CREATING SELF-EMPowered AND SUSTAINABLE COMMUNITIES
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Our society is faced with a number of major challenges. Critical matters like financial tension, pollution, and safety and health issues prove to be difficult to solve with just one simple answer. In many cases these major challenges cannot be unravelled by traditional means and solutions, but require a radical approach to move towards a more sustainable and balanced society.

To reach a new equilibrium we need to confront today’s challenges by exploring new ways of thinking and working. By doing so, it is necessary to develop new frameworks, methods, and tools in order to come up with new systematic designs, which create opportunities to transform our society.

The Civic Forges: Weaving Neighbourhoods project investigates new methods in order to move towards societal transformation. The project aims to realise “platforms” in Eindhoven (the Netherlands), Umeå (Sweden) and eventually other European cities that dynamically engage citizens in creating self-empowered and sustainable communities. Because true sustainability and wellbeing cannot be created on an individual level only, it requires behavioural
change on a societal level too, where the collective is more important than the individual. If we want different people to work together on local solutions for local issues that stem from greater global issues, we believe it is necessary to involve citizens, and trust and empower them through their skills in shaping the future of their own city. Since the city of Eindhoven shares this dream of self-empowerment and sustainability, they co-funded this two-year project.

The golden diamond of local governance, businesses, universities and especially citizens, is the basis of a community and the essential foundation from which society is able to transform. In this Civic Forges project we explored and developed communal gatherings and platforms that precisely engage these stakeholders. By using the different partners of the golden diamond as catalysts of innovation, the project strives to create self-empowered and sustainable communities, which are essential to create opportunities to face our modern-day challenges.
In this booklet we show traces of our search. We explored, mainly in the context of Eindhoven, the Netherlands and partly in Umeå, Sweden, what the partners of the golden diamond need, with an emphasis on the citizens of Eindhoven. We explored this in a variety of workshops, by developing methods and tools to enhance this process, and through designing systems, products and services that empower neighbourhoods and people, thus moving towards a more sustainable and balanced society.

The first chapter ‘Transforming Society’ provides the backbone of this book. It outlines the reasons behind the Civic Forges project and defines the theoretical background of the project. The second chapter ‘Supporting engagement through skills’ shows and explains frameworks, methods and tools developed to stimulate self-empowered and sustainable communities, more specifically Design in Skills (DiS) and Engagement Catalysers (EC).

The following two chapters focus on the more tangible aspects of the project. Chapter 3 discusses
the workshops Hephaestus and the Senses and Vaartbroek, which were done to connect the various stakeholders of the previously mentioned golden diamond, whereas Chapter 4 ‘Design platforms towards self-empowered communities’ covers specific designs that were made during the Civic Forges project, while using, among others, the Experiential Design Landscapes method. The final chapter, appropriately dubbed ‘Connecting the dots’, offers a useful summary of this publication. Here, the reader will find a recap of the project and a conclusive report about the findings and insights in relation to the initial goal of the project. Moreover, the last chapter describes the plans, dreams and upcoming projects that will evolve from the outcomes found in Civic Forges.

We hope you enjoy reading this booklet, be inspired by it, and help shaping the future of Eindhoven and other communities in order to move towards a sustainable and balanced society. Let’s meet and create together.

*Caroline Hummels and Ambra Trotto*
Transforming society

“To tackle today’s problems with new solutions, we need new ways of thinking and new methods of working.”
Our modern societies face us with numerous challenges, such as pollution, safety and health issues, which are leading to a growing discomfort and a quest for balance. People are seeking for new systems, products and services to help them moving towards a sustainable world. The call to open up to new skills to enable societal transformation and realise behavioural change on both a personal and societal level is getting stronger every day. Designing is very well suited to play an active role in transforming society, because designing is about opening up, questioning current practices, exploring new territories, and imagining things that do not yet exist.

We see a tomorrow in which we can face our societal challenges by using technology in an embodied way, embracing our skills, starting from a first person perspective, and throwing ourselves in. By exploring a paradigm shift through innovation, we can really make a difference. We are also convinced that to tackle today’s challenges with new solutions, we need new ways of thinking and new methods of working. It is important to develop technologies that enable the shift towards a societal transformation.
When Ambra and I are in our offices, we perceive the sounds, smells and looks, and experience the room. This may not sound surprising to most of people – we experience these kinds of things all day – but for thousands of years philosophers have been debating about how we know and perceive the world in the first place.

In the 17th century, René Descartes (1637) expressed his famous idea that we are a ‘thinking thing’ with a mind, and that we have ideas, experience, and a representation of the world in our mind. According to Descartes, knowledge is made of ‘mind-stuff’, which is disengaged from the body and the physical world of objects. To him, man is an exclusively rational thinking being (Dreyfus et al., 2010).

When we look at our current society, our technologies, and the designed world, it is obvious that the Cartesian worldview is still dominant, meaning: we value our minds highly. Many technologies in the world choose cognition over the body; making our lives easier by saving labour or physical actions; turning reality into information. We seem to like making things efficient and optimising solutions.

It is safe to say that technology offers many advantages. I live in a comfortable house, I can buy the food that I like, I can travel virtually everywhere, and I can be online 24/7. My elderly mother can live independently at home, with a support system in case anything goes wrong. We extend and save lives with our technologies.

But despite all these advantages, why are we still facing such major societal challenges like pollution, and safety and health issues? To face these challenges we believe that our society also needs to explore alternative ways to engage with the world.

In the 20th century the philosophical school of phenomenology turned the Cartesian worldview inside out. As opposed to Descartes’ rationalism, Merleau- Ponty (1962) considered specifically ‘embodiment’ and ‘skilful coping’ to be unique characteristics of man; that is, we are able to engage with the world and develop skills while acting in the world. There is no divide between subject and object. We perceive the world in terms of what we can do with it, and by physically interacting with it we access and express meaning. That way, meaning is created in interaction between a person and the world.

Based on this phenomenological view on our being in the world, we see a tomorrow in which we can face our societal challenges by using technology to embrace embodiment and putting ourselves in the world. By exploring a paradigm shift through innovation, we can really make a difference.

We perceive the world
in terms of what we can do with it, and by physically interacting with it we access and express meaning.
THE IMPLICATIONS FOR DESIGN

So what does an approach to phenomenology-inspired design entail?
In respect of the phenomenological stance, designing can be seen as the act of creating opportunities for meaning to arise in interaction in a specific socio-cultural context. Furthermore, design opens up the abstract to the sensorial and connects the intuitive to the analytical, imagination to reason, and making to thinking. Finally, the phenomenological approach to designing shows that we do not perceive ourselves as one more object in the world; we perceive ourselves as the point of view from which we perceive objects in the world (Trotto et al., 2012). This way, designing is rooted in a first-person rather than a third-person perspective. By taking a first-person perspective, designers are a part of their design; they bring in their own value system and skills.
As said, designing can be seen as the act of creating opportunities for meaning to arise in interaction in a specific socio-cultural context. However, socio-cultural context is not static. Society is changing, which has implications for design and the collaboration between the different partners of the golden diamond, as discussed in the Prologue.

The last decade was characterised by the advent of networked computers, wireless information superhighways, miniaturised technology and Web 2.0. Online communities became places for people to reaffirm their identity, replacing the brands and subcultures that used to be so dominant in shaping people’s lifestyles. In this ‘knowledge economy’ people freely shape their own lives. Rather than staying within the boundaries imposed by subcultures, people pick and mix from the relational, educational and consumption options to lead a life uniquely their own. The shift from passive consumers to ‘users-as-producers’ also requires a way of collaboration between experts and consumers that is different than before (Gardien et al., 2014). This change can be challenging for organisations, especially for institutes and communities that have a God’s eye view up till now, like universities, governments and the medical world.
Out of the paradigm of the knowledge economy a new paradigm is already rising. Major societal challenges are leading to a growing discomfort and quest for balance. For example, people are starting to appreciate products, which are ethically and sustainably produced and traded. This trend towards balance and sustainability will move our society towards the transformation economy in the future, where industries, governments, academia, and local communities need to collaborate in order to create local solutions, which contribute to the larger whole in facing our societal challenges.

In our opinion, the collaboration within the transformation economy requires engagement an empathy, respect based on a horizontal, rather than a vertical collaboration in which all stakeholders are equal, but not identical, and valuable in their own way. This asks people to put themselves – their point of view, their value system, their experience and their skills – into the shared design space. Such a transformation economy requires new ways of organising and working together, new business and financial models, and new legal constructions.

This paradigm especially demands designers – collaboratively with other partners – to envision and explore a ‘new’ society. The transformation economy focuses on meaningful living, empathy and cooperation rather than on self-actualisation and pursuit of personal aspirations. All stakeholders are asked to take a first-person perspective – just like the phenomenological approach to design – and to be personally dedicated to move towards societal transformation, including themselves.

*It is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail.*
Since designers are already used to have to empathise with end-users, which eases the step towards taking a first-person perspective, designers are perfectly suited to play an active role in the shift towards the paradigm of the transformation economy.

Furthermore, design itself can play an important part in addressing the social challenges of our modern age, because design excels in localising (making a matter concrete), questioning (reflecting on its quality), and opening up (expanding its sense) (Sennett, 2008). Design is also unique in connecting the senses and intuition to abstraction and rationality, and bridging the two worlds of doing and thinking. This last feature of design explains why the Cartesian worldview, which is purely based on rationality, is insufficient to address the way we experience the world. That is why we believe that a phenomenology-inspired approach to design can offer new perspectives on and opportunities for today’s societal challenges.

Finally, design is about asking the right questions and its approach can be applied into fields that are way beyond the realm of product design. Design has the power to influence the way we look at things, people, and how we experience the world. As Tim Brown (CEO of IDEO) puts it: “It is no longer about making choices to deal with these complex issues, but we need to create choices, diverge and ask the right questions.” That is why design enables us to envision the transformation towards a new society.
We believe that design can enable us to face societal challenges by using technology in an embodied way, embracing our skills and starting from a first person perspective. By exploring a paradigm shift through innovation, we can really make a difference. This, however, calls for new ways of thinking and new methods of working. It is important to develop technologies that enable the shift towards a societal transformation.

In this booklet you will find various approaches we are exploring and developing to move towards a more sustainable and balanced society. We explore through workshops, frameworks and tools with which we analyse how the power of skills can support collaboration in co-design processes. We also investigate how people’s skills empower to interact with the world, in a continuous dynamic, meaningful dialogue.

Furthermore, we use a specific design-driven research method called Experiential Design Landscapes (EDLs), which is a special version of the Living Lab approach. We developed this method within the department of Industrial Design several years ago, since we saw a gap in the currently available methods of research (Gent van et al., 2011).

EDLs are developed for co-designing with citizens in an everyday context and they make use of big data (captured through sensors, observations and questionnaires) to explore people’s behaviour. With the EDL method, the design process is taken into society by creating platforms where designers work together with multiple stakeholders in jointly creating experienceable propositions that can evolve over time. These propositions, Experiential Probes, are open, often sensor-enhanced, and networked products-service systems that enable people to develop new and emerging behaviours. In parallel, these probes enable detailed analysis of the emerging data patterns by researchers and designers as a source of inspiration for the development of
future systems (Peeters and Megens, 2014). The EDL method consists of four types of activities, which are used iteratively in the co-design process, starting from a specific societal challenge:

**Envisioning:**
Defining a vision of the “ideal” situation – what should be changed and what can be the dot at the horizon? This phase includes exploring what drives people, how they interact in the current context, and what their visions, ambitions, and ideas are.

**Designing Intervention:**
Creating design interventions, which will act as probes to gain insight into behaviour of people and possible directions for behavioural change. This will go from simple teasers to fully enhanced sensor-based artefacts.

**Acquiring Data:**
Obtaining insights into behaviour of people and context in which the interactions take place. For this we capture data through observations, questionnaires and sensors.

**Analysis and Validation:**
The obtained data is analysed through various means depending on the source, e.g. data and process mining, and used to find patterns and create models about people’s behaviour and the incentives for sustainable social communities.

Next to the different activities within a specific EDL, the EDL approach also has several phases from the first explorative studies, called the incubator phase, towards more refined and commercially viable solutions (from the nursery phase, via the adoption phase to the final new product development phase). These phases are built on the Growth Plan, developed by Ross and Tomico (2009).

The work done in the Civic Forges project concentrates completely on the explorative incubator phase. Chapter 2 and 3 remain mainly in the realm of the envisioning phase. In chapter 4 we will incorporate the entire EDL approach with all its phases in our search for platforms that dynamically engage citizens in creating self-empowered and sustainable communities.
Supporting engagement through skills

“Skills open up new perceptions of the world, transform human understanding and engagement with the world itself.”
I experience the world and through that, I come to know the world. By using my body and my senses, I am able to see the trees in the garden, see an opportunity to satisfy my hunger and taste the apple in my mouth. My experiences are influenced by many factors. My body sets the scene for experiencing the world, influenced by the socio-cultural context, my prior experiences (and therefore acquired knowledge) and my values. People can experience the same thing quite differently through the richness of their body.

That is why design should not merely represent or mimic reality; it should reinforce it, add to it, play with it, open up new horizons, make fun of it, unveil its subtleties and inspire dreams. The meaning offered through design is therefore found in the way people interact with it, and this meaning depends on the user’s body, senses, skills, intention and experience.

The importance of experience also defines the core of the phenomenology-inspired approach to design, which was discussed in the previous chapter. Essential to this theory are concepts like ‘embodiment’ and ‘skilful coping’. The American philosopher Hubert Dreyfus (1996), articulating the position of French phenomenologist Maurice Merleau-Ponty (1962), considers these three concepts to be unique characteristics of man; that is, (1) the world opens up through our body, (2) we have skills for coping with the world, and as we refine these skills we see new possibilities to act, and (3) the cultural world shapes and is influenced by our body.

We are able to engage with the world and develop skills, while acting in the world that allows us to continuously change the way we transform our surroundings. Repeating one of the fundamental parts of the previous chapter: we perceive the world in terms of what we can do with it, and by physically interacting with it we access and express this meaning. Meaning is created in interaction.

Having this perspective on our relationship with the world, we realised that designers need new approaches and tools to start designing from interaction and to enable people to engage through
their skills. In this chapter we discuss two of our endeavours: the Designing in Skills (DiS) framework and Engagement Catalysers.

By starting from skilful coping and embodiment, we have developed the Designing in Skills (DiS) framework, to address the theme of collaboration in a design process and investigate how people’s skills empower to interact with the world, in a continuous dynamic, meaningful dialogue. Based upon this framework we also developed Engagement Catalysers, which are specific tools supporting a transformative collaborative design process that focus on “making sense” in interaction, on being meaningful, and on engaging the participants through their skills, and trigger empathy and respect. Consequently, Engagement Catalysers are based on what people can actually do, instead of what people think.

Both the DiS framework and the Engagement Catalysers will be discussed in this chapter to show how skills can be used to improve engagement and interaction of collaborating stakeholders.

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**Design should not merely represent or mimic reality; it should reinforce it, add to it, play with it, open up new horizons, make fun of it, unveil its subtleties and inspire dreams.**
Potentialities of skills in design are intriguing. Skills open up new perceptions of the world, transform human understanding and engagement with the world itself. We explored how leveraging existing designer’ skills and training for new skills contributes to designing for richness of meaning and experience. Subsequently, the main objective of developing the DiS framework is to encourage designers to implement skill-based designing in their everyday design practice.

For creating the DiS framework, we developed several skill based techniques and validated them through a number of workshops, experiments and implementations, such as Right through Making (Trotto et al., 2011) and Interaction Maps and Mechanisms (Hummels et al., 2009). These techniques encourage people to make before thinking, to reflect on the outcomes of making, and proceed by iterations of reflection-on-action. Finally, the techniques were integrated in the DiS framework, which hopefully constitutes a way with which design researchers work to generate knowledge and contribute to theory.

By letting designers use DiS, we hope to tune them towards skill-based designing in their design practice, in which they explore new design values and directions, in which their designs include their own skill perspective as well as enable to open up for developing new skills, and in which they share their skilful points of view in the often multidisciplinary projects. Moreover, the DiS framework nurtures personal engagement of the members of the design team and compels a sense of responsibility. It supports them toward what we called the ‘first-person perspective’ in the previous chapter, enabling the application of individual sensitivities.
THE ORIGIN OF DiS

Before describing the development of DiS, let us take a look at its origin: the Rights through Making (RtM) approach (Trotto et al., 2011). During the multicultural RtM workshops, we asked the participants to design together through Making, in order to overcome the cultural and language barriers and have them trust their designer skills. Designing and communicating through making, instead of talking and thinking, appeared to be difficult however. In the end, the students were too frustrated by not being able to talk, and lost their focus on elaborating deep reflections. We realised that we had to develop methods and techniques to support the sharing of design through making instead of talking. The students needed methods to minimise the use of language, abstraction and reduce the opportunity to lose their first-person objective in the process. They needed methods able to empower them towards Making and building a constructive dialogue via reflection-on-action, while trusting their sense and intuition.

Therefore, we organised a variety of workshops as of 2010, in which we worked with students, designers and design-researchers, which ended in forming our Designing in Skills framework, as shown in figure A on the adjacent page.

DiS has been developed in five workshops. Twice with Master’s students during workshops at the Department of Industrial Design of the Eindhoven University of Technology (the first was Designing for Points of View and the second was Hephaestus and the Senses), once with designers and researchers at the CHItaly conference in 2011 (called Integration of Skills and Intuition as Vehicles for Ethics) and twice with Bachelor students of the Umeå School of Architecture (called Dense Spaces 2012 and Dense Spaces 2013). Each time, the approach was fine-tuned, capitalising on the reflections on the previous experiences. The number of participants ranged between 10 and 40. The length of the workshops spanned from one day (at CHItaly), to a week (Designing for Points of View in Eindhoven and Dense Spaces 2012 in Umeå), or even to two weeks (Hephaestus and the Senses in Eindhoven and Dense Spaces 2013 in Umeå). The 2 Dense Spaces workshops in Umeå were integrated in a monthly project; the outcomes of the work on skills impacted the rest of the design assignment as well.

WE HAD TO DEVELOP METHODS AND TECHNIQUES TO SUPPORT THE SHARING OF DESIGN THROUGH MAKING INSTEAD OF TALKING.
Figure A: Overview of the different steps within the Dis Framework
The five steps of the DiS framework consist of five core activities, which are shown in figure A on the previous page.

As said, the aim of this framework is to encourage designers towards skill-based designing in every design practice. Therefore, we included general design assignments in the latter workshops to explore if DiS helps to explore new design values and directions and if it can enable users to open up for developing new skills through designs. Lastly, we wanted to explore if DiS helps designers to share their skilful points of view in the often multidisciplinary projects.

Reflecting on own skill.
Participants are asked to choose a personal skill to focus on (e.g. accordion playing or knitting), thus taking a first-person perspective. Every participant, who we call as of now Person 1, makes a short documentary on the meaning of his skill. In this way, he can directly explore his own point of view and skill, and prepare himself for transferring the findings to another participant.
MIRRORING SKILL.
A fellow participant, Person 2, after conversing with Person 1 and trying out his skill, makes a documentary of Person 1’s skill, offering his point of view on its meaning. By watching such a “mirror”, Person 1 can scrutinize meaningfulness and his point of view again. This mirror sharpens Person 1’s perception and understanding of his skill.

DESIGN CHOREOGRAPHY.
In order to properly identifying and richly describing the perceptual motor qualities of the skills, the third step is based on bodily explorations and design choreography. In our case, design choreographer Sietske Klooster helped students to physically explore the subtleties of their own skills, but also how these could merge with other people’s skills. The process of merging skilful points of view is not an oral discussion but a physical conversation, in which statements can be supported by the bodily experience of the single qualities. The main purpose of this ‘creative body’ step is to emphasise the importance of using ones own body during the design process.
Designing enabling tool/space.
Subsequently, Person 1 merges these points of view (his own, the mirror’s, and the insight given by bodily explorations) and extrapolates one or more key aspects of his skill. Based on it, he designs an enabling space or an enabling tool, to let Person 3 experience Person’s 1 meaning of his skill. Since unskilled Person 3 can never experience Person 1’s skill in the same way, participants are encouraged to explore all senses and to design their enabling tool beyond the boundaries and context of the original skill. Finally, Person 3 makes a documentary about his experience of the enabling tool or space. This entire step can also be done in couples or in teams. By creating tools and spaces based on multiple skills, the participants are encouraged to reflect on and react to multiple skills, thus crystallising the core of their own skill and moving toward experiential richness in the combined tool or space.

Experiencing enabling tool/space.
Person 3 now experiences Person 1’s enabling tool. Based on a discussion between the two people and on a reflection-movie that Person 3 made about his experience of the tool, Person 1 draws more material for further reflections about his own skill. For example, Yves Florack designed a glove-like cutlery tool for Sijme Geurts, to compare the experience of snowboarding to carving smoothly through a sandwich by means of a prosthesis.
**DIS IN PRACTICE**

We used the five core activities of the DIS framework during a design class in September 2012, in which 18 Master students of the Department of Industrial Design of the Eindhoven University of Technology participated. The aim of this design class was to design creative tools for transformative collaboration, realised through embodiment and skilful coping, as we will explain at the end of this chapter. These tools aimed at catalysing multidisciplinary co-design processes, based on respect and empathy, where people are engaged in a (design) discussion more concrete and effective than a discussion held around a table (Trotto and Hummels, 2013).

The students worked in teams and produced six tools, which we named Engagement Catalysers, and which were evaluated during two design workshops. We will describe the process of creating an Engagement Catalyser through the results of one student: Chris Gruijters, for which he used the above described steps of the DIS framework.

**Step 1: Reflecting on own skill**

All students in the design class were asked to choose a personal skill to focus on (e.g. climbing or playing a musical instrument) and make short video documentary on the relevant elements such as: What is this skill about? Why do you do it? What does it mean for you? Why is it important or meaningful?

Chris Gruijters focused his skill of riding fixed gear bike. In his video he described how he moves through traffic, and he pointed out how it is based on constant anticipation and trusting instinct, next to timing.

**Step 2: Mirroring skill**

A fellow student was asked to make a short video documentary (video B) about person 1’s skill, in this case student Zhiyuan Zeng created a video of Chris Gruijters’ skill. He tried fixed gear biking and he compared his performance with Chris’ ride as well as with his regular bike. The video enhances the elegance of flow that a skilled person can achieve by mastering a skill, in this case the skills of biking and fixed gear riding.

**Step 3: Design choreography**

To design for embodiment and skilful coping requires a close connection to and awareness of the body. If one truly likes to design for embodiment and skilful coping, one has to be or become an
expert in movement, not just theoretically, but by doing, moving and experiencing while designing (Hummels et al., 2007).

For this design choreography, Chris Gruijters teamed up with Hanneke Hooft van Huisduinen, and they explored the cross-section between fixed gear biking and making pasta, as the video shows. They conducted movement explorations and created a small space with a large soft disk to emphasise the transition between increasing and releasing tension.

**Step 4: Designing enabling tool/space.**

After adding a third person, person 1 and 3 used both of their personal skills as the starting point for designing an enabling tool: a tool to enable any other student duo to experience the key aspect of the skills of person 1 and 3.

Chris Gruijters teamed up with fellow student Robert Noome. Robert’s skill was hockey. He focused on the issue of control: how can you control a ball through a bat and acquire a sensitivity that makes of the bat, an extension of your limbs. As a combination of hockey and fixed gear riding, they designed an enabling tool Balancing Stick formed by a soft mono-glove base and a stick that is connected to the centre of the glove, but not rigidly. One can put his hands in the glove, facing the palms to the sky, and try to balance the stick on it.

**Step 5: Experience enabling tool/space**

The enabling tool was thereupon given to another team for validation: to reflect on how the tool was able to transmit the skills’ qualities that person 1 and 3 designed into it. In this case two other students were given the enabling tool from Gruijters and Noome without instructions. The validation showed that they engaged well, but the students that tried it, did not understand how the use it. They tried dozens of ways, were engaged for a fairly long time, but did not experience the tool as the designers intended to.

This step of the process was the first one in which the students faced the concept of engagement and irresistibility: how to design a tool that other people are intrigued to use and explore for a long time, and that engages them?
We have used the DiS framework in several design classes, workshops and design projects to create new design values and design directions for improving the social interaction between people and weaving neighbourhoods. In chapter 3 and 4, we will show several results of these design projects and workshops. This chapter we will conclude with the design project of the previously mentioned design class, for which the DiS framework functioned as a primer. Since this design project ran under the heading of Civic Forges, the topic of the design project was the social connection and collaboration of citizens, and the collaboration of a variety of stakeholders involved in creating sustainable neighbourhoods.

In this design part of the project the students designed Engagement Catalysers. These tools serve as a means to connect people and enhance engagement, empathy and respect as a first step in a transformative collaborative design process. Engagement Catalysers can catalyse a constructive design conversation among stakeholders that speak different languages and have a large variety of backgrounds. The tools are used at the beginning of the co-creation project to break the ice, get to know each other, and become familiar and
comfortable with using ones skills and body in the design process.

For this design project Chris Gruijters teamed up with Janne van Kollenburg and Kevin Andersen, and they designed an Engagement Catalyser named “We feel like talking”. This tool is constituted of an aluminium sheet and two sets of five magnetic finger-tops. The sheet is positioned perpendicularly to a table and separates people sitting in front of each other, preventing them to look at each other. On the fingertips of their hand(s), these two people wear little caps. At the far extremity of these cap is a magnet. People can place their “extended” hand on the sheet and feel the presence and the movement of the person on the other side of the sheet, as their video shows.

The various explorations of this Engagement Catalyser in the wild, e.g. inhabitants of an elderly home, homeless people and people strolling in the park showed that the interaction with the Catalyser and the other person is careful and the feedback one receives is subtle. The two persons at both sides of the sheet carefully explore each other and are fully emerged in this exploration. At some point, most participants extended their exploration towards the visual, by peeking over or next to the sheet.
Moreover, these explorations made the designers decide to have a table version and a hanging version from the ceiling.

As we had hoped, the students’ skills are clearly visible in the design. For instance, one can notice the subtlety of control that Chris Gruijters exercises with his fixed gear bike: very small, precise and unconscious movements permit to keep a sensual dialogue with the bike and lead it where desired, with fluency and elegance. These elements are traceable in the design of We feel like talking: a sensual dialogue is constituted between two people and by means of seduction, through very small and careful movements, one can lead the other, fluently and swiftly. And also the piano playing skills of Kevin, with its subtlety, light articulated touch, harmonising quality and attempt to let the piano breath, can be felt in their Engagement Catalyser; as are Janne’s fine motor skills fully based on touch instead of sight, when typing text messages blindly on her phone.

The beauty of this catalyser consisted in the subtlety of the haptic discourse it elicited. Looking at two people using “How we feel like talking”, really felt like looking at a conversation. Because of its focus and subtle movements, it felt very intimate and dense both for the spectators and participants. As the participating people indicated, experiencing this tool felt rather intriguing: one touches a person in a very sensitive area (i.e. the fingertips) but without direct contact. Due to the magnetic fingertips one literally gets attracted to somebody else and can play how to resist and give in to this attraction; one can be led or lead, and escape or follow. The participants explored the possibilities of the tool for a long time and in very creative ways. They really seemed engaged through this tool. It turned out that citizens are very open to interact with their friends, and are even willing to have a (physical) conversation with strangers, thus shaping more engagement.

Engagement Catalysers can catalyse a constructive design conversation among stakeholders that speak different languages and have a large variety of backgrounds.
During the last 1.5 years we developed and gathered a variety of Engagement Catalysers, such as LeMiMi, Diskill, The Unpredictable Stick, Fantastic Elastic and Don’t Move. But we noticed from the workshops we conducted, that also regular objects like cleaning equipment such as brushes and buckets, are powerful to connect people that do not know each other and break the ice. It turns out that Engagement Catalysers are a powerful instrument for weaving neighbourhoods and strengthening the social connection between citizens.

Let look a bit closer at our findings. If we reflect upon the Engagement Catalysers, we see three main points of evaluation:

- Level of engagement;
- How it helped people to get to know each other;
- How it supported/inspired the design process.

The first fundamental characteristic of Engagement Catalysers is their ability to engage a variety of people with different backgrounds. The catalyst has to be irresistible and seduce people to start playing with it, and it has to be interesting enough to engage people for a while, so they can actually start to know and explore each other through the
tool. “How we feel like talking” is a perfect example of a tool that engages people through seduction and irresistibility.

The second track of evaluation concerns transformative collaboration: how did the object empower people that did not know each other, to know more about each other by means of movement, mediated by the catalyser. It was amazing to observe how most of the participants started to relate to each other, completely ignoring (or overtaking) etiquette boundaries. After less than half an hour, people were laughing and playing with each other like only children can do. And the variety in background and “language” did not play any role on the embodiment level. In an experiment we ran, we saw that strangers are willing to engage, intrigued by the experience, open for surprise and indeed improve their connection to other people, only after having interacted for a few minutes.

The last characteristic of the catalysers is the way in which they support and inspire co-design processes. In the context of the design class the catalysers had mainly two effects in the design process: (1) the catalysers were designed to elicit specific qualities of interactions and their qualities were revealed several times when people were playing with the Engagement Catalysers (2) the design process which was boosted by the catalysers was extremely fast.
During a one-day workshop, almost all the prototypes were made between 0.5 and 1.5 hours and finished well before the deadline. So it seems that people are less afraid to explore, try out and come up with results, after a short session with Engagement Catalysers.

Even though the characteristics of the tools and the process to design them can be further elaborated, the results show that these Engagement Catalysers, based on embodiment and skillful coping, are able to connect people and to catalyse a constructive “conversation” among people different backgrounds. This can be used to smoothen co-creation processes, but also for other gatherings and meetings to connect citizens and break the ice. So we have good faith that Engagement Catalysers can play an important role in supporting stakeholders to work together on local solutions for local issues, with the power to weave neighbourhoods together, as the Civic Forges project dictates. In the next chapter we will discuss how Engagement Catalysers, but also skills in general can be used to connect the various stakeholders of the ‘golden diamond’ (governance, business, universities and especially citizens), in order to move towards self-empowered and sustainable communities.
ENABLING ENGAGEMENT IN CO-CREATION PROCESSES

“Breaking the ice”
The main purpose of the Civic Forges project is to explore and develop communal platforms in the broadest sense that engage the various stakeholders of the golden diamond, with an important role for citizens. The term golden diamond is used to describe the basis of a community: government, businesses, universities and especially citizens. All these parts determine the essential foundation from which society is able to transform. By using the different partners of the golden diamond as catalysts of innovation, Civic Forges strives to create self-empowered and sustainable communities, which are essential to solve our modern-day challenges.

We believe that the shape of this future finds its fundament in the community members themselves; their skills can shape the future of their neighbourhood. Responsibility has to shift from the big institutes to people and communities. City government are exploring their relationship with citizens and vice versa, housing corporations are establishing a new role for themselves and facilitating ownership for the residents. But also other institutions like schools, universities and hospitals are repositioning and discussing their role in society.

This means that both residents as well as the institutes are in need of tools to realise the shift of roles. In this transitional phase, we see a facilitating role for design: to elicit a meaningful conversation between stakeholders, to address their personal experiences and skills and herewith empower them to act upon their own responsibility. For a valuable
collaboration between stakeholders in shaping their future environment, it is essential that people are engaged with the topic and have empathy and respect for each other. When collaborating, there is need for a mutual language. For example, falling back on jargon pulls people back into their role as professional and creates distance between the different stakeholders involved.

In this chapter we will elaborate on how design can help to establish this mutual language, with which the stakeholders can share their points of view with each other and co-create new opportunities for sustainable neighbourhoods. We do this through a variety of workshop with different stakeholders, in different settings to get insight in the first part of the Experiential Design Landscape method called envisioning. By conducting these workshops, we explore with the different partners what can be their dot at the horizon. The workshops enable us to exploring with them, what drives people, how they interact in the current context, and what their visions, ambitions and ideas are.

We have conducted the following workshops during the Civic Forges project:

Hephaestus and the senses workshop (October 2012)
Revisie op de raad workshop (April 2013)

In this chapter we will show the set-up, process and outcome of three of them. Firstly, we will briefly discuss the Hephaestus and the senses workshop in which 80 participants explored in a co-design process ignited through Engagement Catalysers, how to boost interaction and engagement between people. We explored if and how an embodied and skilful design approach can influence the quality and values the outcome of designing communal engaging platforms.

Secondly, we will discuss a two-month research-through-design project we did in the neighbourhood Vaartbroek in Eindhoven, in collaboration with Philémonne Jaasma, to explore the effect of skilful coping in multi-stakeholder collaborations in Vaartbroek. Through two separate workshops we compared the potential and effect of bodystorming versus brainstorming techniques, in terms of people’s level of engagement and the quality of the outcome.

Reflections on all these three workshops will show that design can facilitate a meaningful conversation between stakeholders, able to address their personal experiences and skills and herewith empowering them to act upon their responsibility.
According to Greek mythology, Hephaestus is the craftsman of the gods, who in his metallurgic workshop provided the Olympic gods with all sorts of assets and products. He created Eros’ bow and arrows, Hermes’ winged sandals and helm, Zeus’ sceptre, shield and thunderbolts, and Achilles’ armour.

Hephaestus is an exemplary craftsman: he can approach different fields of production, handling design culture in all its technical aspects, not only obtaining groundbreaking final products, but innovating the process of production too. In the case of Hephaestus, this is shown by the fact that in his forge, he does not only rely on human force, but he uses advanced technology to optimize his production processes: he invents, builds and exploits automata, mechanical androids that can substitute men in manual operation (Homer, Iliad, book XVIII vv. 519-525). He uses technology as a tool to serve his godly clients.

Hephaestus can be taken as an inspiration to investigate the role of designers of social systems like the ones we aim for in Civic Forges. The skills a person has determine the way he is and moves about in the world. Skills shape our sensitivity and the way we transform the world. That being said, the question still arises how we can use our subjectivities and skills to start a constructive dialogue with others. How can we co-design a sustainable community utilizing ever one’s skills? How can we create assets and products like Hephaestus that enables people to share experiences on social health and to empower them towards a healthy social innovation?

The first part of the Hephaestus and the Senses project is already described in the previous chapter, during which the students developed Engagement Catalysers to connect people and enhance engagement, empathy and respect as a first step in a transformative co-design process with stakeholders that speak different languages and have a large variety of backgrounds.

The second part of the Hephaestus and the Senses project is discussed in this chapter. In this part we used the Engagement Catalysers at the beginning
of co-creation projects to break the ice, get to know each other and become familiar and comfortable with using one’s skills and body in the design process. We did set up the entire co-design process in a way that it exploited people’s skills, experience and values.

We have run such projects in different settings and for different audiences, e.g. in a workshop called Re:vision on city councils. This workshop was conducted in cooperation with Necker van Naem and the Dutch Ministry of Interior and Kingdom Relations and held March 19, 2013 at the Ministry in The Hague.

**Hephaestus is an exemplary craftsman: he can approach different fields of production, handling design culture in all its technical aspects, not only obtaining ground-breaking final products, but innovating the process of production too.**
Thirty persons participated who were related to city governance one way or another, e.g. as a city councillor, a clerk or a consultant. The assignment that they had to tackle was to design the city council of the future, including its way and place of working.

The workshop we will elaborate on in this booklet was called Hephaestus and the senses and it coincided with the inaugural speech of Caroline Hummels (September 28, 2012). Eighty persons participated, who had very different cultural and professional backgrounds, and affiliations e.g. from industry, government, local institutions, university and freelance positions. Approximately half of them had a ‘creative and synthesising’ profession, such as designer, architect or dancer, and the others not. The participants were divided in 15 teams of 4-6 persons, with a mixed background. For example, one team existed of a dance teacher, a manager from Woonbedrijf (a housing cooperation in Eindhoven), the head of monuments of the city of Amsterdam, a technical workshop assistant, a designer-researcher and a design student. The assignment that they had to tackle was to design a tool for citizens to socially connect through their senses. Moreover, every team had to select a situation or group of citizens based on (one of) the team members’ personal or professional experience. As the video shows, every team started to meet and getting to know each other in playful way. They did this by using their bodies through one of the Engagement Catalysers. Shortly after, the participants were asked to characterise all persons on the team in keywords and put this on their nametag. Then, they had to agree on the design challenge they wanted to face, design a connection tool, and make a movie of the final design. Their objective was to design a tool for citizens to socially connect through their senses, while deriving from the team member’s professional or personal experience. In the end, 15 design and accompanying videos were produced during this workshop, and the participants simultaneously tested the 6 Engagement Catalysers. As we already described in the previous chapter, the results of the workshop show that the Engagement Catalysers stimulate engagement, help people to get familiar and connect in a short period of time, and inspire and boost a design process with an emphasis on embodiment and tangibility. Also the setting, facilitating co-design with people from the golden diamond, proved to be positive and effective. During the workshop new collaborations emerged that still exist today. People realised the power of co-creation in a physical ways, and based on this workshop and these outcomes, new workshops were developed within and outside of Eindhoven to stimulate the creation of self-empowered and sustainable communities. Hephaestus and the Senses helped to shape a format for co-creation process in communities to boost new solutions and perspectives.
In the introduction of this chapter we already mentioned that for a valuable collaboration between stakeholders in shaping their future environment, it is essential that people are engaged with the topic and have empathy and respect for each other. To reach this collaboration a mutual language is necessary to involve all stakeholders, because falling back on jargon pulls people back into their role as professional or citizen and creates distance between them. We strongly believe that design can help to establish this mutual language, with which the stakeholders can share their points of view with each other. To test this belief we conducted a project in Vaartbroek, a neighbourhood in Eindhoven, to research if rich bodily interactions and Bodystorming are more suited than traditional Brainstorming techniques to elicit engagement in a workshop in which participants do not know each other. The research was led by Master student Philémonne Jaasma, who was also the facilitator of both workshops.

Based on observations in prior research on Engagement Catalysers as discussed in the previous chapter, we did expect that the approach of Bodystorming is most valuable in co-design processes in Vaartbroek. This is because the use of the body has shown to result in successfully engaging different stakeholders in a meaningful conversation, e.g. through the use of Engagement Catalysers.

During this project we have been working with Woonbedrijf’s mission to put residents in charge of their neighbourhood and shape its future, in a process that involves all stakeholders. Woonbedrijf is a Dutch social housing corporation in Eindhoven. They are connected to the Municipality of Eindhoven and have the responsibility to maintain the renting costs for
In order to examine the hypothesis that bodystorming is more valuable than bodystorming, we set up and facilitated two workshop sessions around the topic of ‘giving responsibility of the residential area back to the residents’. Session 1 used common brainstorming techniques and session 2 was based on the embodied approach of bodystorming. In both sessions, professionals from Woonbedrijf, civil servants of the Municipality of Eindhoven, and residents from the neighbourhood Vaartbroek in Eindhoven were present, so that the sessions allowed for a blend of perspectives. 11 participants were present during the first session, and 8 during the second one. Both sessions lasted two hours and were located in a community building in the concerned neighbourhood. In the sessions, the participants were asked how they would like to give shape to the future of ‘their’ neighbourhood together. The aim of both sessions was to change the approach of professionals as well as residents from thinking about what would happen, into recognising what oneself could and would like to do in collaboration with each other. Based on these sessions, we explored the level of engagement by observing the behaviour of and interaction between the participants during the different phases in the workshop, such as the first introduction, the ideation phase and the presentation. Moreover, we looked at the participants’ roles, their body language and the group dynamics. Finally, we observed the level of discussion and the participants’ level of ambition to realise the ideas. We determined the quality and value of the outcomes by looking at the exchange of perspectives, the contribution of different stakeholders, and if the quality is recognised by the other stakeholders.
Eleven people participated in the brainstorm session, of which four were residents and the other seven participants were professionals of Woonbedrijf and the Municipality of Eindhoven. To guide the brainstorm session we used methods such as word affiliation, mind maps and affinity diagrams.

After an introduction to the session by the facilitator and a brief introduction to the term ‘Residents in Charge’ by a member of the Municipality, the participants introduced themselves to each other by mentioning their name, profession and ambition for this session. Then they were asked to write down three words on sticky notes that relate to Ontwikkelend Beheer for the following five categories: first affiliations, values, bottlenecks, opportunities and stakeholders. For each category there was one minute of time to think of three words. Afterwards, the sticky notes were collected and categorized in groups of three participants; they created an affinity diagram. From this diagram, the groups selected one sticky note per category that captured the essence for them, and used these sticky notes as inspiration for a brainstorm. They were asked to brainstorm about what should...
happen in the neighbourhood to happily live there for another 10 years. Each group presented their ideas, followed by a brief discussion. As closure, the facilitator asked the participants to write down their experience of this workshop in keywords on sticky notes. Finally, the facilitator asked the participants if they would like to take their idea to the next level and find out whether there is ambition to act upon one of their ideas in reality.

At the beginning of the workshop we observed that the atmosphere was quite tense. After every participant introduced themselves and their expectations, it was clear that everyone expected input from parties outside of themselves. When the participants brainstormed in multidisciplinary teams of three they had difficulty to move from identifying problems to identifying opportunities. This was likely due to the perceived roles that the stakeholders were used to: the residents have the impression that they have to ‘complain’ before taken seriously by professionals, who in return have the impression of hearing mainly negative, seemingly trivial, input from residents. Even after the professionals tried to literally put the residents of their group in charge by asking them what they would like, the gap between the residents and professionals remained. When using mind maps, the participants did however exchange perspectives with each other and there was an increase of empathy between the stakeholders. But still, the step towards envisioning a scenario with true collaboration between all stakeholders was too big for most groups.

During the final discussion the professionals and residents clearly formed two fronts; they agreed on the importance of the topic, but they very clearly distinguished ‘our responsibility’ from ‘your responsibility’. The different perspectives were not combined, but rather placed in parallel. This indicated how the distinction of roles and predetermined expectations stood in the way of coming to a combined perspective during this brainstorm session.
The second session was a workshop with an embodied approach. Eight people participated in the workshop, of which half were residents and the other four participants were professionals of Woonbedrijf and Municipality. Different individuals took part. In this workshop, the participants devised about how they would like to give shape to Ontwikkelend Beheer together. The aim of this workshop was equal to the aim of the brainstorm session: change the mind-set from thinking about what should happen into thinking about what oneself could do and would like to do in the framework of Ontwikkelend Beheer. The workshop lasted for two hours and was located in the neighbourhood of the case, similar to the brainstorm session.

After an introduction to the session by the facilitator and a brief introduction to the term ‘Ontwikkelend Beheer’ by a member of the Municipality, the participants got to know each other by trying out and playing with Engagement Catalysers. In this case they held cleaning brushes in both hands. Through these tools they got an impression of each other and wrote down the most striking notions about each person on their nametag. This resulted in an active, informal and personal introduction activity.

Then the participants split up in groups of three or four persons and were asked to create a ‘Welcome in our Neighbourhood’ package with tinkering materials. The facilitator of the session gave an example, to make the assignment comprehensible. Each group received a cardboard box as packaging for their welcoming package, which functioned as
a framework for the assignment. The challenge for the participants was to find an appropriate way to welcome a new resident into an Ontwikkelend Beheer-neighbourhood. While doing so, they had to decide what values should be expressed and how it would be presented.

After tinkering, the participants performed the scenario of welcoming a new neighbour with their welcoming package, with other participants as figurants if needed. While performing, underlying motivations and values became apparent in, for example, the way the participants gave shape to the role they played and which stakeholders were concretely involved in the performance. After each scenario there was room for discussion.

After the performance, the participants remained in groups and they were asked to think about what should happen in the neighbourhood to happily live there for another 10 years. The tinkering materials were also available for this assignment. At the end of this task, the participants presented their ideas. As closure, the facilitator summarized the most striking observations with input of the participants. Then, the facilitator tried to discover whether the ambition of the participants reached further than the session; will people act upon their ideas, and try to make them reality? And what is necessary for them to make this next step?
Before starting the introduction exercise, the participants stood in a circle with the facilitator and they did a brief physical warming up to loosen up the muscles. After a moment of hesitation, the participants joined and smiled at each other as if they were saying, “I also do not what I am doing, so it’s OK”. It only took a minute before the participants were laughing together about accidentally swinging their arms into their neighbours, or about people making fun of their own lack of agility.

After a few minutes of the physical exercises there was a high level of excitement; the participants were genuinely curious for what would happen next. This made for an open-minded approach to the introduction exercise: participants were not afraid to approach each other with the brushes and those who were shy were pulled into the activity by others, who “bumped into them” with their brushes. The participant did not need any stimulation to switch towards new people; they had the ambition to connect with everyone and they actively searched for their next connection in the room.

The assignment to create a Welcome in the Neighbourhood package was accepted as a challenge; after the facilitator showed the tinker materials and an example, the participants were very quick in exchanging thoughts with their partner and collecting materials. In general, there was a supportive atmosphere; people were influenced by each other’s excitement, which made for a snowball effect of enthusiasm.

While displaying their creations, the participants took the opportunity to really let their creation flourish. They pretended to knock on the door, introducing themselves, their gift and their motivation to the new neighbour, who in turn displayed why this gift was so great to receive. An example of a welcome-package was a basket full of flowers with labels. The labels were personal tips for top-spots in the neighbourhood, e.g. the best places to exercise, picnic or shop. And the best place to have coffee? At the neighbour’s house! With this creation, the makers indicated that they are open to introduce the new neighbour to the area, and that they look forward to getting to know them. At the same time, they engage the new neighbour directly

The aim of this workshop was equal to the aim of the brainstorm session: change the mind-set from thinking about what should happen into thinking about what oneself could do and would like to do.
in the existing activities in the neighbourhood, because these are written on the labels. This way, the welcome gift starts a fast and natural integration into the social life of the neighbourhood.

In their presentations the participants showed that they thought about ideas from different perspectives. One group even formed an idea that was thought through on all levels of commitment: tasks for residents, help of the Municipality, and value for a facilitation by Woonbedrijf.

Another group created a presentation method of a laundry line on which their ideas were hanging for display. Though they did not intend for the laundry line to have any meaning beyond the presentation itself; the other participants recognized practical value in it. A discussion arose about “What if the laundry line would actually hang somewhere in the neighbourhood, visible for everyone to see, and open for everyone to hang their ideas on?” In this way, the laundry line would become an open platform for sharing ideas. In this spontaneous discussion, the participants actively built upon one presented idea and brought their perspectives together into one co-created point of view.

In the discussion at the end of the workshop the participants were very open in expressing their thoughts on the topic and the workshop content. Some professionals took a vulnerable position and recognized their responsibility in learning from negative outcomes of the past. Others connected with the residents through expressing their empathy to the active residents in the neighbourhood. Finally, the residents indicated that they would love to attend recurring workshops such as this one, to connect with other pro-active residents.

After the creative workshop, when the facilitator was clearing up the space, two participants approached to talk about the idea that the facilitator had given as an example for their ideation. They were one professional and one resident and they asked whether it was possible to introduce this idea to “some colleagues and neighbours, because we think it is a really good idea, it has so much potential and it is not expensive to execute, we think we should really do it!”
Insight and Conclusions

In the bodystorming workshop, the participants were more engaged than in the brainstorm session. This was evident from the amount of questions they asked each other after they showed ideas. In the brainstorm session the facilitator asked for response from the participants, who hardly ever proposed a question for the presenters. In the creative workshop however, it was strikingly different: the participants felt comfortable directing quite blunt questions to each other - the facilitator did not even have trigger this. The questions came naturally and the participants were collaborating more than in the brainstorm session.

Whereas in the brainstorm session the participants got stuck in reproachful discussions because they were holding onto their conventional roles (professionals versus residents), in the creative workshop the discussions were completely open. The amount of input from different stakeholders was quite equal and the participants seemed truly interested in each other’s additions and respected other perspectives.

During the process of forming ideas this came to expression with regards to responsibility. In the ideas from the brainstorm session it was noticeable that the participants mentioned ‘what they needed’ from various parties, without stating what they themselves would contribute, or how that would affect their position as resident or professional. In the bodystorming workshop, the participants made use of their multi-stakeholder groups and actively made inquiries in their group as to who could perform which role in their idea, and how to make the idea into a win-win situation for all involved parties.

In the final discussion of the brainstorm session the participants mentioned a few general challenges that needed to be faced. These challenges were general to the extent that they could also have been mentioned at the start of the session. In contrast, the discussion at the end of the bodystorming workshop resulted in an discussion that was concrete: it was about the potential of these kind of workshops, the potential of the location, and the potential of the people present at the table. The participants were simply more energetic, more daring, more active, and more involved than their counterparts in the brainstorm workshop.

The presented research is not a hard-core experiment proving that bodystorms are far more valuable than brainstorm. Nevertheless, the two workshops clearly show a difference between an embodied and less embodied way of cooperation. The bodily involvement of the participants elicited a direct engagement and a pro-active and empathic attitude. Bodily engagement seems to push participants to exit the language of abstract opinions and ideas and use a language motivated by and grounded in actions, thus having a beautiful starting point for self-empowerment and sustainable communities.
The outcomes of the research strengthens our conviction that embodied-inspired design can play an important role in establishing a mutual language, which can be used to contribute to a valuable collaboration between the different stakeholders of the golden diamond, and create sustainable neighbourhoods. The workshops in Vaartbroek where considered successful for Woonbedrijf. They hired Philémonne Jaasma for another project to facilitate workshops to find a new destination for the space that hosted the library in Vaartbroek.

Doing workshops with various stakeholders in various settings enabled us to create an overall structure and ‘guidelines’ for setting up co-design sessions with multiple stakeholders from the golden diamond. All in all it is a mixture of experiencing, trying out, reflecting, making feel people at ease. Furthermore, it is about having facilitators with a creative background, lowering the threshold to act and play our situations, putting people in a first person perspective, reframe situations and offering different perspectives, stimulate making experiential prototypes and try them out in the context, and having fun of course. So, by truly embodying a phenomenology-inspired approach as described in the previous chapter, workshops can not only lead to new insights, but also invite participants to become self-empowered, take action and apply the results obtained in the workshop to their everyday life. So, make things happen.

**Bodily engagement seems to push participants to exit the language of abstract opinions and ideas and use a language motivated by and grounded in actions, thus having a beautiful starting point for self-empowerment and sustainable communities.**
Designing platforms towards self-empowered communities
In the previous chapters we have shown that the Civic Forges: Weaving Neighbourhoods project investigates new frameworks, methods and tools in order to move towards societal transformation. We have demonstrated that design can offer tools and methods to transform towards a self-empowered and sustainable community. Moreover, we have explained that skills allow us to engage with the world in meaningful ways; they empower us to experience its richness and support its transformation. In this chapter we will describe several designs that were developed using the outcomes from the previous chapters.

Firstly, we sketch the outlines and a few results of the Dreaming Democracies project. This project’s objective was to explore what local democracies will look like in the future and how design can support cities, councils and various collaborations, to answer the growing demands for answers towards our societal challenges, with a special emphasis on collaboration between the different stakeholders. We ran the Dreaming Democracies project together with the research and advice company Necker van Naem and invited Eindhoven and Eersel to participate as clients.

In chapter one we described the Experiential Design Landscape method as a way to get insight into people’s behaviour when moving towards sustainable communities. The second project we discuss is called DiffractMe! which was used more as an Experiential Design Landscape. And of which one of the last iterations was exhibited in the City Hall of Eindhoven, the Netherlands from April until June, 2014. Using the Design in Skills (DiS) framework, which was extensively discussed in the second chapter, the goal was to explore how the results of a Design in Skills approach could inspire the design of a platform for connecting citizens. Furthermore, we wanted to observe if the traits and the richness of the interaction qualities individuated through DiS, would actively be materialised in a platform to connect citizens. And finally, DiffractMe! was equipped with sensors and cameras to use it as an experiential probe as part of an EDL on social connection. Through this we could explore the willingness of people to physically connect to others and explore this connection and possibility of engagement.
People are looking for ways that move us towards a sustainable world. True sustainability and wellbeing cannot be created on an individual level only; it requires behavioural change on a societal level too. This fits the move in our society from our current ‘knowledge paradigm’ towards the ‘transformation paradigm’ in the future.

As discussed in chapter one, our current paradigm supports a world that revolves around knowledge and information, thus pushing us towards users-as-producers instead of passive consumers. In the future ‘transformation paradigm’, stakeholders work together on local solutions for local issues that stem from greater global issues, trying to transform the world (Gardien et al., 2014; Hummels, 2012). The collaboration within the transformation economy requires different skills and attitudes. It requires engagement, empathy and respect. It asks people to put themselves - their point of view, their value system, their experience and their skills - into the shared design space.

In the political landscape, and especially in the relationship between city government and her citizens, a new transformation is in motion. Local councils are no longer able to do everything themselves as they were used to, due to the ever increasing speed society is changing at. Further, local councils are less and less central to the achieving of ambitions and the implementation of execution of tasks. It is also the case that societal challenges are no longer automatically the government’s sole domain: they belong to us all. This much is becoming increasingly apparent.

For local councils, aldermen and administration, the emphasis is increasingly shifting towards cooperation. This has major consequences for the council’s activities, for its political legitimacy, for governance, and for the performance of its civil servants. Whereas, in the past, everything centred on what the council was supposed to do, the questions of how and with whom are becoming more important. This constitutes a shift from content to process.

The world of politics and governance is starting to encounter its limitations. A demand for new perspectives, jargon, and tools is growing. Local councils, administration, and the executive board of a municipality face a challenge in the shift from public consultation and participation to forms of self-determination. They increasingly have to play the role of network partners; must develop new forms of democratic legitimation and justification; and evolve into an organisation that can deal with societal control.

Firstly, this requires councils to reconsider the composition of their systems and structure. Secondly, new methods and techniques have to be developed to support the related processes of reflection and the creation of new systems. Thirdly, it is necessary for local councils to stimulate the competences of individuals and the collective in order to achieve the imperatives mentioned above. In short, there is a demand for development of new democratic forms of structure and collaboration that contribute to the improved alignment of governance, politics, and society.

Inspired by the shared ambition to contribute to a caring and vital society, the Eindhoven University of Technology (TUe), Necker van Naem (NvN),
and the local municipalities of Eindhoven and Eersel, started the Dreaming Democracies project in 2013 to examine new visions, methods, and tools for different element of local governance and its partners. The main objective was to explore what local democracies will look like in the future and how design can support councils, cities, collaborations and citizens to reach these new forms of democracies.

The project was shaped into a Master’s course of one week at the TU/e, in which ten students were asked to design physical prototypes and probes that can support new ways of working and collaborating of local government in the future. The second edition of the Dreaming Democracies, ran with 11 Master’s students, expanded towards collaboration between citizens and local government. The learning objective of the course was threefold: firstly, it aimed at training students to develop physical prototypes and probes in general, as well as specifically for collaboration towards transformation. The students had to ask themselves how the prototypes can offer opportunities to create meaning in action and support people towards new ways of working and collaborating. Secondly, the course aspired to give the students insight in the characteristics of various types of prototypes and probes. And thirdly, the course’s ambition was to give the students insight in the world of politics and governance, teach them about ideas of utopia and dystopia, and their relation with design.
RESULTS OF DREAMING DEMOCRACIES

During the two Master’s design courses the students developed a variety of concepts to probe people’s behaviour and to try out different ways of working, connecting and collaborating of civil servants, citizens and their interaction. In this chapter we will briefly address two movies and three designs.

PERSPECTIVES ON GOVERNMENTAL SYSTEMS

The first assignment within Dreaming Democracies was the making of a video on political interactions and the governance system from a first person perspective. In just 90 seconds the video had to show the impression of the individual student. We saw a variety of impressions from very positive to very negative, but in general the bureaucracy was very clearly present in the movies, as well as the distance between citizens and government. We like to share two interesting examples.

The first movie “Me and the system” is made by Fiona Jongejans, showing her involvement with politics, her passion about being engaged in society, why she really wants to make a difference, and her way of dealing with bureaucracy. The second movie was one of the most positive and embodied

movies we saw within this project. Master student Vleer Doing, showed in “On the shoulder of giants” how political interaction and governance is interwoven in our entire world and life. He is an expert in phenomenology-inspired design and used that perspective to look at political interaction and governmental systems. His perspective on the necessity to have an infrastructure and some way of structured organisation can be found by scanning the QR-code on the bottom of this page.

WIJZELF, A TOOL TO VISUALISE NETWORKS

Lotte Oude Weernink and Jeroen Paijmans designed WIJzelf, a tool for employees of WĲeindhoven and residents in Eindhoven to visualise and discuss the network of people supporting residents. They deployed this very simple and quickly made experiential probe in a conversation with one of the employees of WĲeindhoven and let her use the object – a board with a grid of pins and a bunch of rubber bands – to explain her vision on WĲeindhoven. The physicality of such an object inspired Lotte and Jeroen to continue with that design and they
developed it in a next iteration. To their surprise, this relatively simple object boosted the discussion and provided lots of opportunities for connection and engagement by “simply” visualizing and playing with the networks. For the students, WIJeindhoven showed opportunities for a better and more local form of government and with WIJzelf they aimed at providing them with tools to stimulate that process.

**Civil Servant Sharing Platform:**
Adriaan de Regt, Shigeru Yamada, Rick Dutour Geerling developed a sharing and connection platform for civil servants to show how their activities relate to the city. With their design they aimed at sensitising civil servants that the transformation paradigm is coming and how this will affect the role of the government from a first person perspective. During the presentation of the design and the discussion with the municipality, it became clear that this concept of digitally mapping out contributions of civil servants in Eindhoven is opposite to the type of behaviour that is expected of civil servants, like invisibility and devoutness. Despite the clash that would need a change of behaviour and perspective, the audience from the municipality was (personally) very enthusiastic about the design.

**Adaptive Speed Bump**
The last design we want to show and discuss is the interactive speed bump designed by Vleer Doing. According to Vleer, the essence of moving towards societal transformation is found in the move towards localisation, in both time and space. But how to embody these values in the public space? For that, Vleer designed an adaptive speed bump that can be physically adjusted by people. The amount of people interacting with the handle determines the amount of influence over time. So, one person can only influence it shortly, e.g. for lowering it to not damage the car, and a whole community can block the street for a longer period of time, e.g. for a street party. This way, people can start caring and take responsibility for their neighbourhood, including the infrastructure.

Video about a sharing and connection platform for civil servants to show how their activities relate to the city.

The interactive speed bump by Vleer Doing
In the second chapter ‘Supporting engagement through skills’ we have already mentioned that skills are a profound way with which we engage with the world around us, allowing meaning to arise. To explore and leverage this potential, the Designing in Skills (DiS) framework has been developed as well as several skill-based tools such as the Engagement Catalysers, which were also mentioned in the second chapter.

In the remaining part of this chapter we like to discuss DiffractMe!, an installation which was developed as a kind of Experiential Design Landscape. The first part of this project started with a four-week workshop, in which three designers were involved utilising the DiS approach.

In this particular workshop, the goal was to explore how the results of the DiS approach could inspire the design of a connection platform for weaving neighbourhoods. Within this first workshop, we wanted to observe if the traits and the richness of the interaction qualities individuated through DiS, would actively be materialised in the final product. Therefore, we wanted to explore the willingness of people to physically connect to others and explore this connection and possibility of engagement through a physical, playful platform. For this, the DiffractMe! Installation was equipped with sensors and cameras to use it as an experiential probe as part of an EDL on social connection.

Like we discussed in the second chapter, working with the Designing in Skills framework consists of 5 steps, after which the insights on skills are brought towards design practice, resulting in a total of 7 steps within this project:

1. Person A chooses a perceptual-motor skill that he has and reflects on its meaning in a 1 minute video.
2. Person B offers their point of view on this skill in a second video. The second perspective here is used to help person A sharpen his understanding of his own skill.
3. The third step is for the participants to share a physical exploration of the discovered meanings through a design-choreography. This step helps to reconnect the findings to perceptual-motor skills by focusing on bodily movement.
4. In the fourth step, person A creates an Enabling Tool: i.e. an experiential prototype that allows others to experience the salient qualities that were extracted from the designer’s skill.
5. By letting others experience the Enabling Tools, their reflections on their experiences are used to iterate or refine the Enabling Tools.
6. In this step, the design phase, the inspirational material produced form the first five steps is applied to design the platform for connecting people.
7. The final step is to experience the design in context, and to reflect on the qualities and meaning of the experience.
At the beginning of the DiffractMe! Workshop, which was held in Umeå, Sweden, Stoffel Kuenen, Jeroen Peeters, Philémonne Jaasma started with executing step 1 and 2 of the DiS framework, with help of Ambra Trotto: Stoffel chose his skill of juggling, and created a video to reflect on his experience of it. The salient aspect that emerged was a sense of repetition, starting with effort and shifting into a flowing, resonant rhythm. In her video, Philémonne offered her point of view on juggling. She related it to running (her own skill) and achieving a flow through the city on a steady cadence of steps. Philémonne created a video about her own skill of running. She reflected on the experience of just going, moving through the environment without thinking. Jeroen offered his perspective, focusing on the experience of letting the environment guide one’s movement in a natural way. Jeroen explored his skill of rolling a cigarette. His video focused on communicating the subtle, fluent and almost automatic finger movements involved, and trusting the feeling in his fingertips more than his eyes. Ambra reflected on her perspective on this experience. In particular, her interpretation of the skill revolved around the meditative qualities of routines around small and repetitive physical movements.

After skipping the third step, which is not always necessary for experienced designers as was the case in this project, the three participants started to create their Enabling Tools. Each person designed their tool in accordance with the results of step 1 and 2. Stoffel, for example, created an enabling tool based on his skill of juggling. He identified resonance as the most notable experience, when the movement of juggling becomes automatic. His Enabling Tool, made from a piece of fabric with a weight, stretched over a hole in a wooden frame, extracted just this particular experience. Finding the right rhythm to tap the fabric with one’s fingertips, and finding the right spot to do so, resulted in a resonating vibration of the central weight.

Making and experiencing Enabling Tools allows the salient experiential qualities to be extracted from their context and meaning in the original skill. This makes it possible to investigate the qualities alone, through making. In this process, the tools become design elements that can be further shaped and refined through a series of iterations.
The team established ways in which the three themes related, contrasted, or complemented each other.
From the three Enabling Tools created, three main themes of experiential qualities emerged: Friction, Guidance and Resonance. In this context, friction was described as an irresistible and pleasant, yet subtle feeling of resistance, felt when turning part of an object. The theme of guidance was reflective of a type of relationship to a set of objects, referring to gradual change in perception and therefore interaction with one’s environment. Resonance described dynamically interacting with an object, searching for the right movements to achieve a resonating type of reaction as a reward or goal. Just as Stoffel’s skill of juggling.

Through reflection, discussions, sketching, and by playing with various mock-ups and materials, the team established ways in which the three themes related, contrasted, or complemented each other. This helped to create a firm basis that provided a clear point of reflection: a point zero to refer to, later in the process.

To materialise and integrate the shared and deep understanding of the three themes of experiential qualities, the next step was to synthesise them through a new set of Enabling Tools, which can also be seen as the first explorations of experiential probes within an Experiential Design Landscape. These tools were not focused on individual qualities, but rather aimed at integrating the three themes friction, guidance, and resonance into one prototype.

The Enabling Tools that resulted from this process mainly consisted of wooden discs hanging from a frame. Each disc was different; in shape, size, or material, and could be rotated to experience different types of friction, such as hard, soft, increasing or decreasing. Some discs’ rotations resonated with others. In public placement, people passing by were free to explore the discs and possible movements as they walked along it, letting themselves be guided by the prototype. Observing the interaction with this prototype, gave insight in the three themes, in the quality of interaction, but also in the behaviour of people while interacting with prototype and connecting to each other.
After having build and explored the Enabling Tools, the team’s focus shifted from the forms and mechanisms deeply explored in the previous work to implement the qualities within a practical design. The design was defined within the context of the Civic Forges: Weaving Neighbourhoods project. As already discussed in the prologue, this project aims at constructing platforms in European cities that invite citizens to become dynamically engaged with each other, to create self-empowered, sustainable communities. Within this specific project, our goal was to create a public installation that socially connects and engages visitors through rich interaction, allowing them to manipulate natural light through an interactive façade.

The finished DiffractMe! installation exhibits and integrates the three themes of experiential qualities (friction, resonance, and guidance) that emerged thanks to the Designing in Skills framework. When interacting with DiffractMe!, a visitor uses his hand to rock the interaction surface back-and-forth. Pneumatic cylinders provide the tangible experience of friction, carefully designed to provide a pleasant amount of resistance. Movements of one interaction surface are directly coupled to the movements of the other interaction surface. This results in a second level of interaction: between people. Visitors feel each other’s movements, engaging in a subtle, haptic dialogue. They are invited to let each other guide, rather than obstruct each other’s movements. This led to a harmonious, resonating rhythm of movement. Thirdly, the created movements are transferred to trigger prisms in the bottom of the frame. Harmonious, consistent movements by visitors are transferred through the matrix of prisms in a resonating, ripple-like effect.

A first prototype was made in Umeå, Sweden. A second adjusted version was build in Eindhoven and fully equipped with sensors and video cameras in order to use it as an experiential probe as part of our EDL on social connection. The equipped prototype, as well as interviews and observations of visitors, are part of our longitudinal study, which will allow us to track and analyse the interactive behaviour and levels of engagement.

From April to June 2014, the prototype of the DiffractMe! installation was placed in the City Hall of Eindhoven, the Netherlands. When looking at the data we see that people interacted with DiffractMe!. Very often this was simply passing by and looking at it, but in the end approximately 20 times a day people were interacting with DiffractMe!.

The data captured through video and the sensors in the interaction surfaces, are visualised giving more insights into people’s behaviour. On the horizontal axis, every column shows the interaction of one day. The duration of interaction is shown vertically, as well as through the size of the dots. The bigger and the higher the circle, the longer the duration in front of DiffractMe! and the interaction with it. The scale goes from 0 to ± 3 minutes.
The finished design aimed at engaging visitors on multiple levels: colourful lightning projections influence the perception of the space of people passing by, enticing them to come closer and engage with the installation. In interacting, they are invited to engage in a pleasant, haptic interaction that allowed them to play with diffracted light. Finally, on a third level, visitors could feel each other’s movements, becoming engaged in a subtle, haptic dialogue.

When looking at the data, we have to conclude that with the current set-up we partially succeeded in our attempt to engage and connect people. Although people are intrigued, also the children visiting the City Hall, interacting with the installation seemed a bridge too far for a lot of visitors. It feels that the platform is too much of an exhibition, of which it is not clear if people can actually engage. It appears to be too much of a strange object for the environment, not naturally blending in, and therefore heightening the threshold for engagement. Nevertheless, we saw people being engaged and see possibilities for refinement.

Moreover, DiffractMe! offered new insights into the qualities of engagement between people and between people and artefacts like DiffractMe! On different levels it has shown how the DiS framework can be actively materialised into a final product. On a more general level, new iterations in our EDL on social connection and engagement will allow us to investigate how physical skills can aid in building meaningful engagement with interactive technologies. In alignment with our insights in the other activities, we see that location is an important aspect of moving towards engagement. Since the installation was designed in Sweden, based upon the lighting conditions in Sweden, we took the design process back to Sweden to emphasise the aspect of location. Stoffel Kuenen developed a new version of DiffractMe!, based on the specific conditions in Umeå, Sweden.

For Eindhoven, the three themes of Resonance, Guidance, and Friction can still be used, but they will offer the input for a new design iteration situated in Eindhoven, more specifically in a specific place in a neighbourhood in Eindhoven, so it can blend in “naturally” and fit the context and citizens.
Connecting the dots
Transforming Society

Designing is very well suited to play an active role in transforming society and addressing the social challenges of our modern age, because designing is about:

- opening up,
- questioning current practices and exploring new territories,
- imagining things that do not yet exist.

Our modern societies face us with numerous challenges.

Phenomenological approach to design:

There is no divide between subject and object.

We perceive the world in terms of what we can do with it.

By physically interacting with it we access and express this meaning, meaning is created in interaction between a person and the world.

Experiential Design Landscapes to boost innovation:

Innovate in everyday life with all stakeholders from the golden diamond

Co-create experiential probes to invite and new behaviour

Explore behaviour using embedded sensors, observations and questionnaires.
Address the theme of collaboration in a design process

Investigate how people’s skills empower to interact with the world.

Explore new design values and directions

**DiS Design Class:**

“Balancing Stick” example

“We feel like talking” example

Engagement Catalyser:

Engages people with a variety of backgrounds.

Helps people to relate to each other.

Supports and inspires the design process.

*Engagement Catalysers: specific tools supporting a transformative collaborative design process that focus on:*

“making sense” in interaction

being meaningful

engaging the participants through their skills and trigger empathy and respect.
Enabling engagement in co-creation processes

80 participants

20 different backgrounds

In the end, 15 videos were produced and types of 6 Engagement Probes were tested. Probes stimulate engagement, help people to get familiar and connect in a short period of time, and inspire and boost a design process with an emphasis on embodiment and tangibility.

A setting that facilitating co-design with people from the golden diamond while stimulating them in an embodied way using physical materials and playful assignments, build connection and engagement, next to inspiring solutions.

Bodystorming vs. Brainstorming

Project in the Vaartbroek neighbourhood of Eindhoven.

The aim: change the mind-set from thinking about what should happen into thinking about what oneself could do and would like to do in the framework of Ontwikkelend Beheer.

Brainstorming:

11 participants

Difficult to move from identifying problems to identifying opportunities.

True collaboration between all stakeholders seemed unrealistic.

Different perspectives were not combined, but rather placed in parallel.

Bodystorming:

8 participants

The use of Engagement Probes resulted in an active, informal and personal introduction activity.

More: engagement, collaboration, respect, empathy.

Phenomenology-inspired design can play an important role in establishing a mutual language, which can be used to contribute to a valuable collaboration between different stakeholders.
Dreaming Democracies

The main objective: was to explore what local democracies will look like in the future and how design can support councils, cities, collaborations and citizens to reach these new forms of democracies.

Recent challenges for local democracies:

Local councils are no longer able to do everything themselves as they were used to.

For local councils, the emphasis is increasingly shifting towards cooperation.

The world of politics and governance is starting to encounter its limitations. A demand for new perspectives, jargon, and tools is growing.

Potential design directions:

WIJzelf, a tangible tool with rubber bands and pins to easily visualise and discuss the network of resident in Eindhoven.

Civil servant sharing platform to digitally map out contributions of civil servants in Eindhoven, thus increasing their visibility in the city and connection with citizens.

Adaptive speed bump that, based on the amount of people interacting with it, offers a relative time slot to adjust its height of the speed bump. This way citizens and city governance become jointly responsible for the infrastructure in neighbourhoods.

Designing platforms towards self-empowered communities

Several designs were developed using the outcomes from the previous chapters:

Master’s course

DiffractMe!

During a four-week workshop, three designers were involved utilising the DiS approach.

Five steps of the DiS framework, plus 2 steps bringing DiS into design practice, resulted in three main themes of experiential qualities: Friction, Guidance and Resonance.

DiffractMe! Installation:

...is a public installation that socially connects and engages visitors through rich interaction, allowing them to manipulate natural light through an interactive façade.

...was exhibited in the City Hall of Eindhoven, the Netherlands from April till June 2014 showed that citizens engaged with it, but not with the intensity, frequency and level of engagement as hoped for.

The project reveals that next to embodiment and using physical skills, situatedness is extremely important to realise engagement.

A new version of DiffractMe! has been developed in Umeå based on the principle of situatedness.
We like to thank all the people that participated in the Civic Forges: Weaving Neighbourhoods project for their enthusiasm, time and skills to support us exploring the concepts of collaboration and sustainable communities:

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