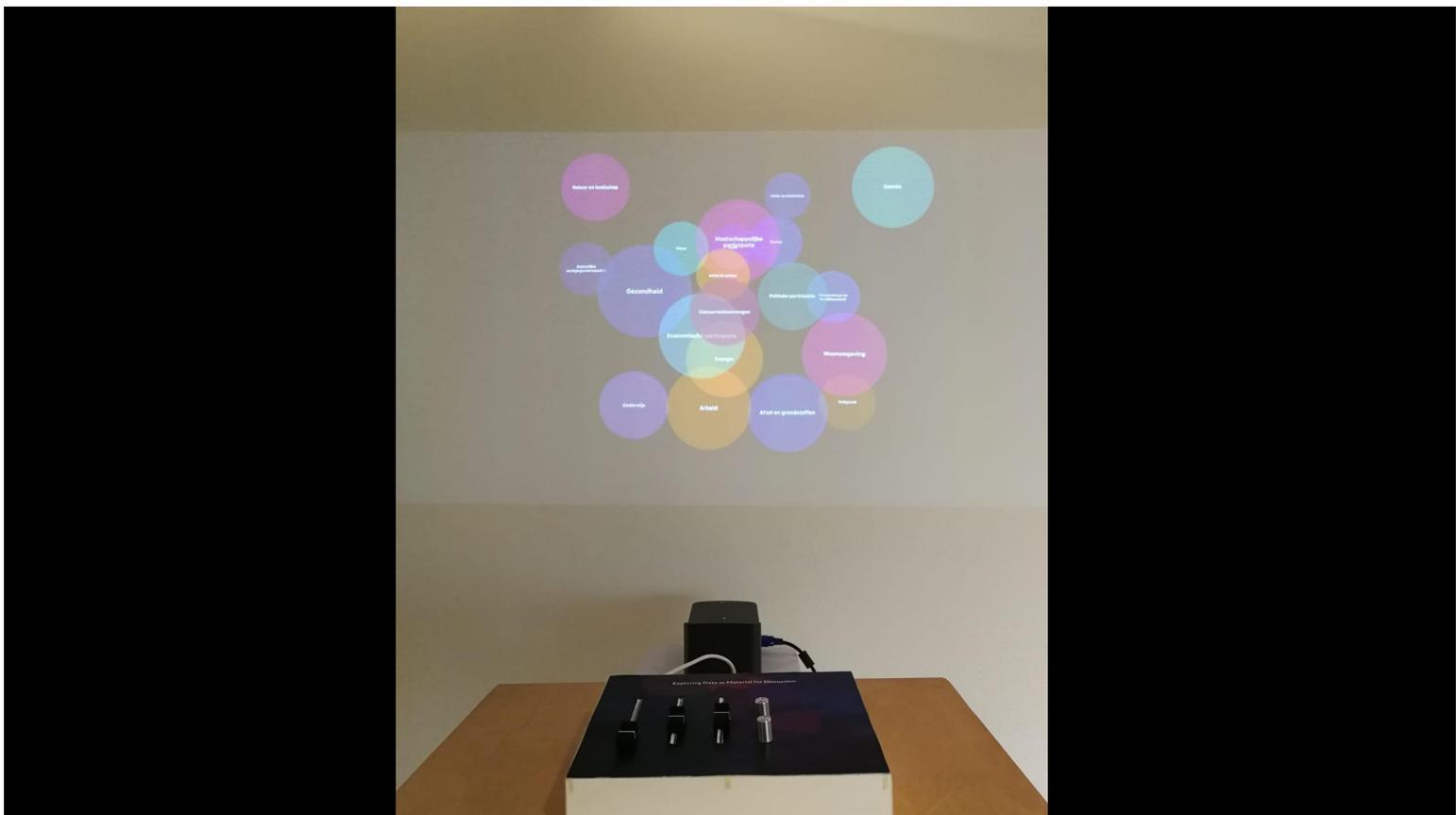
Hoe zorgen we ervoor dat er ook ruimte is voor debat rondom de wel of niet objectiviteit van deze data?

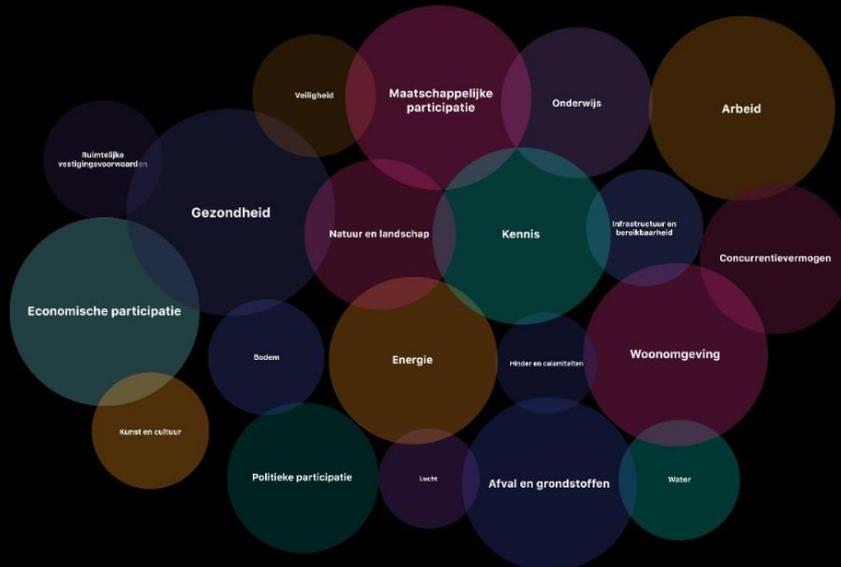
Doel

Data...

...als materiaal om verschillende perspectieven te kunnen belichten (met de daarbij komende waarden, begrippen, achtergronden en belangen.

...als materiaal om constructief debat te kunnen voeren over beleidsvoering en de keuzes die daarbij gemaakt worden.





/waarom deze ontwikkeling?

**STRATEGISCHE
AGENDA****Sociale stad**

Helmond wil een stad zijn waar voor iedereen plek is. Daarbij streven we naar sociaal-economische stijging voor de stad in zijn geheel. Door middel onder meer van StadsI&O Helmond en het StadsI&Obedrijf. Daarnaast worden nieuwe ontwikkelingen op het gebied van zorg en jeugdhulpverlening gestimuleerd en ondersteund, die direct ten goede komen aan onze inwoners. Ten slotte wordt een adaptieve agenda gemaakt op het thema onderwijs-arbeidsmarkt om het opleidingsniveau te laten stijgen.

**Duurzame gezonde stad**

Een aantrekkelijke stad is ook een duurzame stad. Helmond zet in op een versnellingsagenda Duurzaamheid. De ambitie is om in 2035 klimaatneutraal te zijn. De versnellingsagenda stippelt de route uit waarlangs partijen hun bijdrage leveren aan een duurzaam Helmond. Daarnaast zet Helmond in op gezonde en actieve burgers via het stimuleringsprogramma "gezond in de stad".

**Aantrekkelijke woonstad**

Helmond heeft zich de afgelopen decennia ontwikkeld tot een aantrekkelijke woonstad. Met een veelheid aan woonmilieus, woning typologieën en architectuurstijlen wordt een breed gebied van de woningvraag bediend. Helmond wil betaalbare en kwalitatief goede huisvesting voor een ieder bieden. We durven vernieuwende concepten te ontwikkelen en voorop te lopen in de ontwikkeling van duurzame woonvormen. Ook biedt Helmond een perspectief voor de regionale woningzoekende, zowel vanuit de Peel als vanuit het stedelijk gebied.



Workshop

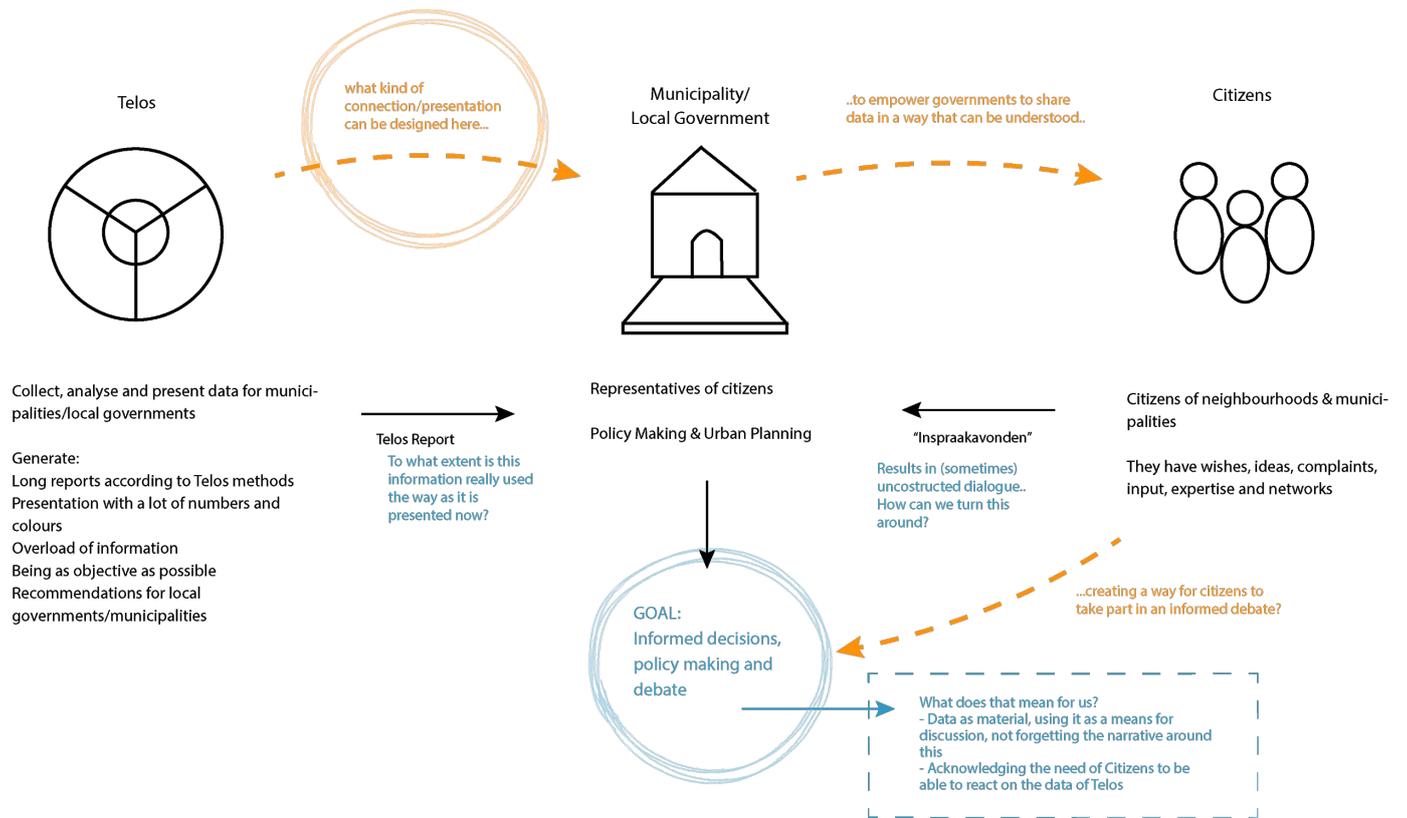
Drie groepjes van 2 of 3 personen

Case 1: Sociale stad

Case 2: Duurzame gezonde stad

Case 3: Aantrekkelijke woonstad

Ieder groepje krijgt 10 minuten om met behulp van de tool hierover te discussiëren. Daarna gaan we de cases met elkaar vergelijken.



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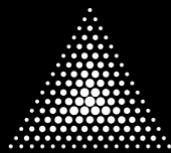
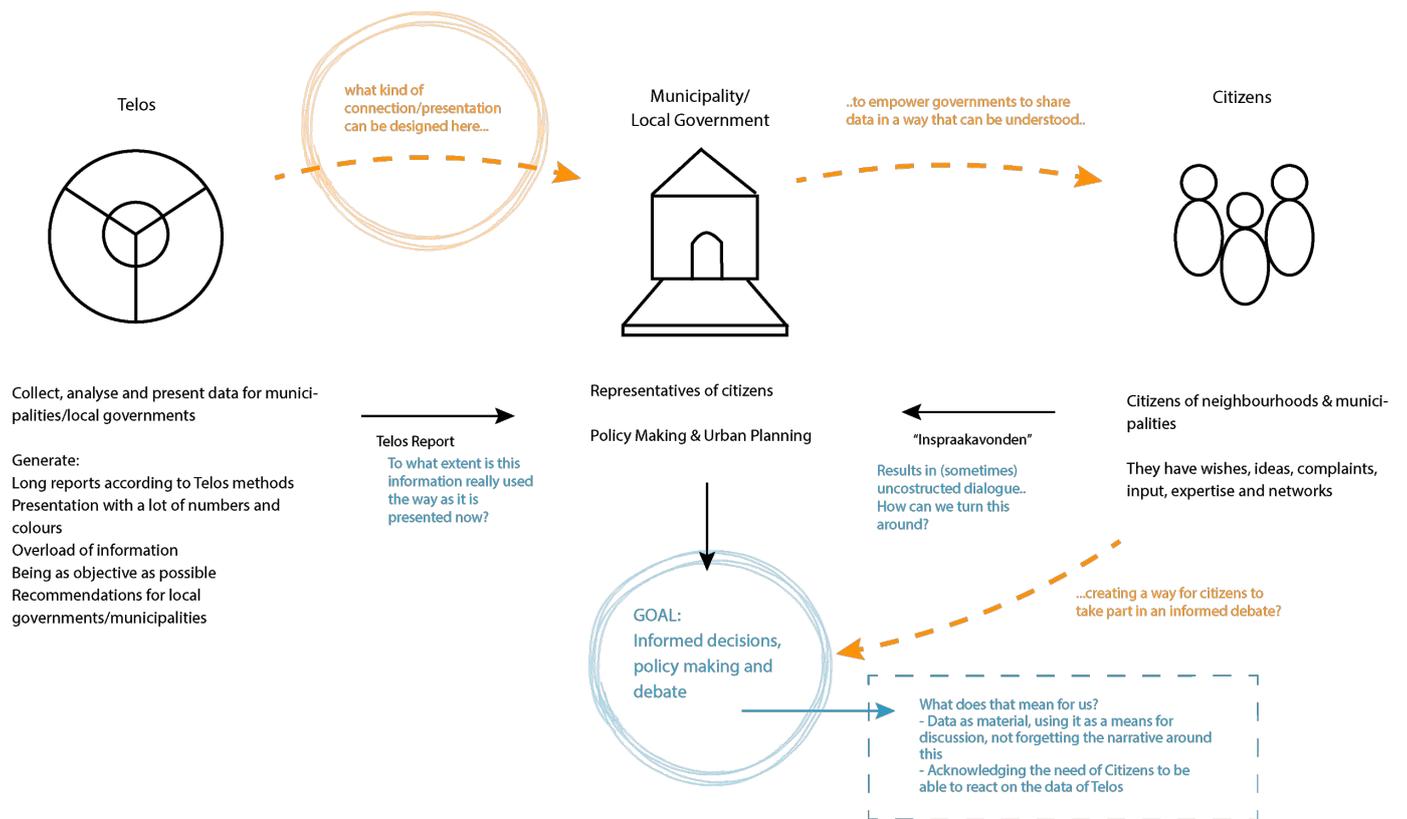


telos
brabants centrum voor
duurzame ontwikkeling

Ons startpunt

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telos brabant centrum voor duurzame ontwikkeling

Onze rol

Het ontwerpen van een toevoeging aan het huidige Telos rapport waarin er waarde gegeven kan worden aan de relaties tussen data.

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Rol van Data in Gemeenten

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Meer medewerkers binnen gemeenten die data aanleveren en selecteren voor beleidsvoerders

Hoe zorgen we ervoor dat er ook ruimte is voor debat rondom de waarde van deze data? Wanneer kan je het gebruiken, en hoe zou het gebruikt moeten worden?

Doel

Data...

...als materiaal om verschillende perspectieven te kunnen belichten (met de daarbij komende waardes, begrippen, achtergronden en belangen.

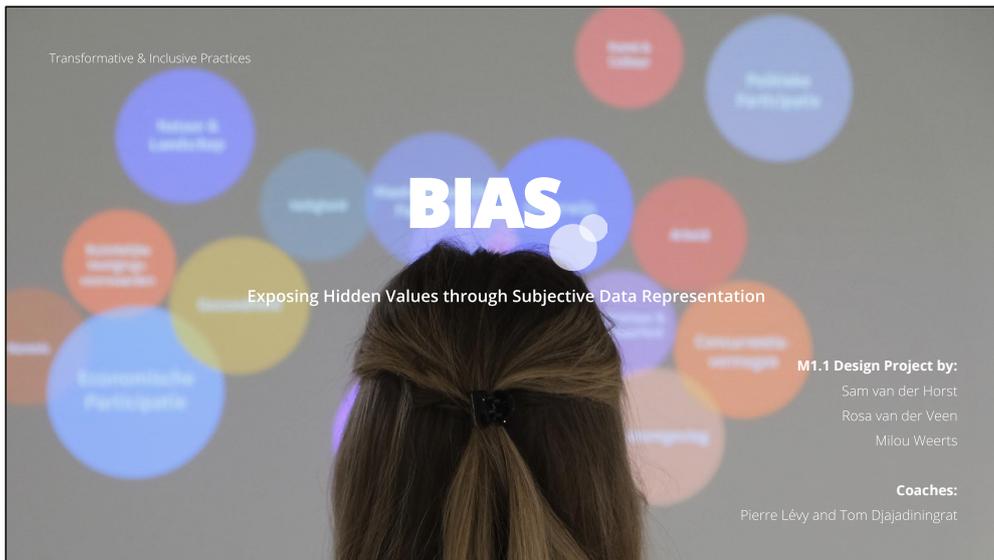
...als materiaal om constructief debat te kunnen voeren over beleidsvoering en de keuzes die daarbij gemaakt worden.

BIAS

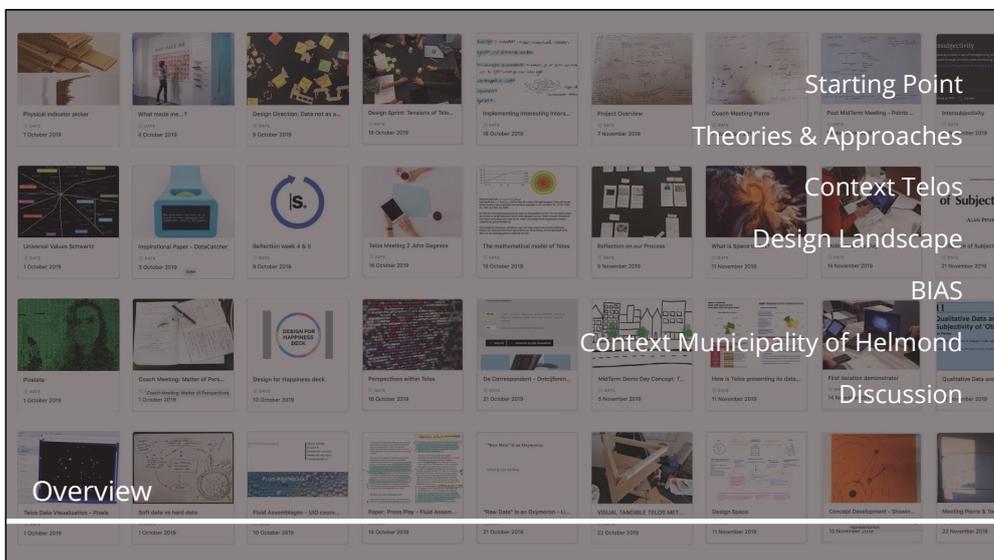
Exposing hidden values through facilitating subjective data representation



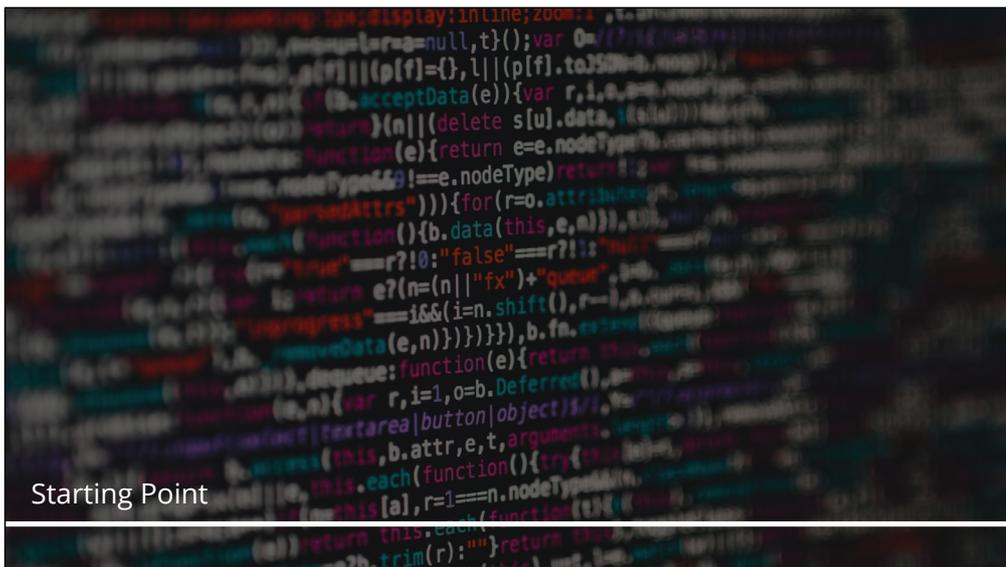
Appendice K - Final Presentation for Assessment (with notes)



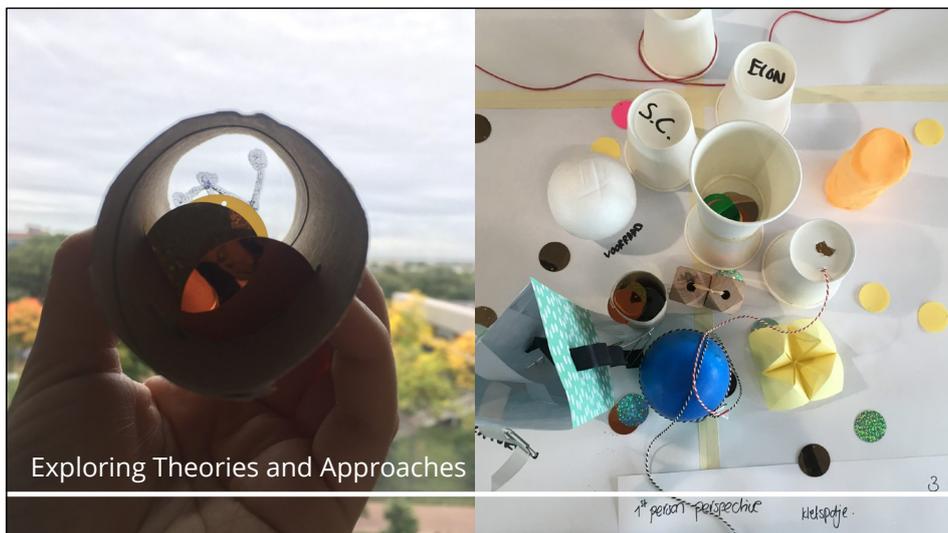
- Welcome to our presentation, today we will elaborate on the project we worked on during this semester: BIAS.
- With BIAS hidden values are exposed through subjective data representation



- We begin by explaining our starting point,
- elaborate on the theories and approaches we used
- how we put this inside of the context of our client: Telos
- illustrate the design landscape we worked in
- explain BIAS and how it fits within the context of the municipality of Helmond
- and finish with a discussion.



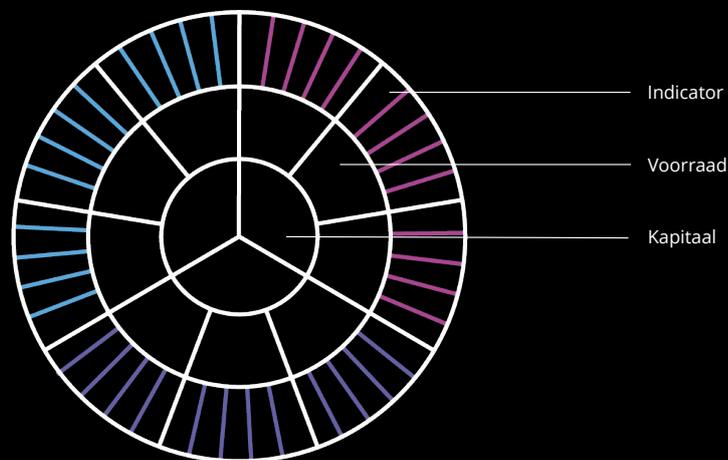
- In today's society, data has become a valuable asset for decision making processes in municipalities
- The increase of data generation and usage has been a starting point to critically look at what data is, how it is used and how it mediates our relation to the world around us.
- In order to question the values and underlying principles of data representation, we used two perspectives in order to explore this context.



- We started by exploring the role of data within the context of the given theories & approaches: essential details & participatory sensemaking
- By doing multiple small design sprints, we looked into the qualities of interacting with data.
- At this point data was still an abstract concept and we felt that we missed the context of data

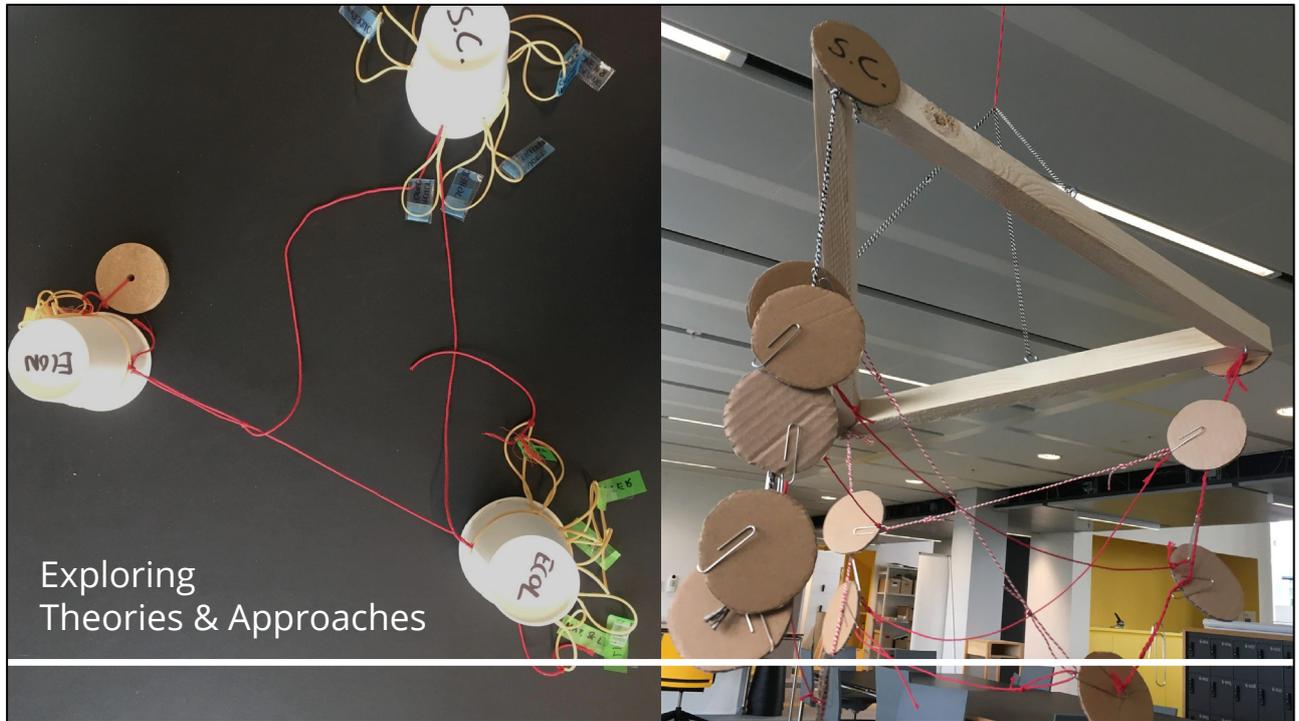


- So we started to get a better understanding of the context of our client: Telos.
- Telos is a knowledge institute who plays an important role in collecting, analyzing and packaging big data sets for municipalities within the Netherlands.
- They play an advisory role in sustainable development of projects within local governments.
- Telos developed their own method.....

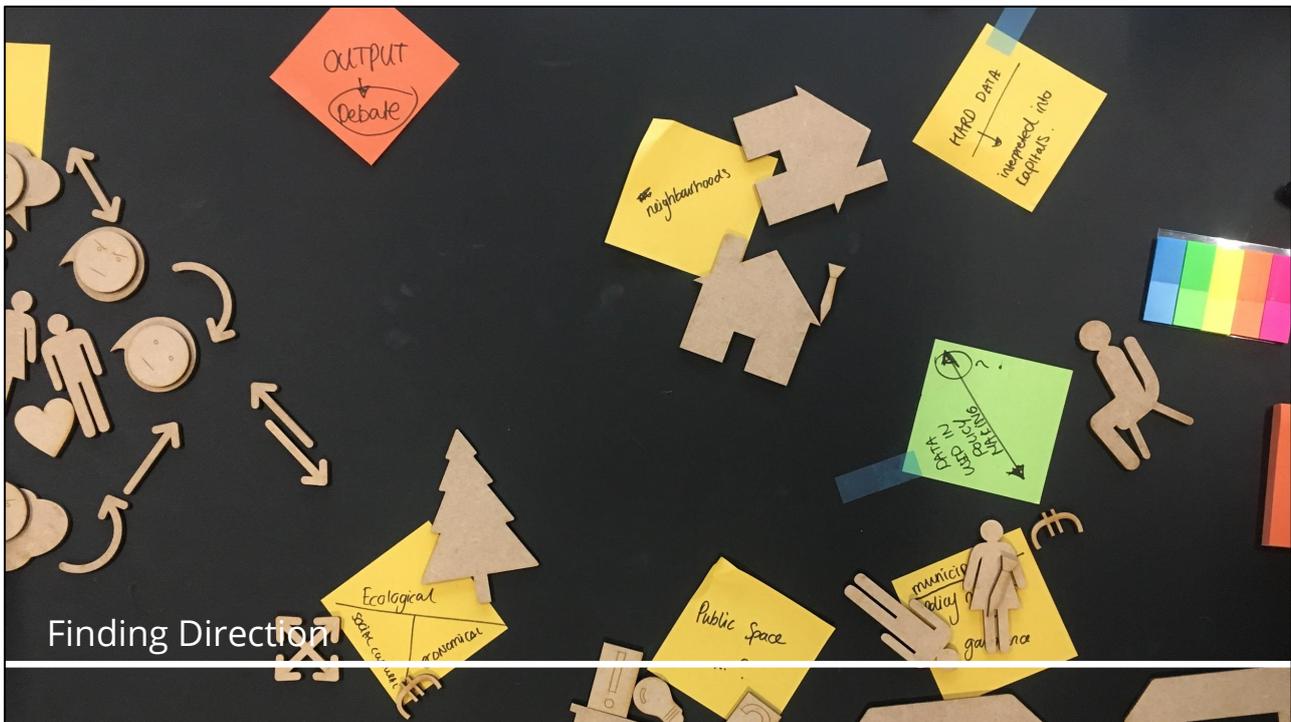


Telos Nationale Monitor 2018:
<http://www.telos.nl/Publicaties/PublicatiesRapporten/default.aspx#folder=1502796>

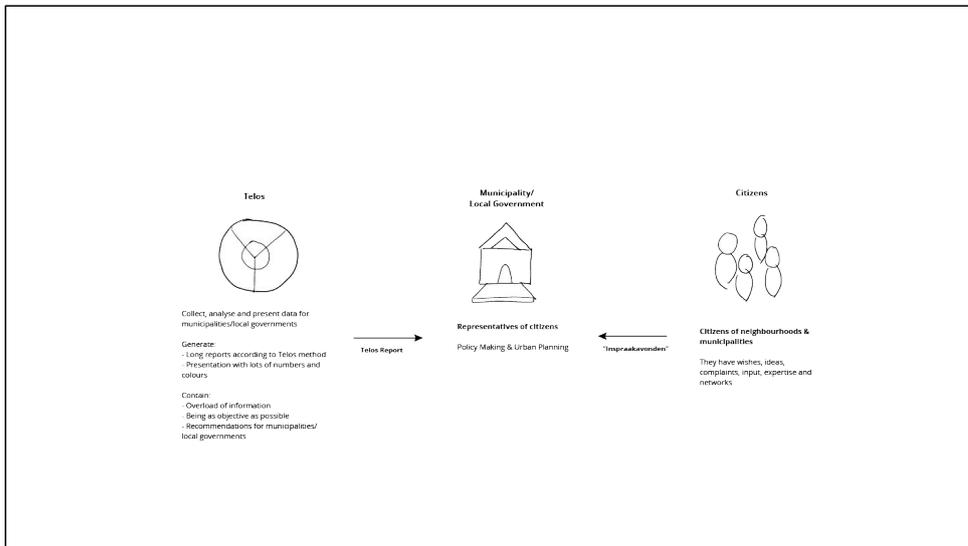
- The Telos Method.
- It states that sustainable innovation processes always need to balance the three main capitals: Ecological, Economical & Socio-Cultural.
- When developing a project, it is important that none of the capitals are staying behind
- Telos provides complex data reports to local governments



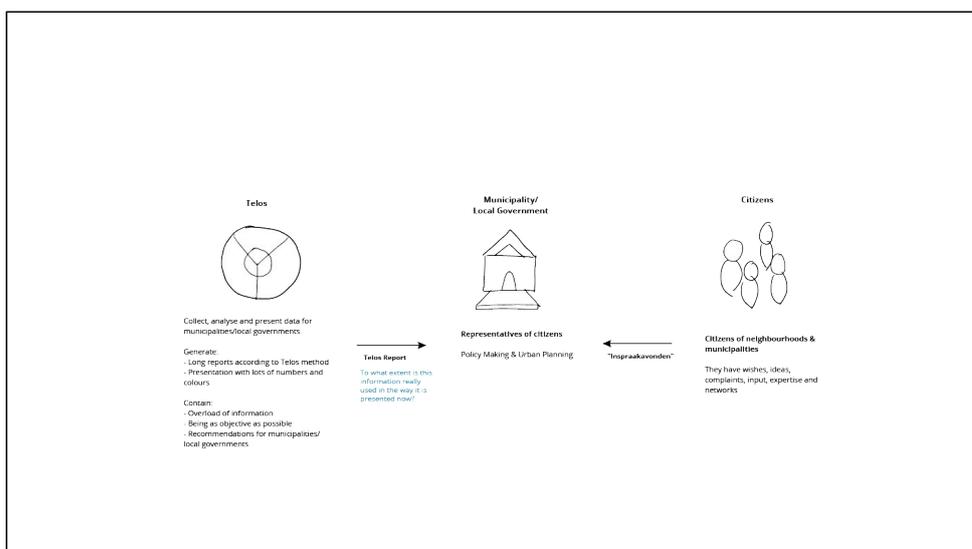
- We explored how citizens and/or municipalities could interact with the data points by making several prototypes.
- On the left, we explored how tensions can affect the capitals
- On the right we played with the weight of different data points.



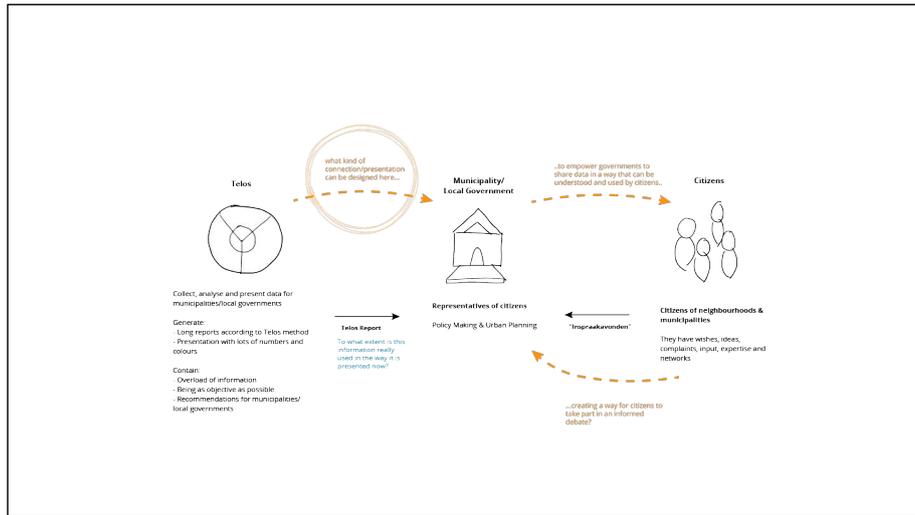
- The explorations left us with a better understanding of the complexity within the Telos method, and possible interactions with data.
- However it did not shed light on how to couple it to a specific case or use.
- We were having trouble with bridging the theory & approach perspective, with the Telos perspective.
- By visually mapping our process, we were able to define our main intention.
- The core of our explorations were always about what data is and how it could be used.
- It made us realise that the objectivity of data in general can be questioned.
- Measuring something in a specific way, or interpreting data with a specific perspective, carries a lot of underlying values, and thus carries subjectivity along.
- Talking about this is often avoided.
- As designers we saw an opportunity in using this presence of subjectivity, and felt that this could be turned into a strength & value, instead of a weakness.
- In order to find out how we could work with this intention within the context of Telos, we mapped our design landscape.



- Telos: collects, analyses and distributes data through reports delivered to municipalities.
- Telos' intention and vision is to create informed debate between citizens & local governments, through it's data.
- with this, Telos tries to empower local governments to create policy that is build upon the data they provided and, which at the same time, has been discussed with citizens.
- However, the role of citizens is not really taken into account in the way Telos presents it's data. Citizens are not involved in the creation of those reports.
- This creates a friction.

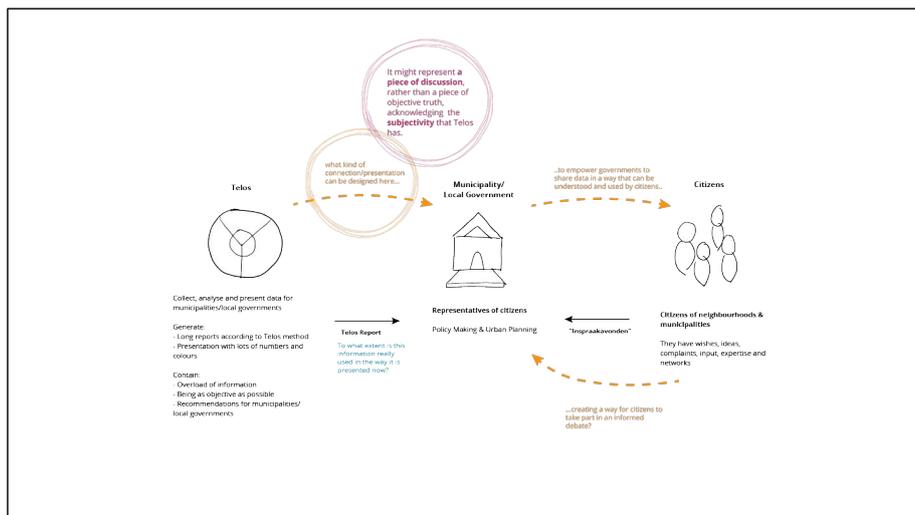


- the second concern is: To what extent is the data provided by Telos really used in municipalities?
- talking with the municipality of helmond confirmed this concern and stated that the complexity of the Telos' reports are not always fully read or understood, let alone to be taken into account within policy making processes.



This illustrates that:

- in order to empower citizens to take part in an informed debate concerning policy making,
- governments need to be able to share their data and ideas in a way that can be understood and used by citizens.
- we therefore saw the need to look at the way telos presents their data to municipalities.
- because if citizens ought to be making sense to data, local governments really have to understand what they are working with.



- looking at this landscape, and going back to our initial intentions, we saw that the subjectivity that we defined earlier on as a potential value within data representation, could be of use here to make sense of the Telos data in a meaningful way.

BIAS

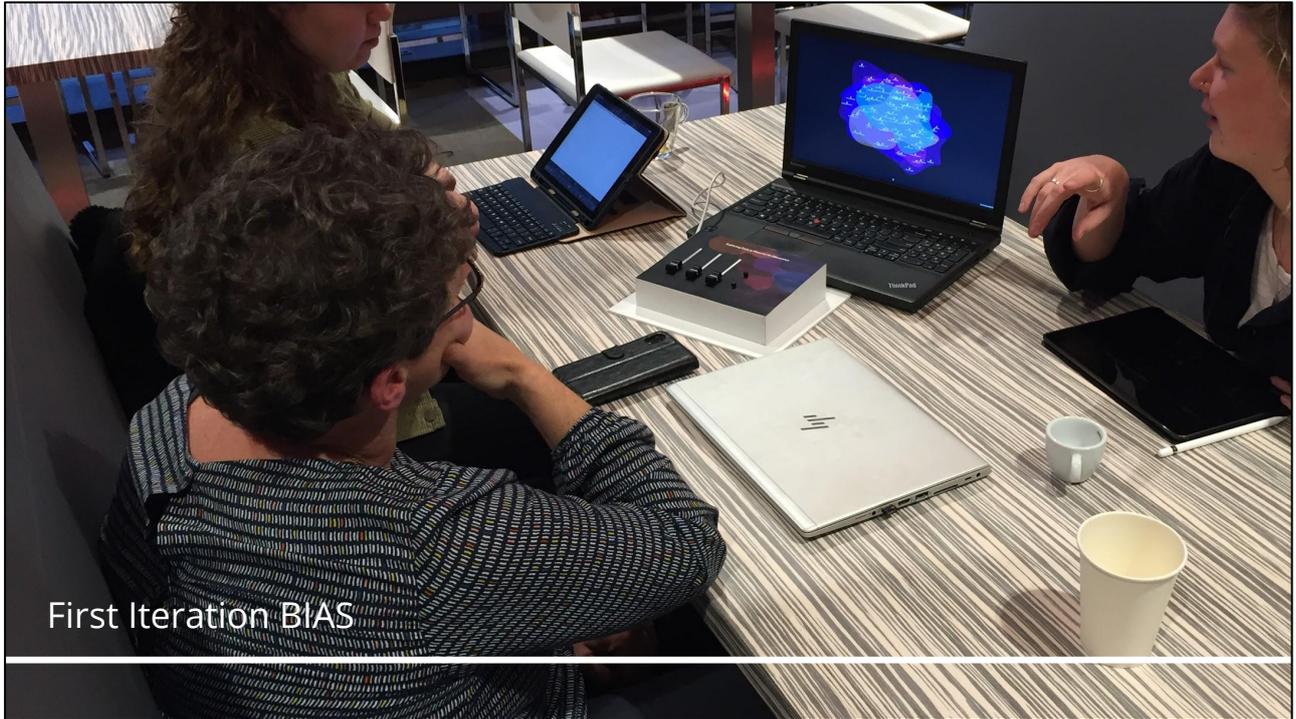
Exposing Hidden Values through Facilitating Subjective Data
Representation

within this landscape we designed Bias

- **Data not used to represent an ‘objective truth’ > used as material for discussion**
- **Emphasises the positivity of our biases (and thus our subjectivity) > strength to incite debate and discussion**
- **Give people the opportunity to visualize their own take on the Telos data > contextualising the data in the way it is interpreted and can be used**
- **Extra layer to the Telos report > helps interpret big datasets with the aim of stimulating debate and discussion to expose hidden values**



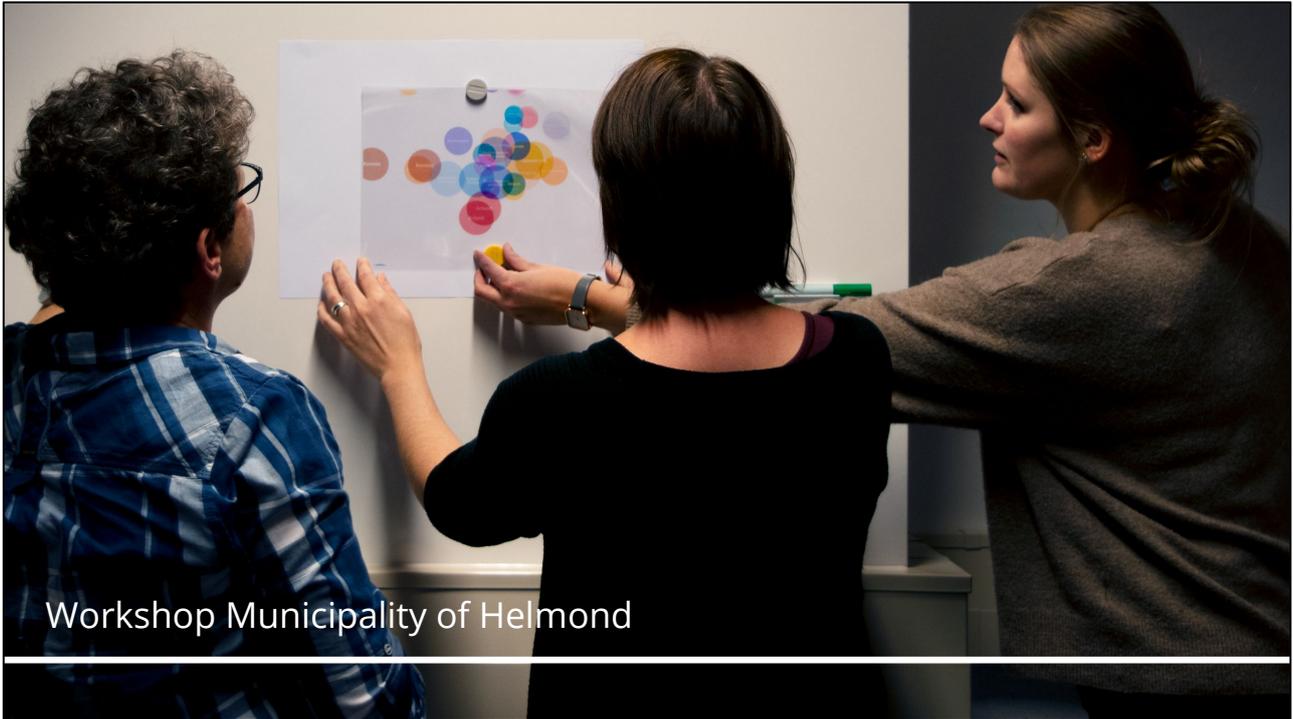
- **visual combined with a tangible controller**
- **Data points within the visual represent the 20 'stocks' from the Telos Method**
- **Intuitively coupled to different sliders > stimulates exploration and opens up room for debate when the tool is manipulated (group setting).**
- **Model their own perspective regarding the relationships, placement and size of the data points**
- **through modelling the perspectives, the users give meaning to the placement and relationships of the datapoints**
- **Data landscape is completed > printed > comparison with other landscapes > discuss**



**using other data points > too much
more modelling capabilities**



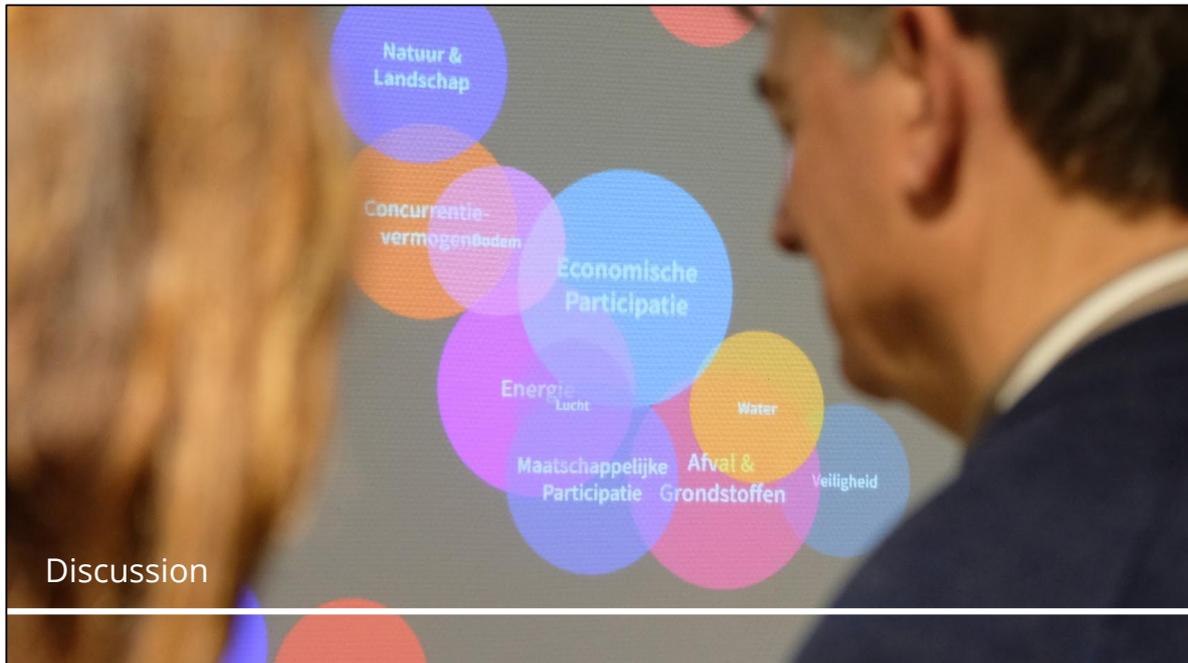
**We used different datasets for the visualisation
Less > easier to discuss**



Workshop Municipality of Helmond

here you can see the addition of printing and comparing

Through BIAS, policy makers can find common grounds in the data and discuss their differences in perspectives openly.



- As came forward in the presentation, we struggled with bridging the perspective of the theories & approaches with the perspective of Telos.
- Although we started out with using participatory sensemaking and essential details in small design sprints, we soon found ourselves drawn to the opportunities provided within the context of Telos: they were more concrete
- This also shows in our final outcome: Our concept BIAS is closely related to the content of the Telos report in terms of the data points used in its visualisation.
- We used their vocabulary, and saw that this was beneficial in taking Telos with us in our process of turning subjectivity into a strength as opposed to something that needs to be avoided.

- However, in hindsight, we do feel that we could have gained more insights from the theories and approaches that were presented to us in the beginning.
- Especially the interaction within BIAS might have benefited from a more embodied perspective when we aim to express subjectivity and thus personal values within the context of data.

- Having said this, the sessions with the municipality of Helmond showed that there is value in the way BIAS is designed.
- It was even stated that this is of more relevance than the actual report of Telos in creating constructive debate.
- So to conclude: BIAS opened up a reflection about data in general, and proposes a way on how data can be used as a material for discussion, facilitated by the value of our own perspectives.

Thank you for listening!